PUBLIC HEARING BINDER

1246- 1268 Lynn Valley Road & 3050-3174 Baird Road ("Lynn Valley Mall" and "Draycott Gardens") and the South Lane

PUBLIC HEARING APRIL 14, 2026

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13)	**Advisory Design Panel** – Excerpt from the Advisory Design Panel's minutes for September 11, 2025, recording the review by the Design Panel of the proposal
14)	**Draycott Gardens Tenant Relocation** • DNV Residential Tenant Relocation Assistance Policy • Residential Tenant Relocation Assistance Plan dated February 9, 2026, prepared by Polygon Development 395 Ltd. *Tenant Communications:* • July 30, 2025 – Notice to tenants • September 10, 2025 – Invitation to Tenant Information Meeting • September 18, 2025 – Minutes of Tenant Information Meetings • February 9, 2026 – Update to tenants • March 5, 2026 – Tentative notice of first reading • March 12, 2026 – Providing tenants with Council agenda and report for first reading • March 12, 2026 – Providing neighbours, including tenants, with update on proposal
15)	**Public Art and Amenity Contributions** • Public art commitment letter dated February 26, 2026, prepared by Polygon Development 395 Ltd. • DNV Developer Public Art Program • DNV Amenity Cost Charges Bylaw
16)	**Green Buildings** • Climate Ready Rezoning commitment letter dated June 17, 2025, prepared by Polygon Development 395 Ltd. • Climate Ready Design Strategy dated January 26, 2026, prepared for Polygon Homes by Straiton Engineering

	• Preliminary Embodied Emissions Report report dated January 23, 2026, prepared for Polygon Homes by Straiton Engineering
17)	**Environment** • Watercourse Assessment Report report dated July 9, 2025, prepared for Polygon Development 395 Ltd. by Diamond Head Consulting
18)	**Arborist Report** • Arboricultural Inventory and Report report dated June 13, 2025, prepared for Polygon Development 395 Ltd. by Diamond Head Consulting • Tree Management Plan dated June 25, 2025, prepared for Polygon Development 395 Ltd. by Diamond Head Consulting
19)	**Geotechnical Report** • Geotechnical Investigation Report for 1246-1262 Lynn Valley Road, dated March 22, 2021, prepared for Polygon Pacific Homes by GeoPacific Consultants • Geotechnical Report for 3050 Baird Road, dated October 18, 2021, prepared for Polygon Pacific Homes by GeoPacific Consultants
20)	**Hydrogeological Report** • Hydrogeological Investigation Report dated November 24, 2025, prepared for Polygon Development 395 Ltd. by GeoPacific Consultants
21)	**Site Profile** – In accordance with the Environmental Management Act, all commercial sites must complete a site profile on the past use of the site. This is in turn forwarded to the Provincial registry. • Site Disclosure Statement dated July 31, 2025, prepared by Polygon Development 395 Ltd. • Release from Ministry of Environment & Parks dated March 13, 2026
22)	**District Land Sale of South Lane** • Staff memo dated March 19, 2026 outlining details of the proposed sale • North Shore News advertisement on the proposed property disposition – March 4, 2026 and March 11, 2026
Public Input	
23)	**Past Public Input** • Information Report dated September 11, 2025 (to provide Council with advance information about the Public Information Meeting) • Summary of Public Engagement (Attachment 4 of Staff Report dated February 18, 2026) • Copies of submissions from the public received during Public Information Meeting (comment forms, emails, virtual PIM comments)
24)	**Public Input** – Correspondence and submissions from the public received since First Reading given March 16, 2026

AGENDA INFORMATION		Dept. Manager	GM/ Director	CAO
☑ Regular Meeting	Date: March 16, 2026			
❒ Other:	Date:			

The District of North Vancouver
REPORT TO COUNCIL

February 18, 2026
Case: PLN2025-00020
File: 08.3060.20/020.25

AUTHOR: Mackenzie Stonehocker, Development Planner

SUBJECT: **Bylaws 8779 and 8780 – OCP Amendment and Rezoning for a Mixed-Use Development at 1246-1268 Lynn Valley Road & 3050-3174 Baird Road ("Lynn Valley Mall" and "Draycott Gardens")**

RECOMMENDATION

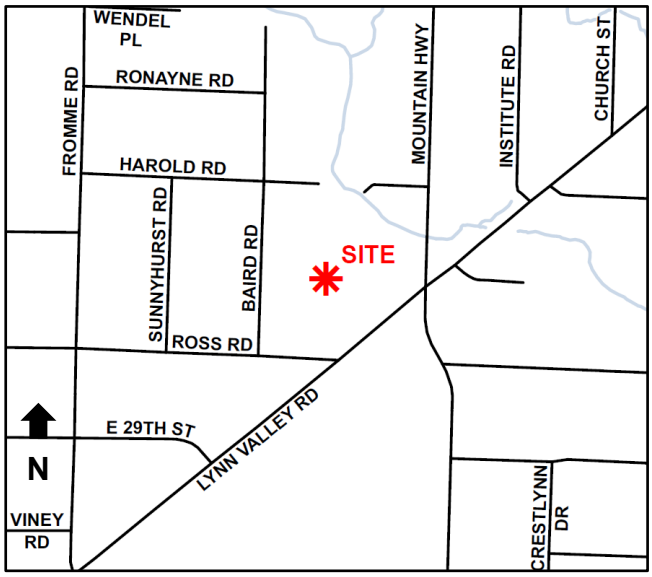
THAT "District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8779, 2026 (Amendment 62)" is given FIRST reading;

AND THAT "District of North Vancouver Rezoning Bylaw 1463 (Bylaw 8780)" is given FIRST reading;

AND THAT pursuant to Section 475 and Section 476 of the *Local Government Act*, additional consultation is not required beyond that already undertaken with respect to Bylaw 8779;

AND THAT in accordance with Section 477 of the *Local Government Act*, Council has considered Bylaw 8779 in conjunction with its Financial Plan and applicable Waste Management Plans;

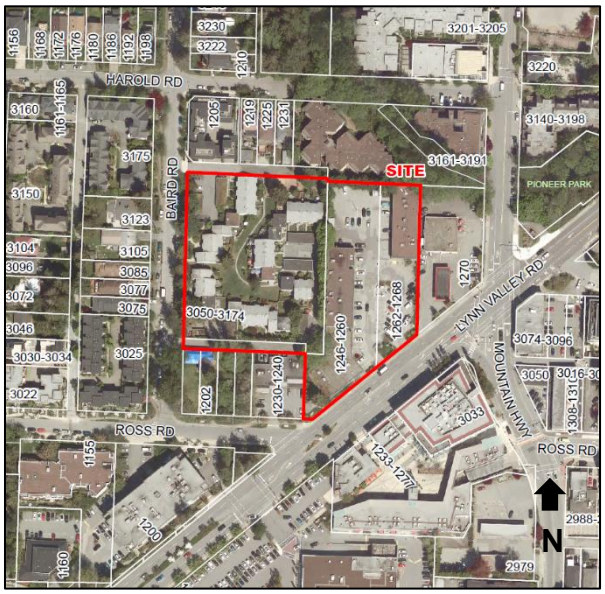
AND THAT Bylaws 8779 and 8780 are referred to a Public Hearing.



SUMMARY

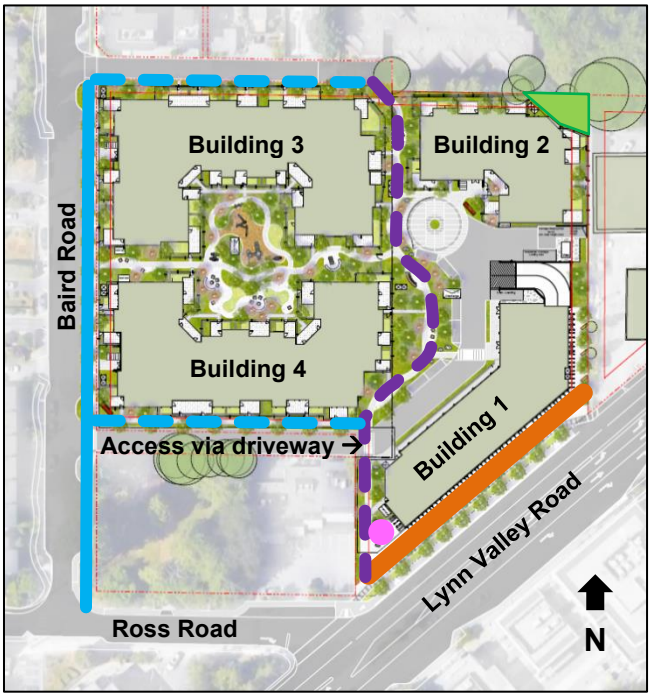
Polygon Development 395 Ltd. has applied to rezone the subject site for a mixed-use development.

Located in the centre of Lynn Valley, the site includes 3050-3174 Baird Road ('Draycott Gardens'), 1246-1268 Lynn Valley Road ('Lynn Valley Mall') and a lane off Baird Road (between 1202 Ross Road and 3050 Baird Road).



The proposal includes 397 residential units in 4 six-storey buildings over two levels of underground parking (see Attachment 3 for the project drawing package):

- **Building 1** – two storeys of commercial and four storeys of market rental residential (64 units in total, with 32 rental replacement units; see RTRAP section)
- **Buildings 2, 3 and 4** – strata residential (333 units)



Significant dedications and public realm improvements are proposed:

- 8.5 m right of way and dedication along Lynn Valley Road to accommodate future transit upgrades, as well as sidewalk improvements and a bike lane (shown in orange)
- Street improvements along Baird Road, with new sidewalk extending south to crosswalk at Ross Road (shown in solid blue)
- Sidewalks along the existing lanes (shown in dashed blue)
- A pedestrian path running north-south through the site (shown in dashed purple), as envisioned under policy
- Plaza and public art (approximate location shown with pink circle)
- Rehabilitation of the Streamside Protection and Enhancement Area near Hastings Creek in the northeast corner (shown with green triangle)
- Upgrades to nearby infrastructure, including sanitary, storm, and water mains
- Upgrades to nearby street network to mitigate traffic impacts

Implementation of the proposed project requires Council's consideration of:

- Bylaw 8779 to amend the Official Community Plan (Attachment 1); and
- Bylaw 8780 to rezone the subject site to the CD Zone (Attachment 2).

These bylaws are recommended for First Reading and referral to a Public Hearing in accordance with the *Local Government Act*. If the rezoning proceeds, a Development Permit will be forwarded for Council's consideration at a later date.

SITE AND SURROUNDING AREA

Located in the heart of the Lynn Valley Town Centre, the site is just over 3.5 acres (14,408 m^2) in size, and includes:

- **Draycott Gardens** (3050-3174 Baird Road) – built in 1972, this townhouse complex consists of 32 rental townhouses (see RTRAP section).
- **Lynn Valley Mall** (1246-1268 Lynn Valley Road) – built in 1974, this shopping centre consists of approximately 25,000 sq. ft. of commercial space in two buildings (see Commercial Space section).
- A lane between 1202 Ross Road and 3050 Baird Road (see Access section).

Adjacent properties include a Petro-Canada gas station, Ross Plaza (1230-1240 Ross Road) and a heritage home (1202 Ross Road, owned by the applicant but not included in this proposal).

To the south across Lynn Valley Road is the town centre, including the library in Lynn Valley Village, the main shopping centre known as Lynn Valley Centre, and the medical building known as Valley Centre.

To the northeast, Hastings Creek runs between 3161 and 3191 Mountain Highway, before going under Mountain Highway, and eventually joining Lynn Creek.

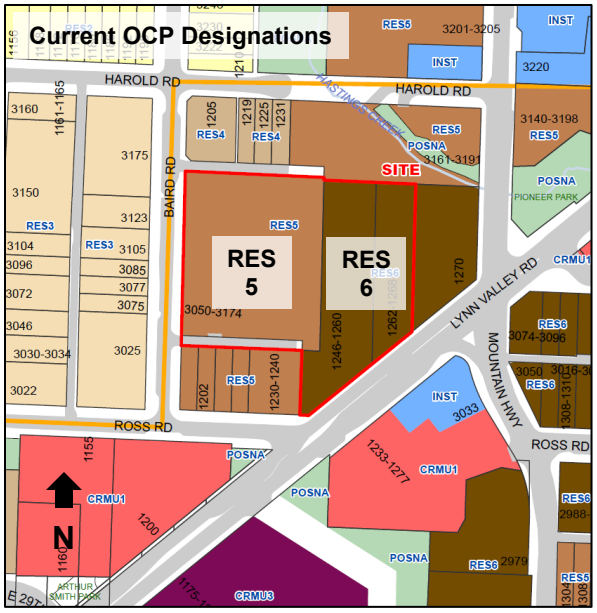
To the north and west are residential uses including detached homes, townhouse developments, and a low-rise strata complex (3161 and 3191, accessed from the east side of Hastings Creek, via Harold Road and Mountain Highway).

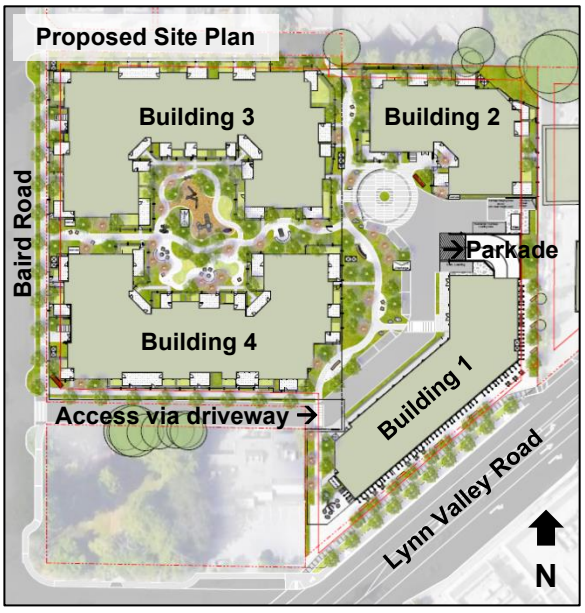
PROPOSAL

The proposal includes 4 six-storey buildings (see table and site plan below) with a total Floor Space Ratio (FSR) of 2.5. The project would be built in two phases, to allow the eligible tenants of Draycott Gardens the opportunity to move directly from their existing homes into new rental replacement units in Phase 1 if they so choose (at their existing rents; see RTRAP section). Phase 1 also includes approximately 1:1 replacement of the existing commercial space in Lynn Valley Mall with new CRUs and office space.

Table 1: Phasing and land uses

		Residential	Unit type	Commercial
Phase 1	*Building 1*	32 rental replacement	3-bed	2,330 m^2 (25,079 sq. ft.) on first two levels
		32 rental	1- and 2-bed	
	Building 2	63 strata	1- and 2-bed	n/a
Phase 2	*Building 3*	142 strata	Studio to 3-bed	n/a
	Building 4	128 strata	1- to 3-bed	n/a





POLICY ALIGNMENT

Official Community Plan[1]

The Official Community Plan (OCP) designates the Lynn Valley Mall portion of the site as RES Level 6: Medium Density Apartment, which anticipates apartments with some

[1] https://www.dnv.org/community-environment/our-official-community-plan-ocp

commercial uses at a density of up to approximately 2.5 FSR. The proposal complies with the existing designation and density; however, the proposed Commercial Residential Mixed-Use Level 2 designation is a better match to the proposal and has the same supported density.

The Draycott Gardens portion of the site is currently designated RES Level 5: Low Density Apartment (1.75 FSR). The proposed OCP amendment to RES Level 6: Medium Density Apartment will permit a proposed density increase from 1.75 FSR to 2.5 FSR.

The proposal includes a range of unit types, from studios to 3-bedroom units. Over the 397 total residential units (rental and strata), approximately 35% are studios or 1-bedroom, and 65% are 2- and 3-bedroom units. This range of unit types responds to Goal #2 of the OCP to "encourage and enable a diverse mix of housing types….to accommodate the lifestyles and needs of people at all stages of life".

In addition, the proposal is consistent with the following policies of the District's OCP:

- *Policy 5.2.4 "Encourage pedestrian-friendly features, public realm improvements, and accessibility for people of all abilities in the design of major developments"*
- *Policy 7.2.3 "Encourage the retention of existing and the development of new, rental units through development, zoning, and other incentives"*

Targeted Official Community Plan Review Action Plan 2021-2030[2]

The project has been reviewed against the Targeted Official Community Plan Review Action Plan (Action Plan) and addresses the following "Priority Actions":

Priority Action #1: Achieve Town and Village Centres that deliver low-carbon, compact, and diverse housing, transportation choices, and supportive public amenities and employment space.

View of Building 1 from the south, from across Lynn Valley Road

The proposal addresses this Priority Action by providing additional housing within the walkable Lynn Valley Town Centre, the Town

[2] https://www.dnv.org/community-environment/ocp-action-plan

Centre pedestrian pathway as a public amenity, and commercial space to contribute employment and additional commercial services to neighbourhood residents.

Priority Action #2: Advocate for infrastructure and service improvements, such as Rapid Transit, to get our key transportation networks moving better.

Priority Action #4: Make transit faster and more reliable on our major routes.

This portion of Lynn Valley Road is included in Translink's Access for Everyone plan[3] as one of eleven future RapidBus lines featuring transit priority measures to better serve existing riders and grow ridership, in advance of future Bus Rapid Transit (BRT). To provide right of way for future transit infrastructure, the proposal includes a significant dedication along Lynn Valley Road.

Priority Action #5: Increase housing diversity to support a range of incomes, household types, and accessibility needs within and close to Town and Village Centres.

The proposal would increase the amount of housing in the Lynn Valley Town Centre, with all units meeting either 'Basic' or 'Enhanced' levels of accessibility, a range of unit sizes to support a range of incomes and household types, and different tenures (strata and market rental) including 32 of the rental units designated as 'rental replacement' for the eligible tenants of Draycott Gardens (see RTRAP section).

Priority Action #6: Create a continuous and connected network of walking and cycling routes to encourage more people of all ages and abilities to walk and cycle.

A bike lane will be provided along Lynn Valley Road. More substantially, the proposal includes significant upgrades to the walking routes in this part of the Lynn Valley Town Centre. First, the Town Centre pedestrian path is provided through the site, as per the public realm and design guidelines. Second, the provision of a 2 m wide sidewalk along Baird Road (extending to Ross Road) will benefit Argyle Secondary students. Finally, sidewalks will be provided along both lanes off Baird Road, to provide permeable pedestrian connections separated from vehicles.

Priority Action #7: Strengthen the resiliency of natural and built environments to adapt to a changing climate.

Currently, one of the existing Lynn Valley Mall buildings extends nearly to the property lines in the northeast corner. As part of the proposal, the Streamside Protection and Enhancement Area (SPEA) will be restored and replanted. The parkade, building, balconies and roof overhangs cannot encroach into the SPEA.

[3] https://www.translink.ca/-/media/translink/documents/plans-and-projects/regional-transportation-strategy/transport-2050/t2050_10yr-priorities.pdf

Priority Action #8: Reduce greenhouse gas emissions from buildings, transportation, and waste to address the climate emergency

The residential components will be built to Step Code 3 and Emissions Level 3 of the BC Energy Step Code. The proposal is subject to a development permit for Energy and Water Conservation and Greenhouse Gas Emission Reduction, which will be forwarded to Council for consideration in the future.

Lynn Valley Town Centre Public Realm and Design Guidelines[4]

The project has been reviewed against the design guidelines at a high level for the rezoning stage. As per the Guidelines, the proposal includes a right of way for a publicly accessible Town Centre pedestrian path, to improve walkability and pedestrian circulation within Lynn Valley Town Centre. Additional details regarding landscaping, materials, public art and signage will be provided at the Development Permit stage.

Rental and Affordable Housing Strategy[5]

The proposal has been reviewed against the District's "Rental and Affordable Housing Strategy" as per below:

Goal 1: Expand the supply and diversity of housing.

The proposal increases housing on the subject site from 32 units to 397 units in a range of sizes, including 64 rental units (see RTRAP section) and 333 strata units.

View of Building 1 and driveway from the north, from Building 2

Goal 2: Expand the supply of new rental and affordable housing.

The proposal doubles the number of rental units on the site from 32 units to 64 units. Of the 397 residential units proposed in total, 16% are rental tenure.

Goal 4: Enable the replacement of existing rental housing with conditions &
Goal 5: Minimize impacts to tenants.

[4] https://docs.dnv.org/documents/lynn-valley-design-guidelines.pdf
[5] https://www.dnv.org/community-environment/rental-and-affordable-housing-strategy

The 32 three-bedroom rental townhouses at Draycott Gardens will be replaced with 32 three-bedroom apartments in Building 1. The proposed phasing minimizes displacement of existing tenants, by providing eligible tenants of Draycott Gardens the opportunity to move directly from their existing homes into new rental replacement units if they so choose (at their existing rents; see RTRAP section).

Zoning

The Lynn Valley Mall portion of the site is currently zoned C2 which permits commercial and residential uses up to four storeys and a density of 1.75 FSR.

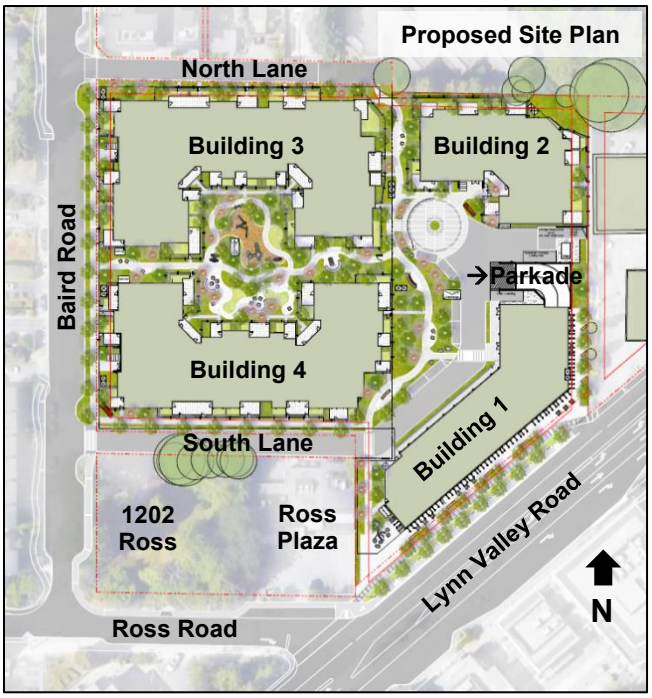
The Draycott Gardens portion of the site is currently zoned RM3 which permits residential apartment buildings up to four storeys.

Proposed Comprehensive Development Zone 162 (CD162) outlines proposed uses, and provisions such as density (2.5 FSR), height, setbacks, and parking requirements.

ANALYSIS

Site Design and Circulation

Vehicle access is proposed via a private driveway extending from the 'South Lane' (see diagram) between Draycott Gardens and 1202 Ross Road and 1230-1240 Ross Road (commercial building known as Ross Plaza). The driveway creates space for short-term parking, loading, drop-off/pick-up, with a coordinated approach to the parkade ramp, garbage staging and fire turnaround.



The 'North Lane' (see diagram) will not be used for vehicle access for this development but will be upgraded for pedestrians and the existing detached homes on Harold Road.

Pedestrian connections are critical in this walkable Town Centre. The proposed development provides practical pedestrian routes for future residents, as well as students and customers of the commercial businesses in this development and across Lynn Valley Road.

The public, semi-public and private realms will be delineated through landscaping, fencing, lighting, a hierarchy of paths, and wayfinding signage. In addition to private

balconies for every home, the proposal includes an outdoor gathering space in Phase 1 (west of Building 1; approximately 11 x 21 m) and the central landscaped courtyard in Phase 2 (between Buildings 3 and 4; approximately 26 x 36 m). See Attachment 3 for concept plans; additional detail will come at the Development Permit stage.

Building Massing & Architectural Expression – All four buildings are proposed to be six storeys in height. Different District policy documents anticipate different building heights on the site:

- The Lynn Valley Town Centre Flexible Planning Framework[6] map anticipates up to five storeys.
- OCP Residential Level 5 (the current designation for Draycott Gardens) anticipates 'low-rise' apartments (defined as six or fewer storeys as per the Schedule B Development Permit Guidelines for Multi-Family Housing).
- OCP Residential Level 6 (the current designation for Lynn Valley Mall) anticipates 'mid-rise' apartments (under twelve storeys as per Schedule B).

Building 1, the mixed-use building, creates a six-storey streetwall along Lynn Valley Road, which is a wide street with a right of way of nearly 35m (after dedication from this development). Staff support a minimum streetwall height of 6 storeys in order to promote a sense of pedestrian-scale building enclosure at this wide intersection, where a future BRT terminus is envisioned.

Building 2, located in the northeast corner of the site, would be adjacent to the Petro-Canada gas station to the east and an existing three-storey residential development to the north. The configuration of this corner of the site would change from surface parking and a commercial building (located nearly at the property lines) to landscaping, streamside protection area, and an increased setback (4.0 m) from the property line to the proposed residential building. In this case, six storeys is an appropriate height.

Buildings 3 and 4 face three-storey townhouses and detached homes, across Baird Road and across the north lane. The proposed height of six storeys represents a slightly higher building massing yet overall a contextually fitting transition from surrounding residential development to the Town Centre core. To improve the massing transition, the upper two storeys of the two

View of Building 3 from the north, from across Baird Road

[6] https://docs.dnv.org/documents/lynn-valley-centre-flexible-framework-2013.pdf

buildings facing west towards Baird Road will be stepped back by approximately 1.8 m (6 ft.).

The Lynn Valley design guidelines emphasis contextual fit, exemplary public realm and whenever appropriate, a mountain village building expression. Overall, the proposed uniform building height across the entire development, permeable ground floor to allow pedestrians through the site, high-quality public realm features along Lynn Valley Road frontage, as well as a "modern mountain village" building aesthetic meet the intent of the policies and guidelines.

Lane Purchase and Licence

Subject to Council's approval of this Zoning Bylaw amendment, the District intends to grant to Polygon Development 389 Ltd. and Polygon Development 390 Ltd. a licence to occupy the South Lane in perpetuity and ultimately with the right and obligation to acquire the fee simple title to the South Lane in the future. The licence will stipulate that it is subject at all times to the common law rights of access over the South Lane of the registered owners and occupiers of immediately adjacent properties. The purchase price for the above licence and disposition is approximately $2,024,100. As noted, this licence and disposition is subject to the adoption of a bylaw to rezone the proposed development.

Commercial Space

The existing Lynn Valley Mall includes approximately 2,322 m^2 (25,000 sq. ft.) of commercial space, including neighbourhood services such as restaurants, retail stores, laundromat, personal service uses, educational tutors, and veterinary service.

The proposal includes approximately 2,330 m^2 (25,079 sq. ft.) of commercial space on the first two levels of Building 1.

Ground floor uses focus on retail, food and drink establishments, personal service and animal care services, serving resident and visitor needs. Second floor uses include a broad range of employment spaces, including health care offices, and general offices. See Attachment 2 for the CD162 Zone and list of permitted uses.

The proposal contributes to the goals in the District's Economic Development Strategy[7]:

Action 1.1.1: Encourage more first floor retail in mixed use developments in Town and Village Centres and along commercial corridors.

Action 1.1.2: Introduce second-storey offices in Transit Oriented Areas and along Frequent Transit Corridors.

[7] https://docs.dnv.org/documents/economic-development-strategy-2024-2029.pdf

Residential Uses

The OCP estimates a demand for 10,000 net new homes within the District by 2030. To date, Lynn Valley Town Centre is achieving approximately 46% (1,158 built and approved units) of its estimated demand of 2,500 units by 2030.

With 397 residential units, the proposed development would contribute significantly to the OCP's estimated demand for new housing. Buildings 2, 3 and 4 include 333 strata units. Building 1 includes 64 market rental units on Levels 3-6, including 32 three-bedroom units that are earmarked for eligible tenants from Draycott Gardens.

This section discusses the proposed unit mix and tenant assistance package in detail.

Market Strata Units

Across Buildings 2, 3 and 4, the 333 proposed strata units include 6 studios (2%), 116 one-bedroom units (35%), 187 two-bedroom units (56%) and 24 three-bedroom units (7%). This distribution of unit types is expected to be attractive to seniors, young singles, couples, and families with children, with this range of household types contributing to a healthy, diverse, and vibrant community. Furthermore, the addition of multi-family housing diversifies the housing opportunities in Lynn Valley, creating opportunities for a wider range of people to live in a neighbourhood that celebrates its natural and cultural setting and strong sense of community.

Market Rental Units

The upper four floors of Building 1 are proposed as market rental containing 64 units.

Of the total market rental component, 32 three-bedroom rental replacement units would be offered through first right of refusal to eligible tenants of Draycott Gardens. Rents for the relocated tenants would be set at their current rents (subject to annual increases as per the *Residential Tenancy Act*) and secured through the development covenant.

Should the eligible tenants of Draycott Gardens move out at some future date (or if eligible tenants choose to relocate elsewhere, instead of moving into Building 1; see RTRAP section), the rental replacement units would revert to market rental.

In addition, to the 32 three-bedroom units, Building 1 would contain 20 one-bedroom and 12 two-bedroom units, a unit mix which is generally in alignment with the District's latest Housing Needs Report (considering the high proportion of three-bedroom units).

Should the proposal advance, rental tenure for this building will be secured through a covenant in perpetuity.

Residential Tenant Relocation Assistance Policy[8] *(RTRAP)*

Built in 1972, Draycott Gardens consists of 32 three-bedroom one-bathroom townhouses. At the time of rezoning application, 1 unit was vacant (under repair), and 31 units were leased to tenants eligible for RTRAP. The applicant has communicated with tenants regarding the proposed options:

Option 1: Move into new rental replacement unit in Building 1 at their current rent

- Eligible Draycott Gardens tenants (i.e. tenants renting units at the time of rezoning application in July 2025) are offered first right of refusal to rent a three-bedroom two-bathroom unit in Building 1 at their current rent (subject to annual increases as per the *Residential Tenancy Act*).
- The proposed phasing allows tenants to remain in their current homes until Building 1 is ready for occupancy, avoiding temporary relocation during construction.
- Eligible tenants will receive $1,500 towards moving costs, as per RTRAP for three-bedroom units.

Option 2: Move elsewhere with relocation assistance and financial compensation

- Eligible tenants who choose *not* to move into the new building may relocate elsewhere with the assistance of a tenant relocation coordinator and financial compensation as per RTRAP.
- Financial compensation includes the same $1,500 towards moving costs, as well as four months' rent and a residency bonus based on length of tenancy ($35 / month).
- For eligible tenants who choose to move *prior to* rezoning adoption, compensation would be paid if and when the rezoning is adopted.
- For eligible tenants who move *after* rezoning adoption, compensation would be paid immediately at move-out

Median rent for three-bedroom units in the District is $2,551, according to the 2025 CMHC Rental Market Report. At the time of rezoning application:

- Half of the Draycott Gardens units were rented below DNV median (tenancies starting 2013 and earlier); and
- Half were rented above $2,600 per month (tenancies starting 2018 and later).

The proposed tenant assistance package would represent a significant financial offering by the applicant, with the total depending on tenants' choices (e.g. Option 1 versus Option 2, and how long tenants stay in the new building) and future market rents (current market rents are approximately $4,327 for three-bedroom units constructed after 2000, according to CMHC Housing Market Information Portal).

[8] https://app.dnv.org/OpenDocument/Default.aspx?docNum=4809430

If Council schedules a Public Hearing for this proposal, full documentation (including the proposed tenant relocation plan and communication with tenants) will be provided in the Public Hearing binder. If the rezoning is approved, RTRAP benefits will be secured in the development covenant.

Applicable Development Permits

The site is in the following Development Permit (DP) Areas:

- Streamside Protection;
- Energy and Water Conservation and Green House Gas Emission Reduction;
- Form and Character of Commercial and Mixed-Use Buildings; and
- Form and Character of Multi-Family Housing;

A detailed review of DP issues, outlining the project's compliance with the applicable DP guidelines will be provided for Council's consideration should the application proceed through the OCP amendment and rezoning process.

Streamside Protection

The building (including parkade, balconies and roof overhangs) cannot encroach into the Streamside Protection and Enhancement Area (SPEA). In addition, this area of approximately 109.34 m² (1177.0 sq. ft.) would be restored and replanted, and rezoned to Natural Parkland (NPL).

Energy and Water Conservation and Greenhouse Gas Emission Reduction / Community Energy and Emissions Plan (CEEP) / Climate Ready Rezoning Policy

As designed, the proposal is consistent with the OCP Guidelines for Energy and Water Conservation and Greenhouse Gas Emission Reduction. In addition, the applicant has considered the District's Community Energy and Emissions Plan (CEEP) and Council's declaration of a Climate Emergency. As part of the Climate Ready Rezoning Policy, a preliminary embodied emissions report was provided with the rezoning application, and the applicant provided a commitment letter to ensure features such as mechanical and passive cooling are included at the building permit stage.

Form and Character

The proposal is in keeping with the OCP Design Guidelines for Commercial and Mixed-Use Buildings and Design Guidelines for Multi-Family Housing. A detailed review of DP issues, outlining the project's compliance with the applicable DP guidelines will be provided for Council's consideration should the application proceed through the OCP amendment and rezoning process. At this stage, the primary issue is to secure the right of way for the Town Centre pedestrian path outlined in the Lynn Valley Town Centre Public Realm and Design Guidelines.

Advisory Design Panel

The application was considered by the Advisory Design Panel (ADP) on September 11, 2025. The Panel had a good discussion about the overall design concept but would like to see the project return at DP stage to further resolve the site plan and generally progress the design.

The applicant has responded to the high-level comments by revising the site design to further delineate the public versus semi-private realm and improve the functionality of parking and loading services. At the Development Permit stage, the refined proposal will be brought back to the Panel.

Accessibility

The proposal fulfils the Accessible Design Policy for Multifamily Housing[9] as 100% of the residential units will meet the 'Basic Accessible Design' criteria, and 5% of units will meet the 'Enhanced Accessible Design' criteria. The accessible design features will be secured as part of the development permit.

Parking and Transportation

Bicycle Parking

Application of the District's Bicycle Parking and End-of-Trip Facilities Policy[10] results in the following bicycle parking requirements, which are reflected in the current proposal:

- 732 – "Class 1" long-term bicycle storage spaces (including 723 for residents and 9 for commercial uses); and
- 51 – "Class 2" bicycle parking spaces for short-term uses.

In accordance with the policy, all "Class 1" long-term bicycle storage will include access to Level 1 electric bicycle charging. In addition, two bicycle repair rooms (one per phase) are proposed in the underground parkade.

Vehicle Parking

All long-term parking is proposed in a two-level underground parkade accessed. Limited surface parking will be provided along the driveway for short-term pick-up and drop-off.

Using the District's Alternative Vehicle Parking Rates (AVPR) Policy[11], a total of 481 parking stalls are proposed (see table below). AVPR includes base parking rates based on unit mix, with opportunities for parking reductions based on location if the proposal includes Transportation Demand Management (TDM) features. The proposed TDM

[9] https://app.dnv.org/OpenDocument/Default.aspx?docNum=3422962
[10] https://docs.dnv.org/documents/bike-parking-policy.pdf
[11] https://docs.dnv.org/documents/alternative-vehicle-parking-rates.pdf

features include enhanced bicycle parking, bicycle maintenance facilities, walking improvements, transit stop improvements, multi-modal wayfinding information, and shared parking between commercial and residential visitor parking.

Table 2: Vehicle Parking		
Phase 1	Resident Parking for Buildings 1 and 2 (market rental and strata)	120 stalls
	Visitor Parking	12 stalls
	Commercial (2,330 m^2)	52 stalls
Phase 2	Resident Parking for Buildings 3 and 4 (strata)	270 stalls
	Visitor Parking	27 stalls

Accessible (universal) parking stalls will comply with the District's Accessible Design Policy for Multi-Family Housing[12] (4.5% of all parking stalls) and the Zoning Bylaw.

Electric vehicle charging will comply with the District's EV Charging Requirements for New Construction[13]:

- 100% of residential parking spaces will be capable of "Level 2" charging.
- 35% of commercial or residential visitor parking spaces will be capable of Level 2 charging with load sharing, plus an additional 10% with dedicated circuits.

A Transportation Impact Assessment prepared by Bunt & Associates supports the proposed parking rates. Staff are supportive of the proposed parking as the site is well-served by transit, within walking distance of numerous amenities and commercial services, and the long-term vision for the Lynn Valley Town Centre includes numerous transportation improvements for pedestrians and cyclists, including improved transit.

Frontage & Off-site Improvements

The proposed application includes significant dedications, infrastructure upgrades and public realm improvements. Some public amenities are also provided on-site. Details of the technical specifications will be determined through ongoing review and subsequent phases of permitting and secured through the *Engineering Servicing Agreement* (ESA).

The Lynn Valley Flexible Planning Framework (2013) shows a conceptual road extension from the South Lane to Lynn Valley Road. Staff have re-assessed that conceptual alignment and based on modern standards and a more thorough safety review, would no longer recommend that new road connection due to its proximity to the

[12] https://www.dnv.org/community-environment/accessibility
[13] https://docs.dnv.org/documents/ev-requirements.pdf

intersection of Lynn Valley Road and Mountain Highway, and to avoid conflicts with existing and potential future transit infrastructure.

Upgrades to Local Street Network:

To mitigate negative impacts to traffic circulation, a series of upgrades to the local street network are under review. Upgrades will be negotiated by the Municipal Engineer in consultation with the District's Transportation department, and will be secured through the development covenant and ESA. To be confirmed after additional technical review, potential upgrades may include:

- Signalization of the existing four-way stop at Fromme Road & East 29th Street;
- Improved signal programming at Lynn Valley Road & Fromme Road and Lynn Valley Road & Mall Access; and
- Rationalization of the existing left turn from Lynn Valley Road to Ross Road.

Street Improvements:

Both Lynn Valley Road and Baird Road will undergo typical street improvements, including street tree plantings, streetlight upgrades, including pedestrian lighting, curb and gutter, and paving improvements. Dedications include:

- 8.5 m right of way and dedication along Lynn Valley Road to accommodate future transit upgrades, as well as sidewalk improvements and a bike lane; and
- 0.25 m dedication along the Baird Road frontage, including sidewalk, street trees, curb and gutter.

Infrastructure Upgrades:

Infrastructure upgrades will be negotiated by the Municipal Engineer and confirmed after additional technical review. Anticipated upgrades include approximately 400 m of sanitary, storm, and water mains along Baird Road, Lynn Valley Road and Mountain Highway. Such upgrades will be secured through the development covenant and ESA.

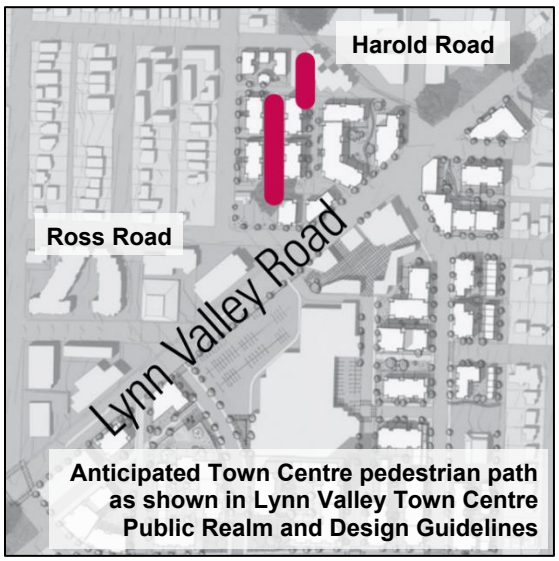
Improvements to Pedestrian Routes:

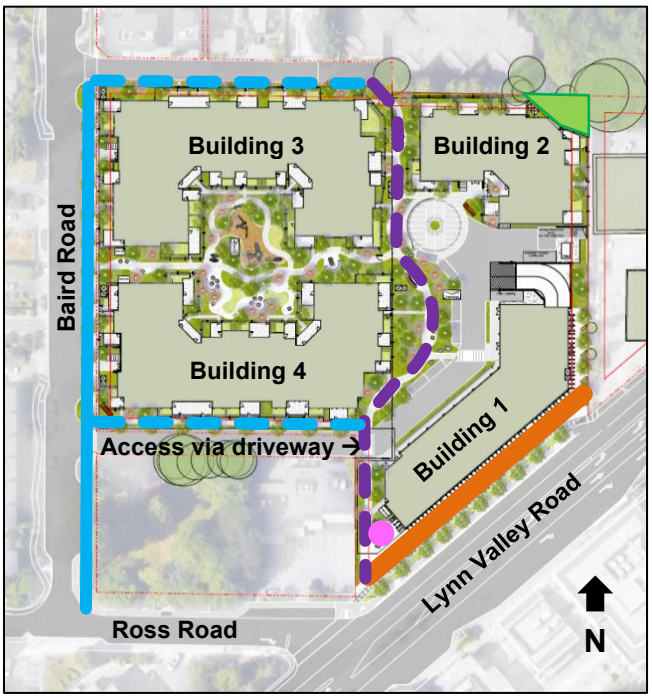
The proposal includes significant improvements to the pedestrian network in this walkable neighbourhood (see diagrams below).

- Sidewalk, street trees and furniture along Lynn Valley Road, including canopies for rain protection along the commercial CRUs (shown in orange).
- Sidewalks and street trees along Baird Road (a busy pedestrian route for Argyle Secondary students), with the new sidewalk extending south past the subject site to a crosswalk at Ross Road (shown in solid blue).
- Sidewalks along both North and South Lanes (shown in dashed blue) to provide pedestrian routes separate from vehicular traffic.

- The Town Centre pedestrian path running through the site (shown in dashed purple), as envisioned in the Lynn Valley Town Centre Public Realm and Design Guidelines. The path is proposed to run from the south tip of the site (near the crosswalks across Ross Road and at the Mall Access) to the North Lane, where it would join a new sidewalk.

Most critical at rezoning, the right of way for the Town Centre pedestrian path will be secured to improving walkability and pedestrian circulation within Lynn Valley Town Centre. At the time of the report writing, this issue is being finalized; details will be brought forward to the Public Hearing if Council chooses to move forward.





Additional Improvements:

- Bike lane along Lynn Valley Road;
- Rehabilitation of the streamside protection area (shown with green triangle in diagram above); and
- Plaza and public art (location shown with pink circle in diagram above) (see ACC section).

The estimated total value of off-site works (engineering and landscaping) is approximately $5 M. This estimate has been provided by the applicant and the full scope (and value) of required off-site construction will be determined through the detailed design work at the Building Permit stage.

AMENIETY COST CHARGES (ACCs)

This application is subject to the Amenity Cost Charges Bylaw[14], adopted by Council on February 24, 2025. Based on current ACC rates, it is anticipated that this project will contribute approximately $10.4 M in ACCs. This contribution will contribute to the wide range of community services necessary to support population growth in and around Lynn Valley. ACCs are calculated as of the date of a complete Building Permit submission and must be paid prior to Building Permit issuance.

Further, given the high-profile location of this development within the Lynn Valley Town Centre, staff recommend a significant investment towards public art, to be allocated from the total ACC contribution. The applicant has committed to deliver the public art in accordance with the District's Developer Public Art Program[15], which includes the review of a Public Art Plan by the North Vancouver Public Art Committee during the Development Permit process.

FINANCIAL IMPLICATIONS

In addition to significant road dedication, particularly along Lynn Valley Road to accommodate future rapid bus service, and a significant tenant relocation financial package, the proposal will contribute financially to the community in the following ways:

- South Lane Licence and disposition – approximately $2 M;
- Off-site works – estimated at approximately $5 M;
- ACCs – approximately $10.4 M; and
- DCCs – payable to the District, Metro Vancouver and Translink, as per applicable rates at Building Permit (approximately $13.5 M based on current rates)

The Growth Management section of the 2025-2029 Financial Plan[16] (pg. 24) and 2026-2030 Financial Plan[17] (pg. 32) is referenced for Council's consideration. Furthermore, the Metro Vancouver Solid Waste and Resource Management Plan[18] is also referenced here for Council's consideration.

CONCURRENCE

The project has been reviewed by staff from Building, Community Planning, Engineering, Environment, Finance, Fire, Legal, Parks, Public Art, Real Estate, Transportation, Urban Design.

[14] https://docs.dnv.org/documents/bylaw-8705.pdf
[15] https://app.dnv.org/OpenDocument/Default.aspx?docNum=2611349
[16] https://docs.dnv.org/documents/approved-financial-plan-2025.pdf
[17] https://www.dnv.org/government-administration/2026-2030-financial-plan-budget
[18] https://metrovancouver.org/services/solid-waste/solid-waste-management-plan

School District 44

School District 44 (SD44) was provided a copy of the application, and did not express any concerns. SD44 advised that they reviewed school capacity issues as part of their work on the District's OCP and their Long Range Facility Plan.

First Nations

The Squamish Nation and the Tsleil-Waututh Nation were provided a copy of the application. No comments were received from the Tsleil-Waututh Nation. The Squamish Nation provided comments regarding the Skwxwú7mesh Úxwumixw Climate Legacy Strategy (e.g. energy efficiency, walkable communities, EV charging) Salmon Safe standards, culturally significant vegetation, green infrastructure, Squamish culture, and business opportunities in the commercial spaces. The applicant has responded, outlining the building's energy efficiency; rehabilitation of Hastings Creek streamside area; stormwater management to protect creeks from runoff; and vegetation choice in landscaped areas.

Ministry of Transportation and Infrastructure (MOTI)

The site is located outside of MOTI's referral area (i.e. it is not located within 800m of a controlled access intersection) so approval from MOTI is not required for the proposed bylaws; however, the Provincial Ministry of Transportation and Infrastructure was consulted during the development of the District's OCP.

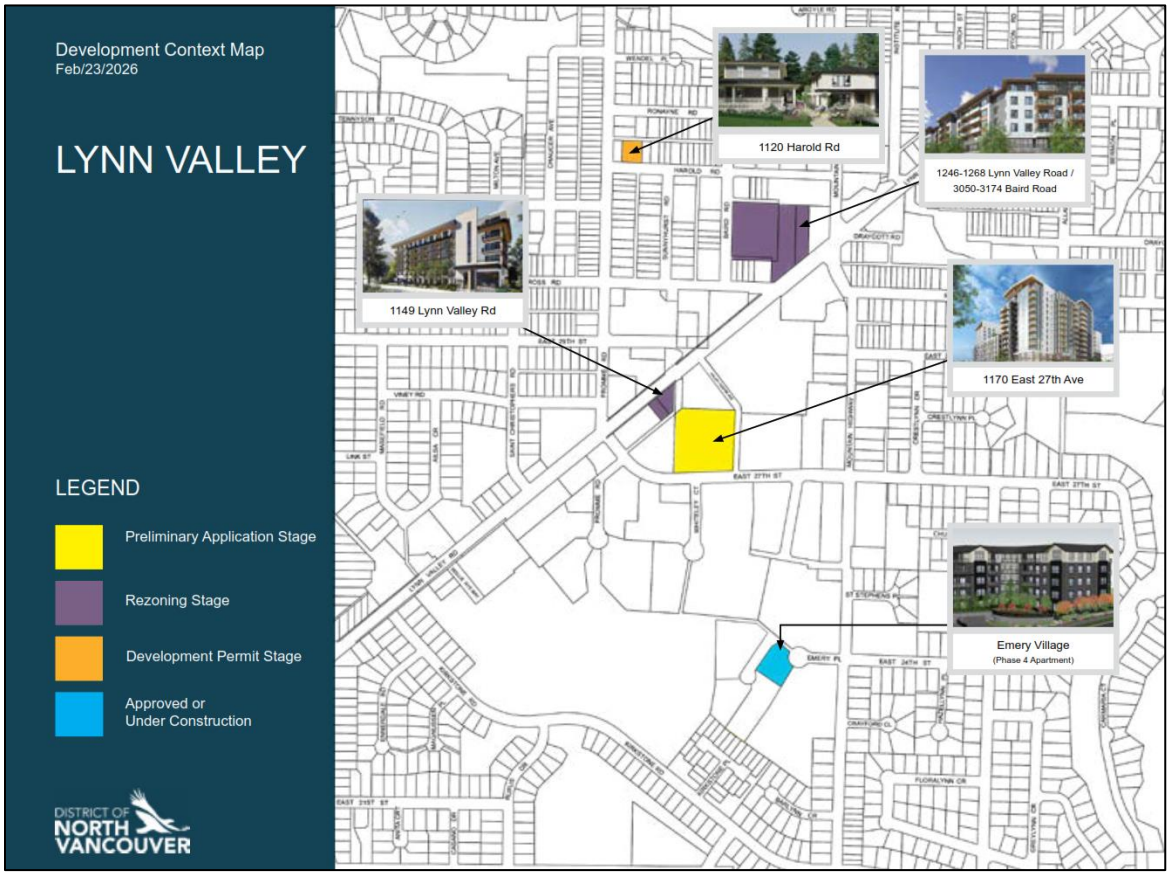
Construction Traffic Management Plan

The subject site is shown in relation to other approved and potential development projects in the context map below. To reduce development's impact on pedestrian and vehicular movements, the applicant is required to provide a Construction Traffic Management Plan (CTMP) as a condition of a Development Permit. The CTMP must be approved by the District prior to Building Permit issuance.

The CTMP must outline how the applicant will minimize construction impacts on pedestrian and vehicle movement along Lynn Valley Road, Ross Road, Baird Road and surrounding roadways. Road closures will only be approved for the roadworks and service main upgrades. Specifically, the CTMP must:

- Provide safe passage for pedestrians, cyclists, and vehicle traffic;
- Outline roadway efficiencies (i.e. location of traffic management signs and flaggers);
- Make provisions for trade vehicle parking which is acceptable to the District and minimizes impacts to neighbourhoods;
- Provide a point of contact for all calls and concerns;
- Provide a sequence and schedule of construction activities;
- Identify methods of sharing construction schedule with other projects in the area;

- Ascertain a location for truck marshalling;
- Address silt/dust control and cleaning up from adjacent streets;
- Provide a plan for litter clean-up and street sweeping adjacent to site; and
- Include a communication plan to notify surrounding businesses and residents.



PUBLIC INPUT

The applicant held an in-person Public Information Meeting on October 8, 2025, and a virtual PIM from October 6 to 20, 2025. Attachment 4 contains a summary of public engagement. Notices were mailed to neighbours in accordance with the District's policy on Non-Statutory Public Consultation for Development Applications. Two signs on Baird Road and a bi-directional sign on Lynn Valley Road were placed to notify passersby of the meeting, and three advertisements were placed in the North Shore News.

Approximately 60 members of the public attended the in-person meeting; 311 visitors attended the virtual PIM landing page; and 209 people viewed the applicant's video presentation.

The majority of public comments express qualified support for new housing and commercial revitalization but raise concerns about traffic, existing parking issues,

pedestrian safety (specifically Argyle Secondary students), and building height (compared to adjacent townhomes and detached houses).

Response to Public Input

- To mitigate traffic impacts from the proposed development, the applicant is required to provide upgrades to the nearby street network (see Frontage & Off-Site Improvements section). Such upgrades will be secured in the development covenant.
- While some members of the public suggested access to the proposed development should be off Lynn Valley Road, staff advise that such access is not currently supported on this arterial route.
- To provide a safe walking route for Argyle Secondary students, the proposal includes a 2 m sidewalk along Baird Road, which will extend past the development site and along 1202 Ross Road to a crosswalk across Ross Road.
- To reduce the visual impact of the buildings compared to the existing three-storey townhomes and detached homes on Baird Road, the applicant proposes a step-back of the upper two floors of Buildings 3 and 4 along Baird Road, as well as architectural treatments (e.g. colour, materials).

IMPLEMENTATION

Implementation requires Council's consideration of:

- Bylaw 8779 (Attachment 1) to amend the Official Community Plan for the site, including new designations and applicable Development Permit Areas; and
- Bylaw 8780 (Attachment 2) to rezone the subject site to a new Comprehensive Development Zone 162 (CD162).

Prior to adoption, a development covenant will be used to secure items such as the details of the RTRAP proposal, off-site servicing, upgrades to the street network, and airspace parcel subdivision requirements.

This report focuses on aspects of development relevant to the rezoning stage. Should the OCP amendment and rezoning be approved, issues related to the Development Permit will be brought forward for Council consideration at a later date.

Beyond the development covenant, as part of the Development Permit, Building Permit and Occupancy Permit, additional legal documents will include:

- Subdivision plan showing road dedications;
- Statutory rights of way to secure public access to sidewalks and the Town Centre pedestrian path;
- Licence and easements to secure access for the public and adjacent properties to the South Lane;
- Stormwater management covenant;

- Public art covenant;
- Transportation demand management measures;
- Covenant to secure Building 1 as rental tenure (no stratification permitted); and
- Covenant to specify that any "unsold" parking spaces be transferred to strata corporation.

CONCLUSION

This is a significant application for a key site in the Lynn Valley Town Centre.

Staff have reviewed the application against applicable policies and regulations, and found that overall, the proposal is in alignment with District objectives and priorities.

The application represents a respectful infill development fitting into its existing context and will contribute to the evolution of the Lynn Valley Town Centre. It replaces the existing neighbourhood-servicing commercial space on site and pledges a significant assistance package for existing residents at Draycott Gardens.

The proposed 397 homes will provide a range of housing tenures and unit types suitable for young families, down-sizing seniors, and other households who enjoy close access to the local mountains and the other amenities of this walkable Town Centre.

Further, build-out of this site will bring significant public realm and infrastructure upgrades for this key intersection in the Town Centre, including key pedestrian routes, active commercial spaces and public gathering places along Lynn Valley Road.

Staff recommend that the OCP Amendment Bylaw and Rezoning Bylaw be given First Reading, and that both bylaws are referred to a Public Hearing.

OPTIONS

The following options are available for Council's consideration:

1. Give Bylaws 8779 and 8780 First Reading and refer Bylaws 8779 and 8780 to a Public Hearing (staff recommendation);

2. Refer the project back to staff; or

3. Abandon the bylaws at First Reading.

Respectfully submitted,

Mackenzie Stonehocker

Development Planner

ATTACHMENTS

1. Bylaw 8779 – OCP Amendment
2. Bylaw 8780 – Rezoning
3. Architectural and Landscape Concept Plans
4. Summary of Public Engagement

REVIEWED WITH:

❑ Community Planning	____	❑ Clerk's Office	____	External Agencies:	
❑ Development Planning	____	❑ Communications	____	❑ Library Board	____
❑ Development Engineering	____	❑ Finance	____	❑ NS Health	____
❑ Utilities	____	❑ Fire Services	____	❑ RCMP	____
❑ Engineering Operations	____	❑ ITS	____	❑ NVRC	____
❑ Parks	____	❑ Solicitor	____	❑ Museum & Arch.	____
❑ Environment	____	❑ GIS	____	❑ Other:	____
❑ Facilities	____	❑ Real Estate	____		
❑ Human Resources	____	❑ Bylaw Services	____		
❑ Review and Compliance	____	❑ Planning	____		

The Corporation of the District of North Vancouver

Bylaw 8779

A bylaw to amend District of North Vancouver Official Community Plan Bylaw 7900, 2011

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as "District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8779, 2026 (Amendment 62)".

Amendments

2. District of North Vancouver Official Community Plan Bylaw 7900, 2011 is amended as follows:

   a) Amend Map 2, the Land Use Map for the District, by changing the land use designation from "Residential Level 5: Low Density Apartment" (RES5) to "Residential Level 6: Medium Density Apartment" (RES6), and by changing the land use designation from "Residential Level 6: Medium Density Apartment" (RES6) to "Commercial Residential Mixed Use Level 2" (CRMU2) for the lands shown on Schedule A of this bylaw;

   b) Amend Map 4.1, the Energy and Water Conservation and Greenhouse Gas Emission Reduction Development Permit Area, by adding the lands shown on Schedule B of this bylaw, designating them as a Development Permit Area for Energy and Water Conservation and Greenhouse Gas Emission Reduction.

READ a first time by a majority of all Council members.

READ a second time by a majority of all Council members.

READ a third time by a majority of all Council members.

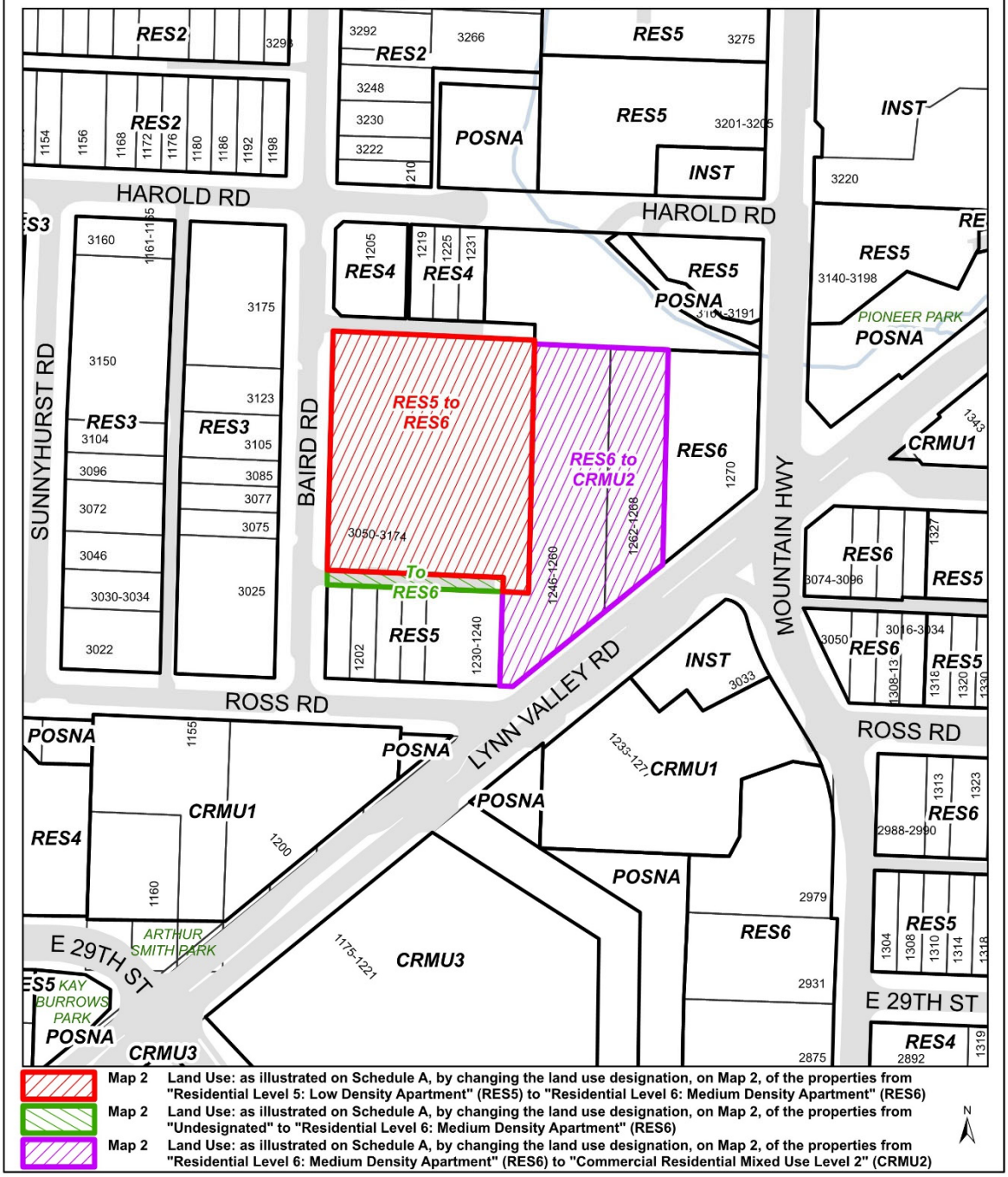
ADOPTED by a majority of all Council members.

Mayor

Corporate Officer

Schedule A to Bylaw 8779

District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8779, 2026 (Amendment 62)



Schedule B to Bylaw 8779

District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8779, 2026 (Amendment 62)

Map 4.1 Energy and Water Conservation and GHG Emission Reduction Development Permit Area: as illustrated on Schedule B, by adding the properties to Map 4.1, designating them as an Energy and Water Conservation and Greenhouse Gas Emission Reduction Development Permit Area

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The Corporation of the District of North Vancouver

Bylaw 8780

A bylaw to amend District of North Vancouver Zoning Bylaw 3210, 1965

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as “District of North Vancouver Rezoning Bylaw 1463 (Bylaw 8780)”.

Amendments

2. District of North Vancouver Zoning Bylaw 3210, 1965 is amended as follows:

    a) Part 2A, Definitions is amended by adding CD162 to the list of zones that Part 2A applies to.

    b) Part 2A, Definitions is amended by adding the following definition:

    “Instructional services” means a commercial establishment providing specialized instruction, training, or certification in specific skills, trades, or subjects. This includes, but is not limited to, professional development, language schools, driver training, and supplemental tutoring or examination preparation. These services are typically provided on a per-course or hourly basis and are distinct from a general curriculum school. This use does not include Fitness Centre, Child Care Facility, School or University.

    c) Section 301 (2) by inserting the following zoning designation:

    “Comprehensive Development Zone 162 CD162”

    d) Part 4B Comprehensive Development Zone Regulations by inserting the following, inclusive of Schedule A:

    “4B 162 Comprehensive Development Zone 162 CD162

    The CD162 Zone is applied to:

I. Lot 3 Block 3 District Lot 2023 Plan 14333 (007-865-473);
II. Lot 2 Block 3 District Lot 2023 Plan 13905 (007-993-994);
III. Lot B Block 3 District Lot 2023 Plan 14474 (007-800-614); and
IV. The parcel south of Lot B

all as indicated in Schedule A of this bylaw.

4B 162 - 1 Intent:

The intent of the CD162 Zone is to permit a mixed-use development including residential and commercial uses.

4B 162 - 2 Permitted Uses:

The following *principal* uses shall be permitted in the CD162 Zone:

a) Uses Permitted Without Conditions:

Not applicable

b) Conditional Uses:

The following *principal* uses are permitted when the conditions outlined in Section 4B 162-3 Conditions of use, are met:

Animal care services, including *pet care establishments* and *veterinarian*
Business/office support services
Child care facility
Fitness centre (indoor fitness and sport)
Health service purposes (health care services)
Instructional services
Office use
Personal service
Professional office use
Residential
Restaurant use, including *neighbourhood public house with on-site brewing, retail food services,* and *take-out restaurant*
Retail use, including *liquor store*
Service use

4B 162 - 3 Conditions of Use:

a) **All conditional uses**: All uses of land, buildings and structures are only permitted when the following conditions of use are met:

i.) All aspects of the use are completely contained within an enclosed building except for:

1. Parking and loading areas;
2. Outdoor customer service areas;
3. The display of goods, limited to 5 m^2 per commercial unit;
4. Outdoor amenity areas (plazas, roof decks, play areas, and private or semi-private outdoor space); and
5. Plazas and park areas.

b) **Animal care services**: Animal care services are only permitted when the following conditions are met:

i.) Any animal care service must have an outside public entrance, and all noise associated with the keeping of and caring for animals must be contained within the premises.

c) **Restaurant**: Restaurant use is only permitted when the following conditions are met:

i.) Any Outdoor Customer Service Area must be operationally and physically tied to the principal use premises which it serves; and
ii.) The size of an Outdoor Customer Service Area shall not exceed 50% of the total gross floor area of the principal use to which the Outdoor Customer Service Area is accessory, or 50% of the number of seats permitted for the principal use to which the Outdoor Customer Service Area is accessory, whichever is the lesser.

d) **Residential**: Residential uses are only permitted when the following conditions are met:

i.) Each *residential* dwelling unit has access to private or semi-private outdoor space;
ii.) Each *residential* dwelling unit has access to a designated storage or bicycle storage space; and
iii.) Balcony, patio and deck enclosures are not permitted.

4B 162 - 4 Accessory Uses:

a) *Accessory uses* customarily ancillary to the principal uses are permitted.

b) *Home occupations* in *residential* units are permitted.

c) *Outdoor customer service areas* are permitted.

4B 162 - 5 Density:

a) The maximum permitted density is 36,083 m^2 (388,391 sq. ft.).

b) For the purpose of calculating *gross floor area* the following are exempted:

i.) Indoor common amenity areas accessory to a residential use, up to a maximum of 557.4 m^2 (6,000 sq. ft.), as identified in Figure 1;
ii.) Parking, storage, mechanical, maintenance areas, and any other areas located below grade in a structure which has an exposed exterior wall of less than 1.2 m (4 ft) above finished grade;
iii.) Rooftop mechanical and electrical areas to a maximum of 100 m^2 (1,076 sq. ft.) per Building, as identified in Figure 1;
iv.) Underground parking access ramps and covered trellis areas, if applicable; and
v.) The floor area of unenclosed balconies, roof overhangs and private rooftop terraces.

c) For the purpose of calculating *gross floor area*, the measurement is to be taken to the outside of sheathing, rather than exterior walls.

4B 162 - 6 Setbacks:

a) Buildings shall be set back from the property lines to the closest building face as established by development permit and in accordance with Figure 1 and Table 1:

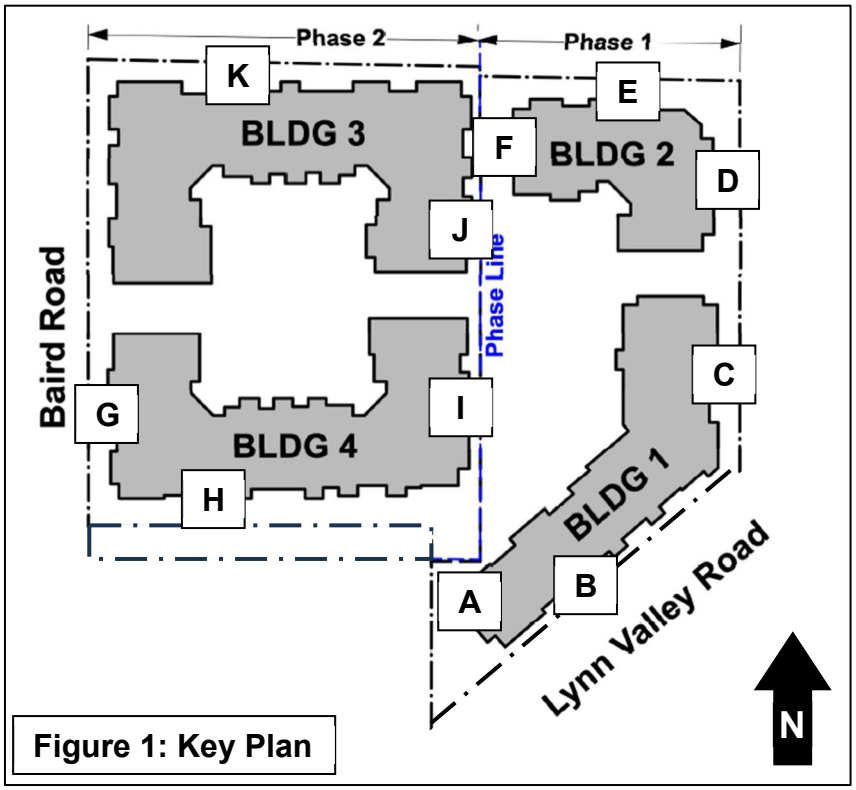


Figure 1: Key Plan

Table 1. Setbacks			
Phase	**Identifier (Figure 1)**	**Building # – Building side**	**Minimum Required Setback**
1	A	Building 1 – west	7.5 m (24.6 feet)
	B	Building 1 – south	1.5 m (5.0 feet)
	C	Building 1 – east	4.5 m (14.8 feet)
	D	Building 2 – east	4.5 m (14.8 feet)
	E	Building 2 – north	4.0 m (13.1 feet)
	F	Building 2 – west	4.5 m (14.8 feet)
2	G	Building 3 and 4 – west	4.5 m (14.8 feet)
	H	Building 4 – south	4.5 m (14.8 feet)
	I	Building 4 – east	1.8 m (6.0 feet)
	J	Building 3 – east	4.0 m (13.1 feet)
	K	Building 3 – north	4.5 m (14.8 feet)

a) Underground parking structures are excluded from the setback requirement.

b) Decks, patios, balconies, balcony columns, unit entry stairs, window wells, and roof overhangs and vertical projections and unit entrance canopies to a maximum depth of 1.3 m (4.2 ft) are excluded from the setback requirement.

4B 162 - 7 Height

a) The maximum permitted height for any building in the CD162 Zone is as follows:

Table 2. Building Height		
Building # (see Figure 1)	**Maximum Height** Measured from Level 1	**Maximum Storeys** (above parkade)
Building 1	24.0 m	6 storeys
Building 2	21.0 m	6 storeys
Building 3	21.0 m	6 storeys
Building 4	21.0 m	6 storeys

b) The following height exemptions shall apply to the CD162 Zone;

i.) Rooftop stair enclosures, elevator penthouses, heating, cooling, planter boxes, guard rails and ventilation and mechanical equipment provided they do not extend more than 3.0 metres above the highest point of any roof surface.

4B 162 - 8 Building Coverage:

a) Building Coverage: The maximum building coverage is 40%.

4B 162 - 9 Building Regulations – Location of Uses:

a) Within Buildings 1, 2, 3 and 4 (as labelled in Figure 1), uses are permitted in the following locations, as per Tables 3 and 4:

Table 3: Location of land uses permitted in Building 1			
Permitted land uses	**Permitted locations**		
	Ground floor	**Second floor**	**Third floor and above**
Animal care services	Yes	Yes	No
Business / office support services	No	Yes	No
Child care facility	No	Yes	No
Fitness centre	No	Yes	No
Health service purposes	No	Yes	No
Instructional services	No	Yes	No
Office use *Professional office use*	No	Yes	No
Personal service	Yes	Yes	No
Residential dwelling units	No	No	Yes
Restaurant use	Yes	Yes	No
Retail use	Yes	Yes	No
Service use	No	Yes	No

Table 4: Location of land uses permitted in Buildings 2, 3, 4		
Permitted land uses	**Permitted locations**	
	Ground floor	**Second floor and above**
Child care facility	Yes	No
Residential dwelling units	Yes	Yes

4B 162 – 10 Landscaping and Stormwater Management

a) All land areas not occupied by buildings, patios and driveways shall be landscaped in accordance with a landscape plan approved by the District of North Vancouver.

b) A 2.0m (6.6 ft.) high screen consisting of a solid wood fence, or landscaping or a combination thereof, with minimum 90% opacity, is required to screen from view:

   i.) any utility boxes, vents or pumps that are not located underground and/or within a building; and
   ii.) any solid waste facilities (garbage, recycling, compost with the exception of temporary, at-grade staging areas) that are not located underground and/or within a building.

4B 162 - 11 Parking, Loading and Servicing Regulations

a) Vehicle parking is required as per Table 5:

Table 5. Vehicle Parking Requirements	
Land Use and Type of Parking	**Minimum Parking Requirements**
Vehicle Parking	
Residential Vehicle Parking Strata dwelling units Rental dwelling units	*(Rates do not include visitor parking)* 1 space / strata dwelling unit 0.89 spaces / rental dwelling unit
Residential Visitor Vehicle Parking Per dwelling unit	 0.10 spaces / dwelling unit
Commercial Parking	1 / 45 m^2 gross floor area
Accessible Parking	4.5% of all required parking spaces

b) Commercial parking is based on a blended rate for all commercial uses.

c) Commercial parking and residential visitor parking shall be shared.

d) Bicycle parking is required as per Table 6:

Table 6. Bicycle Parking Requirements	
Class 1 – Long Term	732 spaces, of which 9 must be for commercial purposes
Class 2 – Short Term	51 spaces

iii.) Except as specifically provided in this Section 4B 162-11, Parking shall be provided in accordance with Part 10 of this Bylaw."

(End of CD162 Zone)

e) The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the lots from Multi-Family Residential Zone 3 (RM3) and General Commercial (C2) to Natural Parkland (NPL) and Comprehensive Development Zone CD162.

f) The Siting Area Map section of the Zoning Bylaw is amended by deleting Plan Section Page R/11 and Plan Section Page C/18.

Severability

3. If any section, subsection or clause of this bylaw is for any reason held to be invalid by the decision of a court of competent jurisdiction, such decision will not affect the validity of the remaining portions of this Bylaw.

READ a first time

READ a second time

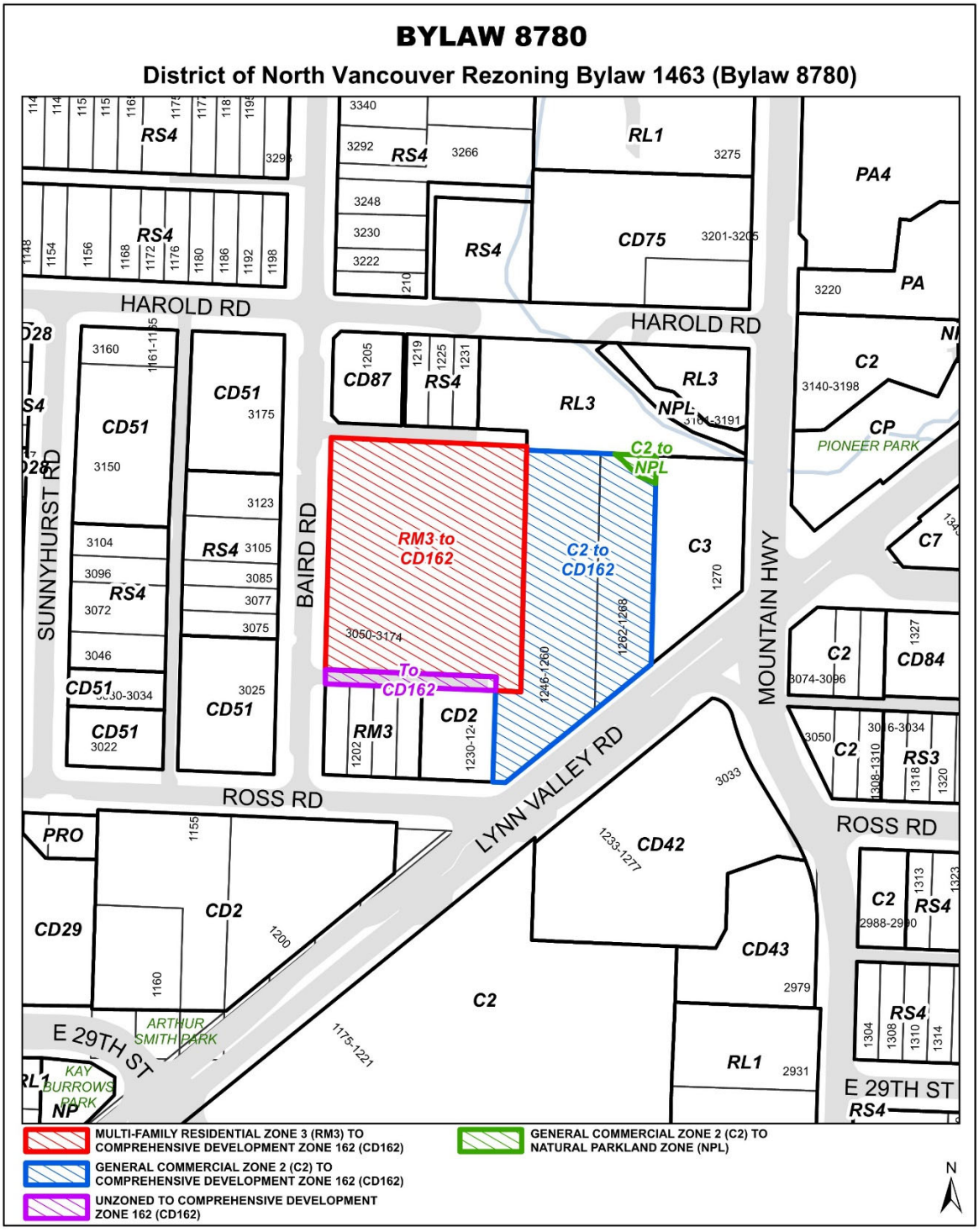
READ a third time

ADOPTED

Mayor

Corporate Officer

Schedule A to Bylaw 8780



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Building 3 Entry from northwest along Baird Road

Lynn Valley Mall - Multi-Residential Development

POLYGON

NSDA ARCHITECTS

connect LANDSCAPE ARCHITECTURE

3050-3174 Baird Road,1246-1268 Lynn Valley Road
District of North Vancouver BC
Rezoning Application
March 2, 2026

PROJECT OVERVIEW

The Lynn Valley Mall Multi-Residential Development provides 397 homes across four six-storey buildings of diverse types including 333 strata condominiums and 64 rental residences including 32 dedicated three-bedroom rental replacement units to maintain the existing Draycott Gardens stock. Homes range from studio to three bedrooms, addressing a wide spectrum of housing needs including renters, first-time buyers, and growing families. At-grade commercial space is integrated within the program providing an active Lynn Vally Road streetscape and supporting an economically thriving community.

01 Project Phasing

A two-phase strategy ensures efficient delivery and tenant stability. Phase 1 provides 63 residential strata units while prioritizing rental opportunities, tenant relocation and commercial development, emphasizing inclusive multi-use community-building. Phase 2 focuses on providing 270 additional strata residential homes, amenities and semi-public green space to the Town Center.

02 Commercial Space

The project provides 2,331 m^2 of commercial floor area, including 1,071 m^2 of active, street-frontage and 1,260 m^2 of upper-storey commercial space. These components support job creation, reinforce the Town Centre commercial node, and contribute to the economic health of the District through trade and sustained local employment opportunities.

03 Public Realm and Open Space

The proposal enhances the public experience with an ample public realm interface, layered landscaping, and a generously sized semi-public courtyard at the site's core. These improvements transform underused surface parking space into active, green amenities, and accessible semi-public spaces that promote outdoor living and community interaction.

04 Site Access

Vehicle access is efficiently handled through the existing laneway off Baird Road, reducing pressure on arterial routes. A Town Centre Pedestrian Path running N-S through the sites significantly improves site permeability, offering convenient connections to surrounding streets and adjacent amenities.

05 Architectural Character

Inspired by contemporary interpretations of a mountain village, the design balances a modern aesthetic with West Coast materials. Articulated, rhythmic massing, generous balconies, and a mix of wood-textured finishes, durable metal accents, and stone detailing promote visual variety and contribute to a distinct and welcoming streetscape.

06 Policy Alignment

The application directly supports the District's evolving Official Community Plan by focusing new density within the Lynn Valley Town Centre. The 2.5 FSR aligns with t OCP targets and supports climate-forward objectives through proximity to transit, bicycle lanes, and mixed-use functionality.

07 Zoning Compatibility

The rezoning to CD reflects the intent of existing zoning designations (C2 and RM3) and emerging OCP land use categories (RES5, RES6, CRMU2). The proposal fits harmoniously within the built form and intended land use patterns of the Lynn Valley Town Centre.

08 Built Form, Setbacks, and Neighbourhood Integration

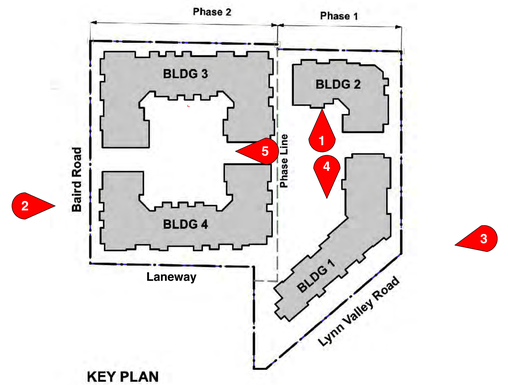
Each building is six storeys—consistent with adjacent Town Centre developments—and oriented to maintain a high-quality public interface. A 4.5 m typical building setback at the property line and 7.0 m road dedication on Lynn Valley Road create a broad, planted edge that integrates active frontages and improves walkability, mitigated by landscaping and buffers.

3D RENDERING

Building 4 Entry on Baird Road

1. Building 2 Entry from south

2. Building 4 Entry from west



3. Building 1 frontage along Lynn Valley Rd.

4. Building 1 from north along vehicular accessway

5. Buildings 3 & 4 from east across courtyard

POLYGON

Date	Issue / Revisions
2025-06-23	Issued for DP
2025-08-27	Issued for ADP
2026-01-26	Issued for Rezoning
2026-03-02	Reissued for Rezoning

NSDA
ARCHITECTS

201-134 Abbott St
Vancouver BC
Canada V6B 2K4

T 604.669.1926
F 604.683.2241

info@nsda.bc.ca
www.nsda.bc.ca

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Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title
Rendered Views

Project Number
23018

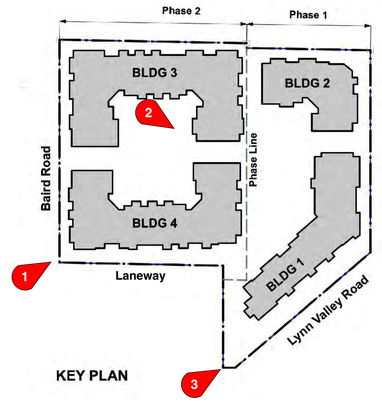
Scale

Sheet Number
A-008

1. **Building 4 from southwest at Laneway**

2. **Building 4 from northwest across courtyard**

3. **Building 1 looking southeast along Lynn Valley Road**



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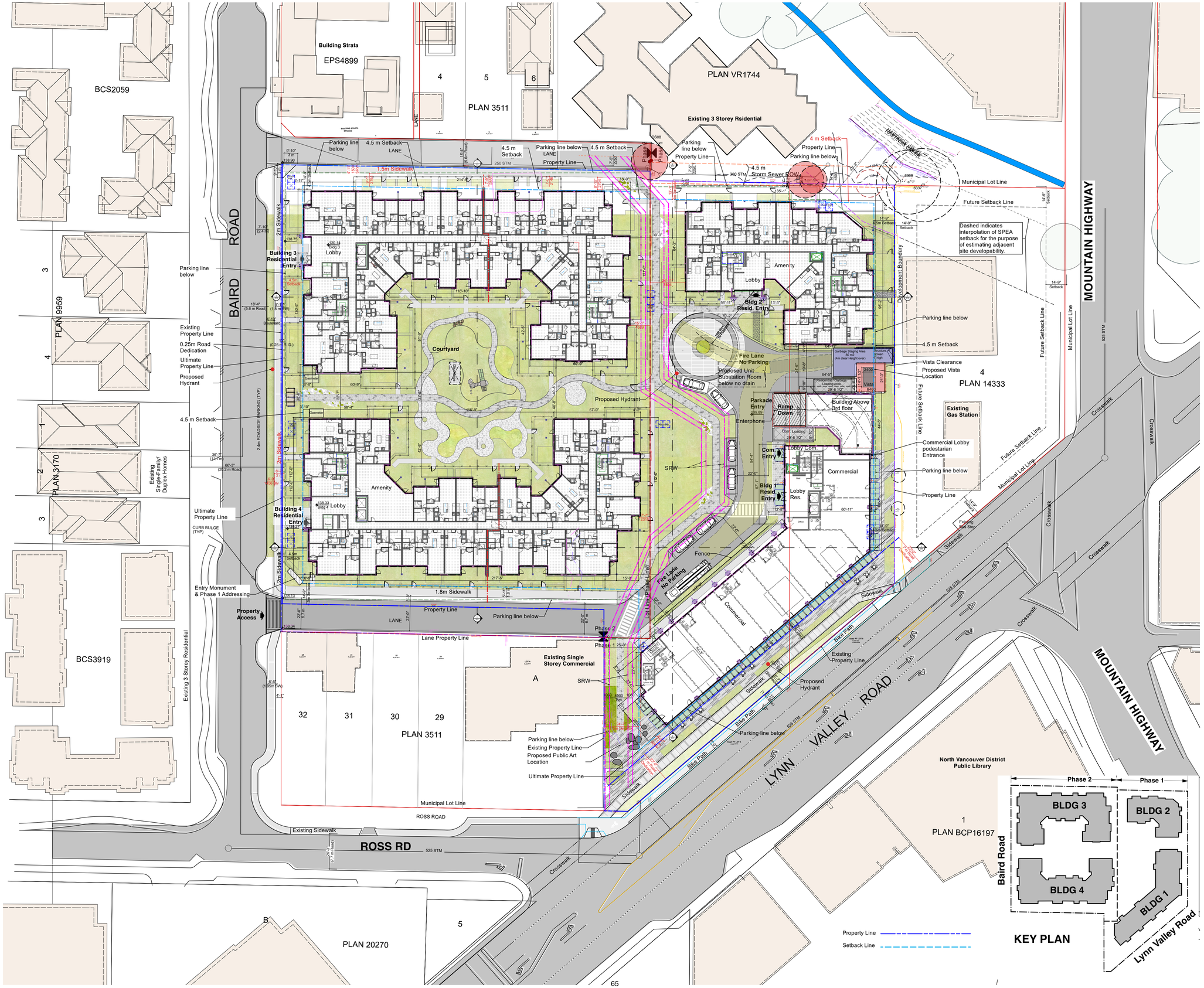
Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title
Rendered Views

Project Number
23018

Scale

Sheet Number
A-009



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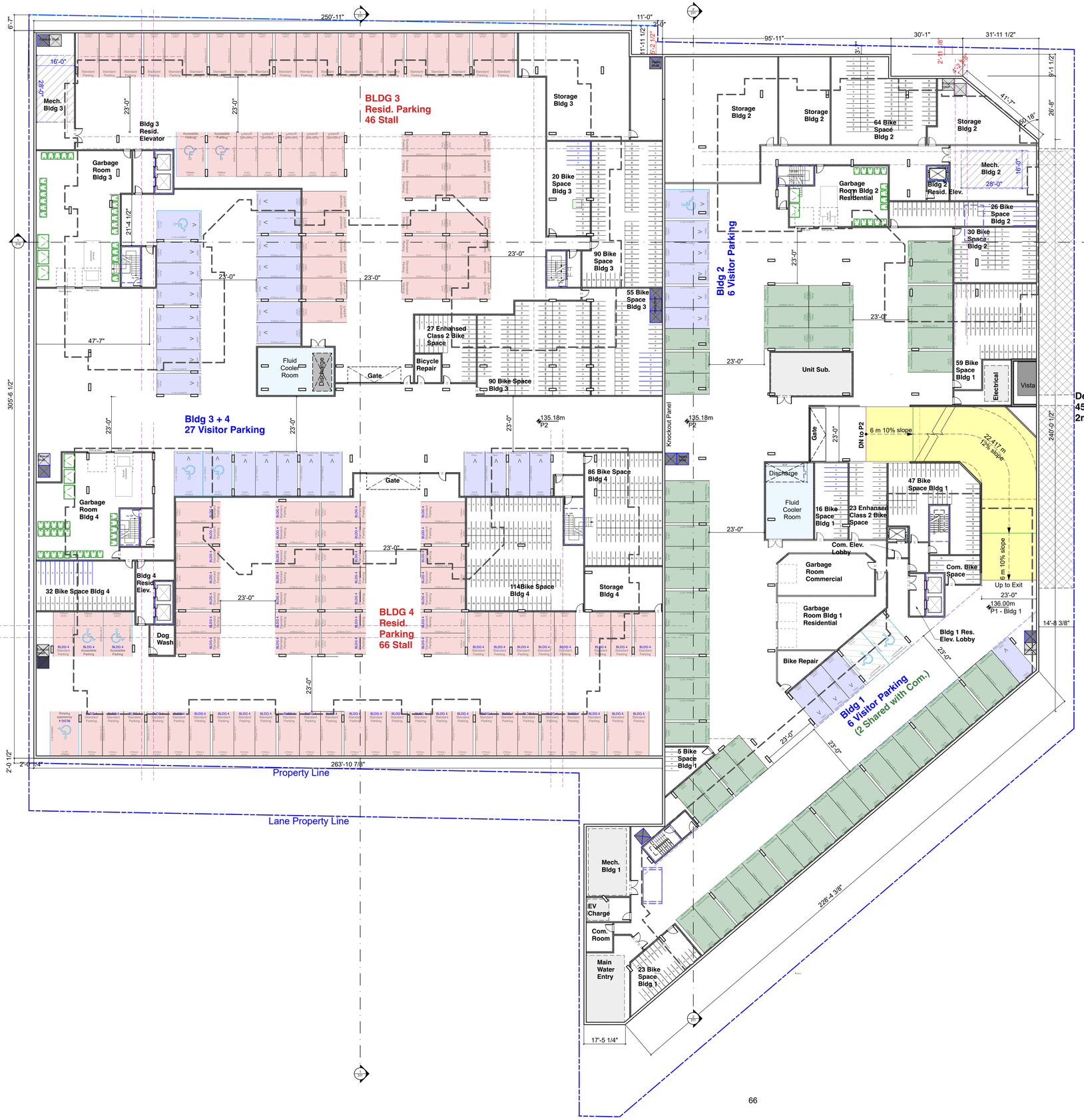
Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title
Site Plan

Project Number
23018

Scale
1"=30'

Sheet Number
A-100



P1 Phase 1:
74 parking stalls total provided

including 12 visitor parking stalls (2 shared)

BLDG 1 :
52 Commercial Parking stalls

118 Bike Spaces (5%=6 longer spaces)
9 Commercial Bike Spaces (1 longer spaces)

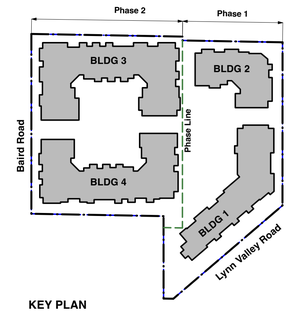
BLDG 2 :
120 Market Residential Bike Spaces
(5%=6 longer spaces)

P1 Phase 2:
139 Parking stalls total provided

including 27 visitor parking stalls

BLDG 3 :
46 Residential parking stalls
255 Bike Spaces (5%=13 longer spaces)

BLDG 4 :
66 Residential parking stalls
232 Bike Spaces (5%=12 longer spaces)



KEY PLAN

N

POLYGON

Date	Issue / Revisions
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201-134 Abbott St
Vancouver BC
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Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title
P1 Parking

Project Number
23018

Scale
1"=20'

Sheet Number
A-101

P2 Phase 1:
113 parking stalls total provided

BLDG 1 :
57 Residential Replacement Rental stalls

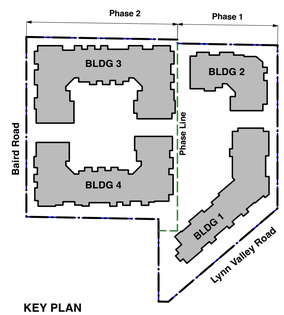
BLDG 2 :

63 Residential Rental stalls

P2 Phase 2:
158 Parking stalls total provided

BLDG 3 :
96 Residential parking stalls

BLDG 4 :
62 Residential parking stalls



KEY PLAN

N

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Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title

P2 Parking

Project Number
23018

Scale
1"=20'

Sheet Number
A-102

POLYGON

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2025-06-23	Issued for ADP
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Vancouver BC
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T 604.669.1926
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Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

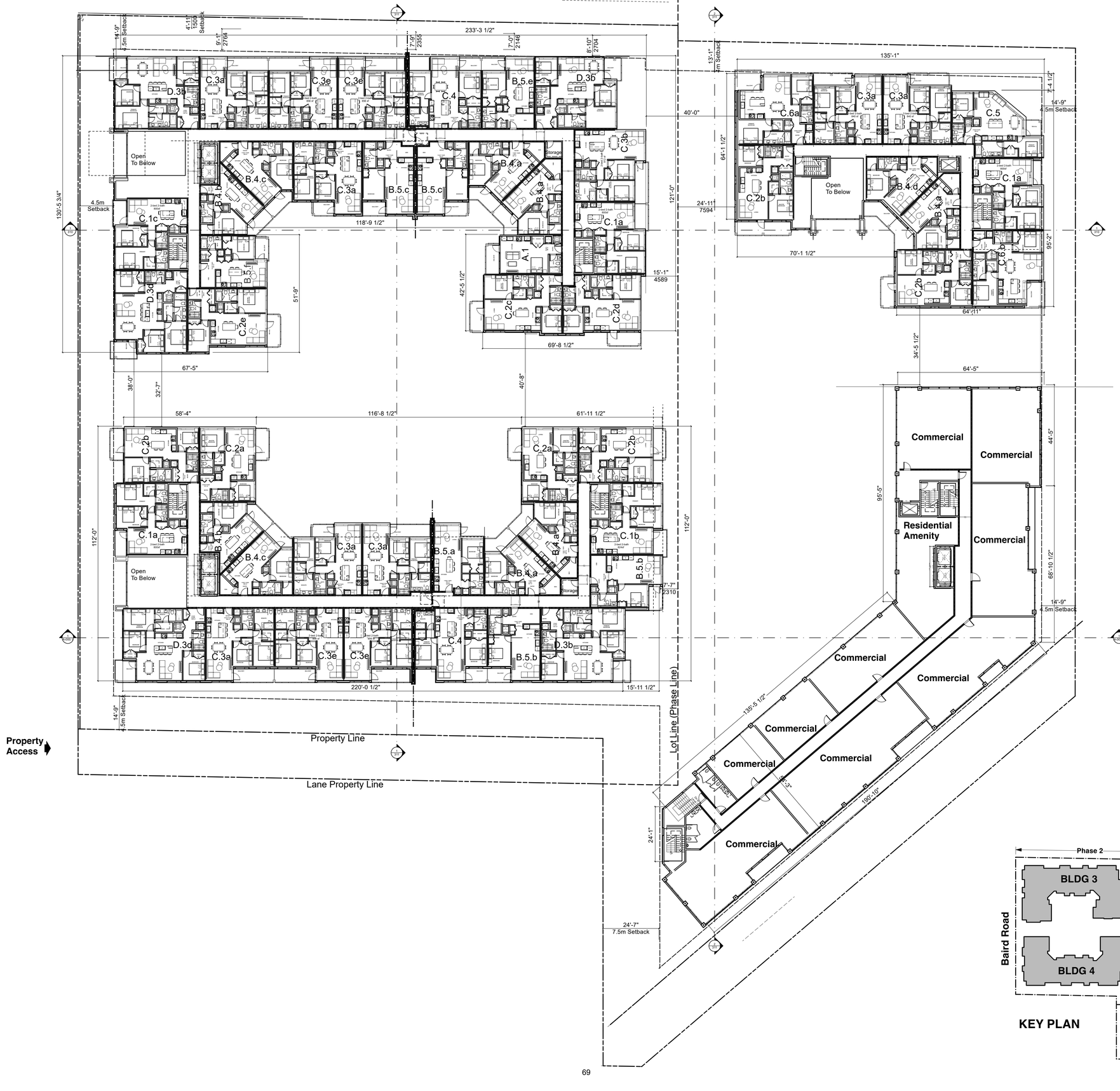
Sheet Title
01 Level

Project Number
23018

Scale
1"=20'

Sheet Number
A-103

KEY PLAN



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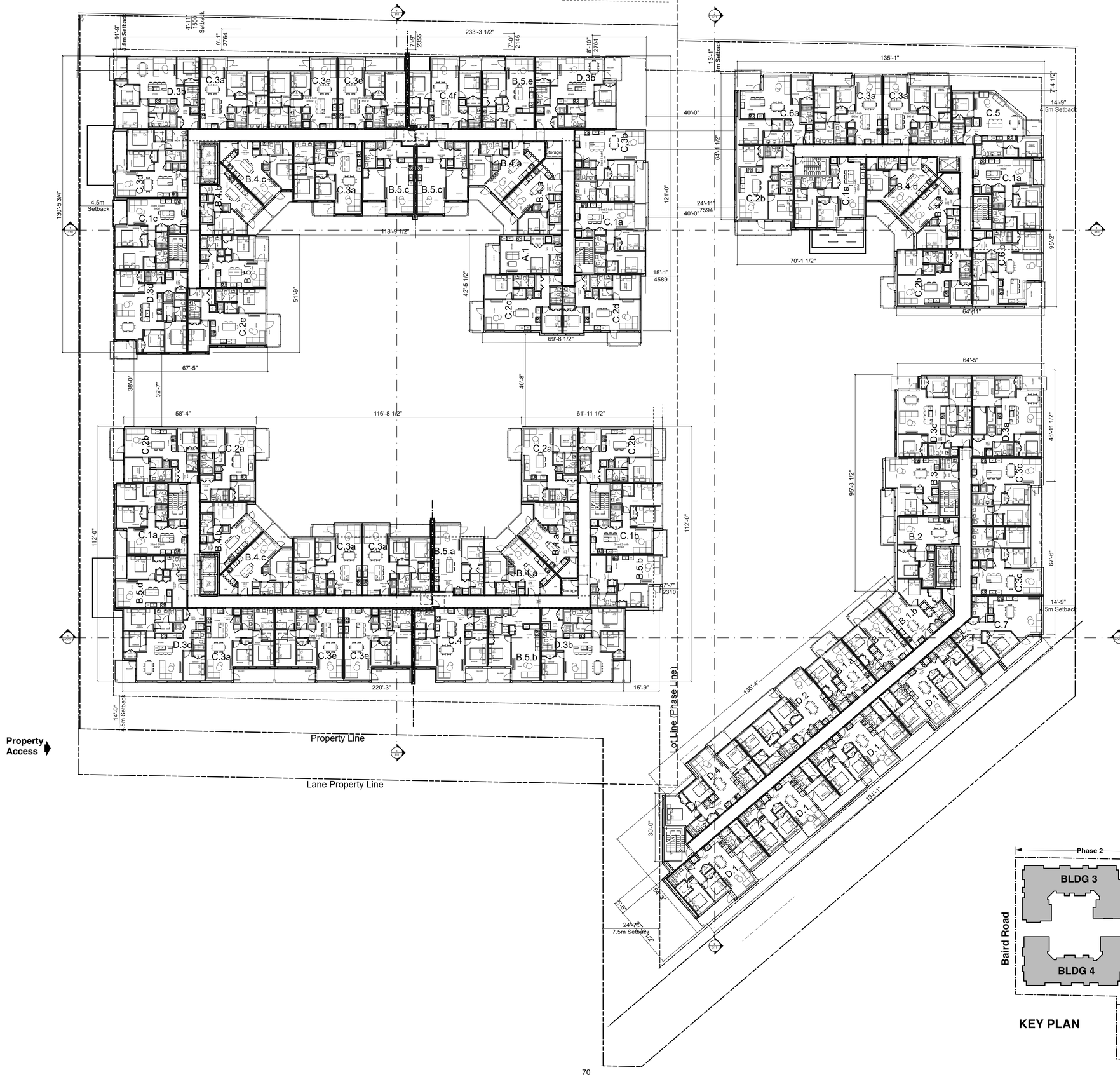
Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title
02 Level

Project Number
23018

Scale
1"=20'

Sheet Number
A-104



POLYGON

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201-134 Abbott St
Vancouver BC
Canada V6B 2K4
T 604.669.1926
F 604.683.2241
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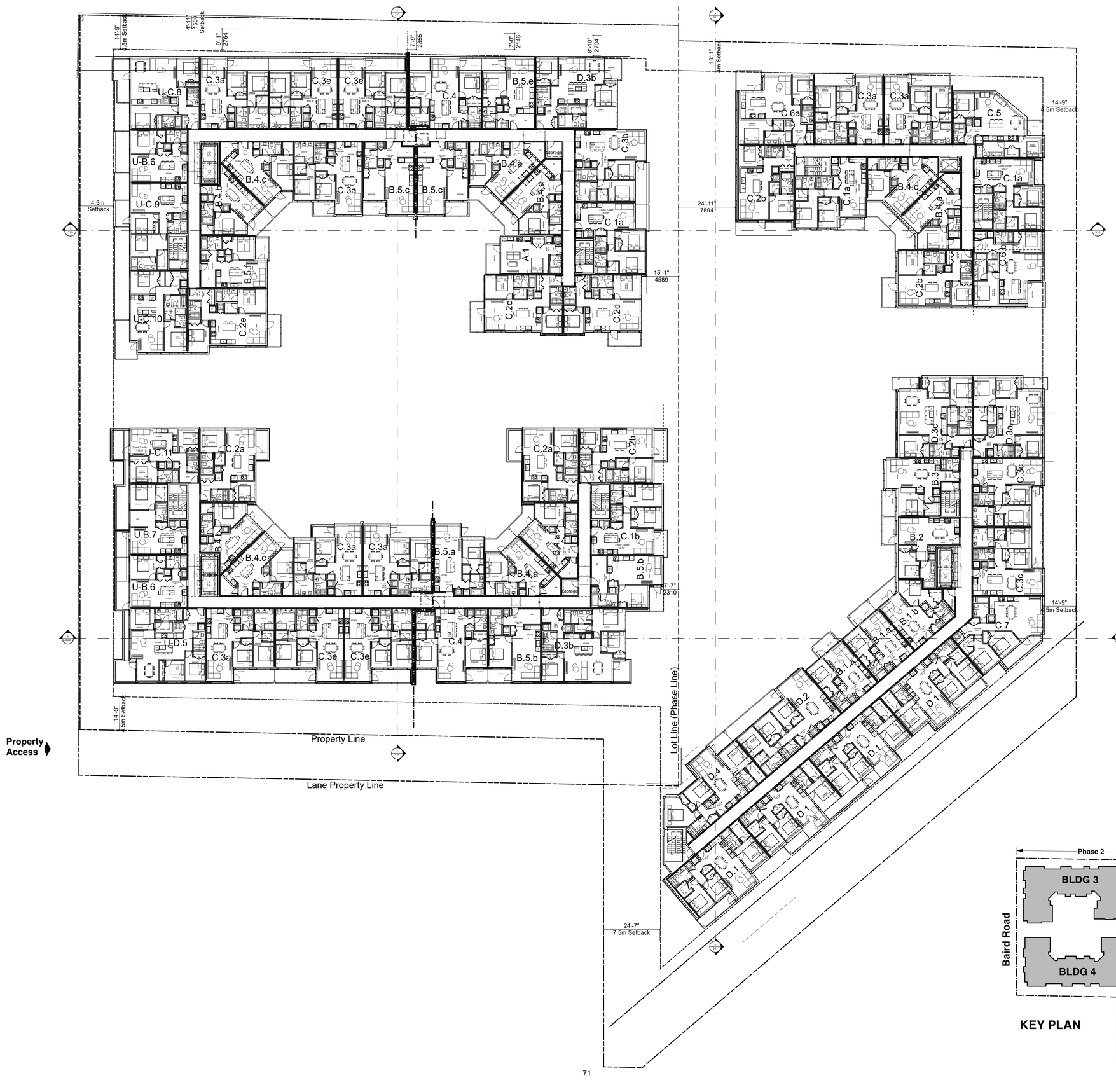
Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title
03-04 Level

Project Number
23018

Scale
1"=20'

Sheet Number
A-105



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Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title
05-06 Level

Project Number
23018

Scale
1"=20'

Sheet Number
A-106

POLYGON

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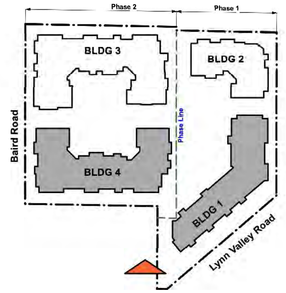
2025-08-27	Issued for ADP
2026-01-26	Issued for Rezoning.
2026-03-02	Re-issued for Rezoning
2026-03-02	Re-issued for Rezoning

1 South Elevation - Bldg 4 and 1
Scale: 1:250

KEY PLAN



Exterior Finish Material:

Cladding

1- Fiber Cement Lap Siding
Colour: CC-30 Oxford White

2- Fiber Cement Horizontal Lap Siding
Colour: CC-548 Asphalt

3- Fiber Cement Vertical Siding
Board & Batten (Fiber Cement)
Colour: CC-542 Willow

4- Fiber Cement Lap Siding (Wood)
Colour: CC-542 Willow

5- Fiber Cement Cladded Column

6- Fiber Cement Soffit Board (soffit)

7- Stone Veneer
Ledgestone Cladding Grey

Door and Window

10- Vinyl Window Frame - Clear Low-e Glazing

11- Storefront System in Aluminum Frame

12- Glass Door in Vinyl Frame

13- Metal Door

Misc. Metal

15- Railing - Aluminum Picket

16- Railing - Safety Glass in Aluminum Frame

17- Divider - Obscure Glass in Aluminum Frame

18- Mechanical Enclosure - Aluminum

19- Aluminum Fence/ Gate

20- Aluminum Clad Fascia

21- Aluminum Flashing

Misc.

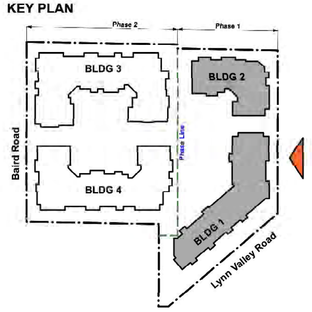
25- Architectural Concrete

26- Glass Canopy in Aluminum Frame

27- Signage Retail

2 East Elevation - Bldg 1 and 2
Scale: 1:250

KEY PLAN



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Canada V6B 2K4
T 604.669.1926
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Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title
South and East Elevations

Project Number
23018

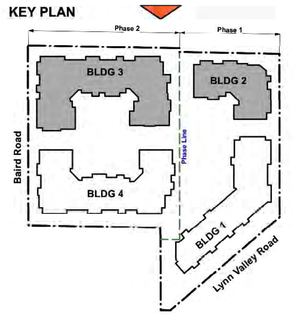
Scale
1:250

Sheet Number
A-301

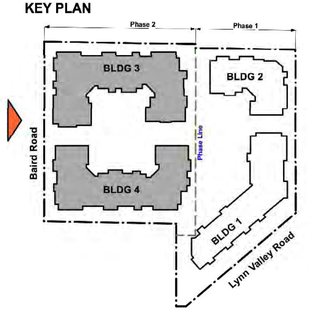
1 North Elevation - Bldg 2 and 3
Scale: 1:250

2 West Elevation - Bldg 3 and 4
Scale: 1:250

KEY PLAN



KEY PLAN



POLYGON

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Misc.

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Project
Lynn Valley / Draycott Gardens
1246-1268 Lynn Valley Rd
District North Vancouver

Sheet Title
North and West Elevations

Project Number
23018

Scale
1:250

Sheet Number
A-302

CONCEPT PLAN

GENERAL LEGEND

KEY	DESCRIPTION
EX. PROP.	EXISTING PROPERTY LINE
P/L	PROPERTY LINE
S/L	SETBACK LINE
	ROW
	EXTENT OF STRUCTURE BELOW
	STORM SEWER ROW
PHASELINE	PHASE LINE

1 KIDS PLAY

2 COURTYARD & LOUNGE

3 TOWN CENTRE PEDESTRIAN PATHWAY

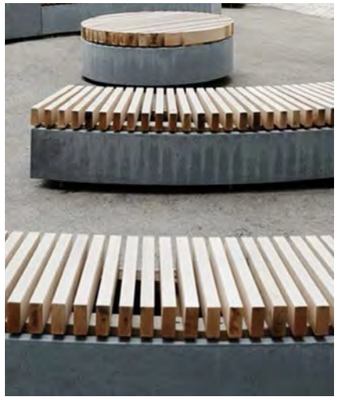
4 COMMERCIAL FRONTAGE

5 GREENWAY FRONTAGE

PUBLIC ART NODE

SIGNAGE

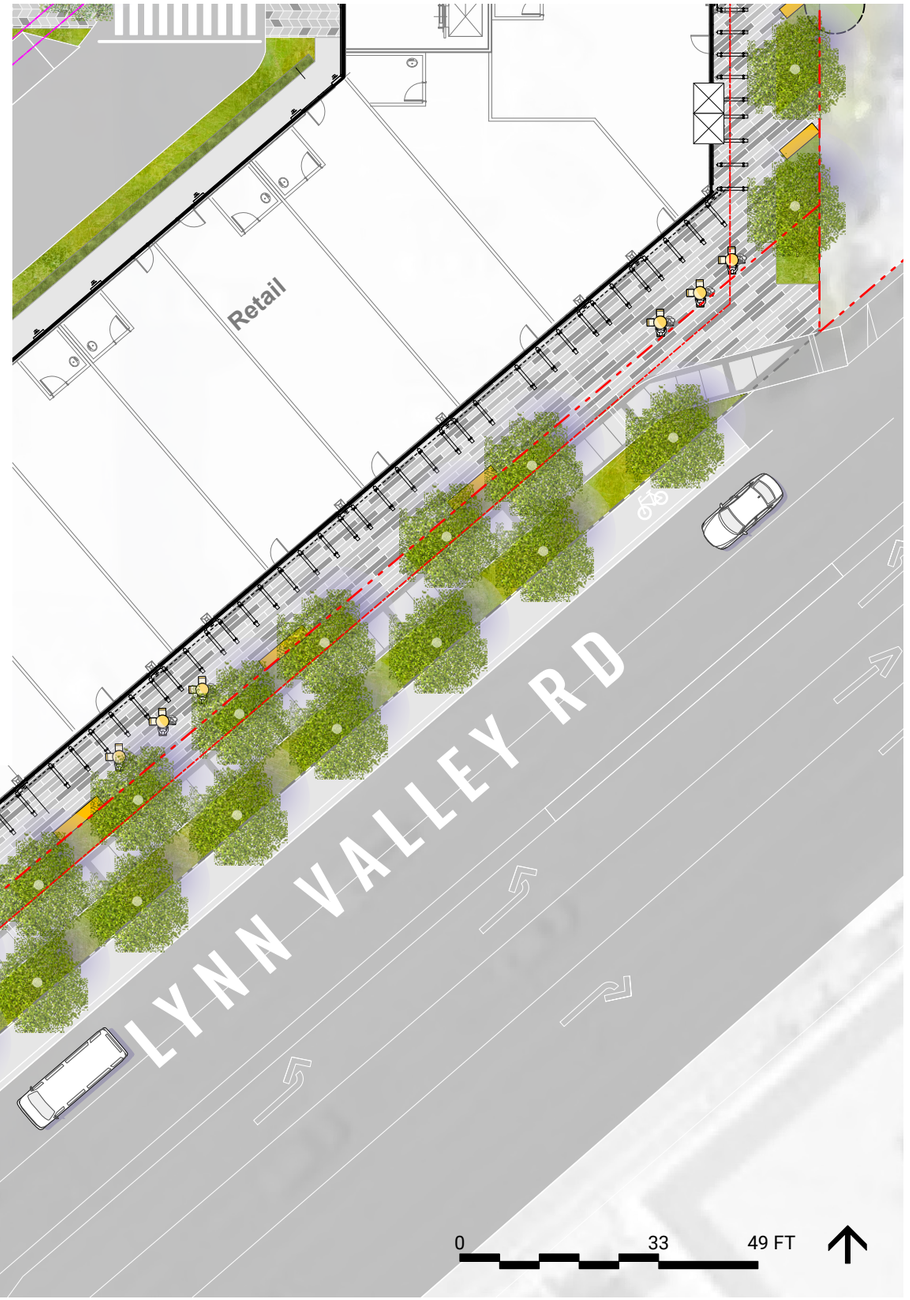
TOWN CENTRE PEDESTRIAN PATHWAY



MATERIALS LEGEND

KEY	DESCRIPTION
HARDSCAPE	
	CIP CONCRETE PAVING
	CONCRETE SLAB PAVER
	FLAGSTONE PAVING
	CONCRETE UNIT PAVER
	CONCRETE UNIT PAVER
	GRANULAR SURFACING
	SOFT SURFACING TBD
SOFTSCAPE	
	SOD LAWN
	PLANTING
	HEDGE
FURNISHING	
	BIKE RACK QTY: X (X SPACES)
	FEATURE WOOD SEATING
	FEATURE METAL SEATING
	TABLE AND CHAIRS
	PUBLIC ART
	FEATURE PEBBLE SEATING
	BOULDERS

COMMERCIAL FRONTAGE



MATERIALS LEGEND

KEY	DESCRIPTION
HARDSCAPE	
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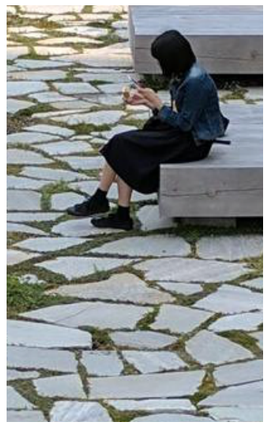
	CONCRETE SLAB PAVER
	FLAGSTONE PAVING
	CONCRETE UNIT PAVER
	CONCRETE UNIT PAVER
	GRANULAR SURFACING
	SOFT SURFACING TBD
SOFTSCAPE	
	SOD LAWN
	PLANTING
	HEDGE
FURNISHING	
	BIKE RACK QTY: X (X SPACES)
	FEATURE WOOD SEATING
	FEATURE METAL SEATING
	TABLE AND CHAIRS
	PUBLIC ART
	FEATURE PEBBLE SEATING
	BOULDERS

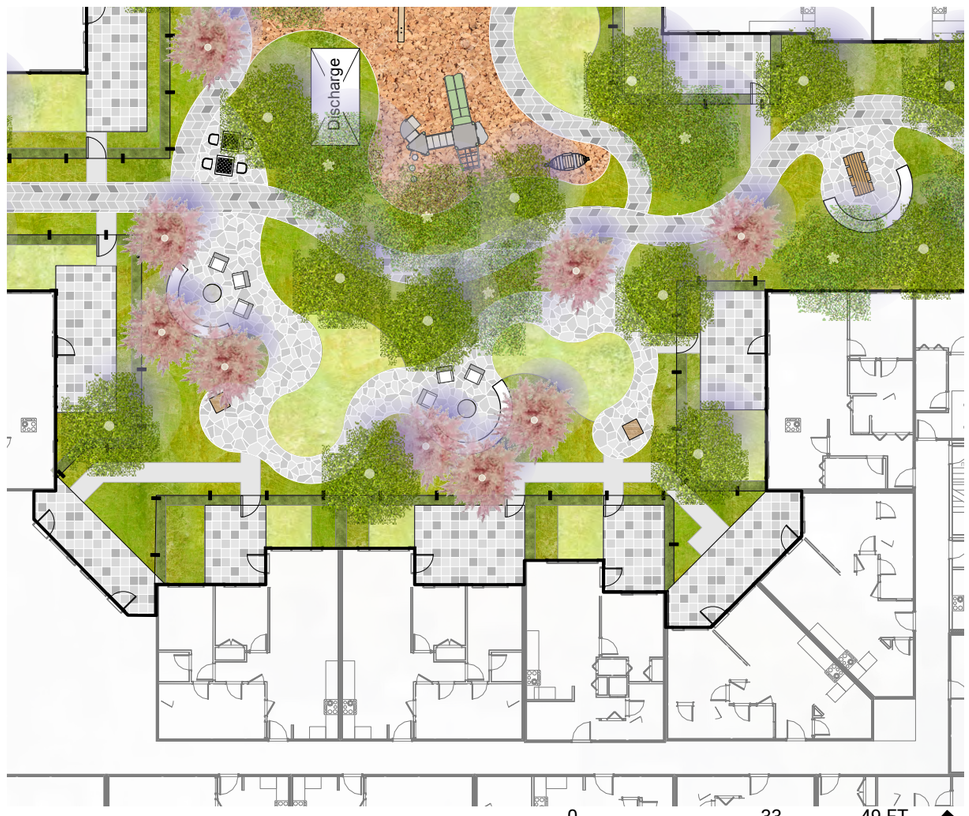
KIDS PLAY

MATERIALS LEGEND

KEY	DESCRIPTION
HARDSCAPE	
	CIP CONCRETE PAVING
	CONCRETE SLAB PAVER
	FLAGSTONE PAVING
	CONCRETE UNIT PAVER
	CONCRETE UNIT PAVER
	GRANULAR SURFACING
	SOFT SURFACING TBD
SOFTSCAPE	
	SOD LAWN
	PLANTING
	HEDGE
FURNISHING	
	BIKE RACK QTY: X (X SPACES)
	FEATURE WOOD SEATING
	YARD FENCE
	CHESS TABLE
	CONCRETE SEATING
	HARVEST TABLE

COURTYARD & LOUNGE





MATERIALS LEGEND

KEY	DESCRIPTION
HARDSCAPE	
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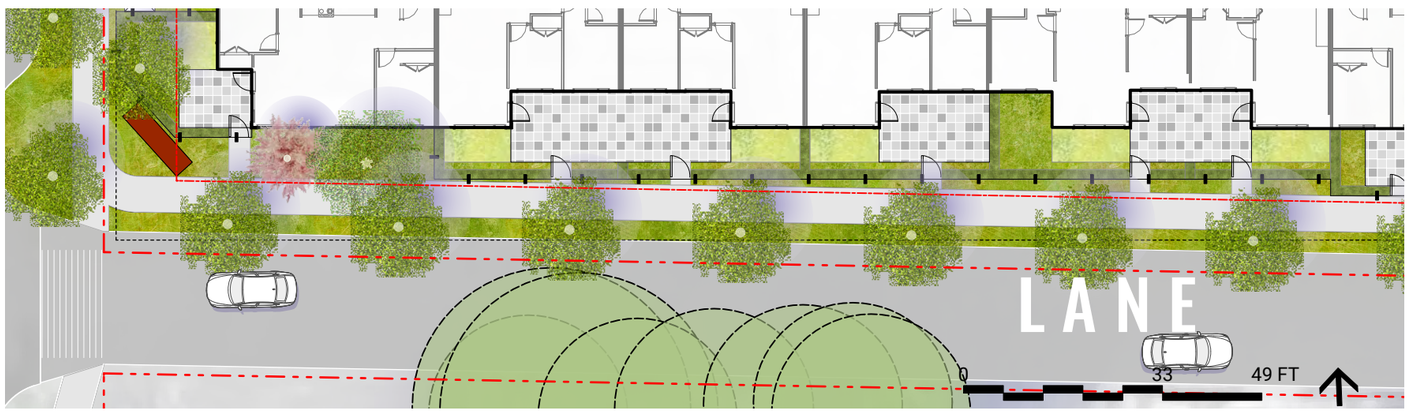
	FLAGSTONE PAVING
	CONCRETE UNIT PAVER
	CONCRETE UNIT PAVER
	GRANULAR SURFACING
	SOFT SURFACING TBD
SOFTSCAPE	
	SOD LAWN
	PLANTING
	HEDGE
FURNISHING	
	BIKE RACK QTY: X (X SPACES)
	FEATURE WOOD SEATING
	YARD FENCE
	CHESS TABLE
	CONCRETE SEATING
	HARVEST TABLE

GREENWAY FRONTAGE



MATERIALS LEGEND

KEY	DESCRIPTION
HARDSCAPE	
	CIP CONCRETE PAVING
	CONCRETE SLAB PAVER
	FLAGSTONE PAVING
	CONCRETE UNIT PAVER
	CONCRETE UNIT PAVER
	GRANULAR SURFACING
	SOFT SURFACING TBD
SOFTSCAPE	
	SOD LAWN
	PLANTING
	HEDGE
FURNISHING	
	BIKE RACK QTY: X (X SPACES)
	FEATURE WOOD SEATING
	YARD FENCE

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1246-1268 Lynn Valley Road and 3050-3174 Baird Road

Public Information Meeting Summary Report

Overview

Both an in-person and virtual Public Information Meeting were held for this detailed planning application for an OCP amendment and rezoning. Members of the public could view a video presentation and browse display boards prepared by the project team on the virtual meeting web page, or they could view the information on boards during the in-person meeting.

Meeting Purpose: 1) To present the development proposal to neighbours
2) To provide an opportunity for the public to ask questions
3) To provide an opportunity for the public to comment on the proposal

Virtual Meeting

Event Date: October 6 to 20, 2025
Website: DNV.org/public-meeting

Attendance: 162 visitors to the Significant Apps project page, 280 total views
311 visitors to the virtual meeting landing page, 476 total views
87 visitors to the discussion thread, 220 total views
209 people viewed the applicant's video presentation

Comments: 36 comments or questions were received online (+ 35 responses by staff)

In-Person Meeting

Event Date: October 8, 2025 from 6-8 pm

Location: Ross Road Elementary – Gymnasium

Attendance: Approximately 60 members of the public came to the in-person meeting

District:	Mackenzie Stonehocker, Development Planner	
Applicant:	Devon Smart, Rene Ross, Samantha Harris, Jacqueline Baldwin	
	on behalf of	Polygon Development 395 Ltd.
Architect:	Peter Fodor	NSDA Architects
Landscape:	Ken Larsson	Connect Landscape Architecture
Civil:	Graham Wood	InterCAD
Traffic:	Daniel Fung	Bunt & Associates
Tenants:	Amanda Acheson	Westwood Ridge Development Corp.

Notification

In accordance with District of North Vancouver policies:

Invitation Brochures
Notification flyers were delivered to approximately 491 addresses within a 100m radius of the site. Appendix A includes a copy of the flyer and a map of the distribution area.

Newspaper Ad
Newspaper ads were placed in the North Shore News on three consecutive Wednesdays: September 24, October 1, and October 8 2025. Copies of the ads are included in Appendix A.

Signs

Two single-sided signs were installed on Baird Road, and one bidirectional sign was installed on Lynn Valley Road. Maps and photographs are included in Appendix A.

Comments received

Participants were provided the opportunity to submit questions and comments to the project team and Development Planner through the following means:

- In-person via PIM comment forms or discussions with staff and the applicant
- Through the virtual PIM website for a two-week period from October 6 to 20, 2025
- Via email or phone throughout the course of the application

The majority of public comments express qualified support for new housing and commercial revitalization but raise concerns about traffic / parking and building height (specifically the scale of the proposed development compared to adjacent townhomes and detached houses).

Key issues include vehicle congestion on Baird and Ross Roads, the feasibility of access via the existing lane, pedestrian safety (especially for Argyle Secondary students), school and childcare capacity, and environmental impacts on Hastings Creek and existing trees.

Supporters appreciate the potential for more housing variety, residential tenant relocation assistance and renewal of aging buildings, but they call for better traffic planning, more affordable / rental units, and improved public realm design.

Overall sentiment: broad recognition of housing need, tempered by local neighbourhood concerns about livability, the local street network, and neighbourhood fit.

Sentiment	Approx share of comments	Key characteristics
Supportive (with conditions)	35%	Want housing and revitalization but also want better design, access, and amenities
Concerned / Opposed	55%	Concerns primarily around traffic, parking, height, infrastructure, and environmental issues
Neutral / Questioning	10%	Seek clarification on process, details, and plans for existing tenants

Conclusion

The purpose of these public information meetings (in-person and virtual) was to present the detailed development application to the public, and to provide the public with an opportunity to ask clarifying questions and comment on the proposal. Approximately 491 invitations were distributed to neighbours, three newspaper ads notified the community of the meeting, and three signs were posted on Baird Road and Lynn Valley Road.

The public could participate in this process in several ways:

- Viewing the video presentation
- Browsing the display boards
- Attending the in-person meeting
- Submitting written comments and questions to the Development Planner

Approximately 60 people attended the in-person meeting, while 311 visitors accessed the virtual PIM. Approximately 87 written responses were received, via handwritten comment sheets from the in-person PIM, online comments from the virtual PIM, and emails sent directly to the District's Development Planner (see Appendix B).

The meeting length and format was sufficient to provide all participants an opportunity to learn more and submit questions and make the comments they wished to provide within a two-week period. The applicant successfully notified and presented their proposal to the community, and neighbours had ample opportunity to express their views of the proposal.

The feedback received from the public was provided to the applicant, as well as feedback from staff and other stakeholders, in order to address issues and improve the project design.

Attachments

Appendix A: Notification

Appendix B: Summary of Public Comments

Appendix A: Notification

Newspaper Advertisement: North Shore News – September 24, 2025

north shore news nsnews.com WEDNESDAY, SEPTEMBER 24, 2025 | A37

FLUID PLAN

Metro Vancouver's water future at risk as metering lags

STEFAN LABBÉ
slabbe@glaciermedia.ca

Metro Vancouver's progress on installing water meters is slipping in a trend, that left unchecked, could jeopardize its long-term ability to provide drinking water.

That's according to a staff report presented to the regional district's water committee Wednesday, Sept. 17. Linda Parkinson, the report's author and director of policy, planning and analysis at Metro's water services department, said that while the region has made strides in conservation, the rollout of water metering is falling behind expectations.

Metro Vancouver's forecast models project that by the mid- to late-2030s, the region's water demand will outstrip its supply. In response, the district is pursuing a two-pronged strategy: increasing supply by expanding the amount of water coming out of its Coquitlam reservoir and reducing demand.

The plan partly hinges on widespread water metering, as measuring consumption allows member jurisdictions to pinpoint leaks and roll out pay-for-use pricing to incentivize heavy users to conserve water.

But since 2018, installation of water meters has "flatlined." Only six of the region's 15 member jurisdictions are fully metered, according to Metro Vancouver's latest data. That represents only 35 per cent of total connections and 47 per cent of all water consumption.

If left to continue, the trend could reduce the amount of water currently available during the dry summer period.

In an interview, Parkinson said if the meters don't go in at the expected rate, "we won't get the same reductions in per capita use that we are expecting to get."

"If the metering numbers stay flatlined, that would be an area that we'd have concern with," she said. "We'd need to look at the numbers again."

Metro's progress at risk

Metro Vancouver's demand for water has remained relatively consistent over the past 20 years even though its population has grown by 27 per cent.

That's largely due to a combination of passive water conservation measures, such as improvements to the building code, and increased housing density, the staff report said.

Continued on A38

District of North Vancouver Coun. Jordan Back waters his garden. The district is considering adding home water meters to track water consumption. PAUL MCGRATH / NSN

RECENTLY DIAGNOSED?
YOU ARE NOT ALONE

Prostate Cancer Support North Shore offers practical, informative and emotional support for people diagnosed with prostate cancer.

Prostate Cancer Support North Shore
pcsnorthshore.ca

Join us every fourth Wednesday of the month at 113 East 3rd St. at 7pm
(Excluding July, August and December)

For more info, visit pcsnorthshore.ca

An Affiliate of:
Prostate Cancer Foundation Canada
prostatecanada.ca

Development Proposal

PUBLIC INFO MEETING
Wednesday, Oct. 8, 6:00–8:00pm
Ross Road Elementary School, Gymnasium, 2875 Bushnell Place
Participate virtually Oct. 6–Oct. 20 at DNV.org/public-meeting

PROPOSAL: 1246-1268 Lynn Valley Rd and 3050-3174 Baird Rd

68 rental units
340 strata units
2525 m² commercial space

WE ARE HERE
PUBLIC INFO MEETING → PUBLIC HEARING

POLYGON

Contact:
Devon Smart, Polygon Development 395 Ltd
dsmart@polyhomes.com, 604-871-4473

Newspaper Advertisement: North Shore News – October 1, 2025

north shore news nsnews.com WEDNESDAY, OCTOBER 1, 2025 | A21

Committees serve 'a vital role'

Continued from A20

committee.

On top of committees specific to the three municipalities, there are two that are made up of residents from across the North Shore. The North Shore accessibility advisory committee – currently accepting applications – is made up of community members with a recognized disability and people from organizations who support people with disabilities.

The North Shore standing committee on substance abuse acts as a forum of community members working together to reduce the impacts of substance abuse. Half the members are from council and the remainder are citizens.

Committee sizes vary, ranging anywhere between three to 15 members.

How can I join? Are there any requirements?

Each municipality has their own application process and requirements.

People interested in volunteering for a West Vancouver committee can fill out a application form and send the completed application along with a brief, personal resume by email at committees@westvancouver.ca. Individuals can also mail or drop off at legislative services at West Vancouver municipal hall.

Dallas said applicants must have a connection to West Van to apply, which could mean residing, owning property or representing a business that is in the district. The deadline to apply is Oct. 31 at 4:30 p.m.

For District of North Vancouver committees, community members can apply online year-round. The application asks for basic details about the applicant, which committee they are applying for, whether they have previously served on a district committee, why they are interested in applying and a brief description on their relevant skills, experience or education.

If there's not a spot immediately available, the district keeps applications on file for a year in case something opens up. Applicants don't have to be a resident to be on a committee, but council does factor that into appointing members.

Residents in the City of North Vancouver can apply online through the city's application form, filling out basic details about the individual, what committee they are applying to serve on, and how they can contribute.

The application form will be available on the city's website beginning Oct. 8, when they start taking applications. A resume and cover letter can be included to add extra information, which can be emailed to committees@cnv.org. Applications will be accepted until Oct. 31 at 5 p.m.

The person applying must be a resident in the City of North Vancouver, and not be a current municipal employee. They must serve for the full term of the appointment, which is typically two years.

Committees serve a vital role in municipal governance, corporate officers say

Corporate officers across the North Shore say there are multiple benefits in getting involved in committees and playing an important role in local governance.

"It's important because council is making decisions for the community, and it's an opportunity for residents and volunteers to be engaged in our municipality," said Genevieve Lanz, director of legislative services in the District of North Vancouver.

> **"Being engaged with your municipality helps you understand how decision making happens. It helps inform the public, it's an opportunity to give back to the community.**
> GENEVIEVE LANZ

"Being engaged with your municipality helps you understand how decision making happens. It helps inform the public. It's an opportunity to give back to the community," she added.

Amelia Cifarelli, corporate officer and director of legislative services at the City of North Vancouver, said the CNV is hoping to see more young people apply to be on committees to bring a range of voices.

"That has been one of our focuses this year," she said. "We're trying to figure out how we can engage with all different aspects of our community, including youth, and highlighting the reasons why being involved is important."

Committee involvement can also help foster new skills like public speaking and problem solving in groups, Dallas said. But it can also create a sense of connection.

"It just fosters a sense of connected-ness and open dialog on these topics, because members of the public can come and there's an opportunity for them to speak and chime in," Dallas said. "It just seems like a welcoming, collaborative space, and we're all there for a common goal."

Abby Luciano is the Indigenous and civic affairs reporter for the North Shore News. This reporting beat is made possible by the Local Journalism Initiative.

Development Proposal

PUBLIC INFO MEETING
Wednesday, Oct. 8, 6:00–8:00pm
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WE ARE HERE
PUBLIC INFO MEETING → PUBLIC HEARING

POLYGON

Contact:
Devon Smart, Polygon Development 395 Ltd
dsmart@polyhomes.com, 604-871-4473

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nsnews.com/local-events
The North Shore's most comprehensive event listing site
north shore news

Newspaper Advertisement: North Shore News – October 8, 2025

north shore news nsnews.com WEDNESDAY, OCTOBER 8, 2025 | A25

LEGACY LIVES ON

Squamish Nation carvers unveil welcome figure at Murdo Frazer

ABBY LUCIANO
aluciano@nsnews.com
Local Journalism Initiative Reporter

Visitors taking a stroll in North Vancouver's Murdo Frazer Park will now see a 15-foot Sḵwx̱wú7mesh (Squamish) pole welcoming them to the area.

Sḵwx̱wú7mesh Úxwumixw (Squamish Nation) elders, artists, politicians and BC Hydro staff gathered at Murdo Frazer Park last month to unveil a welcome figure by carvers and siblings Delmar Joseph Jr. and Siobhan Joseph, both residents of Squamish.

"When I did carve this, I carved it for the past, present and the future," Delmar said, adding that the pole will show representation of Squamish people. "That was my duty as an artist, I wanted to make sure that's what it was meant for, representation of our heart in every way."

The new welcome figure at Murdo Frazer Park was funded through BC Hydro as part of the company's commitment to building relationships with the Squamish Nation and fostering cultural recognition.

Squamish Nation carvers Delmar Joseph Jr. and Siobhan Joseph created a 15-foot Sḵwx̱wú7mesh welcome figure that sits at Murdo Frazer Park in North Vancouver. PAUL MCGRATH / NSN

Delmar carved the welcome figure and Siobhan painted the finishing touches using colours that represent the nation, like black and red, and that incorporate environmental themes, like green and blue.

Delmar and Siobhan's latest work is covered with several meaningful symbols representing Squamish culture, stories and their ancestors.

Siobhan said the figure's front is a recreation of former Chief Joe Capilano's wool coat design. The wool coat design aims to represent past chiefs wearing the clothing, as it was something she noticed after looking at archives through the City of Vancouver. On each side of the wool coat are water waves, representing streams and rivers near the park, but also the animals that roam there like bears and deer.

"[It] also kind of represents our hunting grounds," she said. "Squamish Nation used to go up there and hunt, and they also gathered berries and other stuff."

The red circles on the cedar hat represent berries but also salmon. The figure's back shows a glimpse of Capilano mountain, starting with the trees at the top with a water stream flowing down to the bottom, surrounded with crabs, clams, clam shells and salmon along the border.

While the figure captures many elements of Squamish culture and history, it also holds a personal story for the artists. When Delmar and Siobhan were crafting the figure, their father passed away.

The siblings put the project on hold for a year to grieve. After taking time to mourn, they went back to work and noticed something different about the wood grain that reminded them of their father. The original plan was to paint the figure's coat white, but they decided to leave the cedar wood to shine through to show the natural designs in the wood.

Now, their father's legacy lives on in the pole as the face resembles the work he would do with his own carvings.

"We really wanted to represent our late father, his legacy," Siobhan said. "We are his legacy, we're continuing his work."

Both Delmar and Siobhan take huge inspiration from their late father, who taught them carving.

"Our dad would be in his

Continued on A26

Development Proposal

PUBLIC INFO MEETING
Wednesday, Oct. 8, 6:00–8:00pm
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Participate virtually Oct. 6–Oct. 20 at **DNV.org/public-meeting**

PROPOSAL: 1246-1268 Lynn Valley Rd and 3050-3174 Baird Rd

68 rental units
340 strata units
2525 m² commercial space

WE ARE HERE
PUBLIC INFO MEETING → PUBLIC HEARING

POLYGON

Contact:
Devon Smart, Polygon Development 395 Ltd
dsmart@polyhomes.com, 604-871-4473

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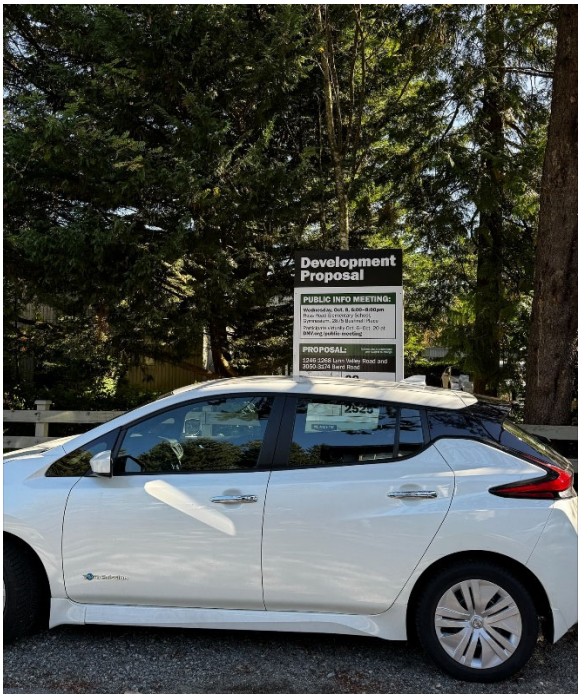
www.gleamguardcabinetrefinishing.ca

Notification signs

Location of signs

Bi-directional sign on Lynn Valley Road

Sign on Baird Road (north end)



Sign on Baird Road (south end)

Notification Flyer – Page 1

Notice of Public Information Meeting

Polygon Development 395 Ltd is hosting a Public Information Meeting to present the development proposal for a multi-family residential and commercial development located at 1246-1268 Lynn Valley Road and 3050-3174 Baird Road.

In addition to an in-person meeting, a two-week virtual public input opportunity will be held through the District of North Vancouver's platform. This is an opportunity for neighbours to share their feedback and ask questions to staff and Polygon Development 395 Ltd regarding the development proposal.

For further information, please contact:

Development Manager: Devon Smart | Polygon Development 395 Ltd
Email: dsmart@polyhomes.com
Phone Number: 604 871 4473

Planner: Mackenzie Stonehocker | District of North Vancouver
Email: stonehockerm@dnv.org
Phone Number: 604 990 2411 ext. 7124

POLYGON

In-Person Public Information Meeting

Wednesday, October 8, 2025, 6 – 8 pm

Ross Road Elementary School, Gymnasium

2875 Bushnell Place, North Vancouver

Virtual Public Information Meeting

Monday, October 6 to Monday, October 20, 2025

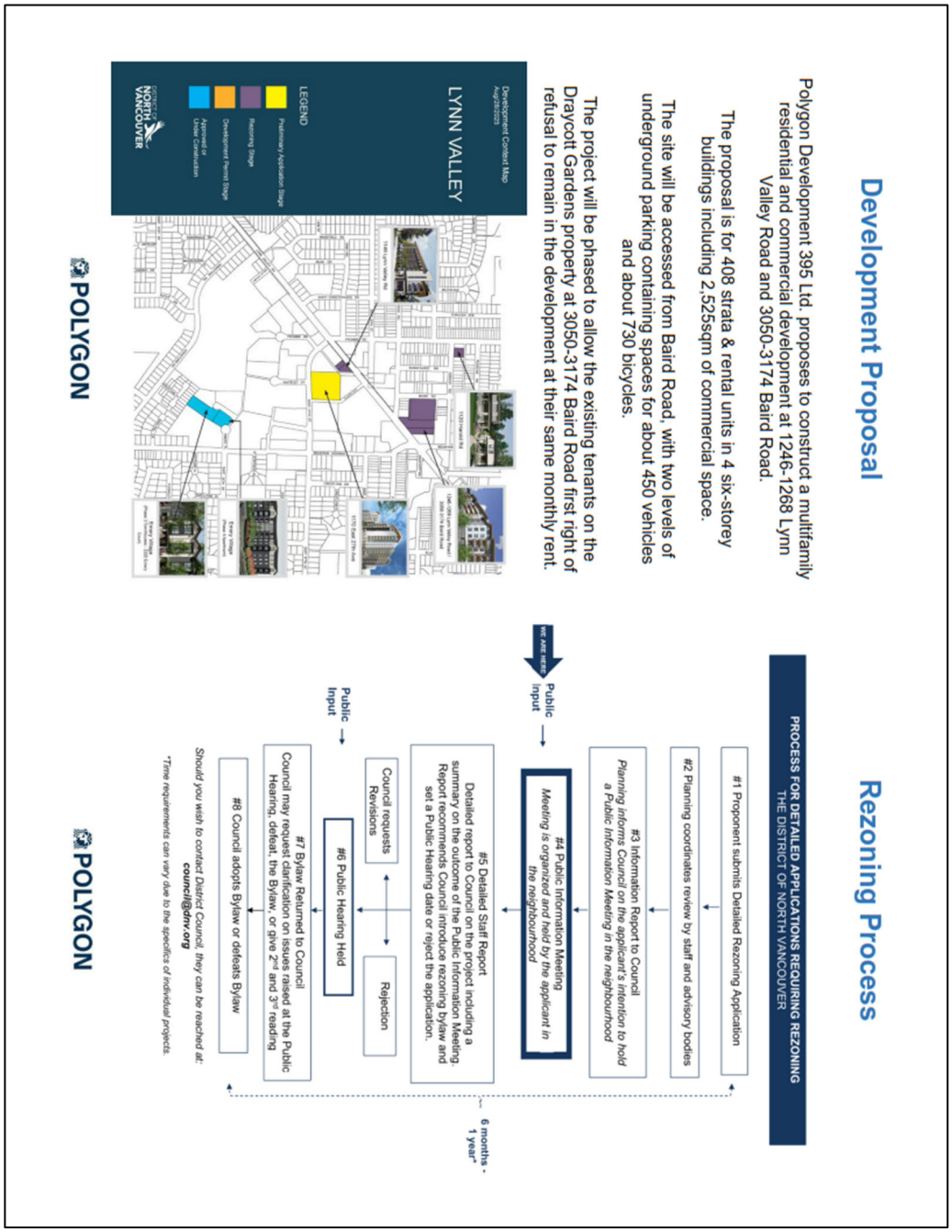
Please visit the following link:

URL www.DNV.org/public-meeting

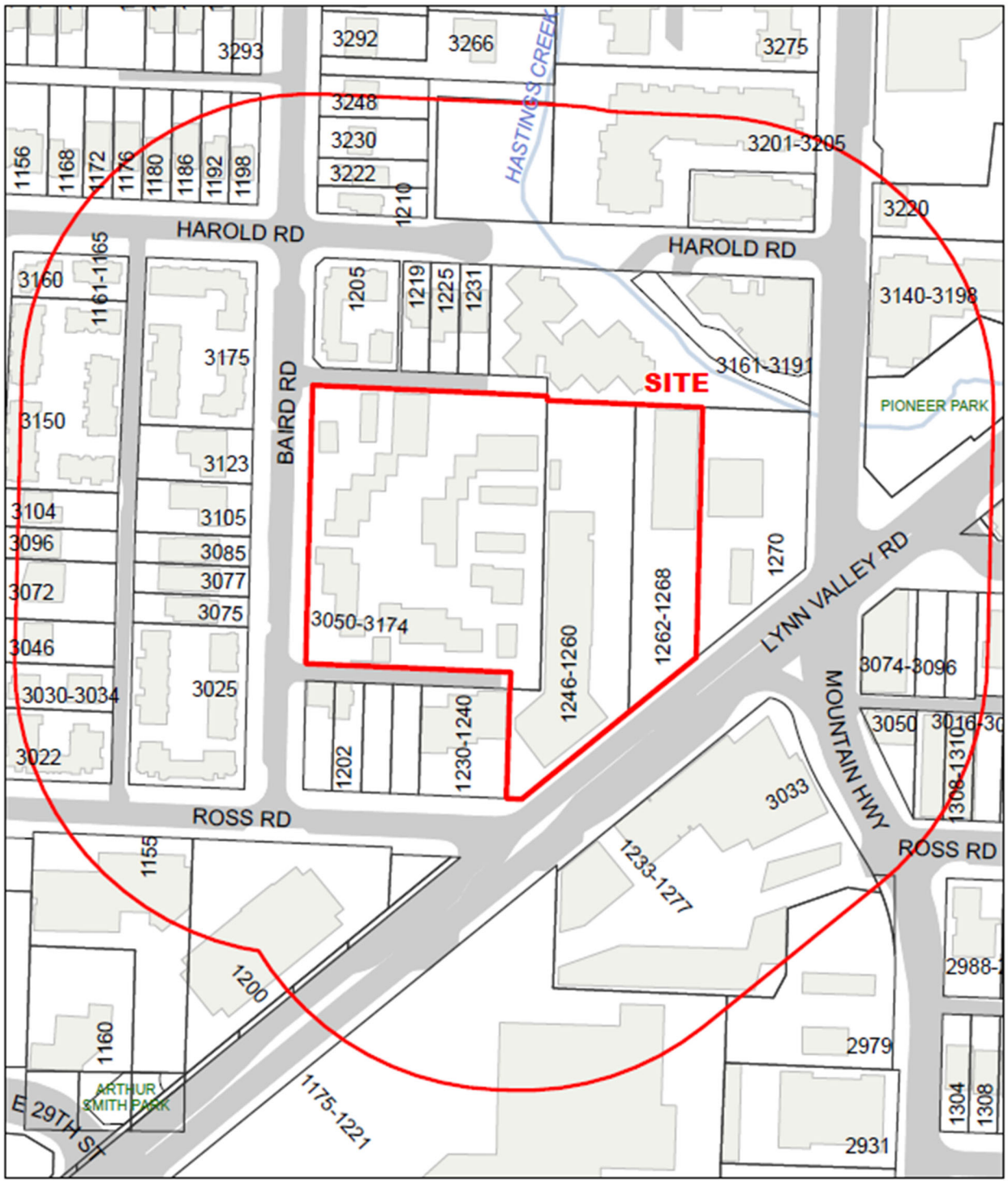
This information is being distributed to owners and occupants situated within 100 meters of the proposed development site in accordance with District of North Vancouver policy.

POLYGON

Notification Flyer – Page 2



Notification area map (100m radius)



Appendix B: Summary of Public Comments

Total – 87 pieces of public input from 3 sources:

1) **Emails** – 29 comments were received via emails to the DNV Development Planner
2) **Handwritten comment sheets** – 22 comments were received via handwritten comment sheets from the in-person PIM
3) **Virtual PIM comments** – 36 comments were received via the virtual PIM

Thematic Summary of Public Comments

1) **Traffic, Access, and Parking (most frequent theme)**
    a. Nearly all commenters raised traffic and parking concerns.
    b. Recurrent issues: congestion at Baird Rd, Ross Rd, and McDonald's drive-through; existing lanes are narrow; long queues; and lack of pedestrian safety measures.
    c. Many mention Argyle Secondary students using Baird, creating conflicts between vehicles and pedestrians.
    d. Several suggest access should be off Lynn Valley Road, not solely Baird.
    e. Concerns regarding effective emergency access after build-out.
    f. Parking concerns: insufficient spaces for residents, visitors, and commercial users; fear of spillover onto nearby streets; need for truck and trades vehicle spaces; calls for more EV charging and car-share options.
2) **Building Height, Massing, and Neighbourhood Fit**
    a. Many object to the six-storey height along Baird, citing loss of sunlight, privacy, and mountain views.
    b. Calls for step-backs, sloped roofs, or reduction to four storeys at edges adjacent to homes.
    c. Some note the proposal appears inconsistent with the five-storey flexible planning framework.
    d. A few supportive comments praise the architectural quality, material variety, and colour design.

3) Infrastructure and Public Services

a. Strong sentiment that schools and childcare are already at capacity.
b. Concerns that added residents will strain roads, transit, medical services, and recreation facilities.
c. Requests for clear phasing and coordination with infrastructure upgrades (e.g., traffic lights, sidewalks, active transportation, bus service).

4) Environment and Hastings Creek

a. Multiple comments note proximity to Hastings Creek and potential streamside impacts from excavation and run-off.
b. Requests for rain gardens, rehabilitation of salmon habitat, retention of mature trees, and permeable surfaces.
c. Some compare to past developments that caused creek damage.

5) Housing Mix and Affordability

a. General support for more housing options, but concern that the proposal offers too few rentals and lacks true affordability.
b. Requests for mid- to low-income units, and assurances for existing tenants (e.g. rent matching, pet-friendly leases).
c. Some commend the developer's plan to assist existing residential tenants.

6) Commercial Space and Community Character

a. Mixed feedback: some want more local-serving shops and services (e.g. restaurants, gyms, childcare), others worry about commercial viability.
b. Support for revitalizing the area and creating walkable connections similar to the library.
c. Requests for public plazas, green space, and community gathering areas.

7) Construction Impacts

a. Concerns about noise, dust, debris, rodents, and traffic during construction.

8) Positive Themes and Supportive Views

a. Support for more housing and density in town centres to reduce sprawl.
b. Recognition that new housing will help young families stay on the North Shore.
c. Appreciation for tenant relocation commitments, pedestrian design, and architectural improvements.
d. A few urge the District to accelerate sustainable transport investments (e.g. cycling, transit).

The Corporation of the District of North Vancouver

Bylaw 8779

A bylaw to amend District of North Vancouver Official Community Plan Bylaw 7900, 2011

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as "District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8779, 2026 (Amendment 62)".

Amendments

2. District of North Vancouver Official Community Plan Bylaw 7900, 2011 is amended as follows:

   a) Amend Map 2, the Land Use Map for the District, by changing the land use designation from "Residential Level 5: Low Density Apartment" (RES5) to "Residential Level 6: Medium Density Apartment" (RES6), and by changing the land use designation from "Residential Level 6: Medium Density Apartment" (RES6) to "Commercial Residential Mixed Use Level 2" (CRMU2) for the lands shown on Schedule A of this bylaw;

   b) Amend Map 4.1, the Energy and Water Conservation and Greenhouse Gas Emission Reduction Development Permit Area, by adding the lands shown on Schedule B of this bylaw, designating them as a Development Permit Area for Energy and Water Conservation and Greenhouse Gas Emission Reduction.

READ a first time March 16, 2026 by a majority of all Council members.

PUBLIC HEARING held

READ a second time by a majority of all Council members.

READ a third time by a majority of all Council members.

ADOPTED by a majority of all Council members.

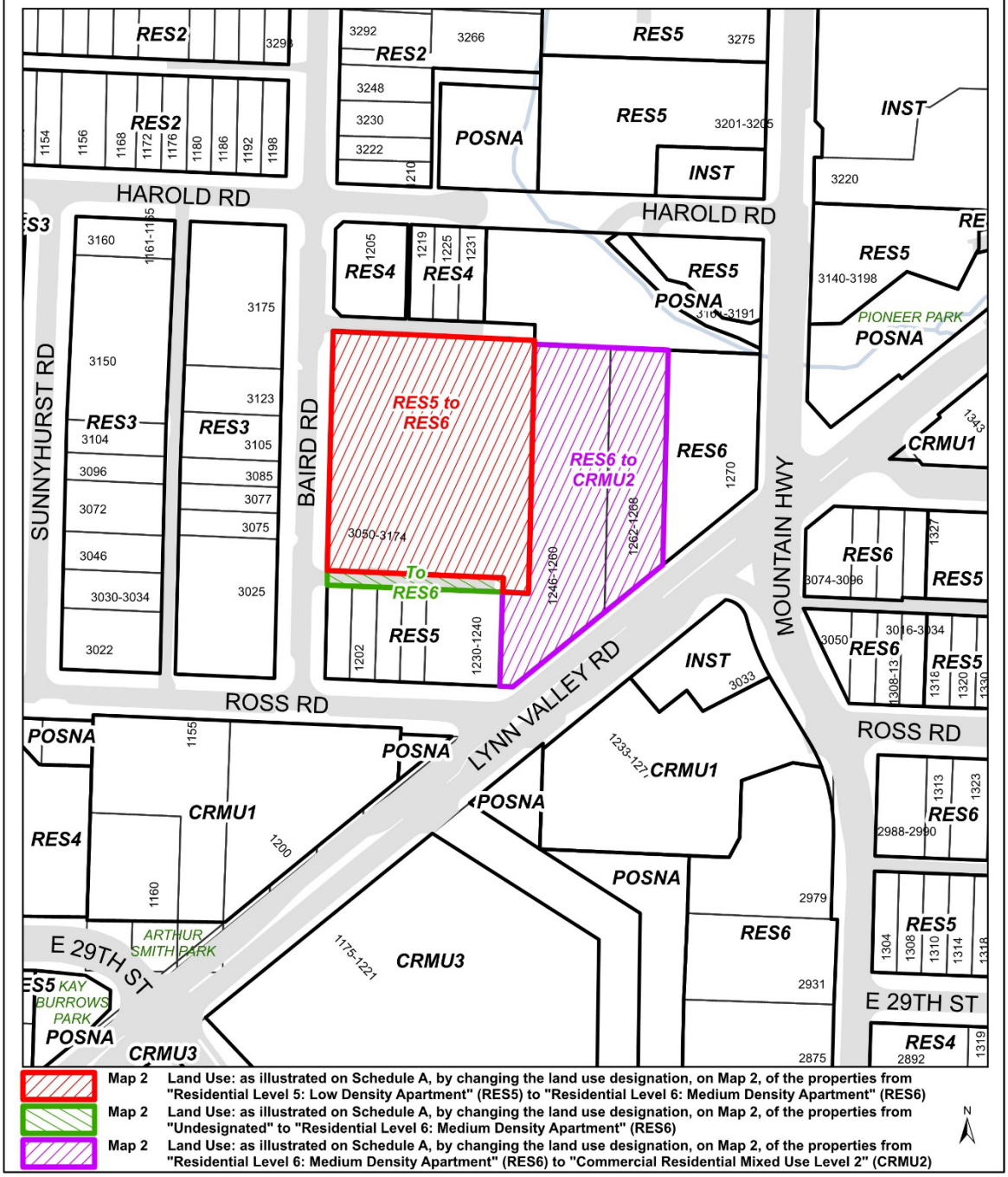
Mayor

Corporate Officer

Schedule A to Bylaw 8779

Schedule A to Bylaw 8779

District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8779, 2026 (Amendment 62)



Schedule B to Bylaw 8779

District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8779, 2026 (Amendment 62)

Map 4.1 Energy and Water Conservation and GHG Emission Reduction Development Permit Area: as illustrated on Schedule B, by adding the properties to Map 4.1, designating them as an Energy and Water Conservation and Greenhouse Gas Emission Reduction Development Permit Area

The Corporation of the District of North Vancouver

Bylaw 8780

A bylaw to amend District of North Vancouver Zoning Bylaw 3210, 1965

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as "District of North Vancouver Rezoning Bylaw 1463 (Bylaw 8780)".

Amendments

2. District of North Vancouver Zoning Bylaw 3210, 1965 is amended as follows:

    a) Part 2A, Definitions is amended by adding CD162 to the list of zones that Part 2A applies to.

    b) Part 2A, Definitions is amended by adding the following definition:

    "Instructional services" means a commercial establishment providing specialized instruction, training, or certification in specific skills, trades, or subjects. This includes, but is not limited to, professional development, language schools, driver training, and supplemental tutoring or examination preparation. These services are typically provided on a per-course or hourly basis and are distinct from a general curriculum school. This use does not include Fitness Centre, Child Care Facility, School or University.

    c) Section 301 (2) by inserting the following zoning designation:

    "Comprehensive Development Zone 162 CD162"

    d) Part 4B Comprehensive Development Zone Regulations by inserting the following, inclusive of Schedule A:

    "4B 162 Comprehensive Development Zone 162 CD162

    The CD162 Zone is applied to:

I. Lot 3 Block 3 District Lot 2023 Plan 14333 (007-865-473);
II. Lot 2 Block 3 District Lot 2023 Plan 13905 (007-993-994);
III. Lot B Block 3 District Lot 2023 Plan 14474 (007-800-614); and
IV. The parcel south of Lot B

all as indicated in Schedule A of this bylaw.

4B 162 - 1 Intent:

The intent of the CD162 Zone is to permit a mixed-use development including residential and commercial uses.

4B 162 - 2 Permitted Uses:

The following *principal* uses shall be permitted in the CD162 Zone:

a) Uses Permitted Without Conditions:

Not applicable

b) Conditional Uses:

The following *principal* uses are permitted when the conditions outlined in Section 4B 162-3 Conditions of use, are met:

Animal care services, including *pet care establishments* and *veterinarian*
Business/office support services
Child care facility
Fitness centre (indoor fitness and sport)
Health service purposes (health care services)
Instructional services
Office use
Personal service
Professional office use
Residential
Restaurant use, including *neighbourhood public house with on-site brewing, retail food services,* and *take-out restaurant*
Retail use, including *liquor store*
Service use

4B 162 - 3 Conditions of Use:

a) **All conditional uses**: All uses of land, buildings and structures are only permitted when the following conditions of use are met:

i.) All aspects of the use are completely contained within an enclosed building except for:

1. Parking and loading areas;
2. Outdoor customer service areas;
3. The display of goods, limited to 5 m^2 per commercial unit;
4. Outdoor amenity areas (plazas, roof decks, play areas, and private or semi-private outdoor space); and
5. Plazas and park areas.

b) **Animal care services**: Animal care services are only permitted when the following conditions are met:

i.) Any animal care service must have an outside public entrance, and all noise associated with the keeping of and caring for animals must be contained within the premises.

c) **Restaurant**: Restaurant use is only permitted when the following conditions are met:

i.) Any Outdoor Customer Service Area must be operationally and physically tied to the principal use premises which it serves; and
ii.) The size of an Outdoor Customer Service Area shall not exceed 50% of the total gross floor area of the principal use to which the Outdoor Customer Service Area is accessory, or 50% of the number of seats permitted for the principal use to which the Outdoor Customer Service Area is accessory, whichever is the lesser.

d) **Residential**: Residential uses are only permitted when the following conditions are met:

i.) Each *residential* dwelling unit has access to private or semi-private outdoor space;
ii.) Each *residential* dwelling unit has access to a designated storage or bicycle storage space; and
iii.) Balcony, patio and deck enclosures are not permitted.

4B 162 - 4 Accessory Uses:

a) *Accessory uses* customarily ancillary to the principal uses are permitted.

b) *Home occupations* in *residential* units are permitted.

c) *Outdoor customer service areas* are permitted.

4B 162 - 5 Density:

a) The maximum permitted density is 36,083 m^2 (388,391 sq. ft.).

b) For the purpose of calculating *gross floor area* the following are exempted:

i.) Indoor common amenity areas accessory to a residential use, up to a maximum of 557.4 m^2 (6,000 sq. ft.), as identified in Figure 1;
ii.) Parking, storage, mechanical, maintenance areas, and any other areas located below grade in a structure which has an exposed exterior wall of less than 1.2 m (4 ft) above finished grade;
iii.) Rooftop mechanical and electrical areas to a maximum of 100 m^2 (1,076 sq. ft.) per Building, as identified in Figure 1;
iv.) Underground parking access ramps and covered trellis areas, if applicable; and
v.) The floor area of unenclosed balconies, roof overhangs and private rooftop terraces.

c) For the purpose of calculating *gross floor area*, the measurement is to be taken to the outside of sheathing, rather than exterior walls.

4B 162 - 6 Setbacks:

a) Buildings shall be set back from the property lines to the closest building face as established by development permit and in accordance with Figure 1 and Table 1:

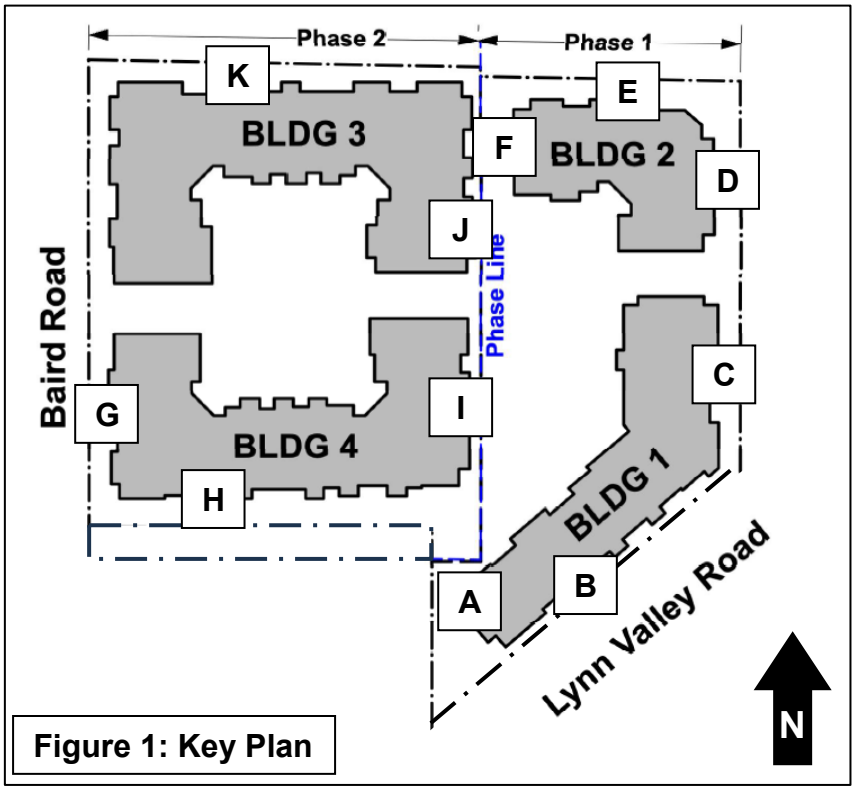


Figure 1: Key Plan

Table 1. Setbacks			
Phase	**Identifier (Figure 1)**	**Building # – Building side**	**Minimum Required Setback**
1	A	Building 1 – west	7.5 m (24.6 feet)
	B	Building 1 – south	1.5 m (5.0 feet)
	C	Building 1 – east	4.5 m (14.8 feet)
	D	Building 2 – east	4.5 m (14.8 feet)
	E	Building 2 – north	4.0 m (13.1 feet)
	F	Building 2 – west	4.5 m (14.8 feet)
2	G	Building 3 and 4 – west	4.5 m (14.8 feet)
	H	Building 4 – south	4.5 m (14.8 feet)
	I	Building 4 – east	1.8 m (6.0 feet)
	J	Building 3 – east	4.0 m (13.1 feet)
	K	Building 3 – north	4.5 m (14.8 feet)

a) Underground parking structures are excluded from the setback requirement.

b) Decks, patios, balconies, balcony columns, unit entry stairs, window wells, and roof overhangs and vertical projections and unit entrance canopies to a maximum depth of 1.3 m (4.2 ft) are excluded from the setback requirement.

4B 162 - 7 Height

a) The maximum permitted height for any building in the CD162 Zone is as follows:

Table 2. Building Height		
Building # (see Figure 1)	**Maximum Height** Measured from Level 1	**Maximum Storeys** (above parkade)
Building 1	24.0 m	6 storeys
Building 2	21.0 m	6 storeys
Building 3	21.0 m	6 storeys
Building 4	21.0 m	6 storeys

b) The following height exemptions shall apply to the CD162 Zone;

i.) Rooftop stair enclosures, elevator penthouses, heating, cooling, planter boxes, guard rails and ventilation and mechanical equipment provided they do not extend more than 3.0 metres above the highest point of any roof surface.

4B 162 - 8 Building Coverage:

a) Building Coverage: The maximum building coverage is 40%.

4B 162 - 9 Building Regulations – Location of Uses:

a) Within Buildings 1, 2, 3 and 4 (as labelled in Figure 1), uses are permitted in the following locations, as per Tables 3 and 4:

Table 3: Location of land uses permitted in Building 1			
Permitted land uses	**Permitted locations**		
	Ground floor	**Second floor**	**Third floor and above**
Animal care services	Yes	Yes	No
Business / office support services	No	Yes	No
Child care facility	No	Yes	No
Fitness centre	No	Yes	No
Health service purposes	No	Yes	No
Instructional services	No	Yes	No
Office use *Professional office use*	No	Yes	No
Personal service	Yes	Yes	No
Residential dwelling units	No	No	Yes
Restaurant use	Yes	Yes	No
Retail use	Yes	Yes	No
Service use	No	Yes	No

Table 4: Location of land uses permitted in Buildings 2, 3, 4		
Permitted land uses	**Permitted locations**	
	Ground floor	**Second floor and above**
Child care facility	Yes	No
Residential dwelling units	Yes	Yes

4B 162 – 10 Landscaping and Stormwater Management

a) All land areas not occupied by buildings, patios and driveways shall be landscaped in accordance with a landscape plan approved by the District of North Vancouver.

b) A 2.0m (6.6 ft.) high screen consisting of a solid wood fence, or landscaping or a combination thereof, with minimum 90% opacity, is required to screen from view:

   i.) any utility boxes, vents or pumps that are not located underground and/or within a building; and
   ii.) any solid waste facilities (garbage, recycling, compost with the exception of temporary, at-grade staging areas) that are not located underground and/or within a building.

4B 162 - 11 Parking, Loading and Servicing Regulations

a) Vehicle parking is required as per Table 5:

Table 5. Vehicle Parking Requirements	
Land Use and Type of Parking	**Minimum Parking Requirements**
Vehicle Parking	
Residential Vehicle Parking Strata dwelling units Rental dwelling units	*(Rates do not include visitor parking)* 1 space / strata dwelling unit 0.89 spaces / rental dwelling unit
Residential Visitor Vehicle Parking Per dwelling unit	 0.10 spaces / dwelling unit
Commercial Parking	1 / 45 m^2 gross floor area
Accessible Parking	4.5% of all required parking spaces

b) Commercial parking is based on a blended rate for all commercial uses.

c) Commercial parking and residential visitor parking shall be shared.

d) Bicycle parking is required as per Table 6:

Table 6. Bicycle Parking Requirements	
Class 1 – Long Term	732 spaces, of which 9 must be for commercial purposes
Class 2 – Short Term	51 spaces

iii.) Except as specifically provided in this Section 4B 162-11, Parking shall be provided in accordance with Part 10 of this Bylaw."

(End of CD162 Zone)

e) The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the lots from Multi-Family Residential Zone 3 (RM3) and General Commercial (C2) to Natural Parkland (NPL) and Comprehensive Development Zone CD162.

f) The Siting Area Map section of the Zoning Bylaw is amended by deleting Plan Section Page R/11 and Plan Section Page C/18.

Severability

3. If any section, subsection or clause of this bylaw is for any reason held to be invalid by the decision of a court of competent jurisdiction, such decision will not affect the validity of the remaining portions of this Bylaw.

READ a first time March 16, 2026

PUBLIC HEARING held

READ a second time

READ a third time

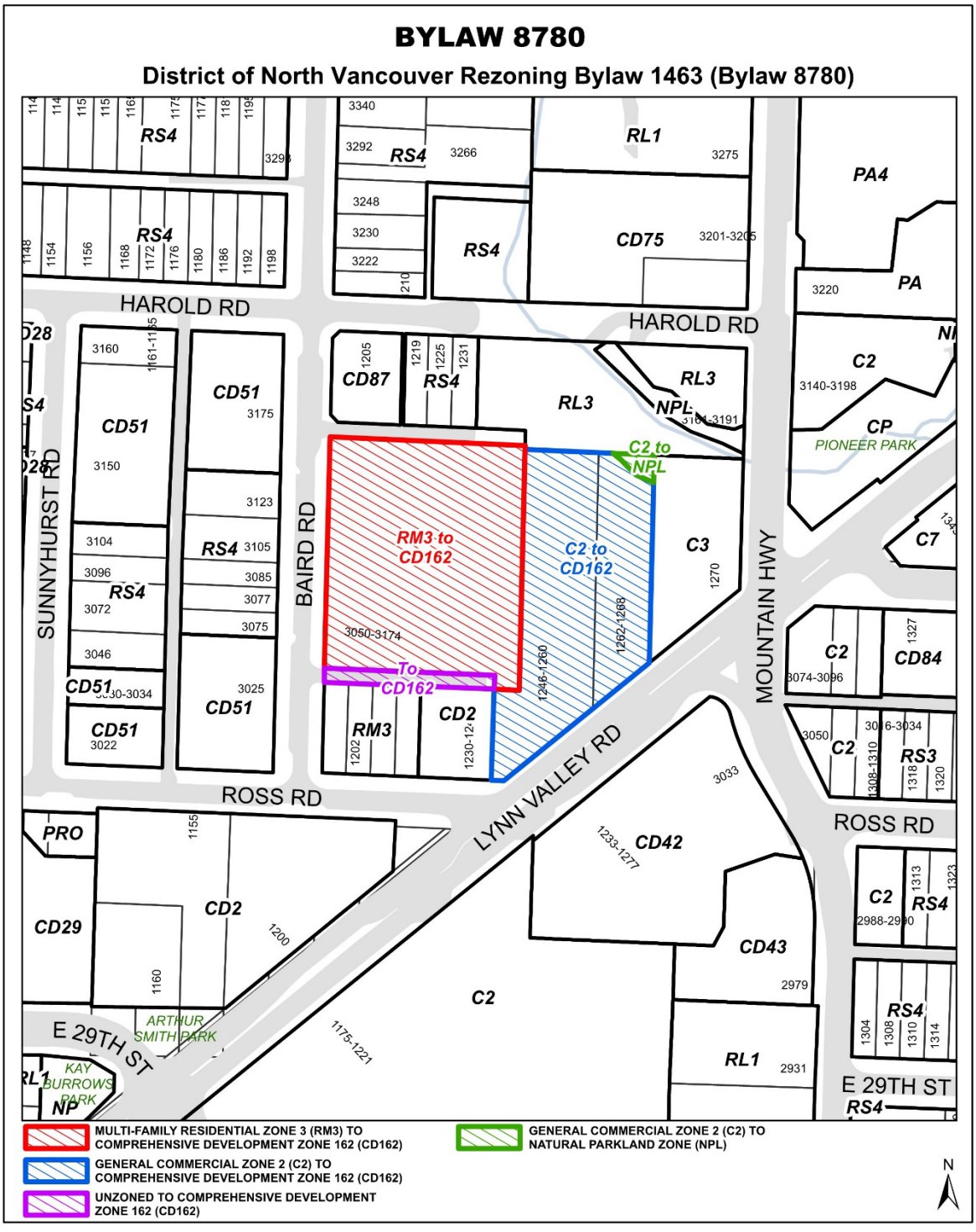
ADOPTED

Mayor

Corporate Officer

Schedule A to Bylaw 8780

Schedule A to Bylaw 8780



PUBLIC HEARING

1246-1268 Lynn Valley Road & 3050-3174 Baird Road

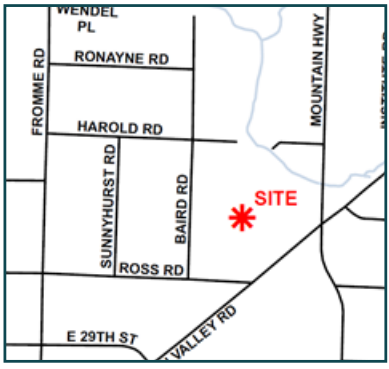
ZONING BYLAW AMENDMENTS

When: Tuesday, April 14, 2026 at 7pm

Where: Council Chambers, 355 West Queens Road, North Vancouver, BC

What: A Public Hearing for Bylaw 8779, proposed amendments to the Official Community Plan (OCP) and Bylaw 8780, proposed amendments to the Zoning Bylaw, to permit a mixed-use development with 2,330 m2 commercial space and 397 residential units in 4 six-storey buildings at 1246-1268 Lynn Valley Road & 3050-3174 Baird Road ("Lynn Valley Mall" and "Draycott Gardens").

What Changes: Bylaw 8779 proposes to amend the OCP in general terms, by changing the land use designation of the subject site from Residential Level 5: Low Density Apartment (RES5) to Residential Level 6: Medium Density Apartment (RES6), and by changing the land use designation from Residential Level 6: Medium Density Apartment (RES6) to Commercial Residential Mixed Use Level 2 (CRMU2), and to designate the subject site as a Development Permit Area for Energy and Water Conservation and Greenhouse Gas Emission Reduction.



Bylaw 8780 proposes to amend the District's Zoning Bylaw in general terms, by adding a definition for commercial establishments providing "Instructional services" and rezoning the Lynn Valley portion of the site (General Commercial - C2 Zone) and the Draycott Gardens portion of the site (Multi-Family Residential Zone 3 - RM3 Zone) to Natural Parkland (NPL) and a new Proposed Comprehensive Development Zone 162 (CD162).

How: The Public Hearing will be held in a hybrid format with a combination of in-person and electronic participation by some or all members of council, or by staff and the public. The public are invited to attend at the Council Chambers where they will be able to see and hear the entire proceedings. Those wishing to view or to participate in the meeting electronically may do so at https://dnvorg.zoom.us/j/64484156494 or by phone by dialling 1-778-907-2071 and entering webinar ID 644 8415 6494.

When and How can I provide input?

We welcome your input on April 14, 2026 at 7pm. You may sign up to speak at the hearing by contacting the Corporate Officer at signup@dnv.org prior to 3pm, Tuesday, April 14, 2026. You may also provide a written submission at any time prior to the close of the public hearing by sending it to the Corporate Officer at input@dnv.org or by mail to Corporate Officer, 355 West Queens Road, District of North Vancouver, BC, V7N 4N5. After the speakers list has been exhausted, there will be an opportunity for additional speakers who had not signed up in advance to make submissions. Please note that Council may not receive further submissions from the public concerning this application after the conclusion of the public hearing.

Need more info? Copies of the bylaw are available for review at 355 West Queens Road, North Vancouver, BC, between 8:00am and 4:30pm Monday to Friday (except holidays), starting March 31, 2026, or online at **DNV.org/agenda**

DISTRICT OF NORTH VANCOUVER

Questions?
Mackenzie Stonehocker, Development Planner
stonehockerm@dnv.org 604-990-2411 ext. 7124

Vision, Principles and Goals

Understanding and raising awareness of the key issues in planning for the future catalyzed intensive community visioning through the **Identity DNV 2030** initiative. In December 2009 Council endorsed a compelling 20-year vision, the principles to guide decision-making towards that vision and the specific goals to make it happen.

Our vibrant neighbourhoods and centres are framed by our mountain backdrop, forests, streams and shorelines. We live in an inclusive and supportive community that celebrates its rich heritage and lives in harmony with nature.

Our neighbourhoods include people of all ages, cultures and incomes. All are equally welcomed, valued and actively engaged in community life. Our young have safe and healthy environments in which to grow and succeed; our seniors can remain in the community with their needs met in a dignified way.

Our network of well designed, livable centres provides a wide range of housing options and opportunities to shop, work and gather. Our local businesses are resilient and diverse, providing the services we need and an array of employment opportunities. Education, art, culture and recreation enrich our daily lives; we are an active, healthy and creative community.

Our enviable pedestrian and cycling network connects us to our destinations and our unparalleled natural environment. Many people walk, cycle and take transit, leaving their cars at home as viable alternatives are available.

Our community is effectively addressing and adapting to the challenges of climate change. Our air is clean, our water is pure, our waste is minimal: our lifestyle is sustainable. We have ensured the District remains a great place to live, learn, work and play for generations to come.

VISION FOR 2030

The District of North Vancouver: Inspired by nature, enriched by people

PRINCIPLES

The District of North Vancouver Official Community Plan is guided by the following principles. Collectively these principles provide a decision-making framework to support the realization of the Plan's Vision and the implementation of the Plan's Goals.

ACTIVE LEADERSHIP

The District embraces opportunities and addresses challenges proactively, recognizing the key role of local government in defining its community.

ACCOUNTABILITY AND RESPONSIBLE GOVERNANCE

The District engages its residents continually, seeking open and transparent input into its decision-making, while demonstrating fiscal accountability through prudent management of our shared assets.

SUSTAINABILITY FOR FUTURE GENERATIONS

The District balances the environmental, social, cultural and economic needs of the community and is committed to its role in the stewardship of all that is valued for future generations.

COLLABORATION AND PARTNERSHIPS

The District recognizes the necessity and value of collaborating with Federal, Provincial, municipal and First Nation governments as well as agencies, educational institutions, social service organizations, and businesses.

GOALS

Together with the Vision and Principles, these Goals inform the policies, strategies and targets developed for the District of North Vancouver Official Community Plan.

1. Create a network of vibrant, mixed-use centres while enhancing the character of our neighbourhoods and protecting natural areas

2. Encourage and enable a diverse mix of housing type, tenure and affordability to accommodate the lifestyles and needs of people at all stages of life

3. Foster a safe, socially inclusive and supportive community that enhances the health and well-being of all residents

4. Support a diverse and resilient local economy that provides quality employment opportunities

5. Provide a safe, efficient and accessible network of pedestrian, bike and road ways and enable viable alternatives to the car through effective and coordinated land use and transportation planning

6. Conserve the ecological integrity of our natural environment, while providing for diverse park and outdoor recreational opportunities

7. Develop an energy-efficient community that reduces its greenhouse gas emissions and dependency on non-renewable fuels while adapting to climate change

8. Provide infrastructure to support community health, safety and economic prosperity, and facilities that enhance recreational opportunities, cultural activity and artistic expression

Strategic Directions

With Council's endorsement of the Vision, Principles and Goals in December 2009, **Identity DNV 2030** transitioned from asking what we want for the future of the community to exploring policies for how to make it happen. After thirty public and stakeholder themed policy workshops, four strategic directions for the future of the community emerged:

1. PLAN FOR A MORE BALANCED AND DIVERSE POPULATION

- Facilitate diverse housing choices and vibrant, age-friendly communities with a range of facilities and services

2. CREATE MORE COMPLETE, COMPACT AND CONNECTED COMMUNITIES

- Establish a network of connected town and village centres that support effective transit, walking and cycling; and focus growth and renewal in four key centres: Lynn Valley and Lower Lynn Town Centres and Maplewood and Lower Capilano-Marine Village Centres

3. REDUCE OUR ENVIRONMENTAL FOOTPRINT

- Conserve energy and reduce greenhouse gas emissions through compact, connected and "green" communities; and encourage the protection and enhancement of our natural systems

4. BECOME MORE ECONOMICALLY DYNAMIC AND SUSTAINABLE

- Encourage the protection, intensification and diversification of our employment lands, and a customer-oriented and business-friendly environment

These strategic directions, the Making Choices community forums in June 2010, and the workshops, meetings and open houses held on iterative drafts of the OCP from fall 2010 to spring 2011, shaped the objectives and the policies of the Plan.

Identity DNV 2030 was two years of intense, creative dialogue and input that is strongly represented in this OCP. While this OCP creates a roadmap to a sustainable DNV in 2030, there is further work to be undertaken. From conceptual sketches to fully evolved plans and fully realized centres, the community will be engaged at all stages of implementing the OCP. Housing action plans, a social strategy, a climate action plan, economic development and other opportunities will be advanced through the implementation of the OCP. Plan monitoring for success and course correction are vital to keeping this OCP relevant and to achieving the community's vision.

Lynn Valley Town Centre

1 INTRODUCTION

Lynn Valley Town Centre is one of the District's two Town Centres in the OCP. Regionally, Lynn Valley is also identified as the District's Municipal Town Centre, which is a municipal-wide centre or hub with medium and higher density uses including residential, commercial, employment, recreational and civic. It is also a focus for potential frequent transit service. The land use policies for Lynn Valley Town Centre serve to accommodate approximately 2,500 new units within the timeframe of this OCP. Policies support the creation of a vibrant, compact and more complete community and direct and coordinate growth and redevelopment towards that vision.

Located in the heart of Lynn Valley, the Town Centre core is currently characterized by retail malls, and the new Lynn Valley library and civic plaza. Heritage buildings and features, parks and views to local mountains reflect the rich cultural and natural history of Lynn Valley. Building on the quality design, liveliness and sense of place initiated by the new Lynn Valley library and civic plaza, there is an opportunity to revitalize the Town Centre into a more vibrant, pedestrian oriented, mixed use centre with housing choices and inviting street level shopping along a High Street with sidewalk cafes and community spaces. Redevelopment of the Town Centre also provides an opportunity to increase the diversity of housing choices in an area close to services, shops, jobs and transit.

2 VISION

Lynn Valley Town Centre is envisioned as a well-designed pedestrian, biking and transit-oriented mixed use centre in the heart of Lynn Valley that celebrates its natural and cultural setting and strong sense of community. Building on the existing strong commercial core with recreation and civic uses, a mix of new residential, commercial and employment uses, park and community space, and green building design and infrastructure will create a more vibrant and complete community.

3 TOWN CENTRE POLICIES

3.1 LAND USE

Map 6 indicates the predominant land uses for Lynn Valley Town Centre.

3.1.1 GENERAL LAND USE

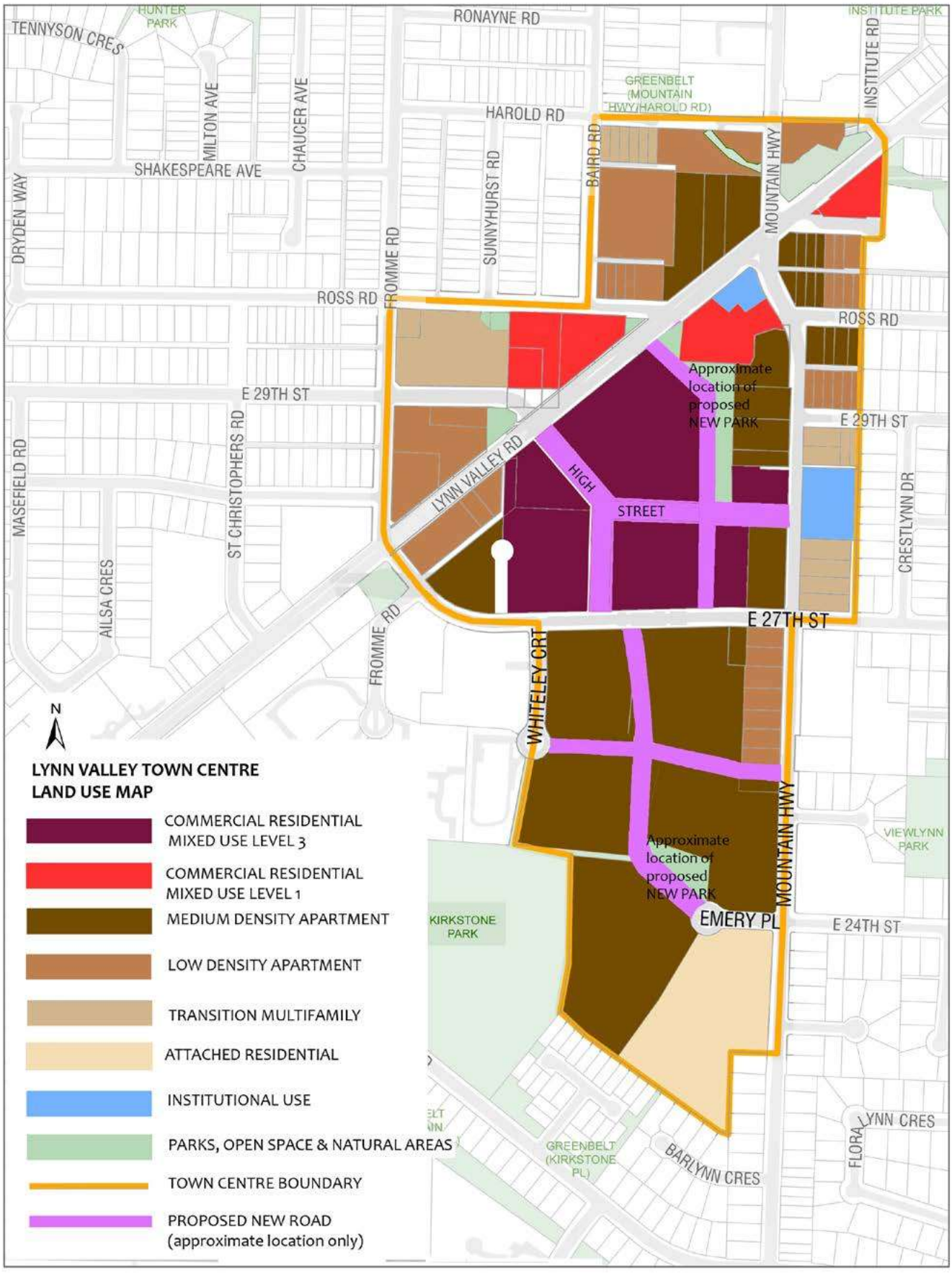
1. Locate higher density forms in the core of the Town Centre so that new residents may walk to and from shops, community and recreational services, cultural events and potential employment

2. Focus ground-oriented multifamily housing along the edges of the Town Centre and transition sensitively to surrounding low density residential areas

3. Provide for private and semi-public open spaces with good access to views and sunlight through appropriate building orientation and massing

4. Establish a gateway to the Town Centre at the historic intersection of Mountain Highway and Lynn Valley Road

5. Establish East 27th Street as a predominantly residential street with similar character on both sides and potential for limited retail on the north side



MAP 6: LYNN VALLEY TOWN CENTRE LAND USE MAP

3.1.2 HOUSING

1. Facilitate the provision of a diverse mix of multifamily housing forms and choices in the Town Centre to accommodate the needs of people at different lifecycle stages

2. Facilitate the provision of family housing in the residential area south of East 27th Street in the form of townhouses as well as apartments

3. Encourage redevelopment that includes units with more than 3-bedrooms that are suitable for families with children, and that may include flexible lock-off units

4. Facilitate the provision of new affordable and rental housing through the redevelopment of the Town Centre

5. Ensure that a portion of residential units in the Town Centre include adaptable design elements

6. Explore opportunities for the co-location of some ancillary housing for seniors on church sites

7. Consider the use of the District's old library site for a combination of market and non-market housing

Examples of potential housing forms for the Lynn Valley Town Centre area

3.1.3 COMMERCIAL AND EMPLOYMENT USES

1. Promote the retention of existing office uses and provide additional flexible office/retail space for local job opportunities according to the Lynn Valley Town Centre Land Use Map (Map 6)

2. Plan for sufficient additional retail and office space in the Town Centre in the next 20 years

3. Encourage redevelopment in which smaller commercial units are wrapped around large format retail units to create active and engaging store fronts, and to facilitate regular breaks in the street wall to promote pedestrian access and connectivity

4. Promote flexible retail or office use on strategic sites in the Town Centre and within mixed use buildings to accommodate changing community needs

5. Incorporate a portion of covered space for indoor shopping and gathering

3.1.4 COMMUNITY FACILITIES, SERVICES AND AMENITIES

1. Prepare a community amenity strategy for the Lynn Valley Town Centre to deliver community amenities and public benefits generally to include, but not limited to:

    - Affordable and non-market rental housing
    - Network of interconnected public gathering places including open space and plazas
    - Parks, greenways, trails, playgrounds and community gardens
    - Multi-purpose community space and daycare space
    - Community art and cultural facilities
    - Restoration of heritage features
    - Enhanced public recreation facilities and services

3.1.5 PARKS AND OPEN SPACES

1. Improve connections to existing parks and open space within and adjacent to the Town Centre through an integrated network of pedestrian walkways, sidewalks and trails according to the Mobility Network Map (Map 7)

2. Establish a strong pedestrian corridor to connect the library square to the Town Centre core and High Street

3. Create a Town Centre Green/Park south of the library square to connect with the High Street and consider opportunities for innovative stormwater management, community gardens and other recreational uses in this space

4. Protect natural parkland and local ecosystems including forest and riparian habitat, and seek to rehabilitate Hastings Creek at Lynn Valley Road

5. Create new park and greenway connections south of East 27th Street to provide additional park space for residents and to improve linkages between neighbourhoods, within the Town Centre and Kirkstone Park

6. Provide additional gathering spaces in the Town Centre and an urban plaza at a central location along the High Street

7. Design new urban spaces to promote public safety, provide attractive design elements (seating, lighting, public art, view corridors and landscaping) and encourage activity and vibrancy

8. Use public art, signage and other creative "way-finding" strategies in the Town Centre to enhance sense of place and to mark major trail connections and points of historical, recreational or other significance

Character sketches of the Lynn Valley Town Centre

Lynn Valley Road looking north-east

Mountain Highway at East 27th Street looking north

3.2 MOBILITY NETWORK

Map 7 provides a conceptual representation of the mobility network for Lynn Valley Town Centre.

1. Support a safe and integrated transportation network that includes all modes of transportation with an emphasis on walkability and strong pedestrian connections and plan road, transit, bike and pedestrian routes in accordance with the Lynn Valley Town Centre Mobility Network Map (Map 7)

2. Connect the Town Centre to outside destinations and explore opportunities to establish a north-south pedestrian/cycle route east of Mountain Highway

3. Maintain Lynn Valley Road and Mountain Highway as primary vehicular routes for Lynn Valley

4. Establish a pedestrian and vehicle oriented High Street in the core of the Town Centre to include generous sidewalks, weather protection, bike facilities and on-street parking

5. Encourage the majority of parking to be located underground, and explore opportunities for reduced parking standards and shared residential/commercial parking in concert with enhanced pedestrian, cycling and transit facilities

6. Work with the regional transportation authority to support the provision of frequent transit service to and from the Town Centre and support transit service with appropriately located lay-by areas and accessible, safe and attractive transit stops

7. Provide accessible and comfortable sidewalks in the Town Centre and provide safe and attractive pedestrian crossings of Lynn Valley Road, Mountain Highway and East 27th Street at strategic locations

8. Continue to explore innovative transit choices in the long-term

3.3 SUSTAINABILITY

1. Assess the feasibility of a district energy system for Lynn Valley Town Centre, and subject to the results of this analysis, encourage new development to be district energy ready

2. Promote the implementation of green building and water conservation practices

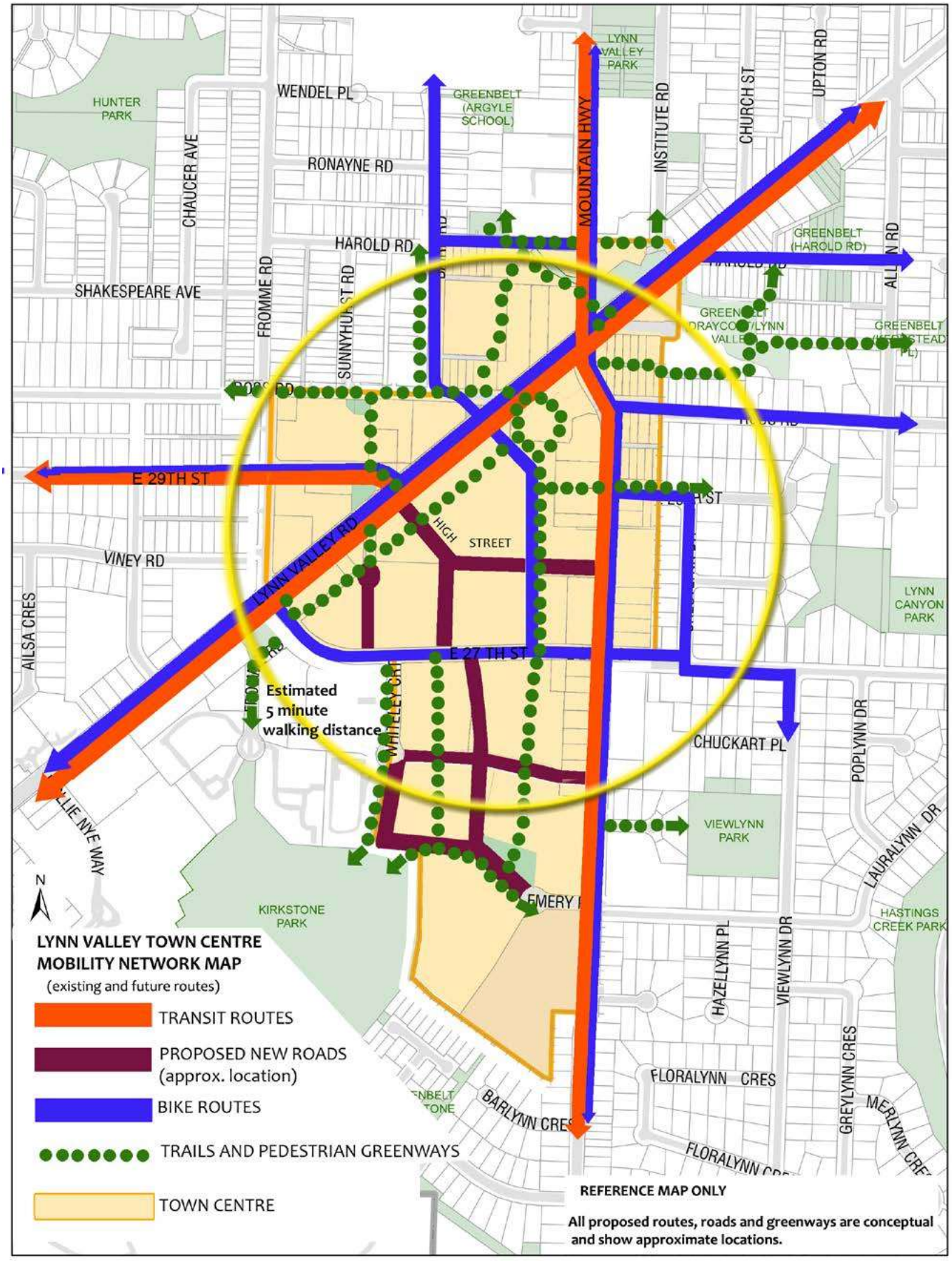
3. Integrate the natural environment into the Town Centre by planting native landscaping, protecting pocket parks and heritage stumps, and encourage innovative rain gardens/ rainfall capture features, green walls and roofs to utilize ecological services and reflect the natural context

4. Complete an integrated stormwater management plan for the Hastings Creek watershed and implement measures to maintain and enhance the health of the watershed

5. Require integrated stormwater management strategies for new development in the Town Centre and seek to manage and re-use stormwater on site to the greatest extent possible

6. Encourage community gardens and urban agriculture in open spaces and roof top gardens

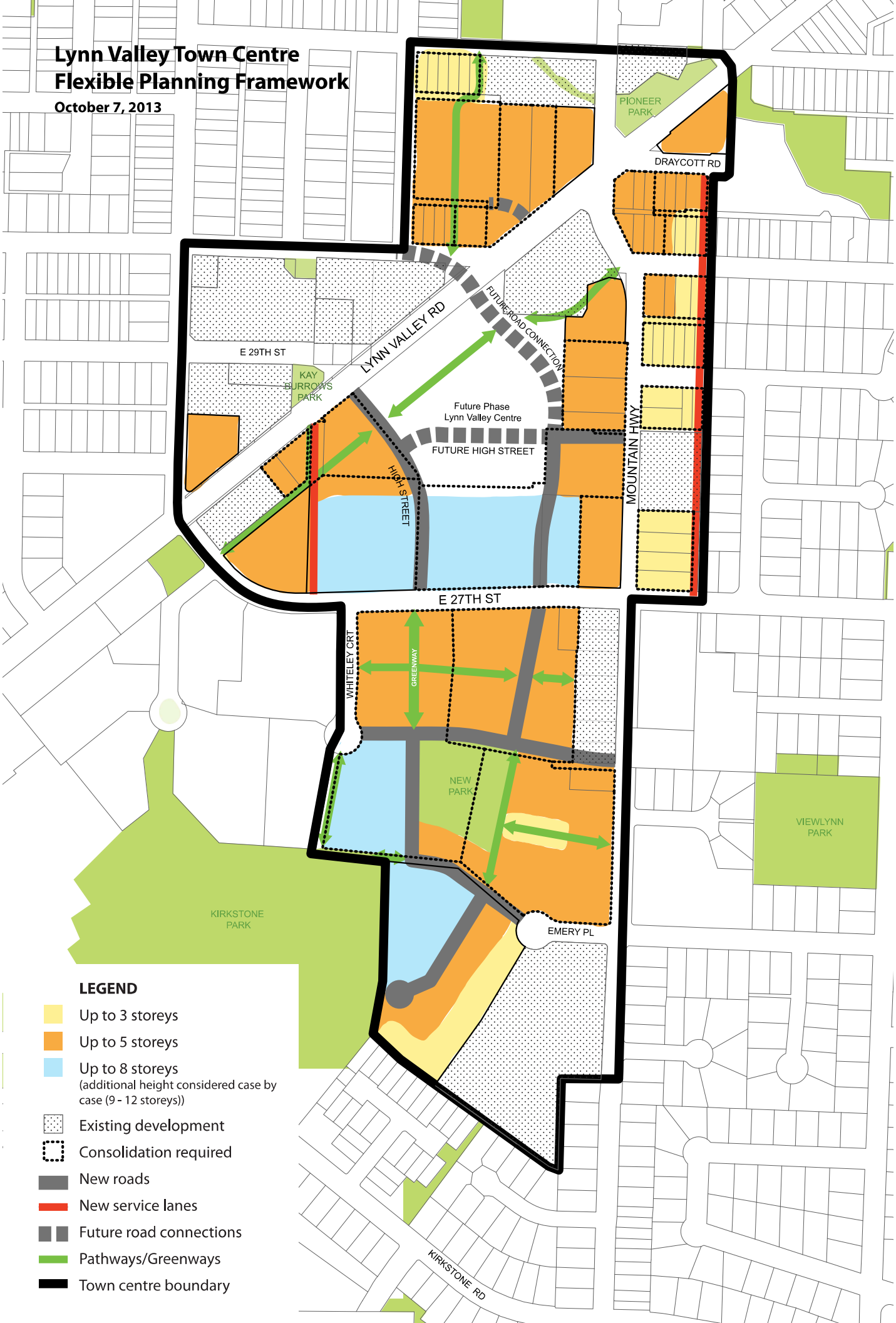
7. Encourage new multi-family housing developments to provide composting facilities and/or coordinate composting services



MAP 7: LYNN VALLEY TOWN CENTRE MOBILITY NETWORK MAP

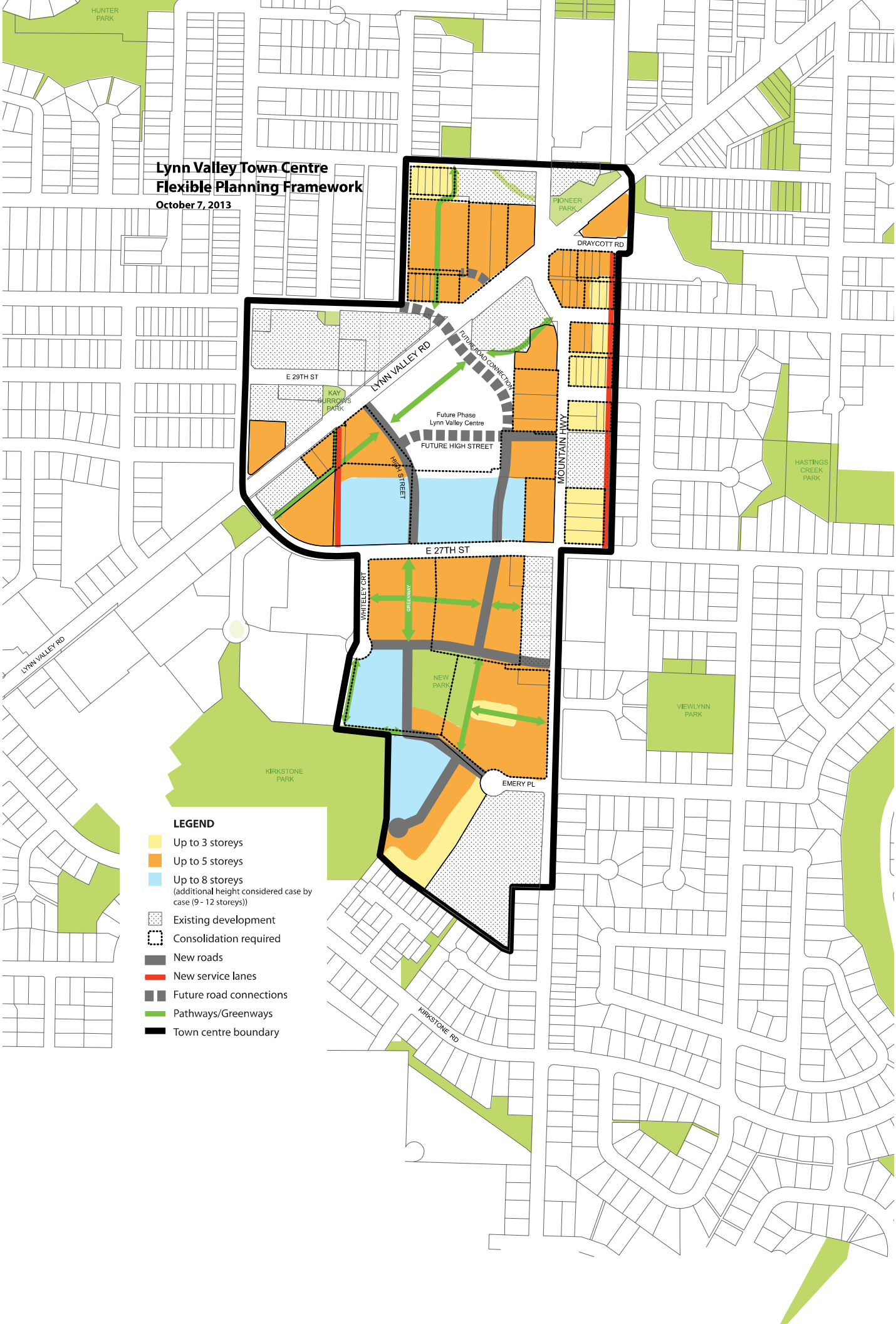
Lynn Valley Town Centre
Flexible Planning Framework

October 7, 2013



LEGEND

- Up to 3 storeys
- Up to 5 storeys
- Up to 8 storeys
  (additional height considered case by case (9 - 12 storeys))
- Existing development
- Consolidation required
- New roads
- New service lanes
- Future road connections
- Pathways/Greenways
- Town centre boundary


Lynn Valley Town Centre
Flexible Planning Framework
October 7, 2013
HUNTER PARK
PIONEER PARK
DRAYCOTT RD
LYNN VALLEY RD
FUTURE ROAD CONNECTION
E 29TH ST
KAY BURROWS PARK
Future Phase
Lynn Valley Centre
FUTURE HIGH STREET
HIGH STREET
MOUNTAIN HWY
HASTINGS CREEK PARK
E 27TH ST
WHITELEY CRT
GREENWAY
NEW PARK
VIEWLYNN PARK
KIRKSTONE PARK
EMERY PL
KIRKSTONE RD
LEGEND
Up to 3 storeys
Up to 5 storeys
Up to 8 storeys
(additional height considered case by case (9 - 12 storeys))
Existing development
Consolidation required
New roads
New service lanes
Future road connections
Pathways/Greenways
Town centre boundary

Lynn Valley Town Centre
Transportation Study
2013

In 2013, Urban Systems consultants completed a comprehensive Transportation Study for Lynn Valley Town Centre. The study assessed worst case scenario of development-generated traffic in the peak hour in the year 2030. **Based on the outcome of the study, the District is confident that there is a sound transportation plan for the area for the coming years.**

Key findings:

- The Lynn Valley Transportation study identified opportunities for enhanced traffic operations through better lane continuity and an improved grid network. With the planned improvements, the overall network is expected to experience minimal additional delay. Under the worst case scenario of development in 20 years, no operational issues are expected for any intersections within the area. For the average trip in the Town Centre area, the **total increase in delay per vehicle would be less than 30 seconds in the worst case scenario in 20 years.**

- As a result of signal operation improvements, lane continuity, removal of turning restrictions, and overall circulation enhancements, **safety benefits at intersections** are anticipated.

- The proposed land use changes enable **improvements for active and healthy transportation.** The study identified opportunities for **new walkways and improved facilities for cyclists** of all ages and abilities, including a separated two-way cycle track along E 27 Street and bike lanes on the high street.

- The North Shore Area Transit Plan identifies **future frequent transit corridors** serving the Town Centre. To support these transit improvements, the study identifies a multimodal on-street transit exchange on 27th Street.

- The study is based on the **conservative assumption** that 20 percent of trips will be made by walking, cycling and transit (consistent with the 21 percent of trips by walking, cycling and transit across the District of North Vancouver). The actual proportion of people that choose to walk, cycle or take transit will likely be higher because of the quality of the pedestrian and cycling infrastructure in the Town Centre.

- **Parking** levels would be matched with demand and generally provided underground. On-street parking would also be available to support vibrant retail.

- Each development will be responsible for establishing a **construction management plan** to minimize the impacts of development on traffic in the area.

A full copy of the study follows.

URBAN systems

REPORT

District of North Vancouver

Lynn Valley Town Centre

Transportation Assessment

550 - 1090 Homer Street, Vancouver, BC V6B 2W9 | T: 604.235.1701

2013

File: 1333.0018.01

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Executive Summary

In June 2011, the District of North Vancouver adopted a new Official Community Plan (OCP), with a vision of establishing a 'network of centres' to manage expected growth over the next 20 years. Lynn Valley Town Centre, a deep-rooted community within the District, has been identified as one of two designated Town Centres within the OCP. With steady growth anticipated over the next two decades, the OCP calls for a revitalization of Lynn Valley Town Centre that will increase residential density, while providing more pedestrian-friendly roadways and housing options that maintain and enhance the community's overall vibrancy. This revitalization is possible only through redevelopment, which will make land and funds available for key improvements. Prior to approval of any future development projects, the Lynn Valley Town Centre Transportation Assessment was a necessary step to further understand the implications of such development on the transportation network, a vital component of any vibrant community.

The Lynn Valley Town Centre Transportation Assessment examines existing contexts, including roadway characteristics and an analysis of existing conditions. The analysis creates a better understanding of existing network deficiencies. Through this understanding, existing network issues and the resulting impacts can be mitigated.

Furthermore, a snapshot of Lynn Valley Town Centre by 2031 has been developed and included within this assessment. Future growth and land use as well as eight (8) mobility network policies, as described in the OCP, have been outlined for reference. Some of the benefits within this snapshot include a more walkable environment within a safe transportation network with strong connectivity, the establishment of a new pedestrian and vehicle oriented street within the core of the Town Centre, and opportunities for improvements to parking. Other plans and studies that will influence future transportation in Lynn Valley, including the North Shore Area Transit Plan, the District of North Vancouver Transportation Plan, and the North Vancouver Bicycle Master Plan have been considered and summarized to include relevant highlights complimentary to this report.

Building on the vision for the future, an assessment of future conditions was completed for two separate timelines, a 20-year horizon and an unlimited horizon, which will account for additional development not anticipated within the 20-year timeframe of the OCP. Future traffic forecasts indicate that the increase in new vehicle trips due to redevelopment will be small and may be further mitigated by increasing internal trips and non-auto mode share. These are both expected to increase over time as a result of a more vibrant, pedestrian focused Town Centre, with minimal impacts to its users. In line with the North Shore Transit Plan, an assessment of future transit needs shows an outlook of improved transit exchanges with more frequent service as well as better connectivity east and west. As identified within the OCP, the ability for the District to increase sustainable forms of transportation will result in a more liveable Town Centre. As a result, the transportation study has carefully considered the future needs of both pedestrians and cyclists in order to enable a safer environment for users of all ages and skill levels.

Also identified in this report are a number of guiding principles that will further improve accessibility for pedestrians, cyclists, transit users, and motorists. These guiding principles help inform improvement options, ultimately transforming Lynn Valley Town Centre into a complete community where people want to live, work, and play. The guiding principles align well with the final recommendations, included in

summary, of the impact future development will have on area residents over the next 20 years and beyond. A brief summary follows.

Impact of future growth on pedestrians could include:

- More walkable neighbourhoods,
- Improved connectivity and well designated spaces for pedestrians,
- Wider sidewalks,
- A new residential corridor within the core of the Town Centre,
- A safer, more comfortable walking environments for residents of all ages and mobilities, and
- A reduction in intersection crossing distances.

Impact of future growth on cyclists could include:

- Improved facilities for cyclists of all ages and abilities,
- A separated two-way cycle track along an important connection for area cyclists,
- Improved connectivity for cyclists traveling east-west,
- Decreased travel time and distance, and
- Clear signage that will help to direct users to their intended destinations.

Impact of future growth on drivers could include:

- An improved grid network that will lessen the impacts on the road network as vehicle trips increase,
- Continued access for commercial industries,
- New roadways to improve circulation,
- Safer intersection operations,
- Minor increase in travel time for some vehicle trips with all intersections operating at an acceptable level of service
- Minimal delays to through traffic on Mountain Highway and Lynn Valley Road, and
- Parking improvements.

Impact of future growth on transit users could include:

- Improved service, including increases in frequency and routes, for an exceptional overall experience, and
- Improved accessibility resulting in an increase in ridership.

With all change and growth cultivates a need to better understand the surrounding area and how certain regeneration will impact others. The report has considered the impact of future development on the residents who call the District of North Vancouver home and how best to mitigates any potential impacts. The recommended changes are expected to provide a better function while balancing the needs of both vehicular traffic and other sustainable modes of transportation now and into the future.

1.0 Introduction

1.1 Lynn Valley

Lynn Valley Town Centre is a long-established community in the District of North Vancouver, located amongst a beautiful, natural setting. In the core of the community there are retail establishments and civic uses, including the new Lynn Valley Main Library. In 2011, District of North Vancouver Council adopted a new Official Community Plan (Bylaw 7900). This OCP establishes a 'network of centres' to manage growth within a defined urban structure over the next 20 years. Lynn Valley Town Centre is one of two Town Centres identified in the OCP and is the designated Municipal Town Centre under the *Metro Vancouver 2040: Shaping Our Future (2011)* Regional Growth Strategy. In particular, the OCP calls for the revitalization of the Lynn Valley Town Centre and provides land uses that increase residential density, making the community more pedestrian-oriented, vibrant and with more housing choices.

1.2 Project Rationale

Before development projects are approved under the scope of the new OCP, the implications on the transportation network must first be well understood. As such, a major component of the Transportation Study has been to examine the future transportation conditions that are anticipated as a direct result of future land use plans. Once the impacts of the land use changes on the transportation system were identified, required multi-modal transportation improvements were developed in consultation with the District of North Vancouver.

In addition to land use and density projections, the Transportation Study required an update to the existing Synchro model, local area traffic projections and the development of a new Synchro model. The project included an assessment of alternative modes and planning for transit stops, pedestrian, and cycling connectivity. Goods movement access and internal study area configuration were also considered. Finally, a number of alternatives for various segments of the transportation network were developed and assessed. The recommended scenario is a transportation network that accommodates growth while supporting mobility for all modes.

The overall purpose of this study is to ensure that the community's vision for a vibrant and complete Town Centre is upheld. The functionality of the transportation network is a major factor in achieving this objective.

1.3 Report Outline

This report is divided into eight sections that describe the study processes, analysis, and recommendations. The sections are as follows:

1. **Introduction**
2. **Scope of Work**: Description of the approach to the study, including the area and time horizons considered.
3. **Existing Context**: Summary of the existing pedestrian, cycling, transit, and road networks, including analysis of existing intersection operations.

4. **Lynn Valley Town Centre by 2031**: Presentation of the anticipated growth and land use patterns based on the OCP. The vision for Lynn Valley is summarized along with the planned transportation network for all modes.
5. **Future Conditions Assessment**: Summary of forecast conditions for the roadway network and analysis of roadway operations. Description of future transit, cycling, and pedestrian needs.
6. **Guiding Principles**: Identification of the guiding principles that informed the design. These principles are based on the vision and conditions outlined in previous sections.
7. **Recommendations by 2031**: Presentation of the recommended transportation network for 2031 and beyond.
8. **Conclusion**

2.0 Scope of work

2.1 Deliverables

In pursuing the objectives of this Transportation Study, two major deliverables have been completed by the consulting team with guidance from the District. These deliverables include:

1. The traffic model, to provide developers with assistance in identifying development impacts and solutions that will mitigate these impacts.
2. The recommended improvements to the transportation network, illustrated in plan view, with cross-sections showing laning, road classification, traffic control, bus stops, parking, cycling and pedestrian accommodation, as well as other road elements.

2.2 Time Horizon

The scope of the Transportation Study includes two future horizons, one for 2031 (20 year horizon) and one for full build-out, which would occur in the future after 2031 (ultimate horizon). The timing of the ultimate horizon is unknown and would be subject to future assessment of long term market conditions. The purpose of modelling two future horizons is to assess the impact on the transportation network of a partial mall redevelopment (within the timeframe of the OCP) and the impact on the network when the remainder of the mall redevelops (anticipated at some point after 2031). One analysis period (P.M. peak hour) was used to assess impacts. The A.M. peak hour impacts are estimated at a high level by comparing trip generation rates to the P.M. peak. This provides a rough gauge of the difference between the two peaks.

2.3 Study Area

The Transportation Study addresses the road network surrounding the Lynn Valley Town Centre area. The Town Centre area, as identified in the Official Community Plan, is shown in Figure 2-1.

Figure 2-1: *Lynn Valley Town Centre*

2.4 Analysis

In order to achieve the vision of a vibrant, mixed use centre with sustainable modes of transportation (walking, cycling, transit), a balance must be achieved between accommodating vehicular traffic and supporting these sustainable modes. Because of these diverse objectives, it was determined that traditional measures of effectiveness, such as level of service and volume to capacity ratios, do not necessarily indicate whether the transportation network will meet future needs. This is especially important for the internal road network in the Study Area because the community's vision is for a pedestrian, cycling and transit-friendly, vibrant mixed use centre. Achieving this vision may result in an internal network with reduced vehicular capacity. Along the adjacent arterial and collector roads, the priority is to maintain lower delays and limit queues. Traditional measures of effectiveness and analysis tools were used to measure changes in mobility along these corridors.

In keeping with the vision for the Lynn Valley Town Centre and the analysis boundaries described above, the Study Area intersections were divided into two categories:

1. **Connectivity intersections**: these intersections are important for connectivity within the broader road network. The analysis includes turning movement forecasts and assessment in Synchro.

Analysis is completed for the 2031 build-out scenario (i.e. with upper shopping mall site not redeveloped, and using design concept road network) and for an ultimate future build-out (i.e. with upper shopping mall site redeveloped and OCP road network).

2. **Vision intersections**: it is most important for these intersections to be designed consistently, with the sustainable-mode vision. As described above, analysis tools like Synchro are not an effective tool to determine if these intersections meet their intended purpose. Instead, recommendations are made based on best practices for sustainable modes, urban livability, and the vision for the community.

In Figure 2-2 below, the key connectivity intersections are identified in blue and the vision intersections are highlighted in orange.

Figure 2-2: *Proposed Intersections for Analysis*

3.0 Existing Context

Traffic counts were collected in the autumn of 2012 to confirm existing traffic volumes within the study area. The counts are summarized in Table 3-1.

Table 3-1: Intersection Count Locations

Intersection Location	Count Date
Fromme Road and E 29th Street	September 19, 2012
Mountain Highway and Lynn Valley Road	September 20, 2012
Mountain Highway and E 27th Street	September 25, 2012
Mountain Highway and Ross Road	September 26, 2012
Mountain Highway and Emery Place	September 27, 2012
Mountain Highway and Existing Mall Entrance	October 2, 2012
Fromme Road / E 27th Street and Lynn Valley Road	September 26, 2012
Whiteley Court and E 27th Street	October 3, 2012
Lynn Valley Road and Ross Road	October 4, 2012

Existing traffic count volumes were balanced within the study area to ensure consistency between intersections prior to commencing evaluation of existing traffic conditions. Traffic volumes at some intersections were not available. For connectivity intersections where traffic volumes were not available (including Lynn Valley Road at E 29th Street) were estimated based on the best available information and engineering judgement.

3.1 Roadway Characteristics

The study area road network consists of almost a dozen different streets as summarized in the following table:

Road	Class	Number of Lanes	Existing Transit Service	Existing Bicycle Facilities	Existing Pedestrian Facilities	On Street Parking
Lynn Valley Road (LVR)	Major Arterial	5 lanes – two per direction + left turn lane	Route 228 Route 255 Route 229 (N of 29th St) Bus lay-by on south side of LVR by Main Library	Northbound shared lanes between Molly Nye way and E. 29th Street	Sidewalks on north and south sides	Small pocket of on street parking on south side at Ross Road
Mountain Highway	Major Arterial	3 lanes – one per direction + left turn lane	Route 209 Route 210 Route 255	Northbound and southbound painted bike lanes from E. 27th St to E. 29th St	Continuous Sidewalk on west side. Sidewalk on portions of east side, some on private property.	Small pocket of on street parking on east side north of Lynn Valley Road
E 27th Street	Collector	3 lanes – one per direction + left turn lane	None	None	Sidewalks on north and south sides	On street parking on south side of E 27th Street
Fromme Road (North of LVR)	Collector	2 lanes – one per direction	None	None	Sidewalks on east and west sides	On street parking on east and west sides
Fromme Road (South of LVR)	Local Road	2 lanes – one per direction	None	None	Sidewalk on east side	On street parking on west side
Ross Road (East of Mountain Hwy)	Collector	2 lanes – one per direction	None	None	Sidewalk on south side	On street parking on north and south sides
Ross Road (West of LVR)	Local Road	2 lanes – one per direction	None	None	Sidewalk on south side	On street parking on south side
Whiteley Court	Local Road	2 lanes – one per direction	None	None	Sidewalks on east and west sides	On street parking on east and west sides
E 29th Street (West of LVR)	Major Arterial	2 lanes – one per direction	Route 229	None	Sidewalks on portion of north and south sides	On street parking on north and south sides
E 29th Street (East of Mountain Hwy)	Local Road	2 lanes – one per direction	None	None	None	On street parking on north and south sides
Emery Place / E 24th Street	Local Road	2 lanes – one per direction	None	None	None	On street parking on north and south sides

3.2 Existing Conditions Analysis

Existing traffic volumes were obtained at key intersections in the study area and modeled to identify existing network issues and deficiencies. Traffic operations at key street intersections within the Study Area were evaluated using the Synchro 7 traffic analysis software package. This operational analysis included calculation of volume-to-capacity (v/c) ratios, and predicted delay based Level of Service (LOS) for each traffic movement at each intersection assessed.

At signalized intersections, the v/c ratio is used as a measurement of the traffic congestion for a particular traffic lane, lane group, or entire intersection. Generally, values up to 0.85 are considered appropriate for the intersection and up to 0.90 for individual lanes or lane groups. A v/c ratio of 1.0 or greater indicates that the traffic operation is over-capacity. The traffic LOS indicator ranges from the ideal LOS A condition with minimal or no delay through to the LOS F condition with extensive delay.

For unsignalized intersections, the LOS is based on the estimated average control delay per vehicle for each crucial movement. A control delay less than 10 seconds indicates sufficient capacity and good traffic conditions. A calculated control delay value that is greater than 50 seconds is assigned a LOS F performance measure. Balanced existing traffic volumes at key Study Area intersections are shown in Figure 3-1. The results of the Synchro analysis of signalized intersections are shown in Figure 3-2. All individual movements at signalized and unsignalized key connectivity intersections operate with LOS D or better and volume to capacity (v/c) ratio less than 0.90.

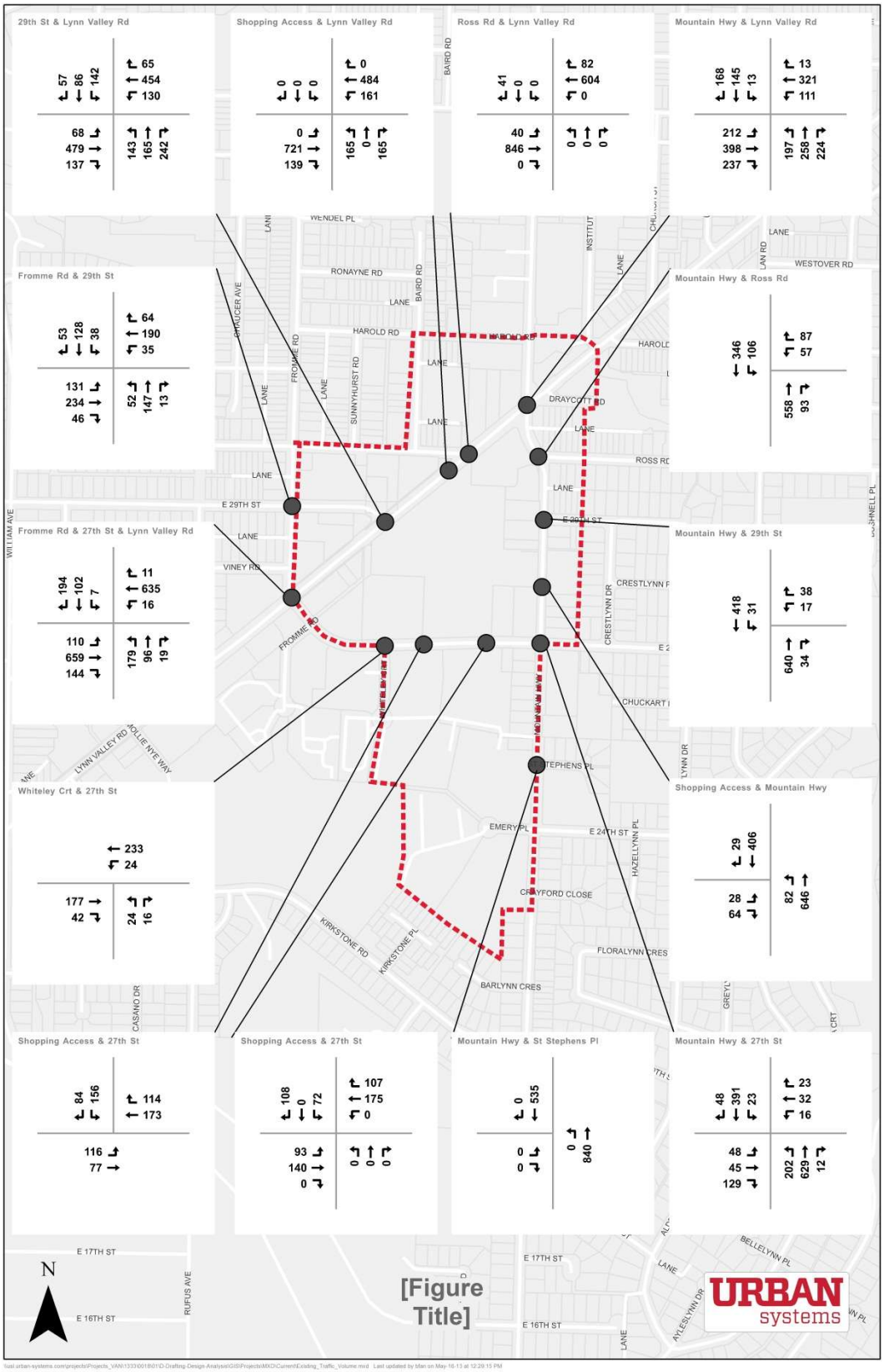


Figure 3-1: Existing traffic volumes (PM Peak)

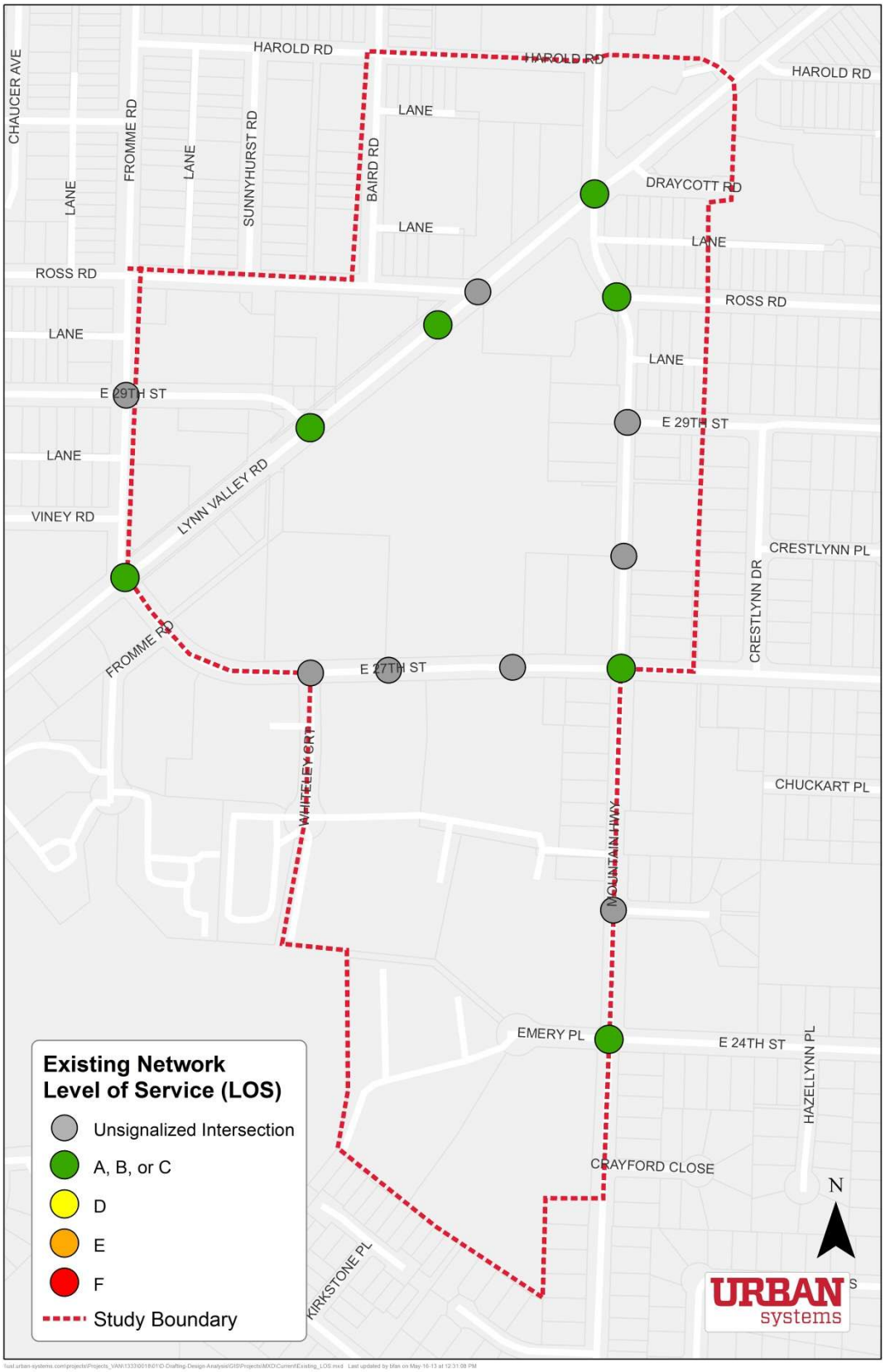


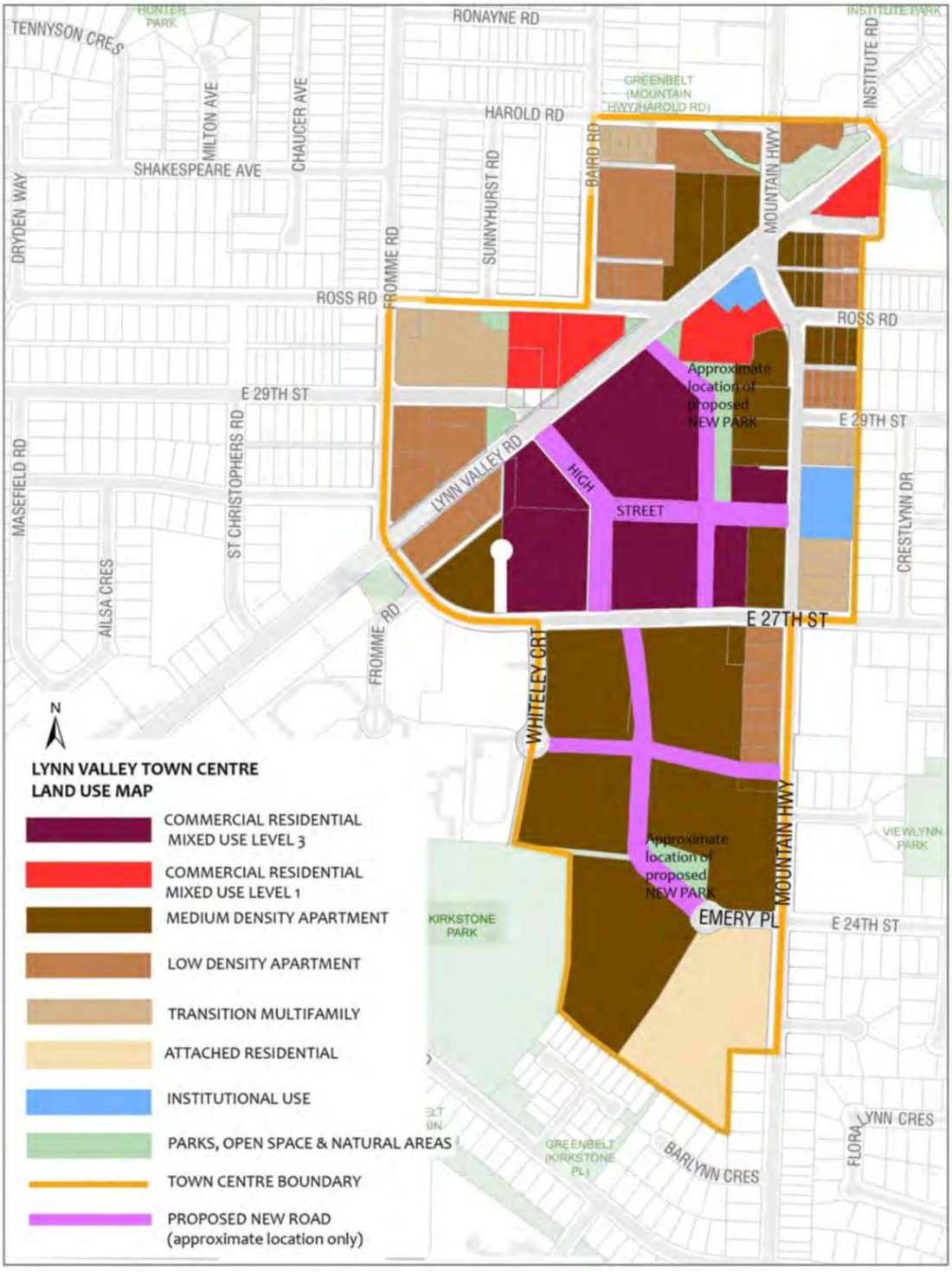
Figure 3-2: Existing traffic level of service (PM Peak)

4.0 Lynn Valley Town Centre by 2031

4.1 Growth and Land Use

The District's Official Community Plan (OCP) was approved by Council in June 2011. The OCP identifies two Town Centres in the District, Lynn Valley and Lower Lynn, both of which will experience growth, development and redevelopment over the next 20 years. Medium and higher densities in Lynn Valley will be located in the core area of the Town Centre and will include commercial, employment, recreational and civic uses as well as approximately 2,500 new residential units by 2031. Because of the growth that is expected, Lynn Valley is also a focus for potential frequent transit service.

According to the OCP, higher densities will be located in the Town Centre core in order to create a walkable environment. Near the outward areas of the Town Centre, the focus will be on ground-oriented multi-family housing. The OCP establishes East 27th Street as a predominantly residential street with the potential for limited retail on the north side. Finally, according to the plan, a gateway to Lynn Valley is to be established at the intersection of Mountain Highway and Lynn Valley Road. The Lynn Valley Town Centre Land Use Map, which also shows the approximate locations of proposed roads, is provided in Figure 4-1.



Source: DNV Official Community Plan

Figure 4-1: Lynn Valley Town Centre Land Use Map

The proposed changes in land use for the interim and ultimate horizons are summarized in Table 4-1. These land use changes were used to estimate future traffic in order to complete the future conditions assessment.

Table 4-1: Proposed changes in Study Area land use

	Residential	Gas Station	Commercial
	Units)	(pumps)	(sq ft)
20 Year Horizon			
New development	3,910	-	253,049
Existing to be removed	546	22	238,823
Net development	3,365	(22)	14,226
Ultimate Horizon			
New development	4,633	-	320,062
Existing to be removed	546	22	306,961
Net development	4,088	(22)	13,101

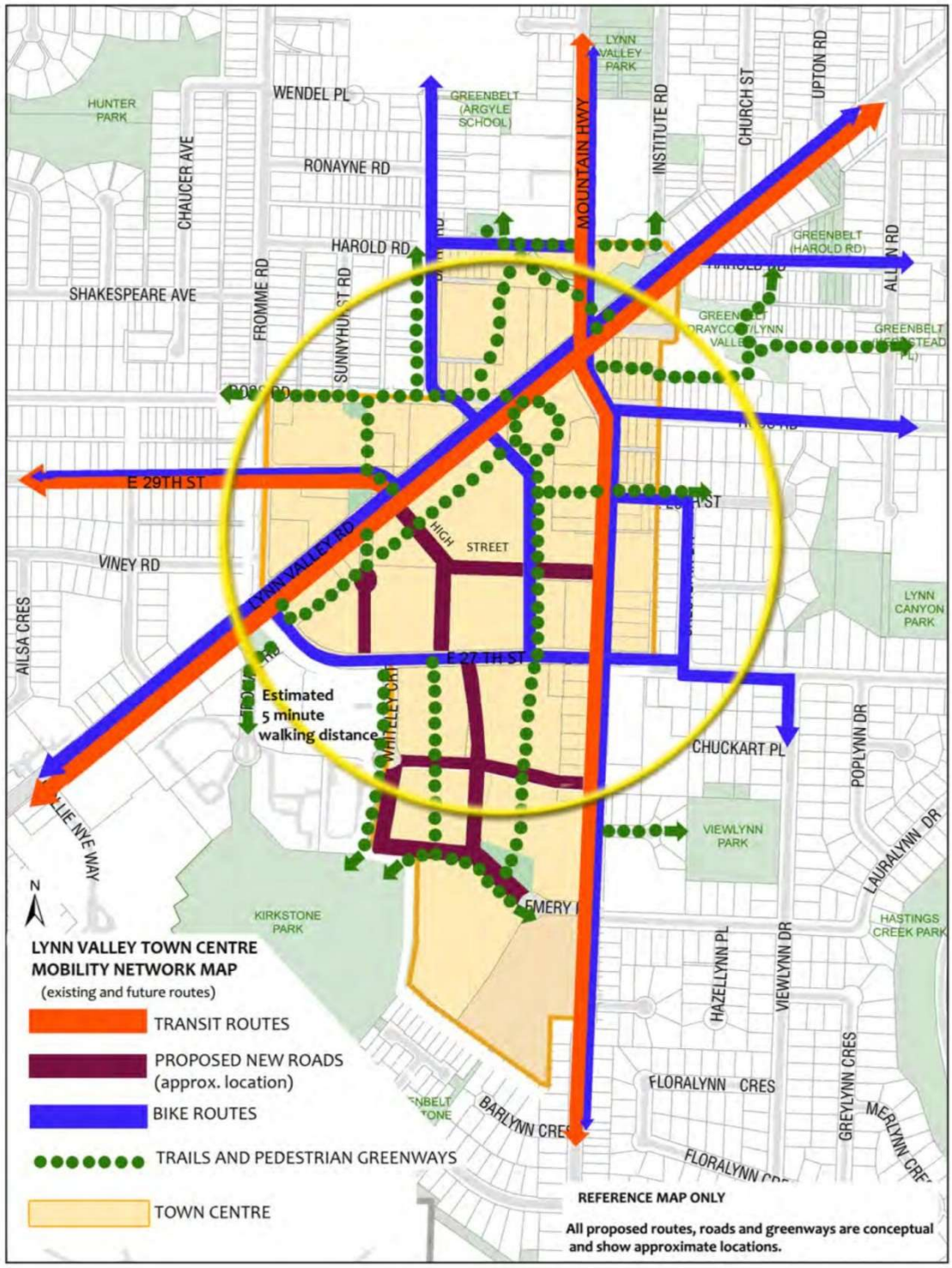
The summary above shows that growth in commercial is expected to increase modestly as commercial uses transition over time from large format retail with no residential to mixed use with the inclusion of residential components, while the number of residential units is expected to grow more significantly within the study area. This will allow for improved neighbourhood and economic vibrancy by increasing the number of residents, pedestrians, cyclists, and local shoppers in the area. At the same time, existing low-density “big box” commercial is expected to be augmented with higher value street-facing commercial along the High Street. For both the residential and commercial space, existing land uses that are high trip generators per unit are being replaced with more sustainable land use that typically generates fewer trips per unit. This type of development also typically results in a higher mode share for walking, cycling, and transit and a lower mode share for driving.

4.2 Vision and Mobility Network

Part of the Vision for the community, as described in the OCP, includes well-designed pedestrian and cycling facilities as well as transit-oriented mixed uses in the heart of the community. In order to achieve its transportation-related vision, Mobility Network Policies and a Mobility Network Map were prepared for the OCP. The policies are listed below and the Mobility Network Map is provided in Figure 4-2.

Mobility Network Policies – DNV Official Community Plan

1. Support a safe and integrated transportation network that includes all modes of transportation with an emphasis on walkability and strong pedestrian connections and plan road, transit, bike and pedestrian routes in accordance with the Lynn Valley Town Centre Mobility Network Map
2. Connect the Town Centre to outside destinations and explore opportunities to establish a north-south pedestrian/cycle route east of Mountain Highway
3. Maintain Lynn Valley Road and Mountain Highway as primary vehicular routes for Lynn Valley
4. Establish a pedestrian and vehicle oriented High Street in the core of the Town Centre to include generous sidewalks, weather protection, bike facilities and on-street parking
5. Encourage the majority of parking to be located underground, and explore opportunities for reduced parking standards and shared residential/commercial parking in concert with enhanced pedestrian, cycling and transit facilities
6. Work with the regional transportation authority to support the provision of frequent transit service to and from the Town Centre and support transit service with appropriately located lay-by areas and accessible, safe and attractive transit stops
7. Provide accessible and comfortable sidewalks in the Town Centre and provide safe and attractive pedestrian crossings of Lynn Valley Road, Mountain Highway and East 27th Street at strategic locations
8. Continue to explore innovative transit choices in the long-term



Source: DNV Official Community Plan

Figure 4-2: Lynn Valley Town Centre Mobility Network Map

The OCP acknowledges that implementation plans may be required in order for the District to achieve the concepts and objectives in the OCP. This Transportation Assessment is a key input into the development of the Lynn Valley implementation plan, which is being developed to align with the policies and objectives set out in the OCP.

Other plans and visions influence the future of transportation in Lynn Valley. These include the North Shore Area Transit Plan, the District of North Vancouver Transportation Plan, and the North Vancouver Bicycle Master Plan. The application of these plans is outlined in the paragraphs below.

The North Shore Area Transit Plan was completed by TransLink in consultation with the North Shore communities between fall 2010 and fall 2012. The report was finalized in October 2012. Through investigation of existing conditions, anticipated growth, and the community vision identified, a 2040 transit network vision for the north shore was developed. Relevant highlights from this plan for Lynn Valley Town Centre are as follows:

- New or Improved Transit Exchange located at Lynn Valley Town Centre
- Frequent Transit Service along Lynn Valley Road
- Frequent Transit Service along Mountain Highway
- Frequent Transit Service along E 29th Street west to Lonsdale Avenue
- Rapid Transit Service along E 29th Street west to Capilano Road

The District's vision for future bus routes and stop locations, which has been developed in consultation with TransLink, is shown in Figure 4-3 below.

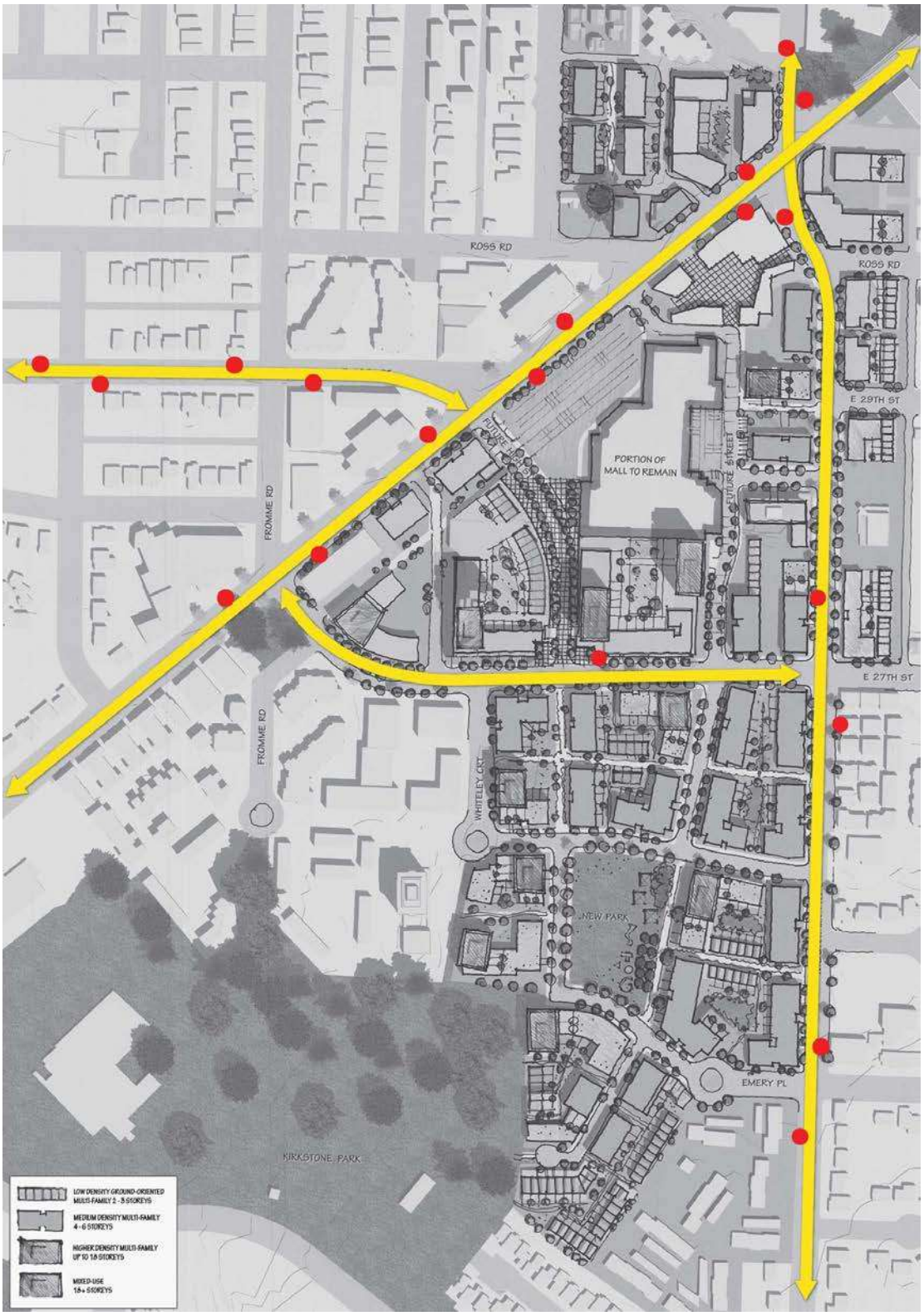


Figure 4-3: District's Vision for Future Route and Stop Locations

Outlining priorities for improving the transportation network in support of the OCP, the District of North Vancouver Transportation Plan was approved by Council in 2012. As part of this study of the Lynn Valley Town Centre, consideration was provided to how the transportation priorities identified within this plan could be incorporated into the Lynn Valley Town Centre network. Relevant outcomes were identified in the pedestrian, bicycle, and road safety sections of the transportation plan, and are summarized as follows:

High priority sidewalks were identified as part of the transportation plan in the following locations:

- Ross Road, east of Mountain Highway
- Mountain Highway, north of E 27th Street to E 29th Street
- E 29th Street, west of Fromme Road

High priority bike improvements were identified as part of the transportation plan in the following locations:

- E 27th Street between Mountain Highway and Lynn Valley Road
- Lynn Valley Road, south of Mountain Highway
- E 29th Street, west of Lynn Valley Road

These cycling improvements are integral to the implementation of the North Vancouver Bicycle Master Plan. As shown in Figure 4-4, these improvements are particularly important in a regional context, as they connect missing linkages in both the east-west and north-south directions to enable greater accessibility by bicycle for all residents and visitors in the District of North Vancouver. The improved on street connection along E 27th Street will connect to both Mountain Highway and Viewlynn Drive, important north-south corridors within the region. E 27th Street also provides an important connection for less confident cyclists who may use the trail network to connect to Fromme Road and on to the Lynn Valley Main Library and other destinations in Lynn Valley. The improved on street connection along Lynn Valley Road will provide a future connection from Dempsey Road in the north of the District all the way to Grand Boulevard south of Highway 1.The improved connection to E 29th Street will provide an east-west linkage in the northern segment of the district.

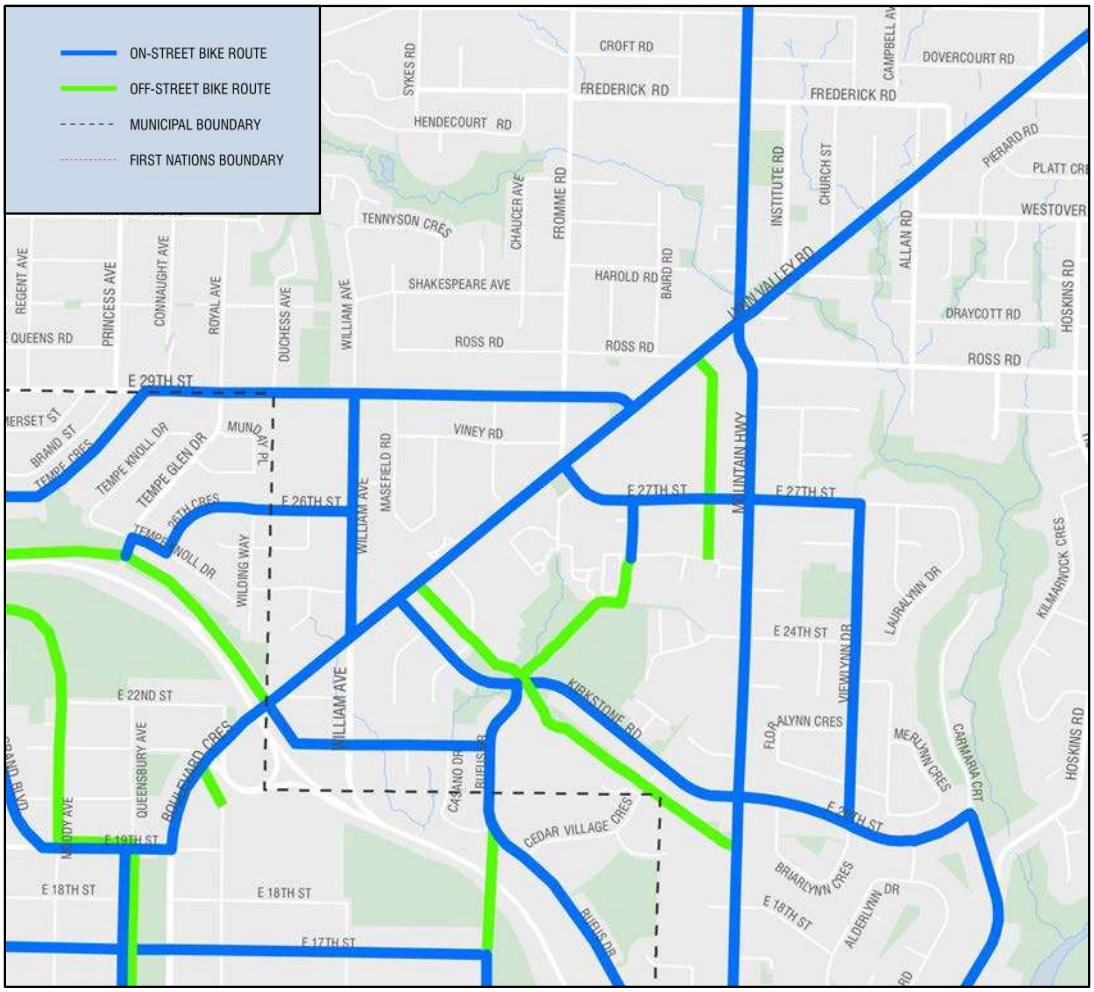


Figure 4-4: Portion of North Vancouver Bicycle Master Plan

High priority intersection improvements were identified as part of the transportation plan in the following locations:

- Lynn Valley Road and Mountain Highway
- Lynn Valley Road and E 29th Street
- Lynn Valley Road and E 27th Street/Fromme Road

The vision and priorities set forth in the Transportation Plan, North Shore Area Transit Plan, and North Vancouver Bicycle Master Plan were all incorporated into the study process to enable redevelopment within the Lynn Valley Town Centre to help achieve community aspirations already identified.

5.0 Future Conditions Assessment

The future conditions assessment included a review of all modes along the corridors in the Study Area. The assessment included traffic forecasting, intersection operations, bicycle and pedestrian connectivity, site access, internal circulation, and other measures.

5.1 Background Traffic Conditions

A growth rate of 0.3% was determined based on a review of the District's EMME transportation demand forecasting model and was applied to existing traffic in order to determine background traffic volumes in the 20 year horizon. The background was modified to reflect the redevelopment of Lynn Valley as an infill area. Because Lynn Valley has existing development that will be transformed and replaced over time, some existing trips must be removed from the network. The trips associated with these buildings must be deleted from the analysis. The existing built area expected to be removed to permit new development is summarized in Table 5-1. Trips generated by this built area were estimated using the methodology summarized in Appendix A. No internal trip reduction factor was applied, however a non-auto mode share shift of 20% was applied to the total person trips to reflect the District's current share of sustainable modes. Pass-by was assumed to be 30% for retail uses. Pass-by trips are those that would have travelled on the study area road network without the development being in place. For example, a driver that stops to get a coffee at a local shop on their way to work is a pass-by trip; they are not a "new" trip generated by the development, they are an existing trip that is 'passing by' and decides to stop at the development. A value of 30% was chosen based on information provided in the Institute of Transportation Engineers (ITE) Trip Generation reference book. The total trips deleted from the background condition to account for existing buildings that will be removed by 2031 are summarized in Table 5-2. These are the total vehicle trips, adjusted for mode share and pass-by assumptions.

Table 5-1: Existing built area to be removed

Land Use	Unit	Total Built Area to be Removed
Single Family Dwelling	(Dwelling Units)	32
Low Density Apartment	(Dwelling Units)	435
Mid-Rise Apartment	(Dwelling Units)	64
Low Rise Residential Condominium/Townhouse	(Dwelling Units)	9
Residential Condominium/Townhouse	(Dwelling Units)	6
Gasoline/Service Station w/ Convenience Market	(Vehicle Fueling Positions)	14
Gasoline/Service Station with Convenience market and Car Wash	(Vehicle Fueling Positions)	8
Old Lynn Valley Library[1]	(sq ft)	19,443
Shopping Centre[2]	(sq ft)	154,110
Supermarket	(sq ft)	33,274
Church	(sq ft)	8,271
Specialty Retail Centre	(sq ft)	5,545
Nursery (Garden Centre)	(sq ft)	14,168
Walk in Bank	(sq ft)	5,214
Coffee Shop	(sq ft)	6,685
Building Materials and Lumber Store	(sq ft)	9,519
Fast food restaurant	(sq ft)	2,037

Table 5-2: Trips to be deleted from background

Horizon	Inbound	Outbound	Total
20 Year	877	818	1,695
Ultimate	941	885	1,826

As discussed earlier, a number of land uses with high trip generation per unit are expected to be removed to allow for more compact development, which is expected to generate fewer trips per unit For example, low density apartments typically generate around 0.58 trips per unit in the p.m. peak period, while medium and high density apartments typically generate about 65% of that (0.38 trips per unit). This is because people living in medium and high density apartments are less likely to drive or own vehicles. These types of residential developments may also have a different mix of demographics, with fewer people per household and more seniors and / or students; all of these factors may result in fewer trips per

[1] The Old Lynn Valley Library was already closed at the time of the traffic counts and no trips were removed from the network to account for the redevelopment of this site. It is listed here for completeness.
[2] This is the full amount to be removed to accommodate the Ultimate horizon. Approximately 68,128 square feet of Shopping Centre Land Use is expected to remain in the 20 Year horizon, but be removed before the Ultimate horizon.

unit More information about expected future traffic is provided in the next section. As noted above, 1,826 existing trips were deleted from the network in the Ultimate horizon to account for the removal of these existing land uses.

5.2 Future Traffic Forecast

Traffic forecasts were completed for the 20-year and ultimate horizons in the p.m. A four-step traffic forecast model was used to complete the analysis. This model was based on a number of key assumptions at each step. The trip generation for the 20 year and Ultimate horizons are shown in Table 5-3 and Table 5-4. The trip generation is based on the land use shown earlier in Table 4-1. The trip generation assumptions included an internal reduction of 10% to account for travel within the Study Area that will not result in vehicle trips on the road network. They also include a non-auto mode share reduction of 20% of person-trips, which is the same reduction that was used in the estimation of existing network trips to be removed. This non-auto modes share is consistent with the existing non-auto mode share of 21% across the District of North Vancouver. This estimate is conservative, as the percentage of internal trips and the non-auto mode share are both expected to increase over time as Lynn Valley develops into a more vibrant, pedestrian focused village centre. Increases in either the internal trip share or the non-auto mode share will decrease the total number of trips generated by the site. Pass-by trips were assumed to be 30% for the shopping centre land use. This is consistent with the rate used for the existing network trips to be removed. Future trip distribution was estimated using the District of North Vancouver's EMME model and engineering judgement. Trip distribution assumptions are summarized in Error! Reference source not found.. Finally, trips were assigned based on most likely route.

Table 5-3: 20 Year horizon trip generation summary (PM Peak)

	Quantity	Units	Total Trips	Reduction	Pass-by	New Trips	
						IN	OUT
Low Density Apt	425	# of dwelling units	247	54	-	126	67
Medium Density Apt	2,494	# of dwelling units	973	178	-	461	333
Medium Rise Apartment	188	# of dwelling units	73	18	-	32	23
High Rise Townhouse	691	# of dwelling units	263	64	-	123	75
Shopping Centre	253	1000 sq ft	1,625	328	388	448	461
Transition Multifamily	111	# of dwelling units	42	10	-	20	12
TOTAL			3,222	651	388	1,210	973

Table 5-4: Ultimate Horizon trip generation summary (PM Peak)

	Quantity	Units	Total Trips	Reduction	Pass-by	New Trips	
						IN	OUT
Low Density Apt	425	# of dwelling units	247	54	-	126	67
Medium Density Apt	2,494	# of dwelling units	973	178	-	461	333
Medium Rise Apartment	188	# of dwelling units	73	18	-	32	23
High Rise Townhouse	691	# of dwelling units	263	64	-	123	75
Shopping Centre	320	1000 sq ft	1,855	364	446	514	531
Transition Multifamily	111	# of dwelling units	42	10	-	20	12
TOTAL			3,452	688	446	1,276	1,042

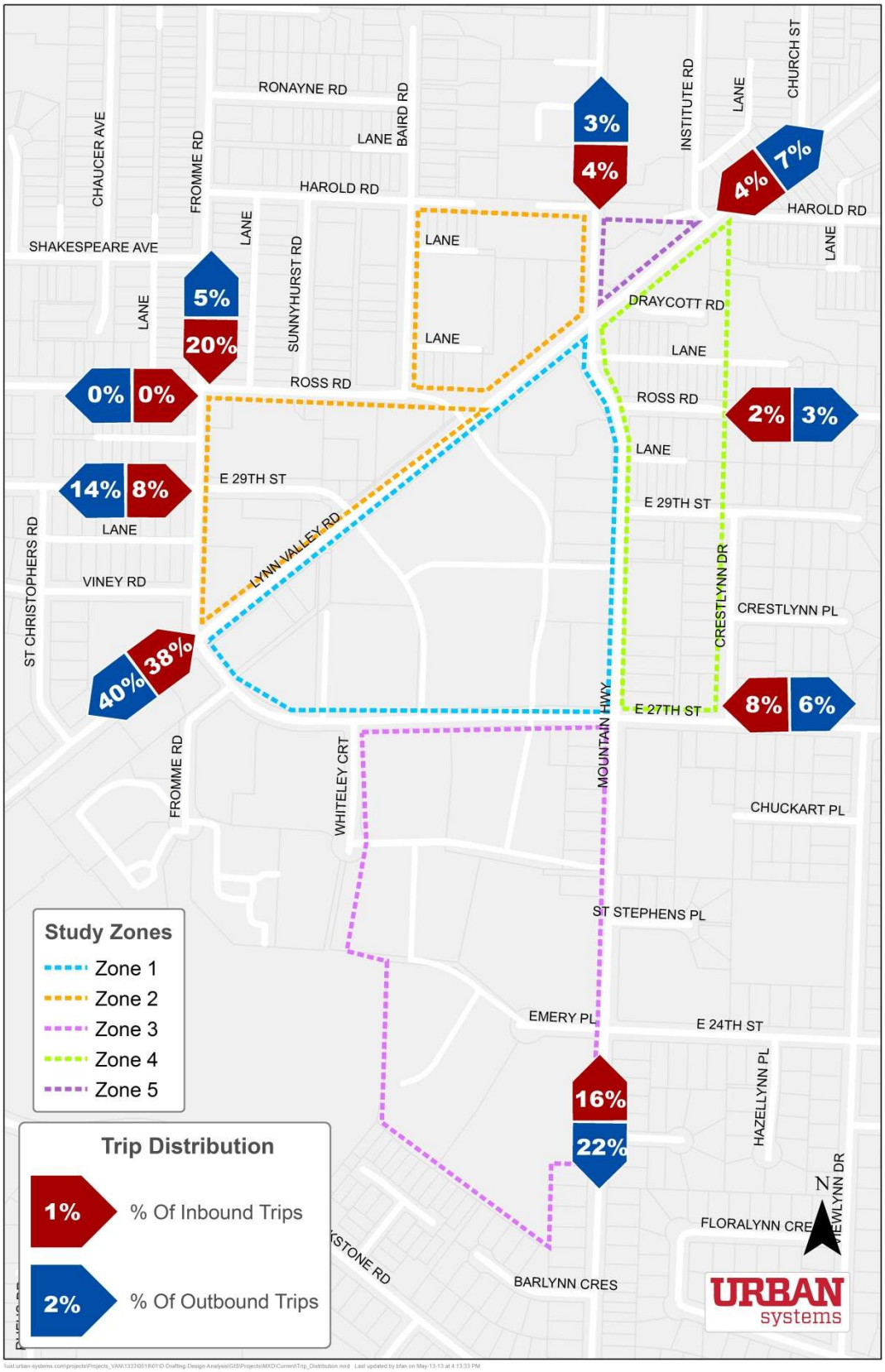


Figure 5-1: Trip distribution assumptions (PM Peak)

The new trips generated by the study area in the 20-year and Ultimate Horizons are shown in Figure 5-2 and Figure 5-3. The new trips are added to the modified background trips to determine future total trips for analysis. The future total trips are illustrated in Figure 5-4 and Figure 5-5.

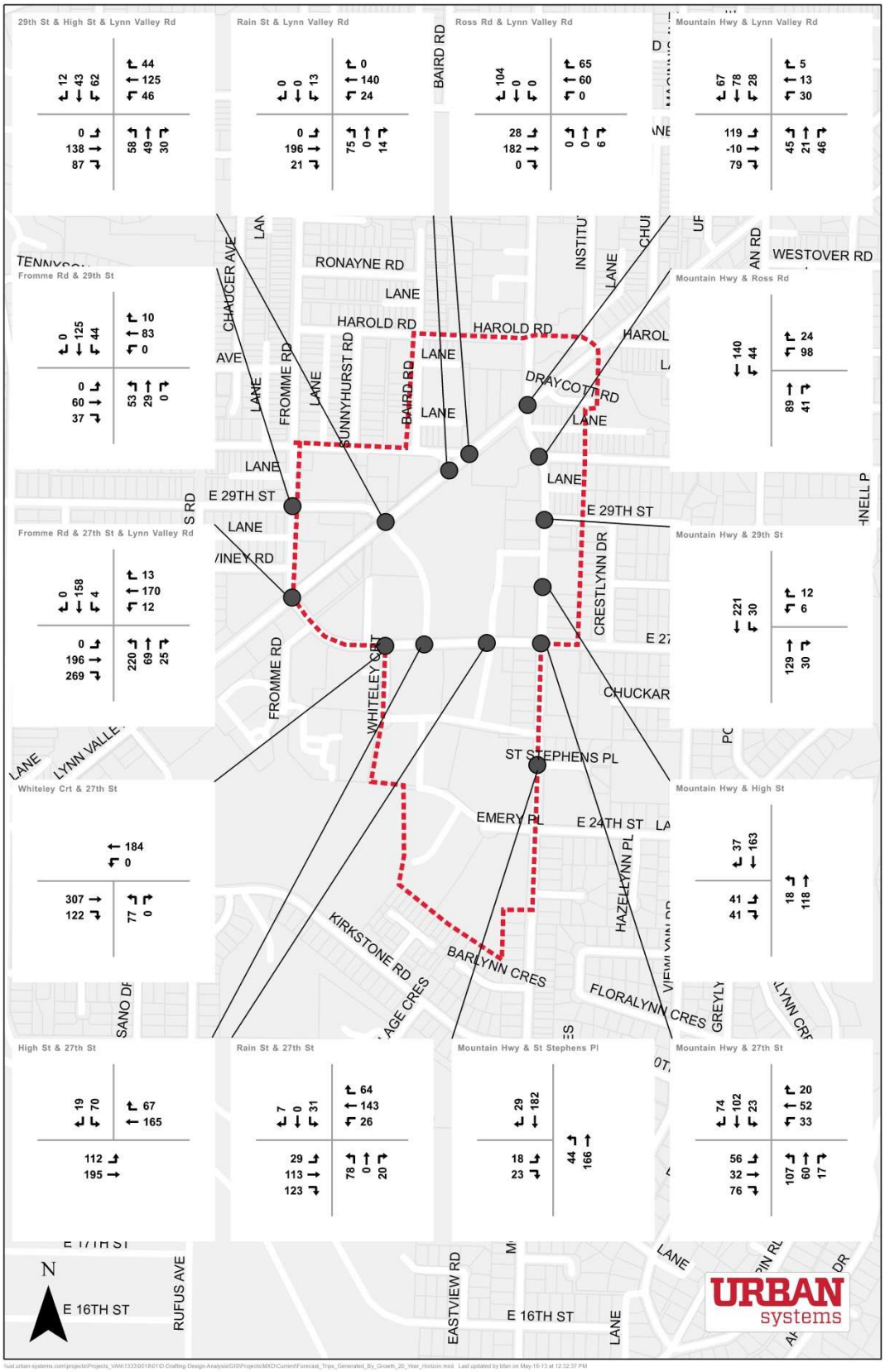


Figure 5-2: Forecast Trips Generated by Growth – 20 Year Horizon (PM Peak)

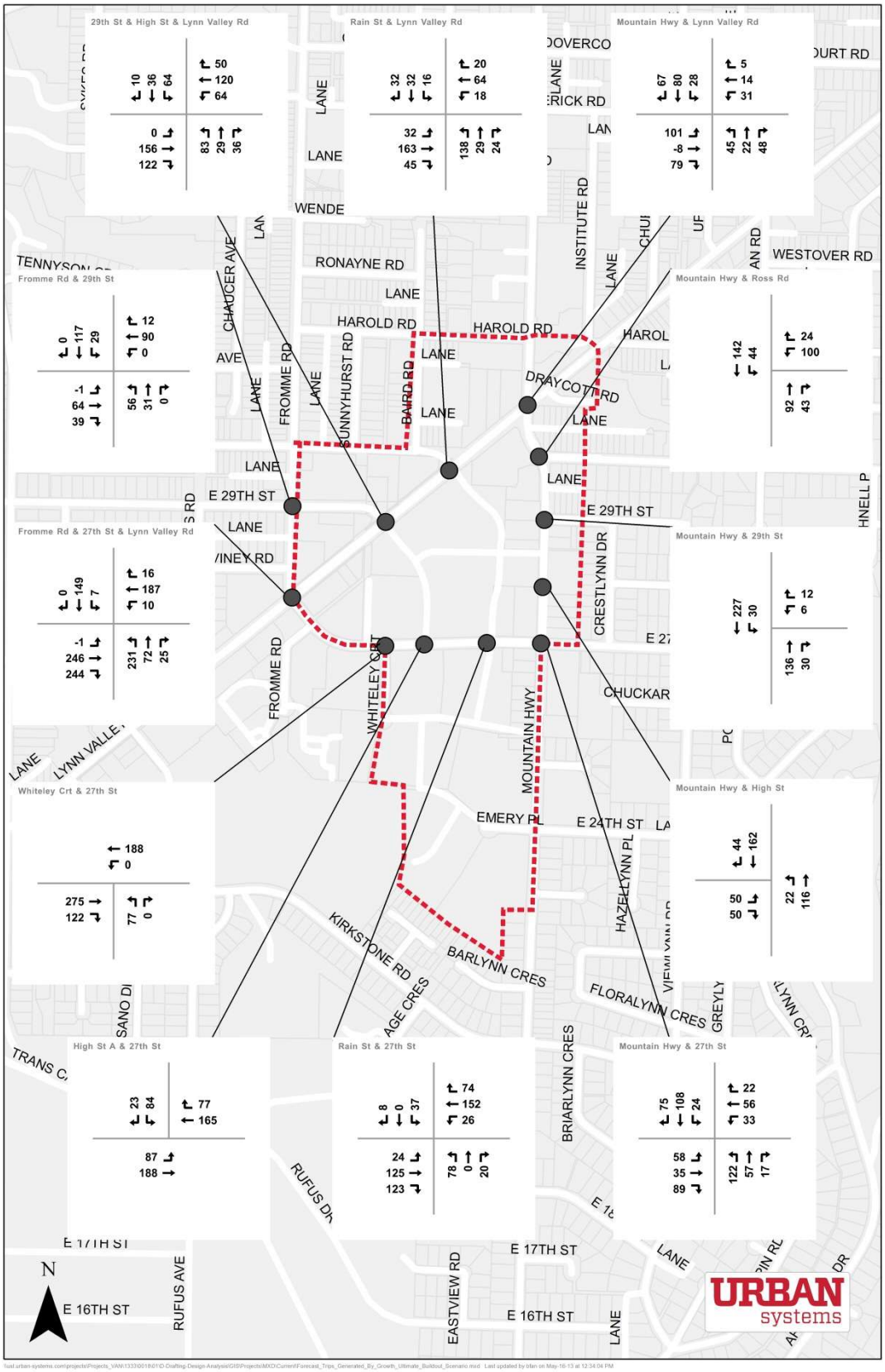


Figure 5-3: Forecast Trips Generated by Growth – Ultimate Horizon (PM Peak)

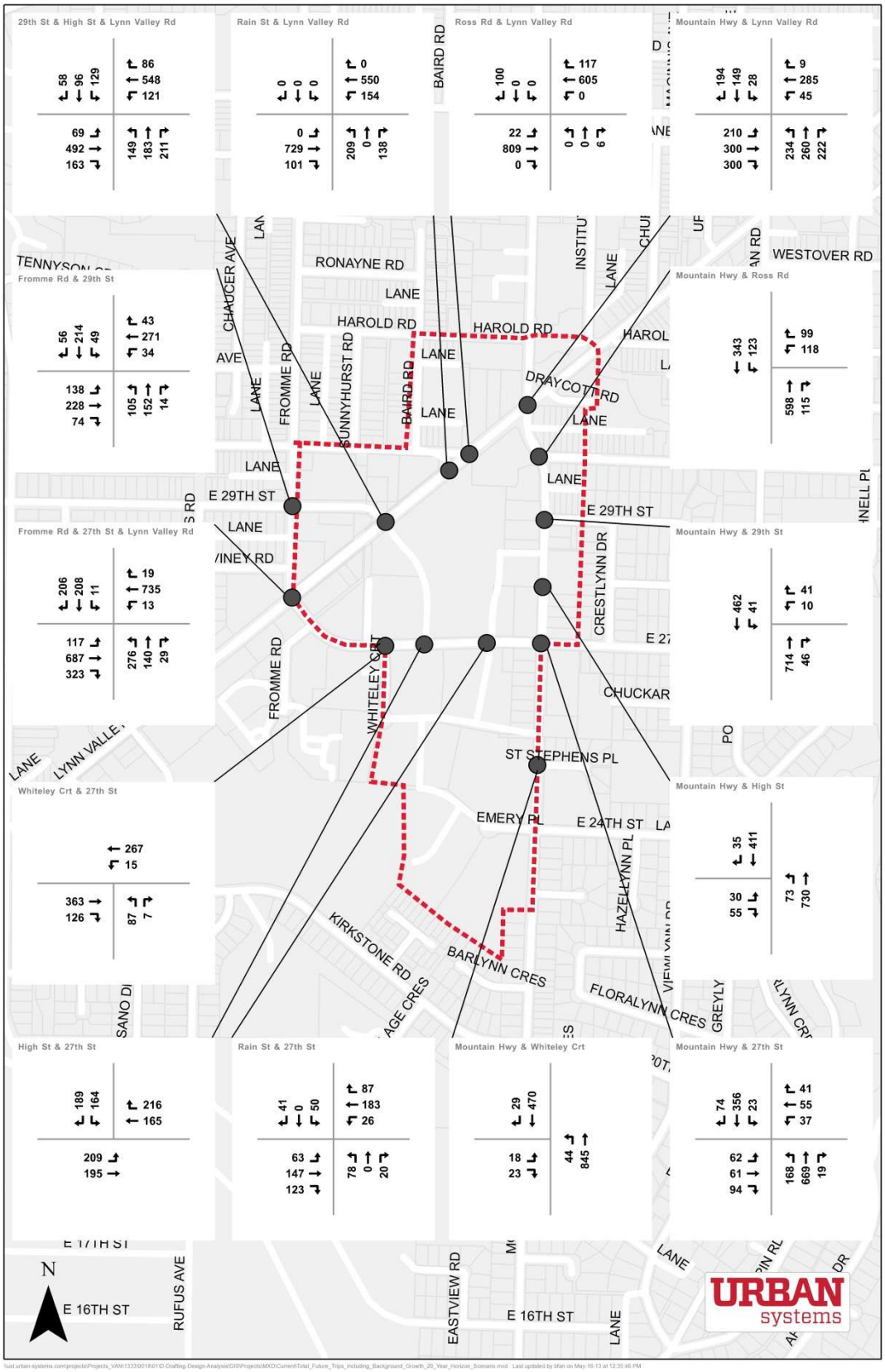


Figure 5-4: Total Future Trips (Including Background Growth) – 20 Year Horizon (PM Peak)

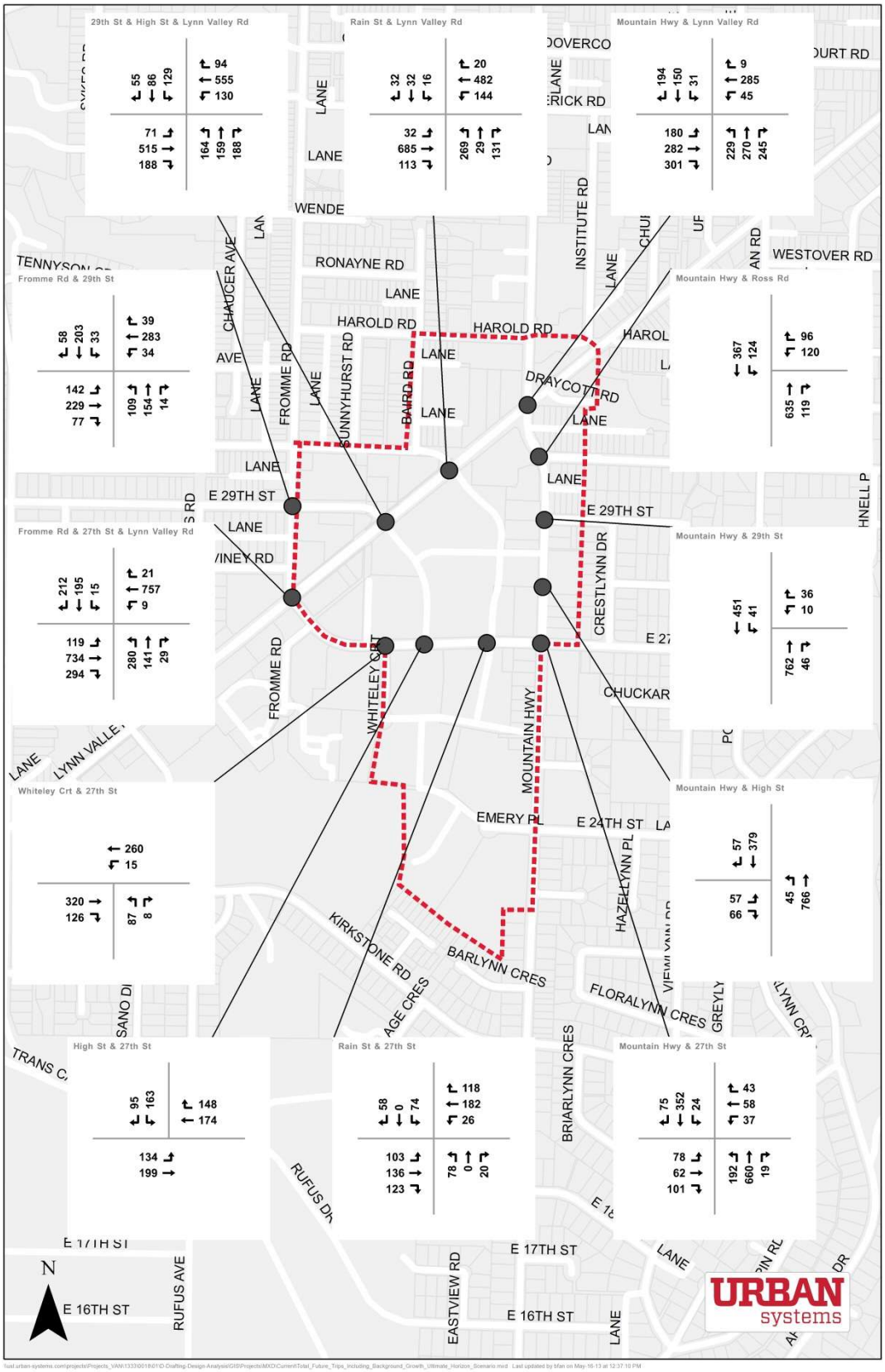


Figure 5-5: Total Future Trips (Including Background Growth) – Ultimate Horizon (PM Peak)

5.3 Future Transit Needs

As previously discussed, the North Shore Area Transit Plan was completed in 2012 after extensive consultation with the North Shore Communities. Through this process, a network vision was identified to serve projected land use on the North Shore and achieve a 50 percent increase in transit mode share from 10 to 15 percent for the entire North Shore by 2040. The vision for the North Shore Area Transit Network is illustrated in Figure 5-6.

Based on the projected population growth at Lynn Valley Town Centre, substantial transit improvements connecting to this area were prioritized as part of the plan. These improvements can be summarized into three categories as noted below:

- **Improved transit exchanges.** Lynn Valley Town Centre has been designated with an improved transit exchange. This should provide appropriate transit infrastructure to facilitate efficient exchange operation, along with urban design and land use to provide a high quality customer experience

- **Frequent transit service**. Metro Vancouver's Frequent Transit Network (FTN) is a network of corridors where transit service runs at least every 15 minutes in both directions throughout the day and into the evening, every day of the week. . Lynn Valley Road, Mountain Highway, and E 29th Street (west to Lonsdale Avenue) have all been designated as frequent transit service routes as part of this plan.
- **Rapid transit service.** The North Shore Area Transit Plan defines rapid transit service as frequent transit service with faster, more reliable travel times in order to be more competitive with the private automobile. E 29 Street was identified in the long-term vision as a potential corridor for east-west transit service.
- **Improved east-west mobility.** A new route connecting Lynn Valley Town Centre to Park Royal via Edgemont Village has been identified as a priority to facilitate the demand for an additional east-west connection within the area. This will introduce additional transit arrivals and departures terminating at Lynn Valley Town Centre to the frequent transit service routes already identified.

Through District discussions with TransLink representatives in December 2011, it was identified that an on-street transit exchange along the north side of E 27th Street would be desirable. This would involve reintroducing transit service on 27th Street to better integrate with a clockwise delivery and departure of buses arriving from and departing to Lynn Valley Road, Mountain Highway, and E 29th Street. Room for two standard 12.44 m buses complete with bike rack installation independently arriving and departing from the on-street transit exchange is likely needed. The space should be flexible to also potentially accommodate an 18.50 m articulated bus, should longer buses be introduced on buses servicing Lynn Valley Town Centre.

In addition to the forecast improvements to service identified, it is expected that existing local bus routes with stops in the study area will be maintained.

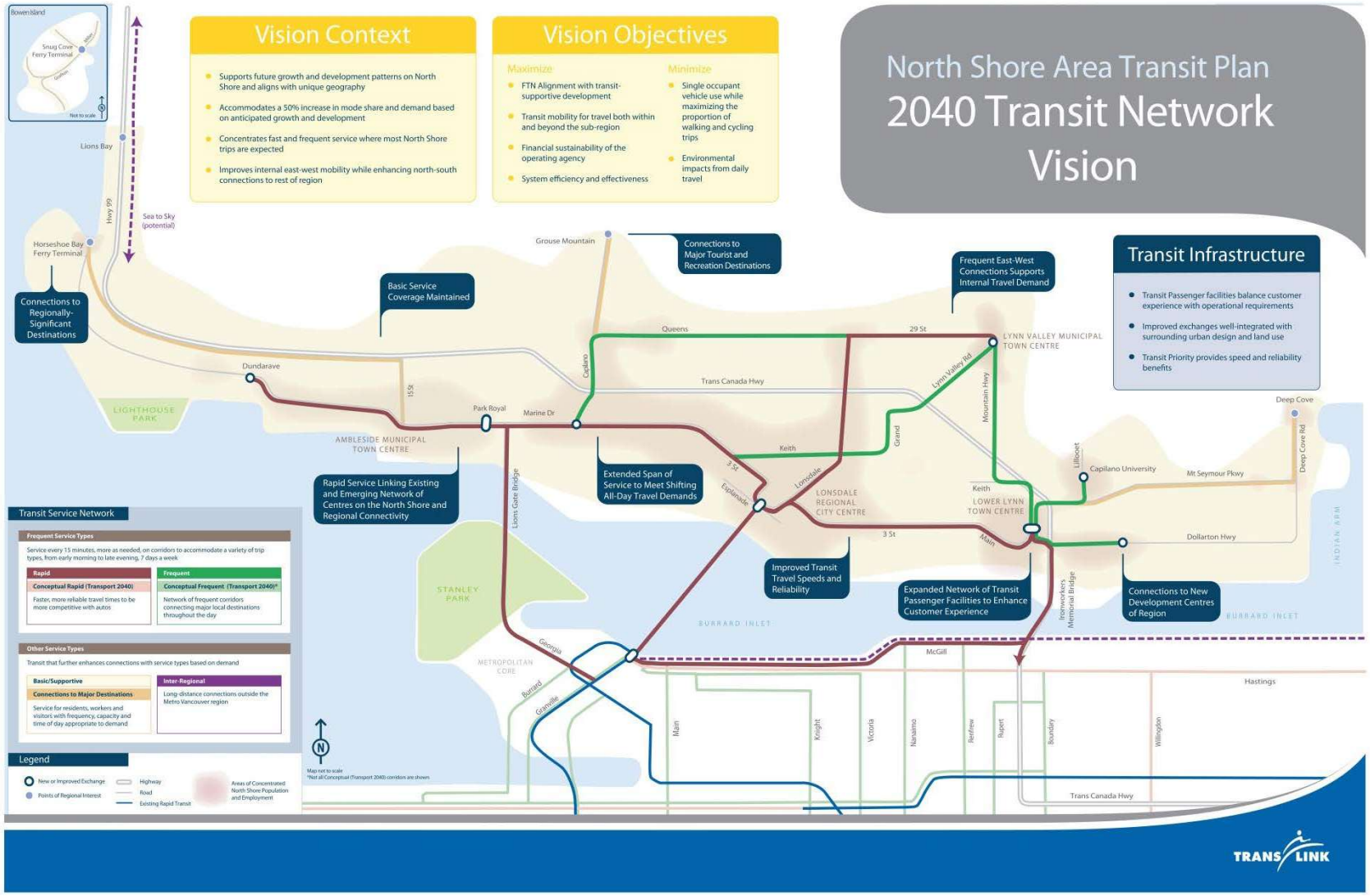


Figure 5-6: North Shore Transit Vision

5.4 Future Pedestrian and Cycling Needs

As previously identified, the OCP, Transportation Plan, and North Vancouver Bicycle Master Plan all emphasize infrastructure improvements for pedestrians and bicycles within the Town Centre. The specific road, sidewalk, and intersection upgrades identified in these studies should be paired with a design philosophy which emphasizes consideration for vulnerable road users. This approach will encourage multiple modes of transportation utilized within the town centre. Regionally, Lynn Valley Road, E 29th Street, E 27th Street, and Mountain Highway are all designated as important bicycle connections. Therefore, incorporating road network improvements which will encourage bicycle users of all ages and abilities along these improved routes will enable a safer and more comfortable environment.

The proposed land use changes are expected to result in an improved pedestrian and cycling environment and related infrastructure. Within the existing road right-of-way, there is minimal space to provide improved walking and cycling connectivity or to improve quality of experience and safety for cyclists and pedestrians. The proposed land use changes add new trips to this area, but they also provide property and resources to allow for improved cycling and pedestrian space. Density is also expected to increase the number of pedestrians and cyclists in the area. Simply increasing the number of cyclists is known to make cycling safer. Increasing the number of pedestrians improves livability, safety, and community vibrancy.

5.5 Future Goods Movement and Access Needs

Lynn Valley will continue to be a hub of commercial and economic activity for the area and access for goods movement and passenger vehicles to individual parcels and underground parking lots will continue to be important. Small retail uses and grocery uses have different goods movement needs. Grocery providers typically use large tractor-trailer units and require access to loading bays. Smaller retailers require single unit truck access. To ensure effective goods movement in Lynn Valley, a WB-20 tractor-trailer unit was used as the design vehicle. A travel path for these vehicles was provided via Lynn Valley Road / E 27 Street, with direct access from the lane between Lynn Valley Road and High Street. Access for a Heavy Single Unit (HSU) design vehicle was maintained from Mountain Highway to E 27th Street and Rain Street.

Accesses to underground parking should be concentrated to four-way intersections wherever possible. Accesses should be provided midblock to reduce conflicts with intersection traffic operations and queues.

6.0 Guiding Principles

A number of guiding principles were established to help inform the development of improvement options for the Town Centre. These principles were considered across the four main transportation modes within this area: pedestrians, cyclists, transit and motor vehicles.

6.1 Pedestrians

- **Improve permeability and connections to the town centre.** Greater connectivity through safe and appealing pedestrian crosswalks shall be established along the appropriate desire lines to connect pedestrians from surrounding neighbourhoods to the Town Centre.
- **Ensure safe and comfortable mobility for all road users.** The road cross section features and landscape improvements should consider the safety and comfort of the most vulnerable road users. This should emphasize children, elderly people, and those with mobility impairments.
- **Transform the network into a great space.** In line with the District's vision to create a well-designed pedestrian, biking and transit-oriented mixed use centre in the heart of Lynn Valley that celebrates its natural and cultural setting and strong sense of community, Lynn Valley Town Centre should become an attraction and destination in and of itself to live, work, play and learn.
- **Reduce crossing distances at all intersections.**

6.2 Cyclists

- **Complete the envisioned bicycle network.** Improvements to transportation infrastructure should incorporate routes identified in the North Vancouver Bicycle Master Plan (2012). Where applicable, and in conjunction with the redevelopment taking place, regional connections on 27th Street, 29th Street, Mountain Highway, and Lynn Valley Road should be made more direct ; considering major road crossings, left turns, and route continuity.
- **Ensure a safe and comfortable transportation network for both commuter and recreational cyclists.** Provisions should be made to attract recreational cyclists with pleasing pathways that allow for "conversational cycling" at moderate travel speeds. In addition, consideration of connection for higher speed cyclists should be provided for daily commuter needs within the area.
- **Design bicycle facilities to attract new riders of all ages and abilities.** All bicycle facilities should be designed to attract new cyclists and increase cycling mode share within the District. Where possible, facilities should be physically separated from automobile traffic and wide enough to allow for safe passing.
- **Incorporate clear and consistent wayfinding signage for bicycle users.** As part of the implementation of the enhanced bicycle network within the Town Centre, clear signage

should be introduced along all routes and at all decision points to direct cyclists to their intended destination in a safe and direct manner. Where changes to existing travel routes are introduced, additional temporary signage is recommended to emphasize new routes within the transportation network. Signage should be consistent in format and approach with the remainder of the District; however, it is recommended that signage provides direction, distance, and time to reach important destinations on the North Shore.

6.3 Transit

- **Facilitate efficient transit vehicle operation.** Design transit facilities in accordance with TransLink's Bus Infrastructure Design Guidelines.
- **Create an exceptional customer service experience for transit passengers.** This includes developing livable communities and supportive cycling and pedestrian infrastructure around transit centres. The Transit-Oriented Communities Design Guidelines shall be used as a basis for design.
- **Establish a short connection between the transit exchange and the town centre.** Through consideration of any alternate location for a transit exchange along 27th Street, prioritization should be given to maintain a short walking distance between the intersection of High Street and High Street B.
- **Facilitate intermodal travel.** Accommodation should be provided within the transit passenger area for different means of access to the transit exchange. Referencing TransLink's Transit Passenger Facility Design Guidelines (201X) Strategy 02: Support transit by integrating with other modes, enhanced access for pedestrians, cyclists, taxis, and drop off should be considered. This includes the provision of convenient, multiple, and direct pedestrian access points for all origins and destinations; both short term and long term bicycle parking in safe and well-lit areas; and clear signage for separate passenger pick-up and drop off areas for taxis and private vehicles.

6.4 Motor Vehicles

- **Provide satisfactory level of service for all vehicle movements at all Town Centre intersections.** Maintain level of service (LOS) D or better for all signalized intersections with volume to capacity (v/c) ratios for all individual movements less than or equal to 0.90. Minimize delays at unsignalized intersections.
- **Establish safe intersection operations through laning, geometry, and signalization.**
- **Ensure turning movements accommodate the appropriate design vehicles at all locations.** Provide access to the site for appropriate design vehicles through specified routes. Accommodation for a WB-20 Tractor-Semitrailer should be provided only for access to the laneway immediately east Lynn Valley Road on 27th Street. Accommodation for a Heavy Single Unit (HSU) truck should be provided only for access to Rain Street.

7.0 Recommendations by 2031

7.1 Planned Network

A planned network was developed based on the Guiding Principles above and the analysis presented in earlier sections.

The recommended network provides a number of key benefits, while mitigating the impacts of increased traffic due to development. Some of these benefits are:

- Walkable neighbourhood with improved pedestrian connectivity and urban streetscape. The increase in residents, combined with street-facing shops and well designed pedestrian spaces will contribute to a vibrant community.
- Improved facilities for cyclists of all ages and abilities, including a separated two-way cycle track along E 27 Street, an important connection for local and regional cyclist.
- Better intermodal and transit facilities, with an accessible bus exchange area that can accommodate TransLink's plans for increased service to Lynn Valley.
- Continued access for local delivery of goods.
- Enhanced traffic operations through better lane continuity and the introduction of an improved grid network. Although the number of vehicle trips is expected to increase, the impacts on the road network are expected to be minimal.

The proposed Study Area network with all improvements is illustrated in Exhibit 1. More detailed plans are included in Exhibit 2, Exhibit 3, and Exhibit 4. This is the ultimate concept, which includes a realigned Ross Road / Rain Street & Lynn Valley Road intersection. The full extension of Rain Street and completion of High Street B will not be complete within the 20 Year horizon. A memo describing the typical cross sections for streets within the Study Area is included as Appendix B.

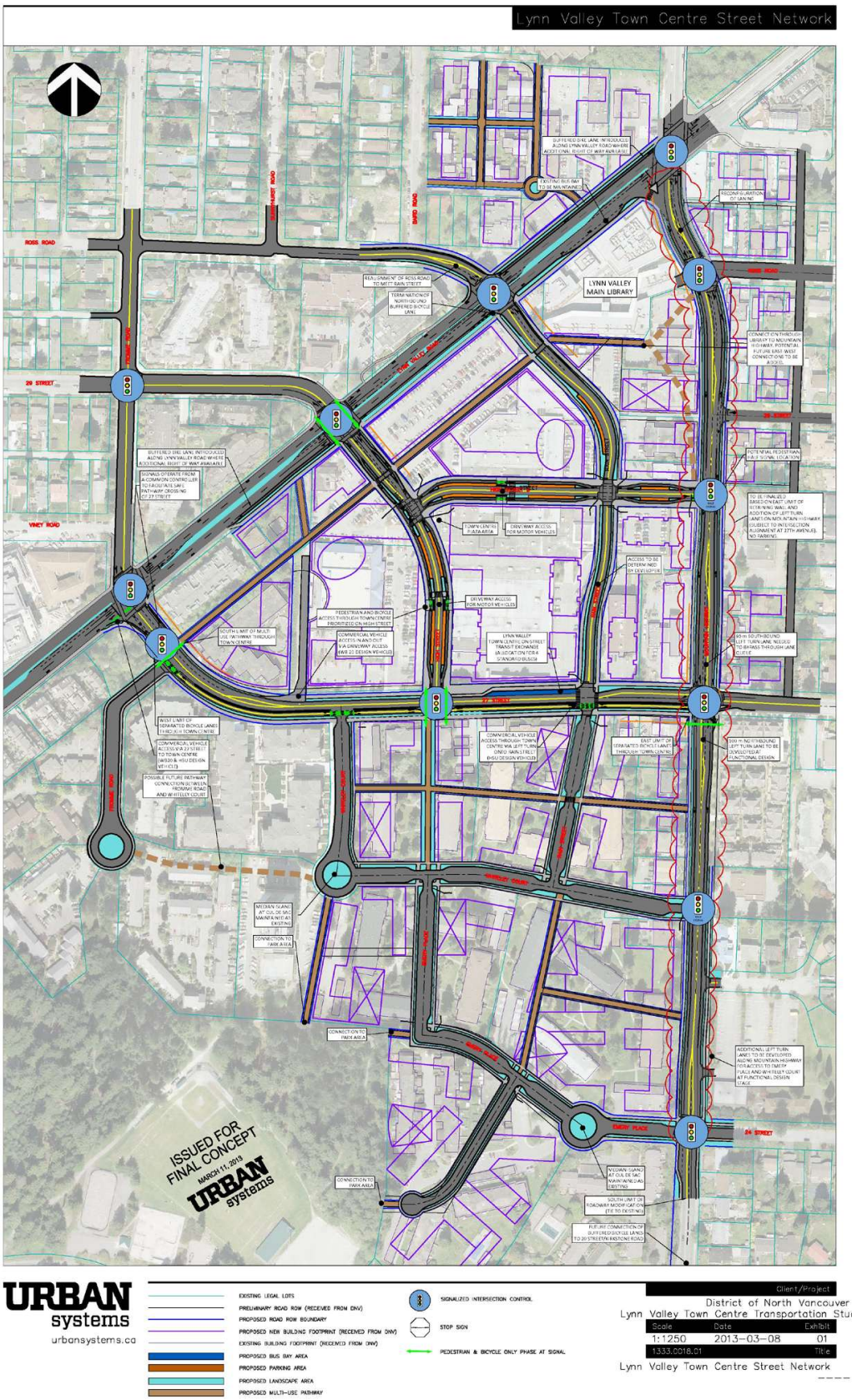


Exhibit 1: Proposed Study Area transportation network

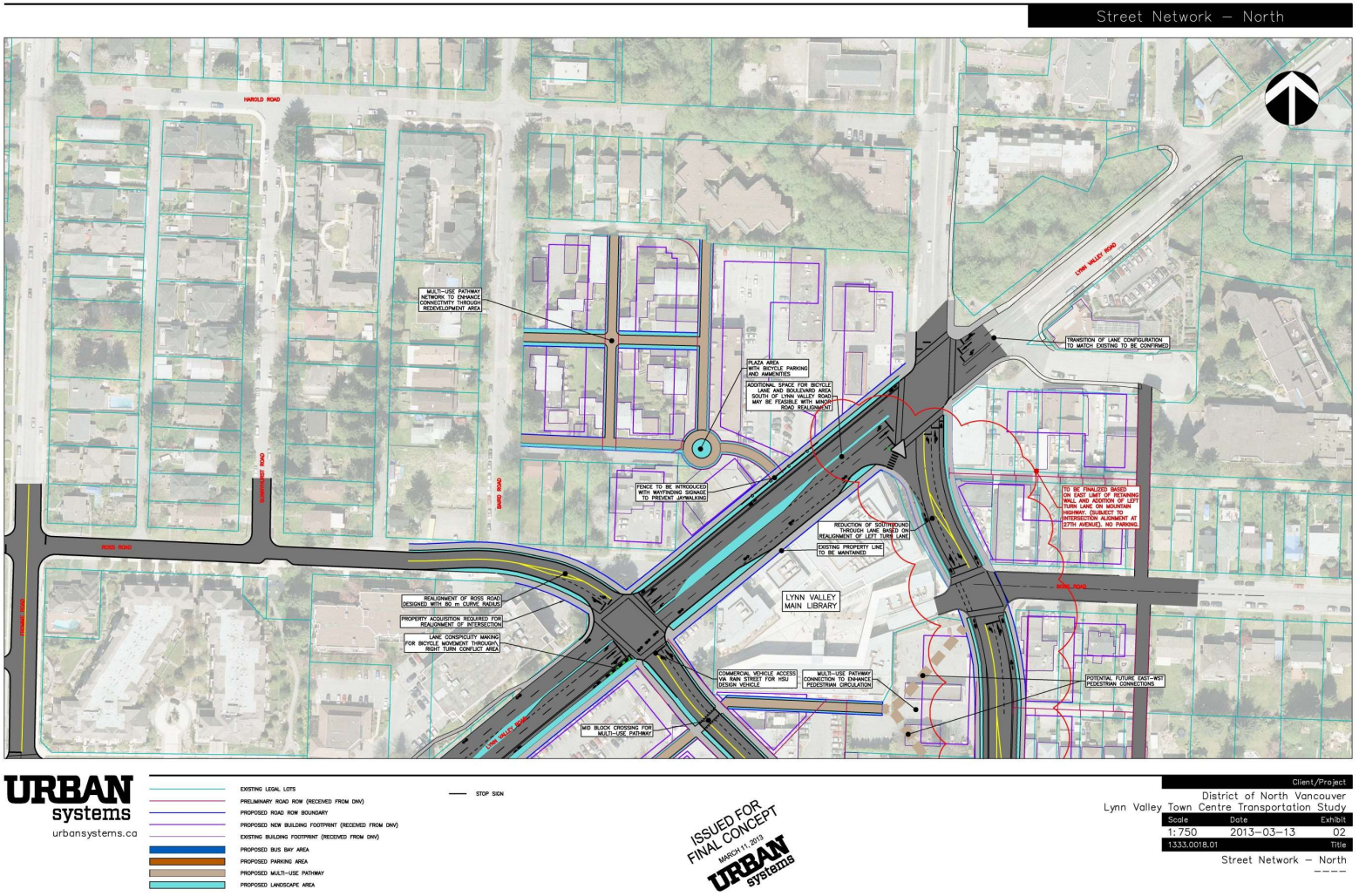


Exhibit 2: North Section

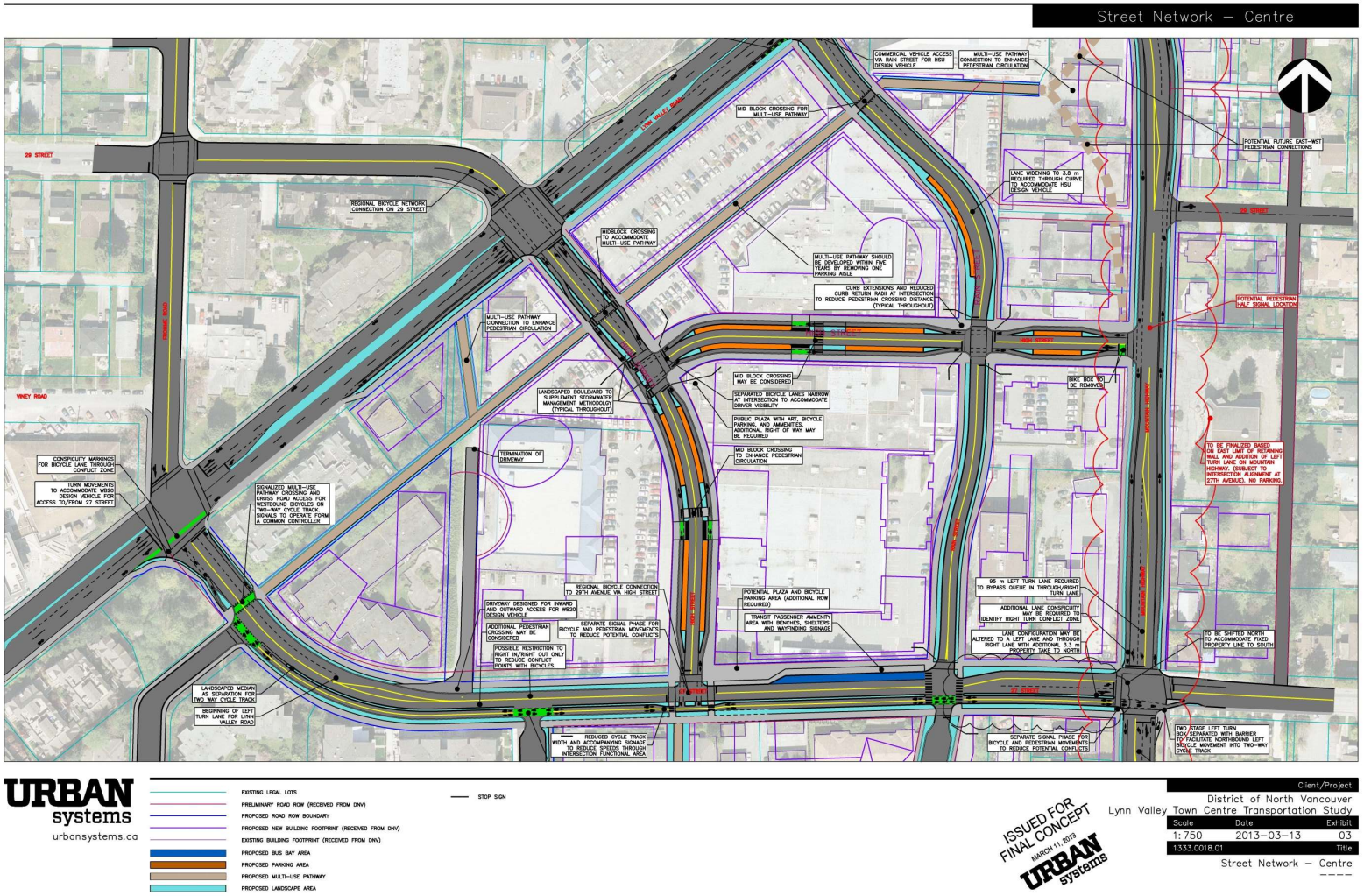


Exhibit 3: Central Section

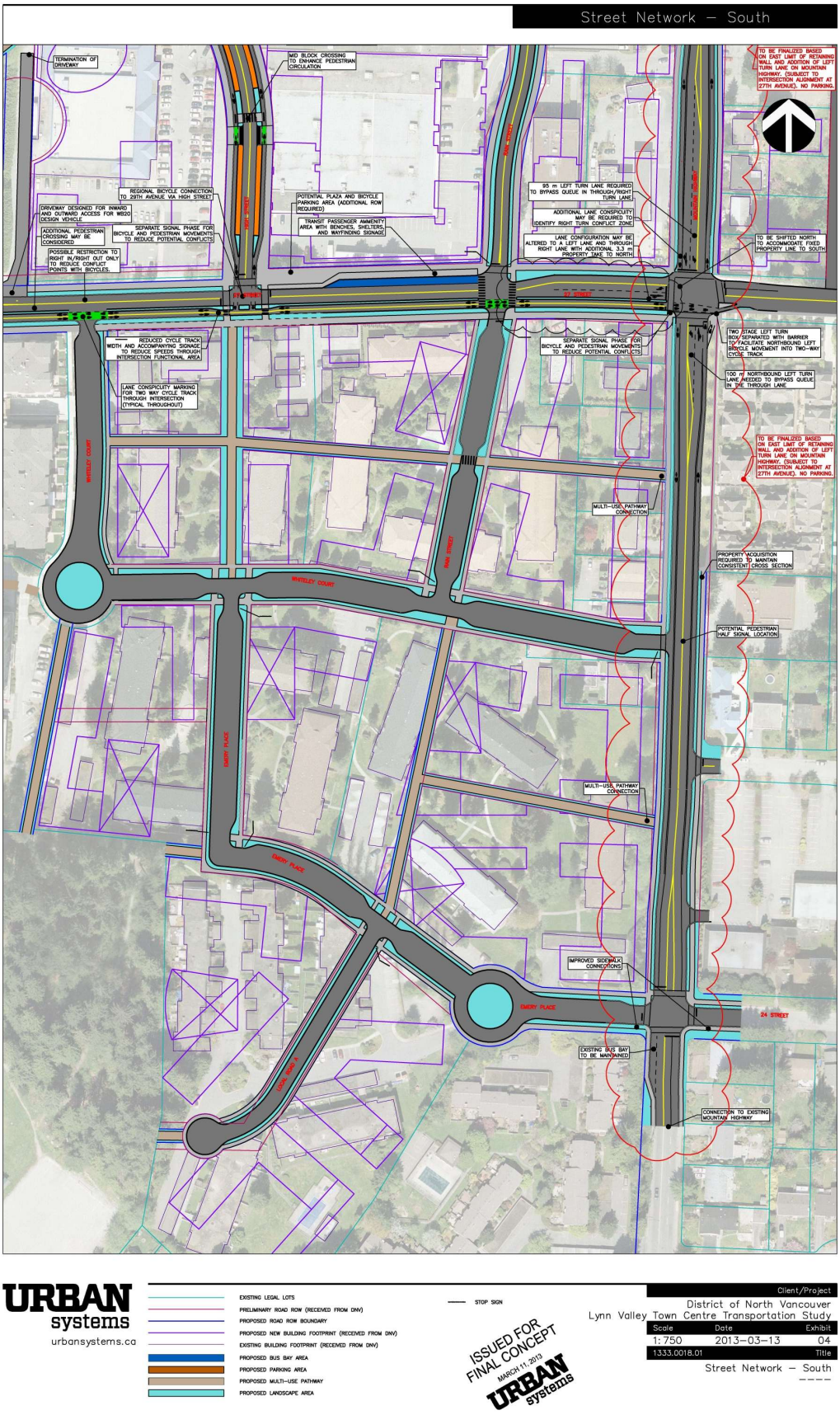


Exhibit 4: South Section

7.1.1 *PEDESTRIANS*

Specific changes/enhancements for pedestrians.

- Improved access and shorter walking distances due to grid network of new local streets and a multi-use pathway network.
- Two new pedestrian signals crossing Mountain Highway – one midblock between Lynn Valley Road and E 27th Street and a second between E 27th Street and E 24th Street – shortening long blocks for pedestrian, and connecting anticipated desire lines to the Lynn Valley Town Centre with the surrounding residential areas.
- New crossing of E 27th Street at Fromme Road facilitates pedestrian connectivity. Provide a pedestrian and cyclist-activated signal at Fromme Road and E 27th Street. This signal facilitates safe pedestrian crossing from the park connections at Fromme Road and Whiteley Court to the proposed pathway that connects to the Lynn Valley Main Library. Enabling safe crossing at this location is an important component of the pedestrian network. The signal must be operated jointly with Lynn Valley Road / E 27 Street / Fromme Road from a single controller. This is the recommended configuration for this crossing location and will require further study to confirm sight lines and traffic operation details.
- Reduced crossing distances through the use of curb bulges.
- Crosswalks on both sides of all intersection crossings.

7.1.2 *CYCLISTS*

Specific changes/enhancements for bicycles include:

- Two-way cycle track on south side of E 27th Street connects cyclists to Lynn Valley Town Centre and provides an essential link in the North Shore cycling network. This treatment is recommended for two reasons:
    - To provide maximum separation from motor vehicle traffic to encourage bicycle travel to Lynn Valley Town Centre for riders of **all ages and abilities.** A fully separated link is essential over this short stretch. E 27 Street is a key link in the cycling network. In addition to its function joining two commuter cyclist routes (Mountain Highway and Lynn Valley Road), it also serves a special function for less confident cyclists. Fromme Road and Whiteley Crescent, two low volume, local roads, connect E 27 Street to the network of trails in Kirkstone Park. With a separated facility on E 27 Street, residents between Kirkstone Road and Lynn Valley can easily travel without being exposed to vehicles on a major road. E 27 is an important link in the District of North Vancouver's network for cyclists of all ages and abilities and must be constructed in a way that maximizes separation from vehicle traffic.

- To significantly reduce the number of conflict points with vehicles on the north side of E 27th Street. The specific treatment proposed for Lynn Valley is a two-way separated cycle track; although this type of facility is less common, this configuration provides special benefits in the context of E 27 Street. In particular, it is anticipated that a bike lane or separated bike lane on the north side of the road would experience a high level of conflict with buses and pedestrians at the on street transit exchange. By providing a separated facility with appropriate traffic controls, signage, and travel space, 27th Street will become a more attractive corridor for cyclists, pedestrians, and transit passengers.

- New crossing of E 27th Street at Fromme Road facilitates pedestrian connectivity. Provide a pedestrian and cyclist-activated signal at Fromme Road and E 27th Street. This signal facilitates safe cyclist crossing from the park connections at Fromme Road and Whiteley Court to the proposed pathway that connects to the Lynn Valley Main Library. Enabling safe crossing at this location is an important component of the cycling network. The signal must be operated jointly with Lynn Valley Road / E 27 Street / Fromme Road from a single controller. Operation of the joint controller may present a challenge for the District. The recommended configuration for this crossing location requires further study to confirm sight lines and traffic operation details.
- One way cycle tracks on High Street provide access from bike routes south of Lynn Valley to the key E 29th Street bicycle route.
- Opportunities for improved bicycle parking in public areas due to the creation of parks and plazas.

7.1.3 *Transit Users*

Specific changes/enhancements for transit include:

- New bus layover area on north side of E 27th Street can accommodate up to 4 standard buses (12.4 metres) and provides sufficient space for two articulated buses (18.6 metres).
- A total width of 3.0 m provided for passenger waiting areas within the bus exchange area on E 27th Street provides the preferred space identified in TransLink's Bus Infrastructure Design Guidelines to ensure accessibility, waiting areas, and wayfinding features.
- More street facing commercial will improve 'eyes on the street' and augment services available for transit passengers.
- Street-side space was designed utilizing five zones of the sidewalk as recommended in TransLink's Transit Oriented Development Design Guidelines. This provides space for an edge zone, extension zone, furnishings, throughway, and frontage.
- Existing bus pull-out on Lynn Valley Road in front of the Lynn Valley Main Library will be maintained for future use.
- Intersections were designed to accommodate articulated buses moving clockwise around the Study Area along Lynn Valley Road, Mountain Highway and E 27th Street. All right turn

movements in the clockwise direction around the town centre accessing the E 27th Street Bus Stop were designed using the most conservative bus turn template; the 12.4 m Standard Bus with a bike rack in use. (It is noted that articulated bus turn templates are less restrictive than the standard bus turn template).

- Lane width and length for the on-street transit exchange were developed based on guidance from the TransLink Bus Infrastructure Design Guidelines. A minimum width of 6.5 m from the edge of curb to the centreline was used as the guiding criteria for the on-street bus space allocation. This includes both the bus layover width as well as through lane width. Existing bus stops for local transit access will be maintained on Lynn Valley Road, Mountain Highway and E 29th Street. Required stop locations for frequent transit service envisioned within the area outside of the E 27th Street Transit Exchange should be confirmed with TransLink at the next stage of design.
- Enhance opportunities for bike and ride with secure bike parking.

7.1.4 *MOTORISTS*

Specific changes/enhancements for motorists include:

- New signal at Fromme Road and E 29th Street improves operations and safety at this key intersection. This signal could be coordinated with the signal at the intersection of Lynn Valley Road and Fromme Road; however, further study is needed.
- New signal at High Street and E 27th Street provides access to the main commercial area.
- New protected / permitted left turn phases to improve safety and operations at E 29th Street and Lynn Valley Road (southbound left) and at Fromme Street and Lynn Valley Road (eastbound left). The protected / permitted left turn phases for the opposing movements (northbound left at E 29 Street and Lynn Valley Road and westbound left at Fromme Street and Lynn valley Road) are not required from an operational perspective, but may be included to improve safety.
- Overall improvement in access due to the new internal grid network created by High Street and Rain Street.
- Consolidated intersection of Ross Road (west) and Rain Street allows for removal of turning restrictions, better circulation, and improved operations.
- Improved lane continuity throughout, with existing shared through-left lanes replaced by exclusive left turn lanes with accompanying shared through-right lanes.
- Signal timing improvements as required to accommodate forecasted traffic volumes.
- Reconfiguration of Mountain Highway to reduce driver confusion and provide road space for cyclists. The recommended configuration for Mountain Highway requires further study at the feasibility and functional design stages to resolve challenges related to retaining walls, road space, and property needs.

Assessing future total trips on the planned network shows that all intersections operate with LOS D or better, in accordance with the design principles. LOS for signalized intersections for the 20 Year and Ultimate horizons are shown in Figure 7-1 and Figure 7-2. All individual movements at signalized intersections are expected to operate with v/c less than or equal to 0.90. All movements at unsignalized intersections also operate with v/c less than or equal to 0.90. The LOS for the eastbound movement at the unsignalized intersection of Mountain Highway and E 29th Street operates with LOS 'E'. Operations for this movement should be improved with the planned addition of a pedestrian half-signal (described below) and vehicles have the option of using alternative signalized accesses. All other movements at unsignalized intersections operate with LOS 'D' or better.

Despite the addition of density to the Lynn Valley area, traffic operations are expected to improve at some locations and the overall network is expected to experience minimal additional delay. As discussed above, no operational issues are expected for any movements within the study area. SimTraffic analysis for the network as a whole shows a reduction in stops per vehicle from 2.02 in the Existing horizon to 1.97 in the Ultimate. Delay per vehicle is expected to increase from 85.2 second to 114.5 seconds, which is acceptable given background growth of 0.3% annually.

As a result of the signal operation improvements, lane continuity, removal of turning restrictions, and overall circulation enhancements, it is anticipated that safety benefits will result at many intersections within the study area. Further evaluation of safety benefits may be undertaken at the functional design stage. This is in alignment with the vision for intersection safety improvement set forth in the District of North Vancouver Transportation Plan.

The analysis does not show the need to provide left turn bays for unsignalized intersections on Mountain Highway; however, these may be added at the functional design stage to remove left turning vehicles from the path of through traffic and provide a separate queuing zone for these vehicles. The District prefers to provide left turn bays at unsignalized intersections. The final alignment and cross-section of Mountain Highway should be determined at the functional design stage.

Figure 7-1: 20 Year Signalized Intersection LOS

Figure 7-2: Ultimate Signalized Intersection LOS

7.1.5 GOODS MOVEMENT AND ACCESS NEEDS

Specific changes/enhancements for goods/vehicle movement include:

- WB-20 design vehicle used to secure access to loading bays between High Street and Lynn Valley Road. Intersections designed to provide sufficient space for WB-20 vehicles. The access path to the site was assumed to be on / off of Lynn Valley Road.
- Access to Rain Street designed to permit minor truck access (HSU) to Rain Street from Mountain Highway.

7.2 Design Outcomes

Some key design outcomes will influence the District's approach as this area develops. The Ultimate network is not possible in the short-term, as it requires a new north-south road through the site of the existing mall. The full network will not be possible until that site redevelops. Development of the full Ultimate network also requires land acquisition along key roadways. Land acquisition for the Ultimate network is illustrated in

Improvements to the transportation network in the Study Area should be made as developers come forward and land is available. The final steps in the completion of the Ultimate Network rely on the redevelopment of the Lynn Valley Mall and will be:

- Development of High Street B
- Development of Rain Street north of High Street B
- Realignment of the intersection of Ross Road / Rain Street & Lynn Valley Road

All other improvements can be completed over time as land becomes available. When the southern portion of Lynn Valley Mall redevelops, it may be possible to replace one row of above ground parking with a multiuse trail parallel to Lynn Valley Road. This will allow for early completion of a pedestrian and cycling connection from 27th Street to the Lynn Valley Library parallel to Lynn Valley Road.

Land Acquisition

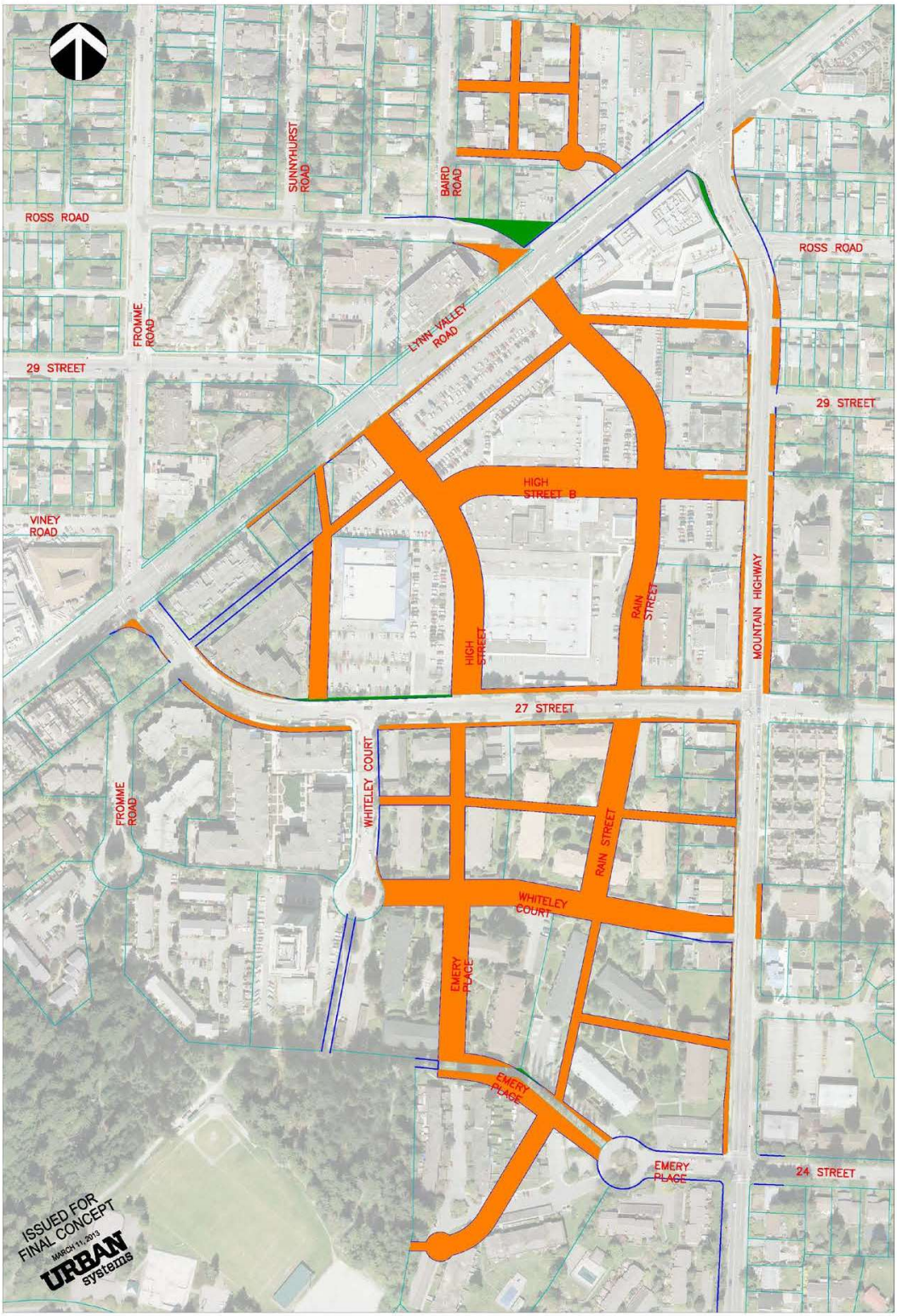


Exhibit 5: Property Acquisition

7.3 Impacts and Further Consideration

The revised Synchro networks containing the 20-Year and Ultimate networks are available for use by developers in the preparation of their Traffic Impact Assessments within the Study Area. Precise locations of accesses and the final design of Mountain Highway are subject to further design and considerations as the Study Area develops.

8.0 Conclusion

The Vision for the Lynn Valley community includes a vibrant and livable Town Centre. This vision can be achieved through changes in the land use and transportation network. This study examined the proposed land use changes and provided a recommended transportation network that provides many benefits, while mitigating the impacts of increased traffic. The overall effect of these changes will be a balanced impact on the vehicle network, with some improvements and some minimal negative impacts.

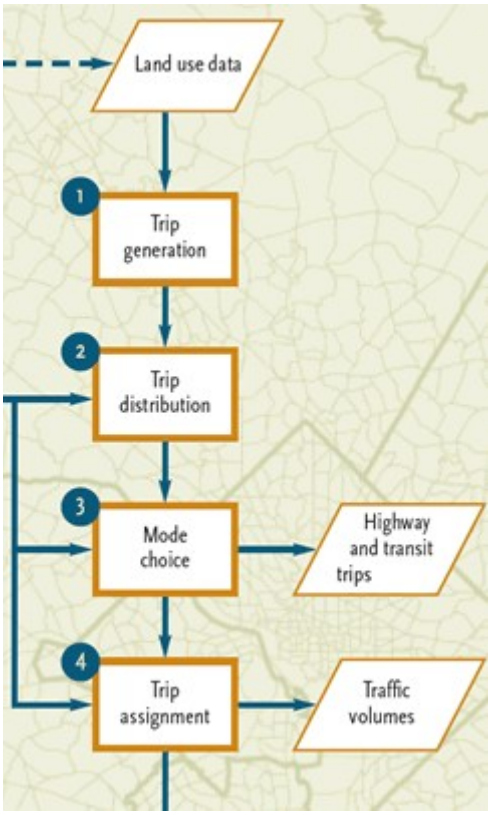
- With the type and levels of development analyzed in this report, the resulting growth in traffic can be accommodated within the proposed transportation network. This is a worst case scenario, as the auto mode share for external trips was not projected to decrease. If the auto mode share decreases, vehicle traffic will be even less than what is shown here.
- New roadways within the study area will improve circulation, allowing for more direct routing for vehicles. The new links will also decrease distance and travel time for pedestrians and cyclists.
- Delays for traffic travelling through Lynn Valley are expected to be minimal.
- The realignment of Ross Road to meet High Street at Lynn Valley Road is expected to improve access, circulation, and safety.
- Street-facing stores, combined with more residents and improved pedestrian space will create a more vibrant, livable neighbourhood.
- Cycling facilities suitable for all ages and abilities will encourage less confident cyclists to cycle more frequently, with positive impacts to access, health, and affordability.
- Transit accessibility will be improved and the changes to property and the road network will enable TransLink to move forward with plans for increased service. With more residents in the area, ridership can be expected to increase.

The changes to Lynn Valley enable valuable improvements to the pedestrian, cycling, transit, and roadway networks. In turn, these improvements will allow the District to achieve the vision for Lynn Valley; however, without development and densification, the improvements recommended here are difficult or impossible to attain.

Appendix A: Four Step Travel Model

The model consists of the following steps:

1. Trip generation;
2. Trip distribution;
3. Mode choice; and,
4. Trip assignment.



Trip Generation

Step one of the process is to determine the number of additional AM and PM peak hour vehicle trips added to the network by the change in land use. The *ITE Trip Generation Manual* were used to determine vehicle trip generation rates for different land use types. ITE trip rates represent land-use specific averages that have been determined through years of case studies and background research. Rates are tied to the number of dwelling units, square footage, acres of land, or employees (i.e. average number of trips per employee in the AM peak hour).

Directionality is also indicated in the *ITE Trip Generation Manual* and specifies what percentage of generated trips is heading into the development (inbound trips) versus how many trips are leaving the development (outbound trips). Generally residential land uses have significantly more outbound trips than inbound trips in the AM peak hour; the opposite is true for the PM peak hour. This phenomenon is generally reversed for employment-oriented land uses.

Trip Distribution

Step two of the process establishes where trips generated by the new development are coming from and going to (i.e. 20% of site trips are coming from the north, 30% from the south, 40% from the west, and 10% from the east). The trip distribution pattern for the Study Area was determined through assessment using the District's EMME model and then adjusted based on engineering judgement.

A distribution matrix determines the share of site generated traffic coming from/destined for various zones outside of the study area. Because Lynn Valley is a large area with many different planned land use types, a share of the total trips will be local – e.g. they will both begin and end within the Study Area itself. Because of the size and nature of the Study Area, local trips were assumed to be made by alternative modes (walking and cycling).

Mode Choice

Not all trips are made by automobile. Other modes, such as public transit, walking, and cycling can also be options for travelers, particularly within an urban context. Step three of the process factors in the effect of other modes on projected traffic. The *ITE Trip Generation Manual* trip rates, used in step 1 of the four step process, represent vehicle trips, not total person trips. Most of the survey data in the Trip Generation Manual was collected in suburban locations in North America. Generally, non-auto mode share of 5% and average vehicle occupancy of 1.2 persons per vehicle can be assumed for the rates within the manual. In many cases, the combined non-auto mode share in a study area is significantly higher than 5% and/or carpooling is more widespread.

In order to account for these differences, total vehicle trips generated are reduced to account for location-specific vehicle occupancy and non-auto trips to more accurately reflect the traffic generated by the proposed land use change. This was completed by converting the vehicle trips provide in the ITE Trip Generation Manual to person trips and then recalculating vehicle trips based on local conditions.

For the Study Area, future mode share was assumed to be the same as current mode share. The mode share for the District as a whole was used to complete this estimate. These estimates are conservative – vehicle trips generated by development will likely be lower than those estimated. Mode share is expected to shift away from single occupancy vehicles over time – this change is not reflected in the mode choice reductions in this analysis.

Trip Assignment

The final step in forecasting travel behaviour is determining which roads travelers use within the study area to reach the new site. This step is known as trip assignment. Trip assignment is distinctly different from trip distribution (step 2). While trip distribution determines where travelers are coming from/going to, trip assignment determines which roads travelers use to get between where they are coming from and the site. Once assigned, development traffic is then added to background traffic at the chosen horizon year. Intersection performance is then assessed to determine the impact of the land use change on the surrounding road network.

Appendix B: Supplemental Cross Section Appendix

MEMORANDUM

URBAN systems

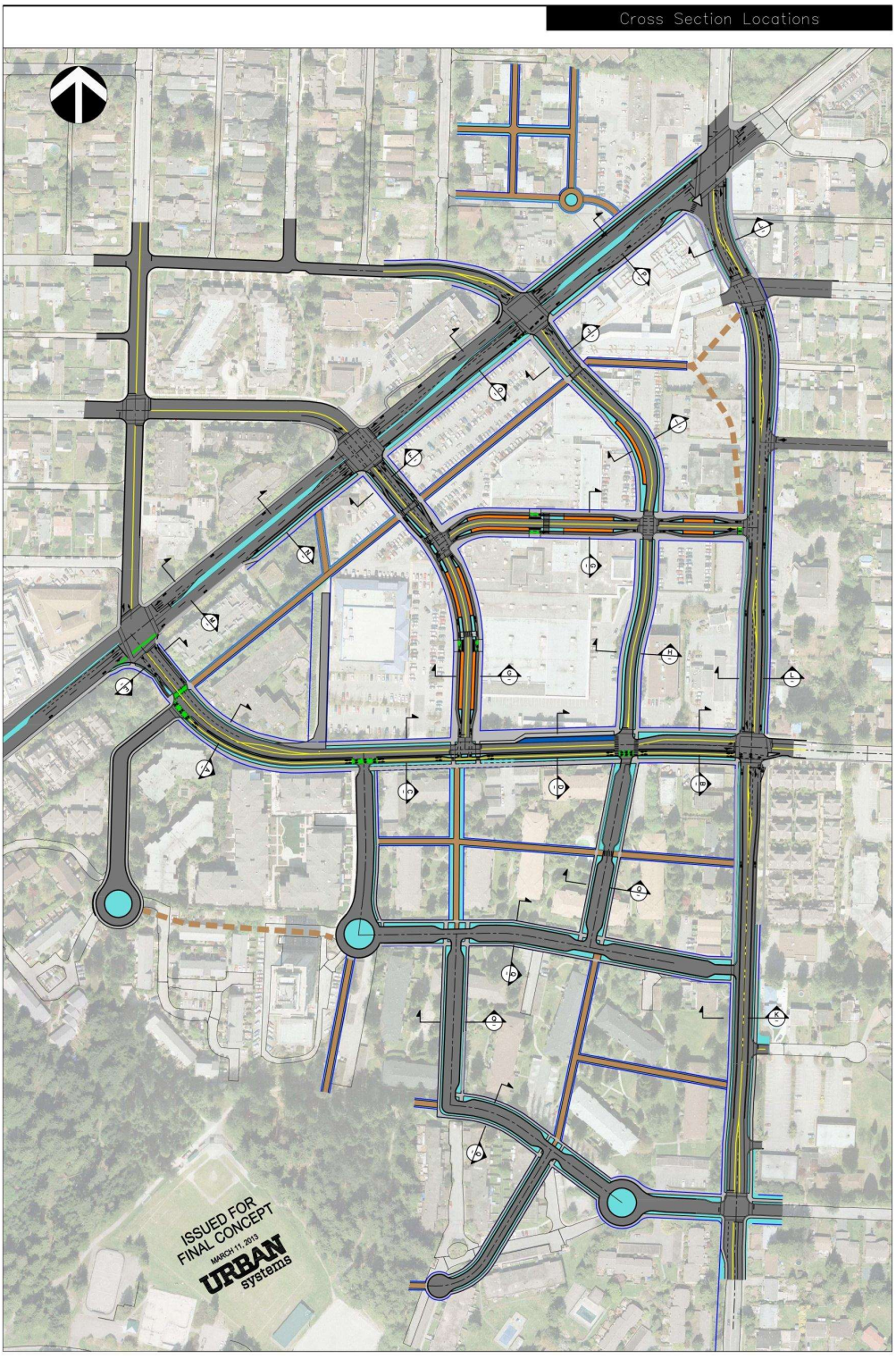
Date:	March 13, 2013
To:	Erica Geddes
cc:	Tegan Smith, Annie Chung
From:	Allison Clavelle
File:	1333.0018.01
Subject:	Lynn Valley Road Typical Cross Sections

This memo provides additional detail to the *District of North Vancouver Lynn Valley Town Centre Transportation Assessment* (LVTC Transportation Assessment) completed by Urban Systems in March 2013. Typical cross sections are illustrated for streets within the study area. Cross sections for 27th Street, High Street, Rain Street, Mountain Highway, and Lynn Valley Road as well as a typical section that was utilized for all new local roads within the study area. These local roads include Whiteley Court, Rain Street south of 27th Street, and Emery Place.

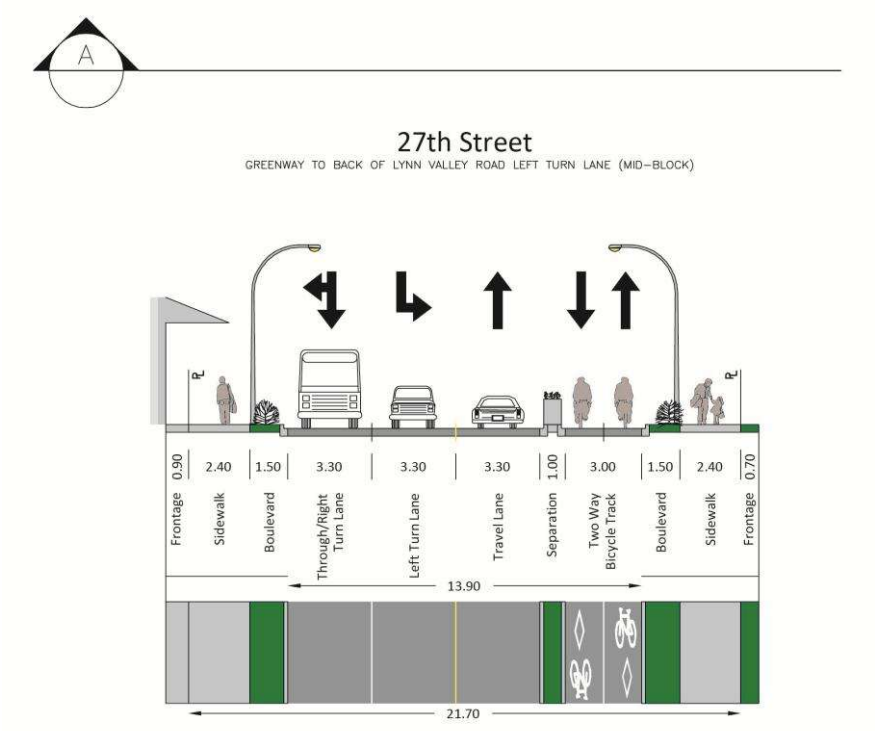
The design philosophy and impacts associated with these cross sections are consistent with the discussion provided in the LVTC Transportation Assessment.

All cross sections provided herein are associated with Exhibit 1 – Cross Section Locations.

URBAN systems



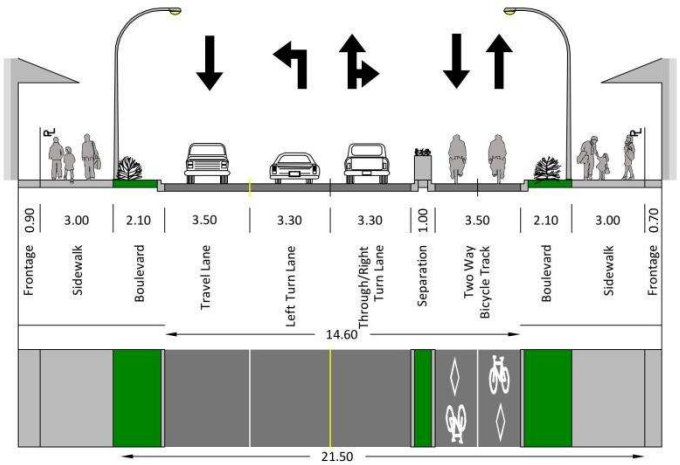
1.0 27TH STREET



B

27th Street

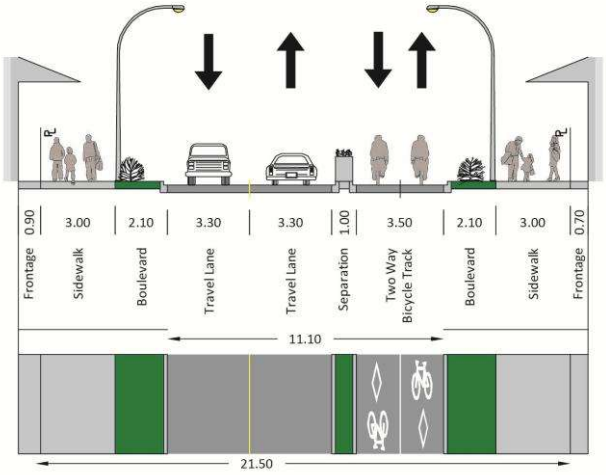
RAIN STREET TO MOUNTAIN HIGHWAY (INTERSECTION)



C

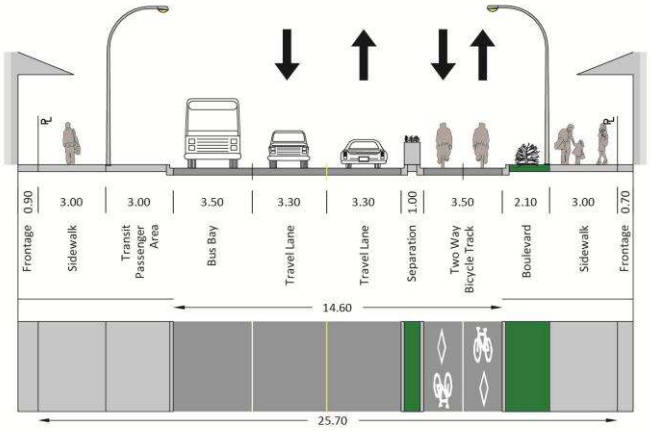
27th Street

LYNN VALLEY ROAD TO MOUNTAIN HIGHWAY (MID-BLOCK)



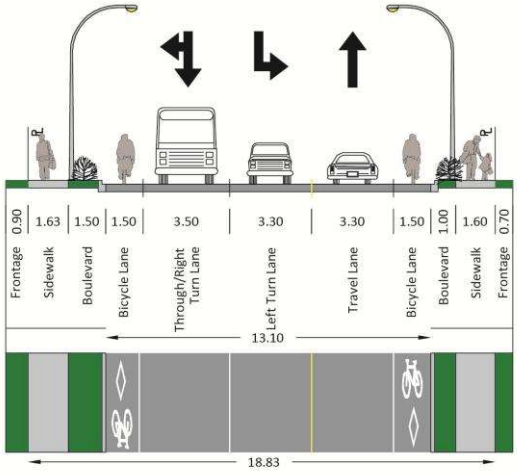
D

27th Street
LYNN VALLEY ROAD TO MOUNTAIN HIGHWAY (BUS BAY)

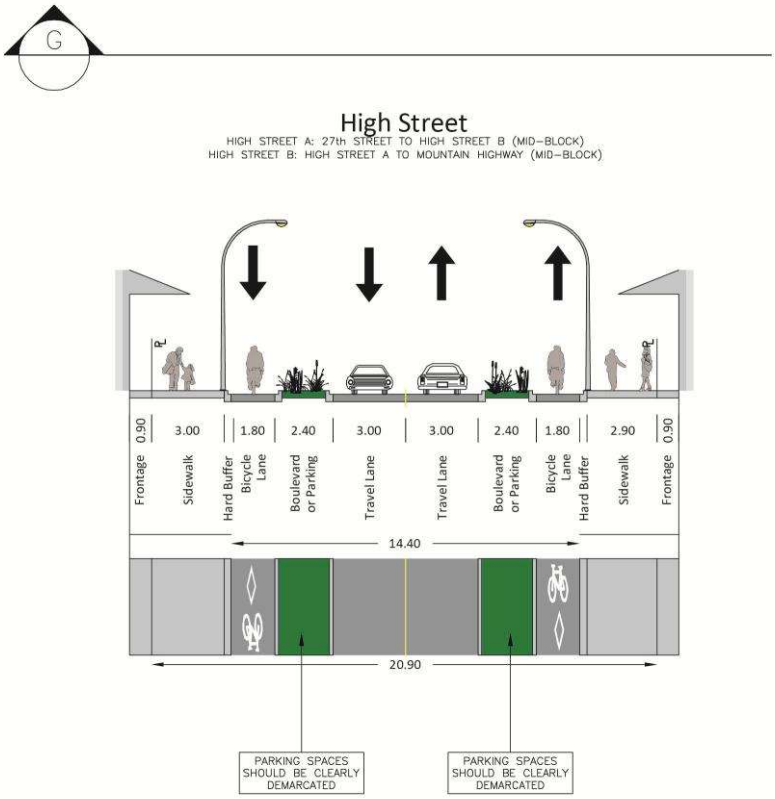


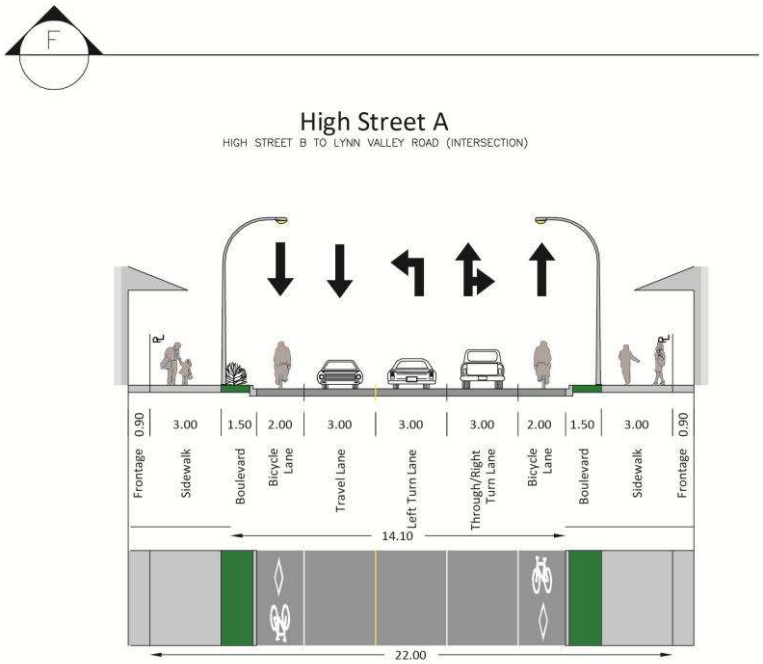
E

27th Street
LYNN VALLEY ROAD GREENWAY (INTERSECTION)

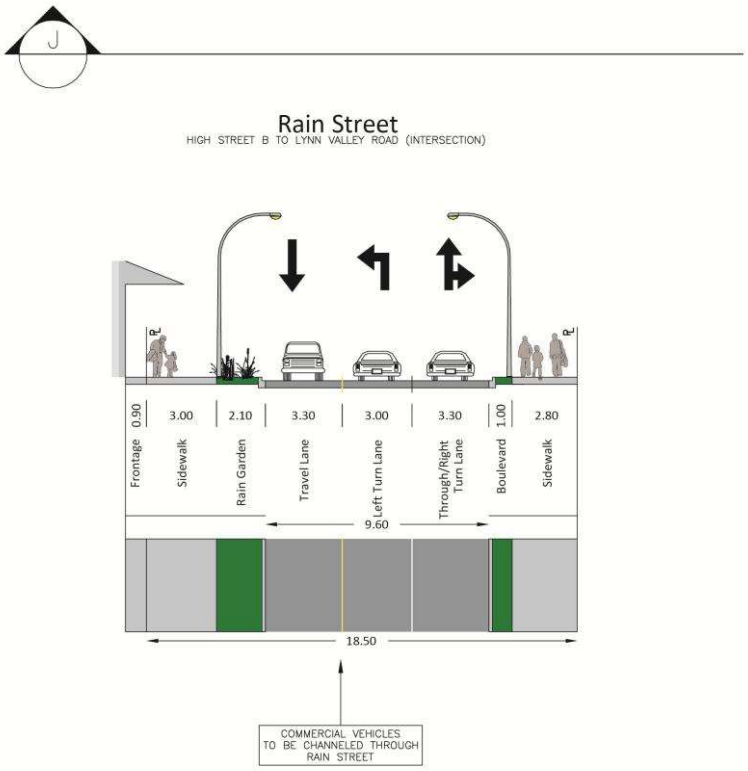


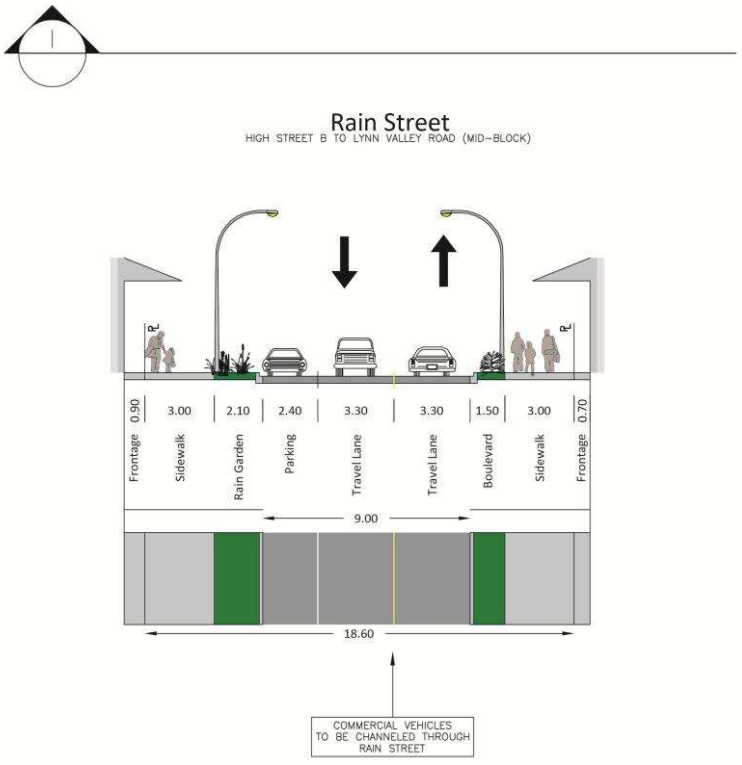
2.0 HIGH STREET

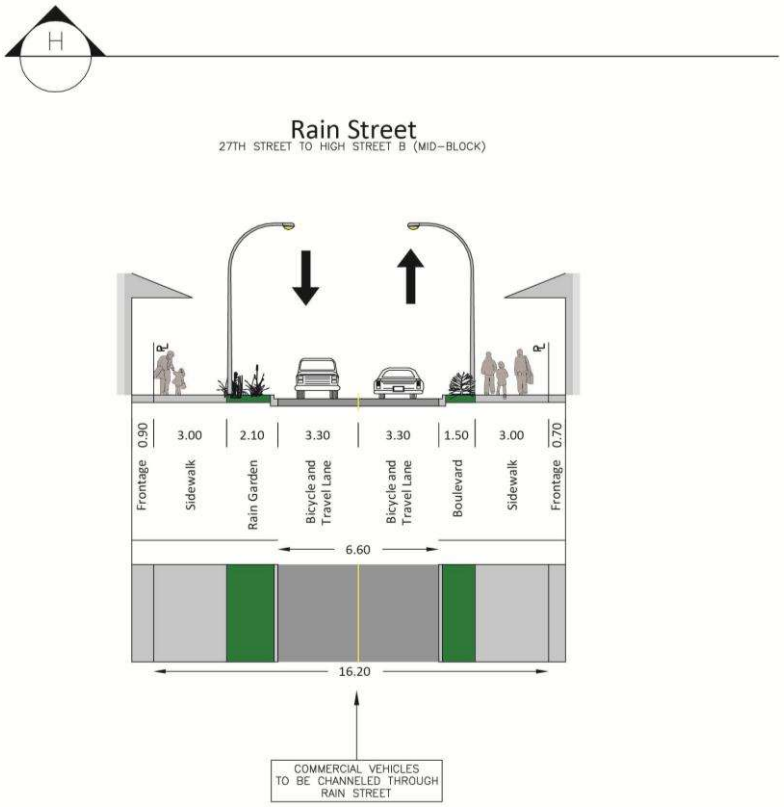




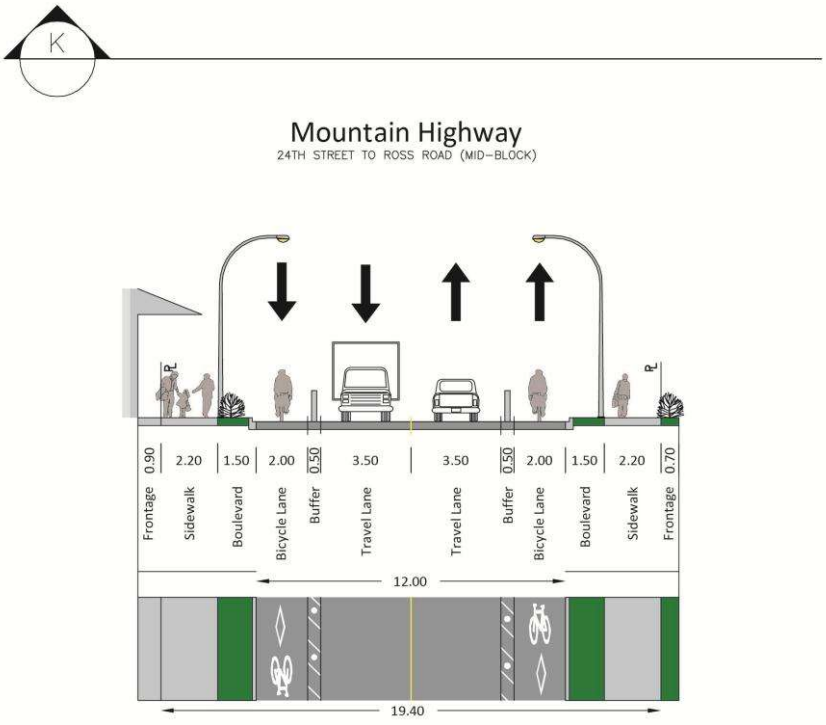
3.0 RAIN STREET



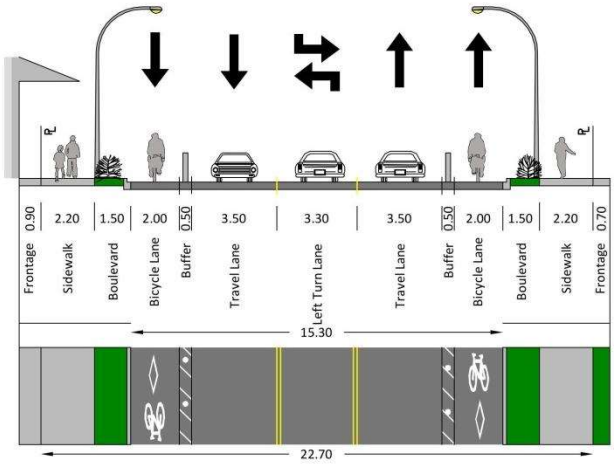




4.0 MOUNTAIN HIGHWAY

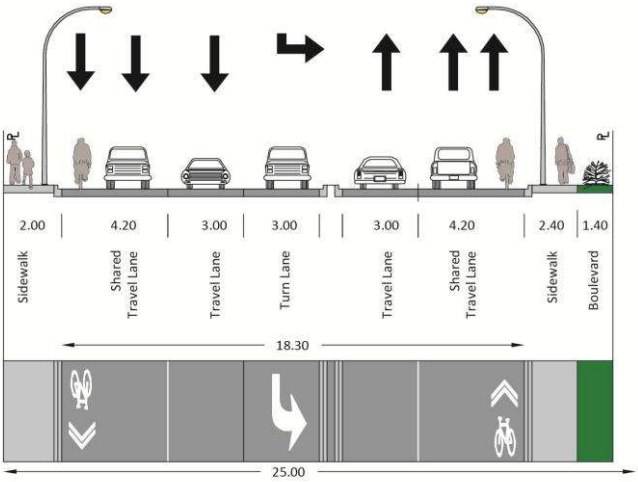


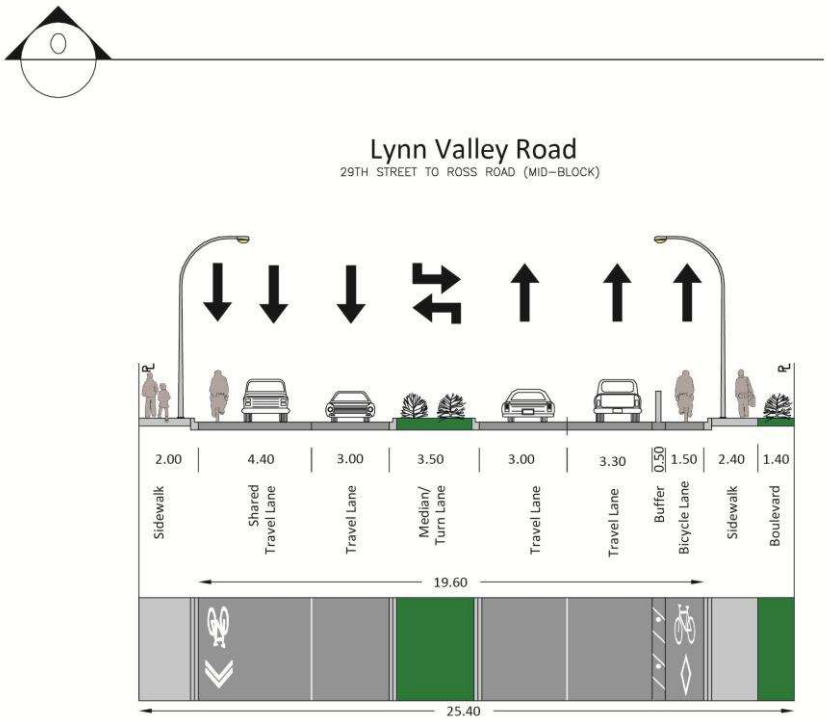
Mountain Highway
ROSS ROAD TO LYNN VALLEY ROAD (MID–BLOCK)
27th STREET TO HIGH STREET (MID BLOCK)

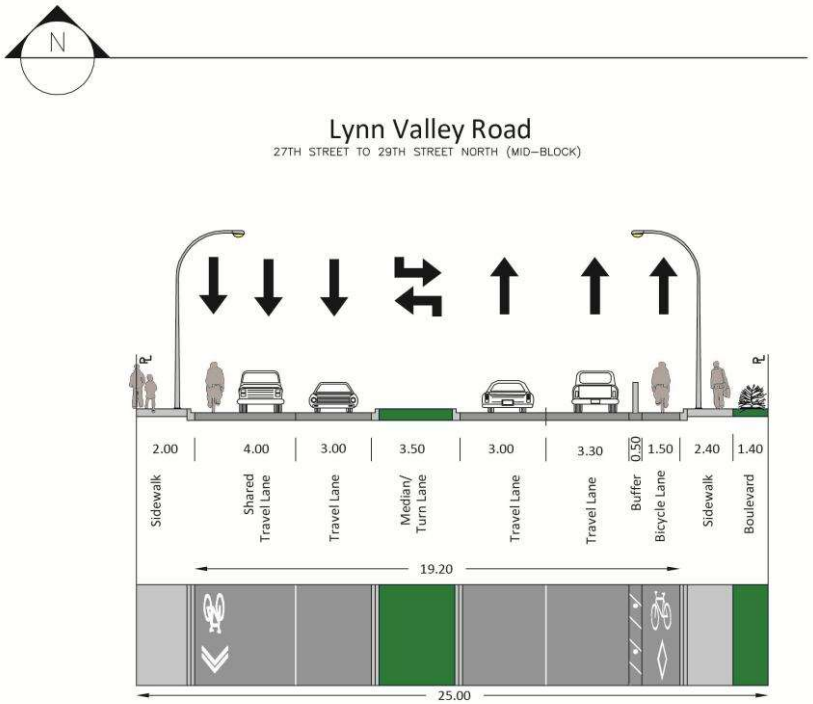


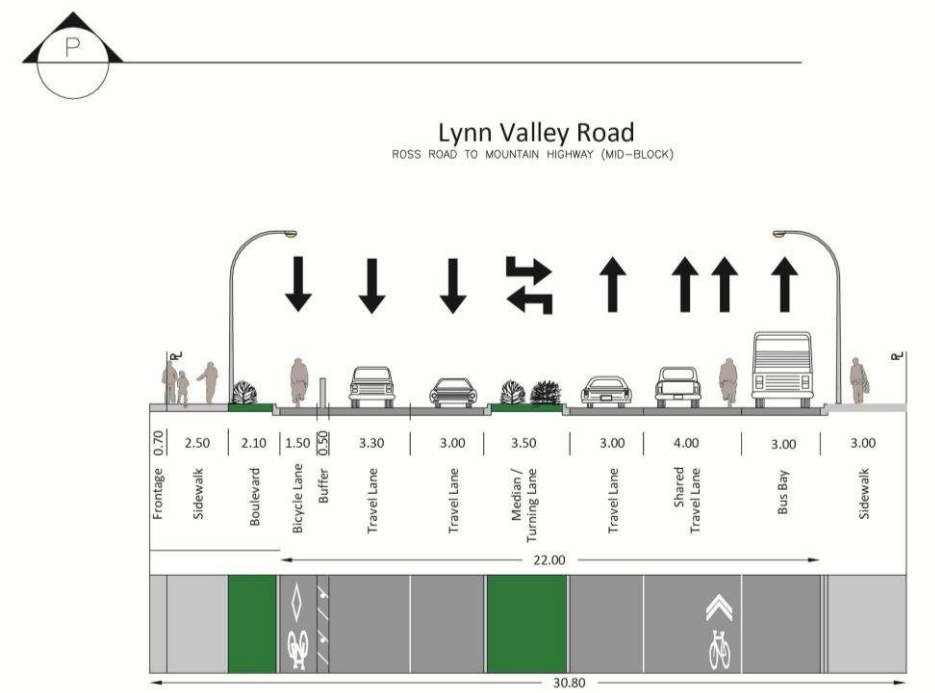
5.0 LYNN VALLEY ROAD

Lynn Valley Road
27TH STREET TO 29TH STREET SOUTH (MID–BLOCK)



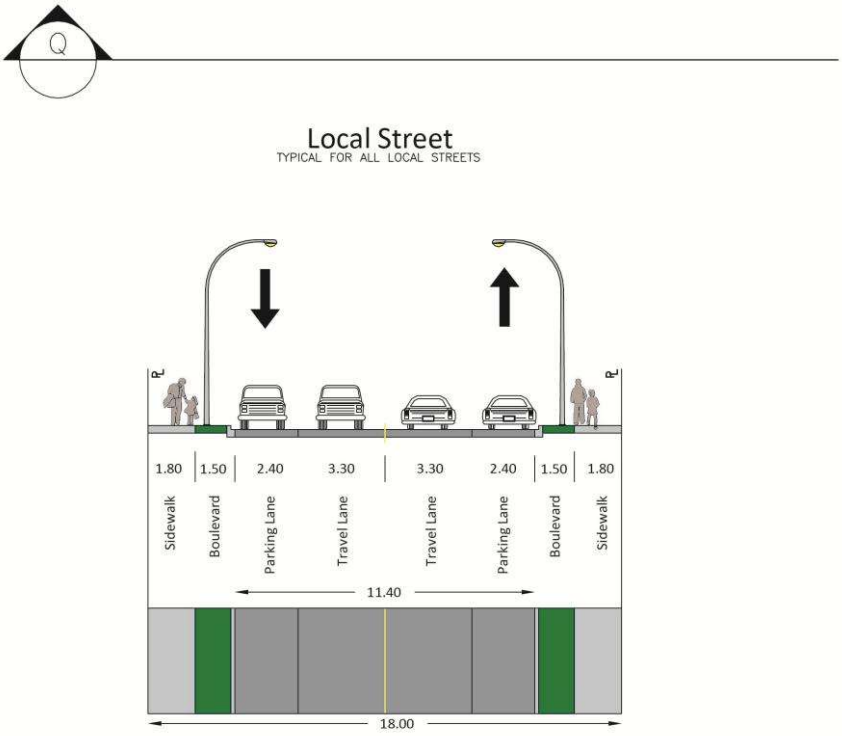

Lynn Valley Road
29TH STREET TO ROSS ROAD (MID-BLOCK)
2.00
4.40
3.00
3.50
3.00
3.30
0.50
1.50
2.40
1.40
Sidewalk
Shared Travel Lane
Travel Lane
Median/ Turn Lane
Travel Lane
Travel Lane
Buffer
Bicycle Lane
Sidewalk
Boulevard
19.60
25.40


Lynn Valley Road
27TH STREET TO 29TH STREET NORTH (MID-BLOCK)
2.00
4.00
3.00
3.50
3.00
3.30
0.50
1.50
2.40
1.40
Sidewalk
Shared Travel Lane
Travel Lane
Median/ Turn Lane
Travel Lane
Travel Lane
Buffer
Bicycle Lane
Sidewalk
Boulevard
19.20
25.00

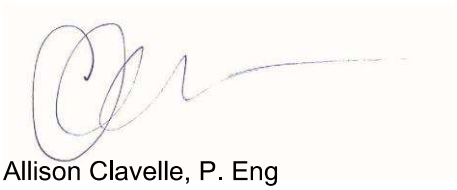


6.0 OTHER ROADS

As previously noted, a typical cross section was used for all new or modified local streets within the study area. It was assumed that the cross section for Fromme Road north of 27th Street, 29th Street, and Ross Road would all remain consistent with existing conditions.



URBAN SYSTEMS LTD.



Allison Clavelle, P. Eng
Transportation Engineer

/jw

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RAPIDBUS SERVICE

RapidBus is a bus service offering fewer stops and faster service than local buses. *10-Year Priorities* includes working with local government partners to plan and implement 11 new RapidBus lines featuring new transit priority measures to better serve existing riders and grow ridership in advance of fully traffic-separated Bus Rapid Transit (BRT) (see Backgrounder: Bus Rapid Transit (BRT) and Major Transit Network Expansion sections for more information on BRT).

YEARS 0–5:

- Langley – Haney Place (200th St)
- Lynn Valley – Downtown/Lonsdale
- Marine Drive – 22nd St Station
- Newton – White Rock (R1 extension)
- Richmond – Expo Line

YEARS 6–10:

- Ambleside – Downtown (Lions Gate)
- Carvolth – Scott Rd (96 Ave)
- Commercial/Victoria
- Langley – White Rock (24 Ave)
- New Westminster Station – Brentwood (Canada Way)
- Newton – Guildford (152nd St)

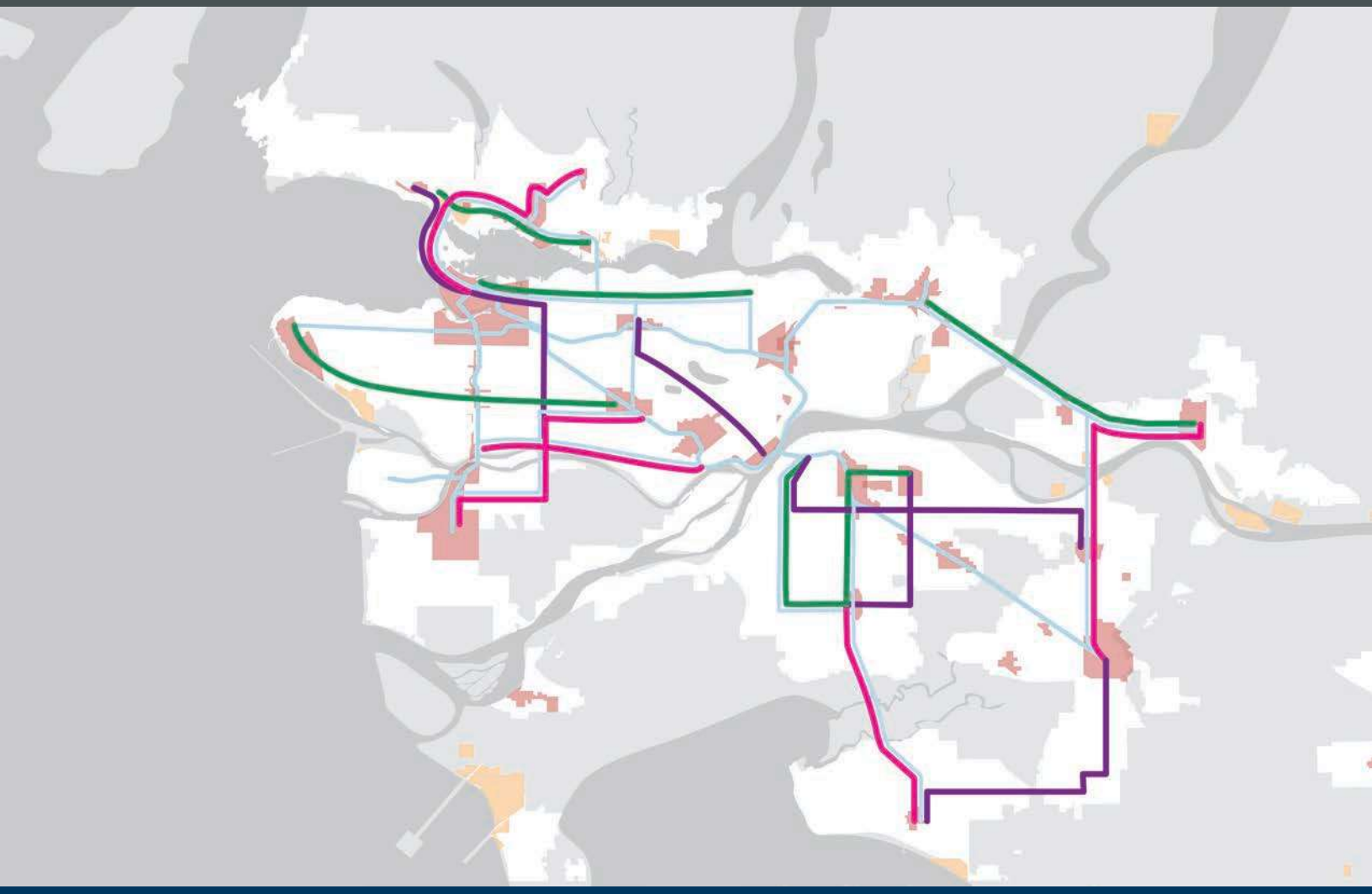
We will consider how investment in upgrading existing bus service (as described in the Bus Service section above) and local government commitments toward transit priority can enable RapidBus on additional corridors to be identified through future Area Transport Planning processes.

Implementing new RapidBus service requires commitments from municipalities or relevant road authorities for bus lanes and other bus priority measures to achieve travel times 20% faster than local bus and bus lanes on at least one-third of the route. These projects can only advance with local government support and active participation, the strength of which will be considered by the Mayors' Council and Board in project prioritization and phasing. For RapidBus corridors also being considered for BRT, coordinated planning and local support will be especially critical.

Bus Rapid Transit

To learn more about Bus Rapid Transit, which will build upon existing bus service and RapidBus, see the Backgrounder: Bus Rapid Transit (BRT).

Map 2: RapidBus



Legend

Major Transit Network

- Existing / Committed / 10-Year Priority

RapidBus

- Existing / Committed
- 10-Year Priority *[Years 0-5]*
- 10-Year Priority *[Years 6-10]*

Other

- Urban Centres and Frequent Transit Development Areas
- First Nation Reserves and Tsawwassen Treaty Lands
- Urban Areas (within the Urban Containment Boundary)
- Non-Urban Land

Map reflects Metro 2050 geographies as of 2021. Additional FTDAs may be designated over time.
Route alignments, including termini, are shown for illustrative purposes only and are subject to further refinement through future studies.

TRANSPORTATION PLANNERS AND ENGINEERS

1246 - 1268 Lynn Valley Road & 3050 Baird Street Transportation Impact Assessment

Version 07

Prepared for

Polygon Development 395 Ltd.

Date

March 26, 2026

Project No.

04-25-0159

Bunt & Associates acknowledges and respects the Traditional Territories upon which our work spans, and from which we benefit. We are grateful for the unique cultures and histories of Indigenous Peoples that enrich our understanding and connection to the lands we call home. We honour learning, listening, and truth in our journey to reconciliation.

March 26th, 2026

04-25-0159

Polygon Development 395 Ltd.
900 – 1333 West Broadway
Vancouver, BC
V6H 4C2

Dear Devon:

Re: 1264 – 1268 Lynn Valley Road & 3050 Baird Road
Transportation Impact Assessment

We are pleased to provide the attached Transportation Impact Assessment (TIA) to support the mixed-use development at 1246-1268 Lynn Valley Road and 3050 Baird Road in the District of North Vancouver, BC. The report has been prepared based on the directions from the District of North Vancouver and Polygon. Further, this version of the TIA addresses District comments provided on February 18th, 2026.

We trust that the attached information will be of assistance with your rezoning application for the above referenced properties. Please do not hesitate to contact us should you have any questions or comments.

Yours truly,
Bunt & Associates

Josie Ackroyd, P.Eng.
Transportation Engineer

Daniel Fung, M.Sc. P.Eng.
Principal

TRAFFIC IMPACT OVERVIEW

1. The Transportation Impact Assessment uses the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (12th Edition) (standard industry practice) to estimate the expected vehicle trips associated with the redevelopment, based on observed travel patterns from comparable sites across North America.

2. Traffic counts indicated that Baird Road currently supports ~67 two-way vehicle trips in the AM peak hour (~1 trip per minute) and ~43 trips two way in the PM peak hour (less than 1 trip per minute).

3. The existing site generates ~33 two-way vehicle trips in the AM peak hour and ~150 two -way vehicle trips in the PM peak hour split across Baird Road and Lynn Valley Road.

4. Based on ITE trip rates, the development is expected to generate ~212 total trips in the AM peak hour and ~238 total trips in the PM peak hour. Importantly, these totals represent two-way site activity (vehicles entering and exiting combined).

5. After removing existing site traffic and accounting for mixed-use trip capture, peak-hour travel patterns, and alternative transportation modes this equates to ~117 net new external trips in the AM peak hour, and effectively no net new external trips in the PM peak hour. At the south end of Baird Road, the net new trips that will appear from the development will be ~121 vehicles trips in the AM peak hour and ~123 vehicle trips in the PM peak hour, which equates to ~2 vehicles per minute.

6. Baird Road is a local residential road, and traffic volumes of this magnitude remain well within what such streets are typically designed to accommodate (often 400 vehicles per peak hour), ~6 – 7 vehicles per minute.

7. A sensitivity analysis of the development trips was completed at the request of the District. Before removing the existing site trips the sensitivity scenario generates 180 trips in the AM peak and 207 in the PM peak. Equivalent to approximately 3 vehicles per minute. The net trips (after removing existing) are noted as 147 AM peak hour vehicle trips and 57 PM peak hour vehicle trips.

8. Reasons why a 365 net increase in homes is not expected to translate into a proportional increase in peak-hour vehicle traffic include:

    a. Peak-hour vehicle trip rates for apartment-style housing (from ITE) are typically lower than for ground-oriented housing forms such as townhomes or single-family units (based on samples from similar developments).
    b. Peak-hour demand represents only a portion of daily activity.
    c. Individuals who travel in peak periods are not all concentrated into one hour. Work-from-home, hybrid schedules, different distances to travel to work and back reduce concentrated commuter travel.
    d. School drop-off trips further distribute travel outside peak commuter periods particularly in the afternoon.

e. Some residents will use transit, walking, or cycling rather than driving for all trips.
f. The site is located close to Lynn Valley Centre and other amenities, encouraging walking and reducing short vehicle trips.
g. The on-site commercial space will also capture some resident trips internally (these trips never enter the public road network).

9. At the request of the District, Bunt has undertaken a more conservative review of the trip generation and the traffic modelling. The results have been reviewed for both the original and conservative scenarios, to which mitigation measures have been proposed.

CORPORATE AUTHORIZATION

Prepared By: Josie Ackroyd, P.Eng.
Allan Conopio
Gabrielle Huchet, EIT
Gordon Lu, EIT
Sijia Jin, EIT

Bunt & Associates Engineering Ltd.
1550-1050 West Pender Street
Vancouver, BC V6E 3S7
Canada

Reviewed By: Daniel Fung, M.Sc., P.Eng.
Principal

Telephone: +1 604 685 6427
Facsimile: +1 604 685 6579

Date: 2026-03-26
Project No. 04-25-0159

Approved By: Daniel Fung, M.Sc., P.Eng.
Principal

Written with respect and gratitude for the Traditional Territories upon which we work and live.

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EXECUTIVE SUMMARY

Polygon is proposing a mixed-use development at 1246–1268 Lynn Valley Road and 3050 Baird Road in the District of North Vancouver. This Transportation Impact Assessment has been prepared to support the development with the rezoning application.

The project includes 397 residential units and 2,331m^2 of commercial space (replacing 32 existing rental units and a commercial site). The site is located within the Lynn Valley Town Centre and supports the District's Official Community Plan (OCP) vision for a mixed-use, transit-oriented hub. Lynn Valley has been identified by TransLink (*TransLink's Access for Everyone (2022)*) as a near-term candidate for Bus Rapid Transit (BRT) or RapidBus service.

Existing Conditions

The site is served by transit, with a Frequent Transit Network (FTN) stop less than 20m away and is accessible by walking and cycling. The broader mobility network includes protected bike lanes and connections to regional trails. The site is situated between Lynn Valley Road (arterial road) to the east and Baird Road (local road) to the west. Arterial roads typically have a capacity of ~3,000 vehicles in a peak hour and local roads ~300 - 400 vehicles in a peak hour.

Field Observations

Local residents have a number of concerns relating to the development and the existing and future traffic operations in the surrounding area. Bunt has confirmed through observations that:

- There is no continuous sidewalk on Baird Road and students walk down the centre of the road.
- Drive Thru queues extend past the property line and occasionally cause localized congestion and interference with traffic flow on Ross Road.
- Queues spill back on Lynn Valley Road & Mall Access due to short turn lanes.

To address the students on the roadway the site will be providing a sidewalk along the frontage of Baird Road which should alleviate some elements of this existing issue and create a safer and more appropriate space for pedestrians. Additional improvements will require educational initiatives by the school and, to some extent, enforcement by the District to encourage sidewalk use once these facilities are in place.

Crash History

Between 2020 and 2024, 270 collisions were reported within the Lynn Valley study area, with most occurring at the Lynn Valley Road & Mountain Highway intersection. Rear-end and side-impact crashes were the predominant types, which typically are linked to high traffic volumes and permissive turning movements. Additional side impact collision patterns were noted Lynn Valley Road near the Mall access and Ross Road. As well as a head on collision on Ross Road which is consistent with complex vehicle maneuvering in the area.

Site Trip Generation

Bunt has estimated the proposed development's site trips using standard industry methodologies consistent with the Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition.

- The trip rates were informed by multiple samples from similar sites across North America, including Canada.
- Trip rates take into consideration items such as, not all residents living in the development will travel in the peak hour and peak-period commuters spread their trips across time rather than piling into one hour. This comes down to the uniqueness of individual people and individual travel needs.
- The integrated mixed-use design of the proposed development allows for a portion of trips to occur internal to the site, never entering the public road network. For Example, there will be more opportunities to residents to 'grab coffee downstairs' rather than taking out their vehicle.
- Existing trips generated by the site are accounted for and are not double counted.

Based on the above, the site is estimated to generate an additional 117 vehicle trips during the AM peak hour, with no significant change to PM peak hour conditions when accounting for the removal of the existing commercial units and their associated traffic within the current mall.

As directed by the District Bunt completed a sensitivity scenario which increased the trip generation by 16% in the AM peak hour and 28% in the PM peak hour before the removal of existing site trips. The net trips (after the removal of existing trips) are estimated to be 147 vehicle trips in the AM peak hour and 57 vehicle trips in the PM peak hour.

Traffic Operations

Two network scenarios were analyzed as per the discussions with the District. Scenario A) Existing road layout conditions and Scenario B) A scenario with the closure of eastbound left turn at the Lynn Valley Road & Ross Road Intersection. The traffic operations between the scenarios did not have many significantly different implications on the transportation network study area. *Level of Service (LOS) is a standard measure used to describe traffic conditions, ranging from LOS A (free-flowing traffic with minimal delay) to LOS F (highly congested conditions with significant delays).*

- Under the existing conditions, the northbound left turn at the Lynn Valley Road & Mall Access experiences delays at times greater than 50 seconds. Additionally, westbound left queue extends past the available storage space based on field observations.

- At opening day of the site under Scenario B, the overall intersection at Fromme Road & 29th Street is expected to operate with a LOS E in the AM peak hour. However, individual movements at the intersection will still fall within acceptable limits.

- Background traffic within the opening day + 10 years scenarios contain intersections that are expected to worsen in operation.

  - Fromme Road & 29th Street in both scenarios, is expected to operate at LOS E in the AM peak and expected to worsen to LOS F in Scenario B as delays increase and volumes approach capacity. Operations are expected to be improved with the implementation of a traffic signal at this location.
  - At Lynn Valley Road & Mountain Highway within both scenarios' capacity worsens beyond acceptable operations with long queues. Options for improvement are limited without changes in intersection laning.
  - Scenario B, queues at Lynn Valley Road & Fromme Road are expected to exceed the available storage, however this can be improved with a dedicated left turn phase for eastbound traffic.

- Noting that the site access is on Baird Road, traffic modelling indicates that operations along Baird Road at the site access and at Ross Road operate within acceptable thresholds. Based on this, the roadway is expected to be able to support the additional site trips in the future.

- The Trip Generation Sensitivity analysis traffic modelling results did not significantly vary from the previous scenarios. However, recommendations for storage length extensions have been made based on the sensitivity scenario.

Parking, Loading & Waste Collection

The Alternative Vehicle Parking Rates (AVPR) requires 529 vehicle spaces when considering allowable transit and shared parking reductions for Building 1, however, the site has the potential for up to 20 shared parking spaces, which would further reduce the AVPR requirement to 512 stalls. The development is proposing to provide 482 vehicle parking spaces, including sharing commercial and residential visitor parking (3 spaces) for Building 1. The proposed parking provisions are 1.0 space per strata unit and between 1 – 0.7 per rental unit which exceed regional average vehicle occupancy rates. Bunt is of the opinion that the proposed vehicle parking rates will sufficiently support the site.

Accessible parking requirements, small vehicle spaces and bicycle parking are all in compliance with bylaw and policies. Further the site will provide two loading spaces.

Site Design Review

The site is providing a 2.3m height clearance across the parkade levels meeting the accessible parking space height clearance requirements. Waste and recycling will be collected by a jitney truck from the P1 garbage rooms and transferred to the ground-level staging area, where municipal or private trucks will remove the refuse from the site. Compactors will also be used on site, which require 2.4m height clearance at tipping location.

A high-level sightline review was undertaken at the site access using Stopping Sight Distance. Although parked vehicles may slightly encroach into the sight triangle along Baird Road, sightlines are considered acceptable, as vehicles exiting the site will move slowly and can safely creep forward on this low-speed local road.

Transportation Demand Management

The development proposes a TDM plan comprising of 30 points for residential and 30 points for commercial land use. Strategies include enhanced active mode and transit access and facilities, transportation marketing services and shared parking.

Recommendations

- Implementation of a sidewalk along the entire length of Baird Road, District enforcement and educational initiatives by Argyle School is recommended to address the existing issue of students walking within the Baird Road right-of-way.
- Installation of cross-hatched pavement markings along Ross Road in front of the drive Thru access and District enforcement is required to address the existing issue at the McDonald's Drive Thru.
- Closure of the eastbound left turn at the Lynn Valley Road & Ross Road intersection is recommended to address existing complicated vehicle interactions at this location, and existing queuing concerns for the westbound left at the Lynn Valley & Mall Access. A westbound left storage length of 40m is recommended. The District acknowledges the importance of communicating potential impacts to nearby businesses and key stakeholders (e.g., McDonald's) and implementing appropriate mitigation measures.
- Implementation of a protected-permissive eastbound left turn signal and extension of the westbound left storage lane (25-30m total) at Lynn Valley Road & Fromme Road is recommended to address projected 2042 queuing associated with background traffic growth, closure of the eastbound left at Ross Road, and site traffic.
- Extension of the eastbound left turn lanes (20m storage) at Lynn Valley Road & 29th Street is recommended due to projected 95th percentile queues associated with background traffic growth. This need is partly driven by the proposed closure of the eastbound left-turn at Lynn Valley Road & Ross Road, which is expected to redirect some traffic to this intersection.
- Implementation of a full traffic signal with dedicated left turn bays at Fromme Road & 29th Street is recommended due to projected operational deficiencies. Operational deficiencies are accelerated to 2032 by closure of the eastbound left at Ross Road and site-generated traffic.

A series of design refinements are recommended to ensure safe and efficient site circulation which are noted below, it is anticipated that these items will be reviewed prior to the development permit application.

- Reduce ramp slope to 7.5% (10% grade is acceptable, a 7.5% grade is preferred).
- Keep the north loading area clear during waste collection periods.
- Label the indicated parking spaces to small car spaces to accommodate end stall accessibility.
- Ensure the full turn around area is drivable to accommodate a fire truck maneuver.
- Relocate the highlighted existing accessible parking space and adjacent column is recommended to facilitate vehicle turnaround.

- Ensure minimum of 7.2m height clearance is provided in waste collection tipping areas and 2.4m height clearance within the parkade for tipping of the compactor.

1. INTRODUCTION

1.1 Study Purpose & Objectives

Polygon is proposing to construct a two phased mixed-use development consisting of 397 residential units and 2,331m^2 commercial. The site is located at 1246-1268 Lynn Valley Road and 3050 Baird Road (including the southern laneway) in the District of North Vancouver, BC.

To support the project approval process, the District of North Vancouver requested Transportation Impact Assessment (TIA) based on items outlined within the Terms of Reference (ToR) (**Appendix A**). Bunt & Associates Engineering Ltd. (Bunt) has been retained by Polygon to support the development with the preparation of the TIA.

The purpose of this TIA is to support initial District Staff reports required for the Council rezoning process.

1.2 Proposed Development

The development is located within the Lynn Valley Town Centre in the District of North Vancouver (**Exhibit 1.1**). The site is redeveloping three parcels 1264 - 1268 Lynn Valley Road and 3050 Baird Road which currently are comprised of commercial property and residential rental units. There are presently 32 residential rental units on the existing site, these units are planned to be transferred into the proposed development.

The site is proposing to maintain a mixed residential-commercial land-use upon redevelopment. The land use breakdown of the proposed site is outlined in **Table 1.1**.

Table 1.1: Proposed Land Uses

LAND USE	PHASE 1 DENSITY	PHASE 2 DENSITY	TOTAL DENSITY
Residential - Rental Replacement	32 Dwelling Units	-	32 Dwelling Units
Residential - Market Rental	32 Dwelling Units	-	32 Dwelling Units
Residential - Strata	63 Dwelling Units	270 Dwelling Units	333 Dwelling Units
Commercial - Retail	2,331m^2	-	2,331m^2
Commercial - Office			

Exhibit 1.2 presents the proposed site plan.

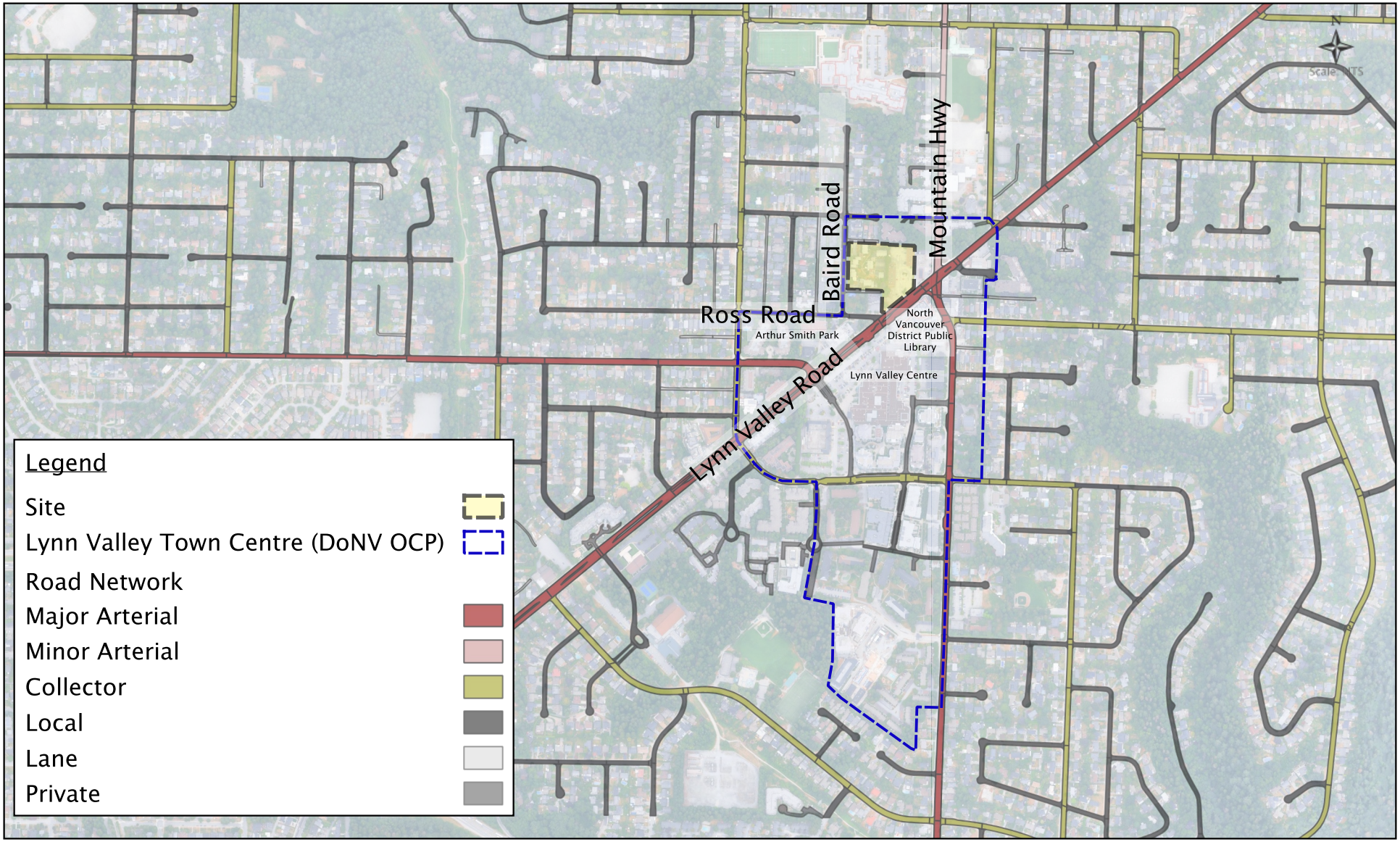

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Exhibit 1.1

Site Location

1246 - 1268 Lynn Valley Road

04-25-0159 August 2025

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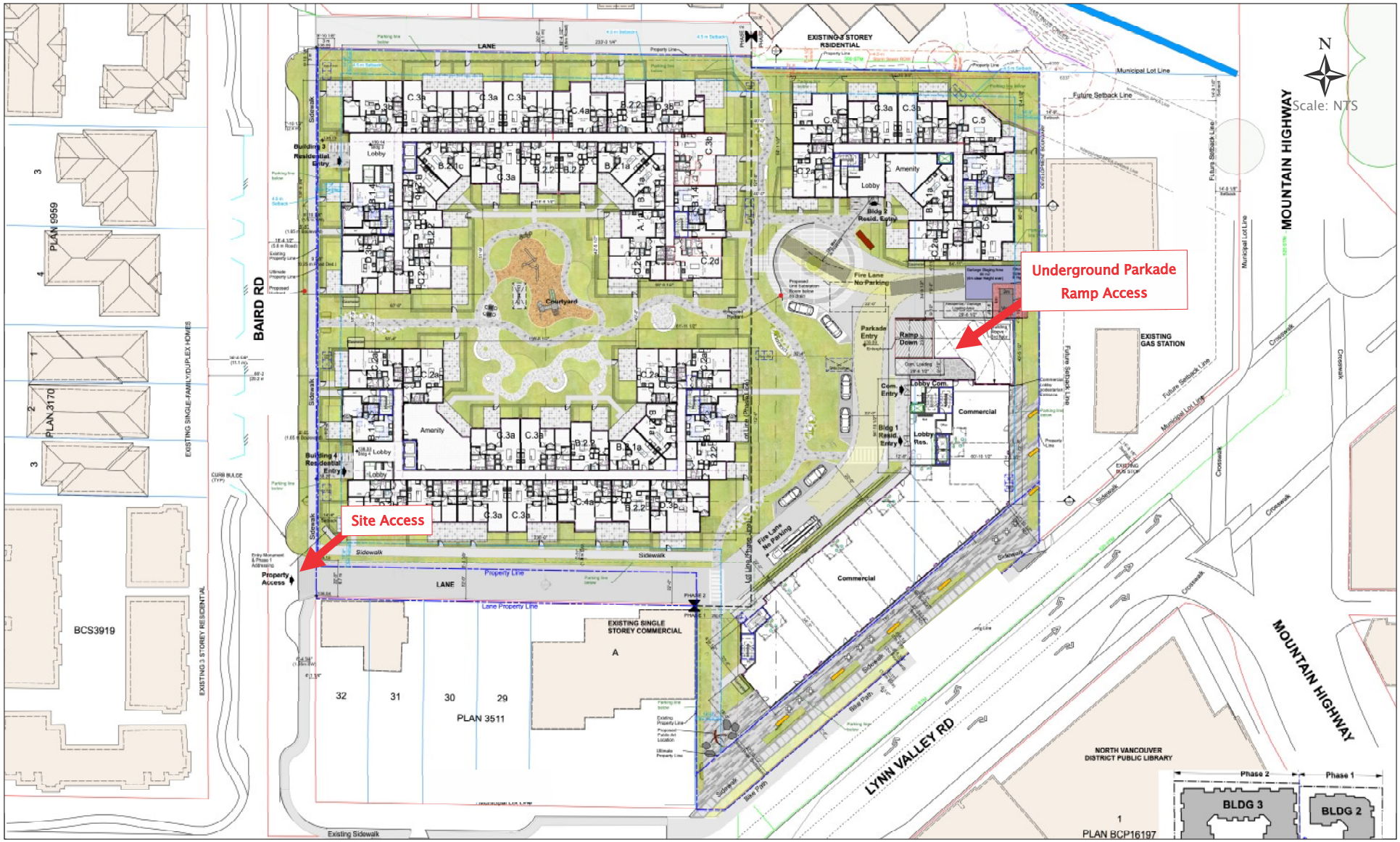

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Source: NSDA ARCHITECTS - August 7, 2025

Note: This figure reflects site plans at the time of writing and excludes roadway plans under discussion.

Exhibit 1.2

Site Plan

1246-1268 Lynn Valley Road

04-25-0159 March 2026

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2. EXISTING CONDITIONS

2.1 Land Use

The site is located within the Lynn Valley Town Centre as part of the Official Community Plan (OCP). The current land use is noted as 'commercial' and 'developed' and is surrounded by similar uses. Within the OCP the site is zoned for low and medium density apartments and will be surrounded by a variety of uses such as residential, commercial, institutional and park lands. Notably, Argyle Secondary School is located to the north of the site.

2.2 Existing Transportation Network

2.2.1 Road Network

The site is located to the north of Lynn Valley Road and Baird Road meets the site along its west edge. The existing street characteristics of the surrounding road network are described in **Table 2.1**.

Table 2.1: Existing Street Characteristics

STREET	CLASSIFICATION	NUMBER OF TRAVEL LANES	POSTED SPEED	PARKING FACILITIES
Lynn Valley Road	Major Arterial	5	50 km/hr.	On-street parking is prohibited to adjacent to the site.
Mountain Highway	Major / Minor Arterial	2	30 km/hr. for 8AM-5PM (Mon. to Fri.) (Around Lynn Valley Elementary School and the nearby sports field) 50 km/hr. at all other times	1. Intermittent one-hour parking on one side of the road. 2. Followed by unrestricted parking along the remainder of the road; and, 3. An intermittent two-hour parking lot located to the west.
29th Street East	Major Arterial	2	50km/hr.	On-street, curbside parking is permitted at designated spaces along the north side of the road adjacent to the site.
Fromme Road	Collector Road	2	50km/hr.	On-street parking is permitted on both sides of the road adjacent to the site.
Ross Road	Local Road	2	50km/hr.	1. On-street parking is prohibited adjacent to the site; and, 2. Two parking lots are located along the road to the south.
Baird Road	Local Road	2	50km/hr.	Unrestricted parking along the road
Harold Road	Local Road	2	50km/hr.	Unofficial on-street parking adjacent to site.

Each road class is designed to handle specific Annual Average Daily Traffic volumes (AADT), with each peak-hour flow typically comprising in the order of10% of AADT, generally. Per the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (Chapter 2), recommended capacities are:

- **Local Roads:** ~1,000 - 3,000 vehicles per day for residential and commercial areas (noting that this area is within the Lynn Valley Town Centre commercial consideration is applicable for this location). This equates to ~300 - 400 vehicles in a peak hour. Local roads in the study area include Ross Road, Baird Road, and Harold Road.

- **Collector Roads:** <8,000 vehicles per day, ~800 vehicles in a peak hour. The only collector in the study area is Fromme Road.

- **Minor Arterial Roads:** 5,000 - 20,000 vehicles per day ~2,000 vehicles in a peak hour. Minor arterials within the study area include the north leg of Mountain Highway.

- **Major Arterial Roads:** 10,000 - 30,000 vehicles per day ~3,000 vehicles in a peak hour. Lynn Valley Road and 29th Street are both noted as Major arterials in the study area.

2.2.2 Transit, Walking, and Cycling Network

Transit

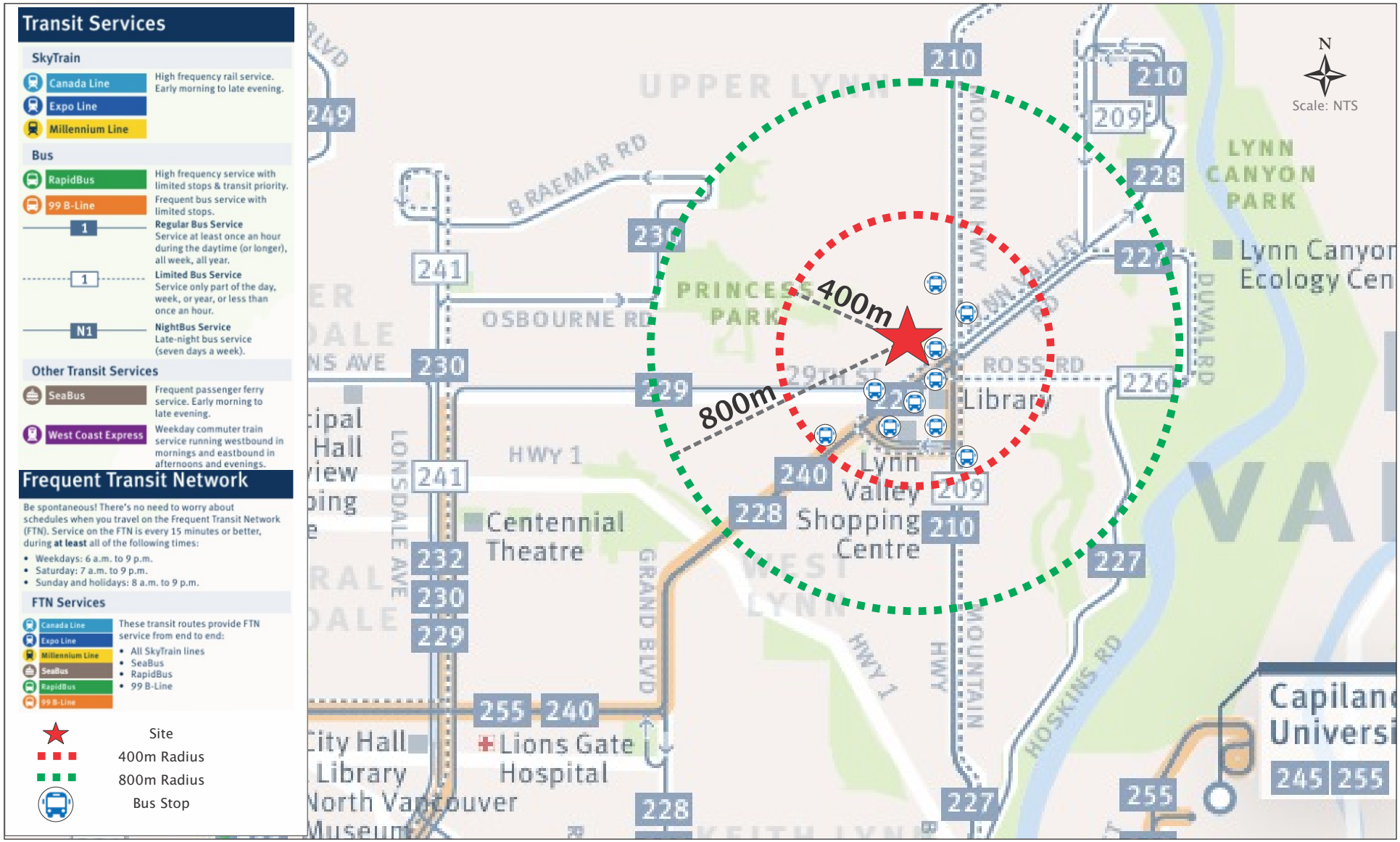
Multiple public transit services are available within close proximity to the site, with the frequent transit network (FTN) and regular transit connections to most points in the District of North Vancouver accessible within an 800m (10 minute) walking distance of the development. There is an FTN transit stop located on Lynn Valley Road less than 20m from the site. **Exhibit 2.1** illustrates the transit network.

According to Walk Score (*walkscore.com*)[1], the development has a transit score of 52/100, designating the site as having "Good Transit" (noting that this is on the lower end of the "Good Transit" threshold). Walk Score is a publicly available on-line index that measures how walkable a specific address is by assigning it a score from 0 to 100 based on nearby amenities and services. It also evaluates and provides a score for transit service and bikeability. **Table 2.2** summarizes the nearby transit service.

Table 2.2: Transit Stops within 200m Walking Distance of Site

STOP LOCATION	DIRECTION	STOP #	AMENITY	ROUTES SERVICED	WALKING DISTANCE
Lynn Valley at Bay 1	NB, EB	59523	Bench, Waste Bin	227, 228, 229, 240, N24	200m
Lynn Valley at Bay 2	SB, WB	54182	Shelter, Bench, Waste Bin	228	180m
Lynn Valley at Bay 3	NB	53977	Bench	209, 210	50m
Mountain Hwy at Lynn Valley	SB	54002	Bench	209, 210	20m

[1] https://www.walkscore.com/score/3050-baird-rd-n-vancouver-bc-canada
Walk Score is a proprietary metric developed by Walk Score (a Redfin subsidiary since 2014) that quantifies neighborhood walkability on a 0-100 scale.



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Source: https://www.translink.ca/schedules-and-maps/transit-system-maps#transit-system-maps

Exhibit 2.1
Transit Network

1246-1268 Lynn Valley Road
04-25-0159 August 2025

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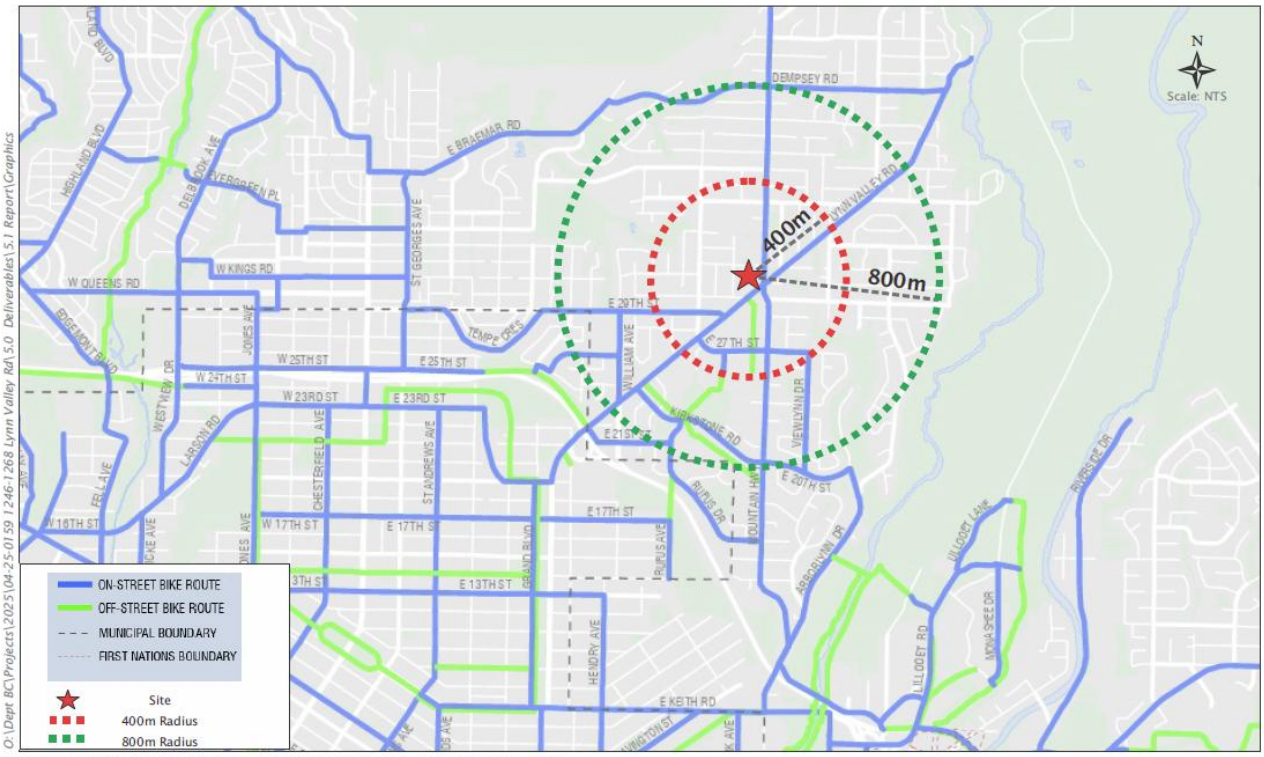
Walking and Cycling

The site is well connected to the District of North Vancouver's (DNV) cycling network. Lynn Valley Road features bike lanes on both sides, with intermittent concrete barrier protection to the north of the intersection with Mountain Highway. Mountain Highway also provides on-street bike routes on both sides, shared with vehicle traffic. These nearby routes will enable future residents to travel to the Downtown area of the DNV and connect with the entire existing on-street and off-street cycling infrastructure throughout the district. The network also offers strong connections to the broader regional cycling system, including but not limited to the Spirit Trail, Seymour Valley Trail, and Lynn Valley Link. The site has a Bike Score of 84 out of 100, designating it as "Very Bikeable." **Exhibit 2.2** illustrates the cycling network.

In terms of walkability, sidewalks are provided on both sides of Lynn Valley Road, Ross Road, and Mountain Highway. However, Baird Road has a discontinuous sidewalk along its length. The north end of Baird Road has a sidewalk on both sides, adjacent to the site does not feature any sidewalks and south of the site Baird Road provides a sidewalk on the western side. The site is including provisions to provide a sidewalk along the site frontage on Baird Road. The nearby intersections of Mountain Highway with Lynn Valley Road and with Ross Road include pedestrian crossing phases on all four legs. The site is also located in close proximity to numerous everyday amenities and popular destinations. For example, future residents will be able to access Lynn Valley Centre, Arthur Smith Park, medical clinics, and the North Vancouver District Public Library within a 400m walking distance. According to Walk Score, the site has a score of 82 out of 100, designating it as "Very Walkable."

Exhibit 2.2: Cycling Facilities



Source: District of North Vancouver's (DNV'S) Bicycle Master Plan Network - 2016

Exhibit 2.2
Cycling Network

1246-1268 Lynn Valley Road
04-25-0159 July 2025

bunt & associates

2.3 Current Relevant Policies & Plans

2.3.1 District of North Vancouver Official Community Plan

The District of North Vancouver's Official Community Plan[2] (OCP), updated as recently as January 2025, establishes a framework to support sustainable transportation and land use (Bunt notes that there is a new OCP being prepared at this time). Lynn Valley Town Centre is identified as one of two key Town Centres and is designated as the District's Municipal Town Centre, a regional hub envisioned for medium- to higher-density development supported by transit.

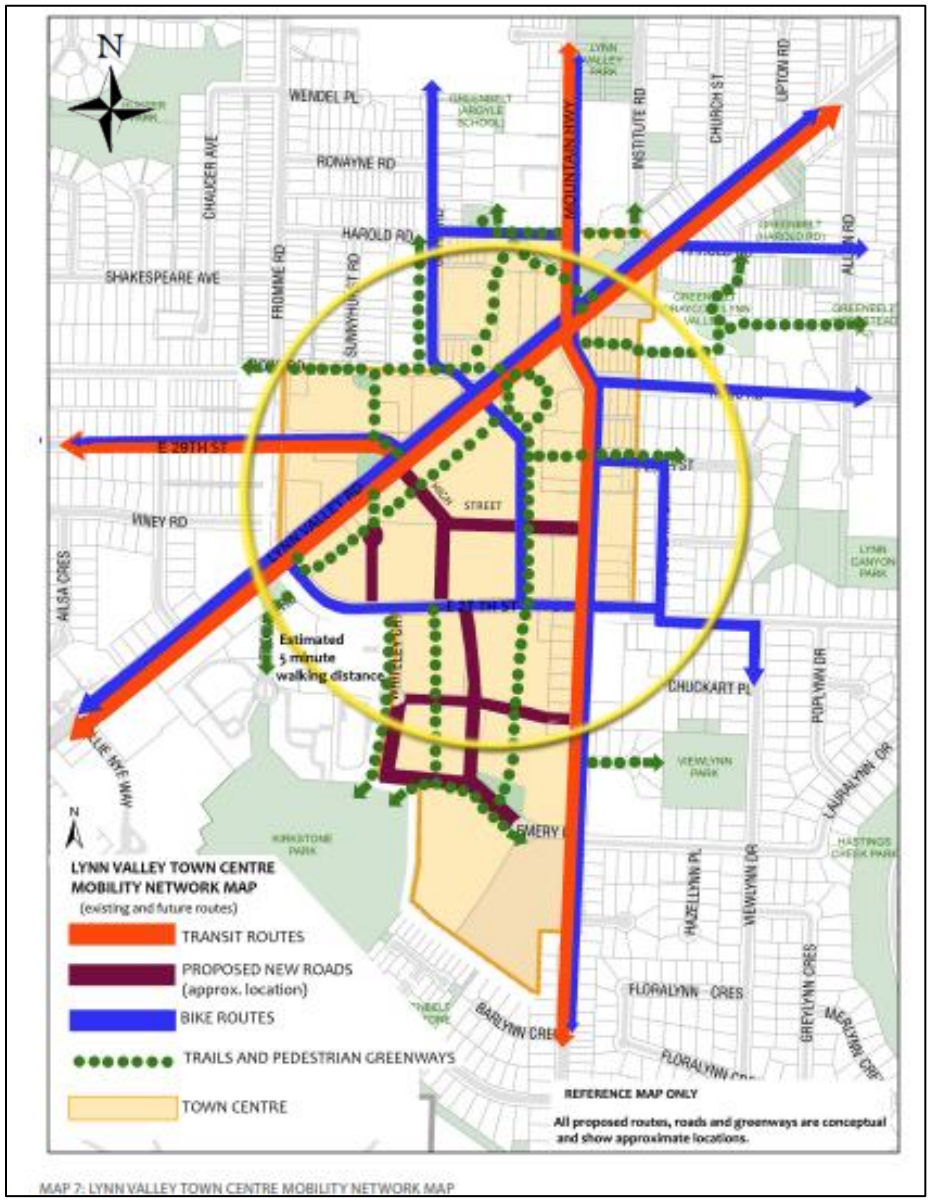
The OCP targets that by 2030, 35% of resident trips across the District will be made by walking, cycling, or transit, with higher concentrations expected in Town Centres like Lynn Valley. The plan seeks to integrate transportation and land use, focusing growth in compact, mixed-use centres that reduce car dependency.

Key Transportation Goals & Policies for Lynn Valley Town Centre:

- **Frequent Transit Priority:** Lynn Valley is a strategic location for future frequent transit service, supported through collaboration with regional transportation authorities.
- **Mobility Network Planning (Figure 2.1**): A detailed conceptual mobility network guides integrated planning of pedestrian, cycling, transit, and road infrastructure.
- **High Street Concept**: The OCP supports a pedestrian- and vehicle-oriented High Street at the core of Lynn Valley, with wide sidewalks, bike facilities, weather protection, and street-level retail.
- **Pedestrian Emphasis:** Enhanced walkability, safe crossings, and accessible sidewalks are prioritized throughout the Town Centre.
- **Cycling & Active Transportation:** A north-south pedestrian and cycling route east of Mountain Highway is planned to improve connectivity.
- **Vehicular Routes:** Lynn Valley Road and Mountain Highway remain primary vehicle corridors but are balanced with other modes.
- **Parking Strategy:** Most parking is encouraged to be underground, with support for shared parking and reduced standards in tandem with improved transit and active transport infrastructure.

[2] https://docs.dnv.org/documents/Bylaw%207900.pdf

Figure 2.1: DNV - Lynn Valley Town Centre Mobility Network Map (MAP 7)



Source: DNV OCP

2.3.2 TransLink Access for Everyone

TransLink's *Access for Everyone* (2022) document, formerly *Transport 2050 – 10-Year Priorities*, establishes the regional transportation vision for Metro Vancouver and emphasizes equitable access, sustainable mode shifts, and investment in frequent and rapid transit corridors. The plan identified the Lynn Valley – Lower Lonsdale –

Downtown corridor as a long-term candidate for enhanced rapid transit, either in the form of Bus Rapid Transit (BRT) or RapidBus service. TransLink has highlighted this connection as a priority for future transit investment, with a 0–5-year timeline for implementation. This document reinforces the role of Lynn Valley Road as a strategic transit corridor and supports land use decisions that align with future rapid transit readiness, including higher densities, reduced parking demand over time, and improved pedestrian access to transit.

2.4 Existing Observations

The following section outlines both concerns expressed by the local residents in the community and Bunt's observations of the site following receiving these concerns.

2.4.1 Residents' Concerns

Bunt attended a public information meeting on October 8th, 2025. At the meeting Bunt heard the following concerns from the residents:

1. Access and Congestion on Baird Road: Residents expressed concerns with only one access point for the site and the location of the access on Baird Street compared to being located on Lynn Valley road.

- Queuing on Ross Road: As a result of commercial activity at The Valley Centre (1200 Lynn Valley Road) and the Drive Thru access to the McDonalds. Residents expressed concerns regarding site trips. Specifically, the possibility of site trips further exacerbating congestion and existing issues in the area.

- Narrowed access on Baird Road due to the curb bulge. Residents noted this location as having stoppages and blockages, creating access issues to Baird Road.

- Large groups of students walking down the middle of the Baird Road before school, after school and during recess due to lack of sidewalk infrastructure. Residents expressed that this has caused a reduction in the ability to facilitate traffic on Baird Road.

- Parking on both sides of Baird Road: Residents expressed that while they do rely on street parking, having it on both sides of the street effectively reduces the width of Baird Road.

2. Trip Generation of the development.
3. Limited transit access.
4. Regional Traffic Congestion concerns.
5. Car ownership and parking stall concerns.
6. Site lane width.

As a summary, the main concern of residents is number of trips that will be generated by the site and compounded on top of the localized issues in the neighbourhood. Residents are concerned that there may be an increase of congestion as a result.

2.4.2 Site Observations

On January 13th, 2026, Bunt observed the area's surrounding the site to validate the specific concerns expressed by the residents. In addition to this Bunt observed other network operations associated with the Mall Access intersection on Lynn Valley Road and the eastbound left turn at Lynn Valley Road & Ross Road.

The key items which Bunt was looking for includes:

1. Students walking in the roadway.
2. Queuing relating the McDonalds Drive Thru.
3. Commercial delivery vehicles stopping at the entrance to Baird Road.
4. Queuing regarding the westbound left turn on Lynn Valley Road & Mall Access & Operations of the eastbound left turn at Lynn Valley Road & Ross Road.

Students Walking in the Roadway

Bunt confirms that groups of students were observed walking down the centre of Baird Road and on occasion would take up the whole driving lane when larger groups of students walked together. The students walking in the roadway was concentrated to three 15-minute periods, before school (8:55am – 9:10am), lunchtime intermission (1:00pm – 1:15pm) and afterschool (3:00pm – 3:15pm). Bunt observed that there was no continuous sidewalk for the full length of Baird for students as an alternate route.

While the timing of the students walking in the roadway is clearly aligned with bell schedules, Bunt also suspects that bus schedules could also play into this situation occurring.

The development is proposing to implement a sidewalk along the site frontage on Baird Road (described more in **Section 4**), which should alleviate some elements of this existing issue and create a safer and more appropriate space for pedestrians. Additional improvements will require educational initiatives by the school and, to some extent, enforcement by the District to encourage sidewalk use once these facilities are in place.

Drive Thru Queuing

Bunt confirms from observations that queuing occurs at the McDonalds Drive-Thru. Bunt observed the queue extending past the property line approximately 10 times over the time period of 6:00am – 6:30pm with the majority of this happening at 'lunch time' (1:00pm – 2:00pm). When the queue did extend past the property line into the roadway, Bunt observed queuing extending eastwards towards Lynn Valley Road (but not into Lynn Valley Road) and in some cases vehicles would stop in the eastbound travel lane or extend into the westbound travel lane. Bunt observed travelling vehicles maneuvering around the queue by travelling on the opposite side of the road. The Drive Thru queue resulted in brief localized congestion and interferes with traffic flow within the surrounding road network.

This issue can be mitigated through the installation of cross-hatched pavement markings along Ross Road in front of the driveway to clearly indicate a no-stopping zone, supported by enforcement to prevent vehicles from queuing on the roadway.

Stopping of Commercial Delivery

Bunt observed delivery vehicles stopping on Ross Road. Traffic volumes generally allowed vehicles to maneuver around the parked vehicles effectively. The exception to this was on one occasion the delivery vehicle stopped adjacent to the Drive Thru queue. No vehicles were observed stopped at the Baird Road leg of the Barid Road and Ross intersection (while this is what Bunt observed, it does not mean that vehicles may not stop there on a different day).

This issue can be mitigated through the installation of no stopping markings and signage along Ross Road in front of key congestion areas such as the Drive Thru driveway and at the Barid Road & Ross Road intersection to clearly indicate a no-stopping zone. Additionally, this should be supported by enforcement to prevent vehicles stopping in these locations.

Lynn Valley Road Mall Access and Ross Road Queues.

At this location there are two short left turn lanes (Each of the turn bays was observed to hold 1 – 2 vehicles):

1. Approximately 10m at the Lynn Valley westbound left into the mall. However, the intersection provides an additional 5m of area for left turning vehicles to queue.

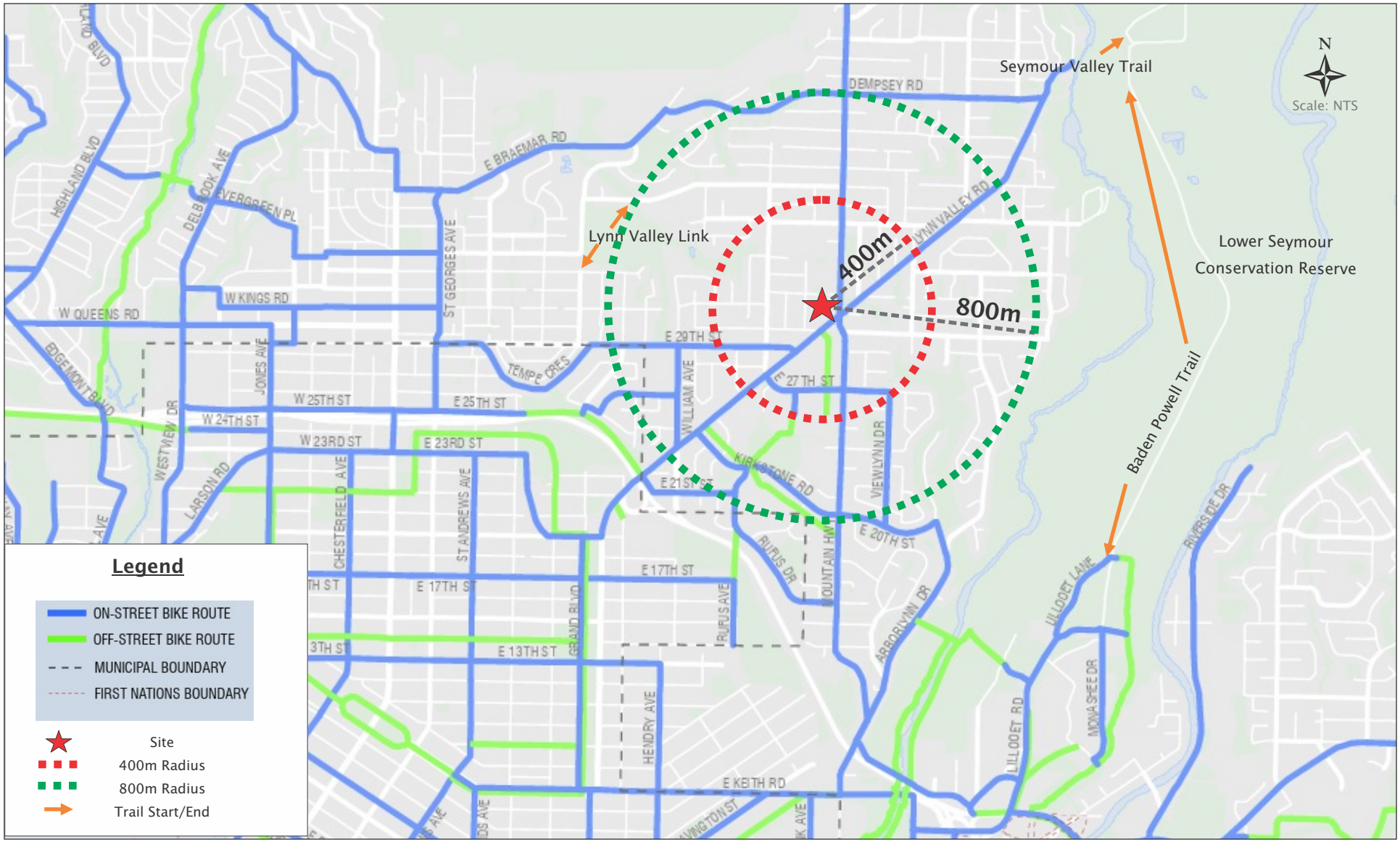
2. Approximately 15m at the Lynn Valley eastbound left into Ross Road.

The most prominent queue and highest left turn demand was the south-westbound left into the mall. These vehicles that were turning left would often overspill into the through traffic lane and continue to queue in the through lane to turn left. This intersection is a pedestrian signal; the left turning vehicles would maneuver when there was an appropriate gap in the traffic north-eastbound Lynn Valley Road or when a pedestrian pushed the button. The longest duration that was observed for the left turning vehicles to dissipate was 5 minutes. Bunt also observed:

- Queuing occurring upon entering into the mall at this access, which in turn caused the left-turning vehicles to wait longer.
- Vehicles exiting Ross Road and attempting to make the left turn into the mall or using the intersection to make a U-turn.
- One vehicle attempted to turn left into the mall but mistakenly turned into the oncoming left turn bay which facilitates the eastbound left turn into Ross Road. Note: The vehicle adjusted upon realizing this error.

At the Lynn Valley eastbound left into Ross Road there is more room for queuing and less vehicles observed making this movement. While queuing at this location was observed, vehicles did not overspill onto the through travel lane and block traffic. Vehicles were able to find gaps left in the intersection of Lynn Valley & Ross Road to make the left turn (the intersection was kept clear where the opposing left turning into the mall was queued, and when through traffic was stopped for the signal).

Exhibit 2.3 displays the observations for the Mall Access and **Exhibit 2.4** displays the eastbound left turn into Ross Road. Due to extended queues and complex traffic interactions at this location, Bunt & Associates examined the



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Source: District of North Vancouver's (DNV'S) Bicycle Master Plan Network - 2016

Exhibit 2.2

Cycling Network

1246-1268 Lynn Valley Road
04-25-0159 August 2025

bunt & associates

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2026/01/20 16:47, Plotted by Allan Conopio

0.3m buffer for spatial reference

Vehicles turning right from Ross Road were often observed making left turn into mall, as shown. The angle of the turn into the left turn bay may cause lane blockages.

Furthest extent of westbound left turn queues. Queues blocked thru traffic lanes for 5 minutes before dissipating.

55.0m

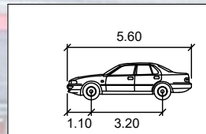
10.0m

6.0m

18.0m

Vehicles turning into mall access may need to wait for activity at the next parking aisle, where there is only 1 car length for queuing space. Additionally, there is only 1 car length queuing space for the downstream crosswalk.

This configuration limits the inbound flow rate of traffic, which may contribute to the westbound left turn queues on Lynn Valley Road.



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

[Based on Aerial Imagery dated June 29, 2024]

[Issued for Discussion; not for Construction]

PRELIMINARY

Exhibit 2.3

Lynn Valley Road & Mall Access Queuing Observations

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:500_1 on Ledger Prepared by AJC

bunt & associates

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2026/01/20 16:47, Plotted by Allan Conopio

0.3m buffer for spatial reference

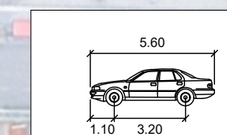
N

5.0m

10.0m

Eastbound left turn queuing space into Ross Road is greater than the westbound direction, as vehicles can queue past the turn bay (no stop line).

While there is demand for the left turn, queues rarely spill into travel lanes, and quickly dissipate.



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

[Based on Aerial Imagery dated June 29, 2024]

[Issued for Discussion; not for Construction]

PRELIMINARY

Exhibit 2.4

Lynn Valley Road & Ross Road Queuing Observations

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:500_1 on Ledger Prepared by AJC

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crash history data, as detailed in **Section 2.5**. *Further, as part of the traffic modelling process, the District has requested that Bunt review a traffic scenario where the left turn into Ross Road is closed.*

2.5 Vehicle Collision History Data

Vehicle collision history data has been obtained from the Insurance Corporation of British Columbia (ICBC) publicly available data[3] the information collected contains information licensed under ICBC's Open Data License. All analysis, inference, opinions and conclusions drawn within this study are those of Bunt & Associates and do not reflect the opinions, positions or policies of ICBC.

2.5.1 Intersections

Vehicle collision data for the past five years (2020 to 2024) were reviewed for the primary intersections within the study area and areas immediately surrounding the site, as outlined in **Exhibit 2.3** and **Table 2.3.** Other intersections, which consist of minor site accesses intersecting with local roads or rear laneways, were not included in the analysis.

Table 2.3: Study Intersections

DATA TYPE	INTERSECTION NAME / LOCATION
Intersections	Lynn Valley Road & Mountain Highway
	Lynn Valley Road & Ross Road
	Lynn Valley Road & Mall Access (southwest of Ross Road)
	Lynn Valley Road & 29th Street / Valley Centre Avenue
	Lynn Valley Road & 27th Street / Fromme Road
	Fromme Road & 29th Street
	Fromme Road & Ross Road
	Fromme Road & Harold Road
	Baird Road & Ross Road
	Baird Road & Harold Road

Note: Some collision records contained missing location coordinates and were therefore excluded from the analysis. Bunt assumes that these incomplete records primarily represent midblock collisions, which are difficult to locate precisely. As such, this study primarily focuses on collisions occurring at the study intersections.

[3] ICBC publicly available data (accessed September 1, 2022): https://public.tableau.com/app/profile/icbc/viz/ICBCReportedCrashes/ICBCReportedCrashes

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Exhibit 2.5

ICBC crash history data within Study Area

1246 - 1268 Lynn Valley Road

04-25-0159 January 2026

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A summary of the data is presented in **Table 2.4**. Note: No collision data was reported explicitly at Lynn Valley Road & Mall Access intersection, however this has been covered in **Section 2.5.3**.

Table 2.4: ICBC Crash Data Severity Summary

CRASH SEVERITY	INTERSECTION	YEAR					TOTAL
		2020	2021	2022	2023	2024	
Casualty Crash (Motor vehicle crashes resulting in an injury or fatality)	Lynn Valley Road & Mountain Highway	6	7	4	7	10	34
	Lynn Valley Road & Ross Road	0	0	1	0	2	3
	Lynn Valley Road & 29th Street / Valley Centre Avenue	0	3	1	1	1	6
	Lynn Valley Road & 27th Street / Fromme Road	3	2	3	2	1	11
	Fromme Road & 29th Street	1	1	1	1	2	6
	Fromme Road & Ross Road	0	0	0	1	0	1
	Fromme Road & Harold Road	0	0	0	0	0	0
	Baird Road & Ross Road	0	0	0	0	0	0
	Baird Road & Harold Road	0	0	0	0	0	0
	SUBTOTAL	**10**	**13**	**10**	**12**	**16**	**61**
Property Damage	Lynn Valley Road & Mountain Highway	30	30	24	24	18	126
	Lynn Valley Road & Ross Road	0	3	1	3	1	8
	Lynn Valley Road & 29th Street / Valley Centre Avenue	2	8	4	12	7	33
	Lynn Valley Road & 27th Street / Fromme Road	4	5	3	8	5	25
	Fromme Road & 29th Street	2	0	1	2	2	7
	Fromme Road & Ross Road	2	0	1	1	0	4
	Fromme Road & Harold Road	0	1	0	0	0	1
	Baird Road & Ross Road	1	0	0	2	1	4
	Baird Road & Harold Road	0	0	0	1	0	1
	SUBTOTAL	**41**	**47**	**34**	**53**	**34**	**209**
TOTAL		**51**	**60**	**44**	**65**	**50**	**270**

Between 2020 and 2024, a total of 270 crashes occurred across key intersections in the Lynn Valley area, including 61 casualty crashes and 209 property damage incidents. The intersection of Lynn Valley Road and Mountain Highway consistently recorded the highest number of collisions, with 34 casualty crashes and 126 property damage crashes over the five-year period, accounting for nearly 60% of all reported incidents. Casualty crashes showed a general upward trend, rising from 10 in 2020 to 16 in 2024.

Table 2.5 outlines the type of crashes reported at the analyzed intersections across the 5 years. Where the data has an inconclusive crash type, this has been removed from the crash type summary.

Table 2.5: ICBC Crash Type Data Summary

INTERSECTION	CRASH TYPE						TOTAL
	HEAD ON	REAR END	REAR TO REAR	SIDE IMPACT	SIDE SWIPE – SAME DIRECTION	SINGLE VEHICLE	
Lynn Valley Road & Mountain Highway	1	55	6	30	11	22	125
Lynn Valley Road & Ross Road	0	0	0	4	1	1	6
29Lynn Valley Road & 29th Street / Valley Centre Avenue	0	6	3	13	1	6	29
Lynn Valley Road & 27th Street / Fromme Road	0	15	0	8	3	1	27
Fromme Road & 29th Street	0	2	0	8	0	1	11
Fromme Road & Ross Road	0	2	0	2	0	0	4
Fromme Road & Harold Road	0	0	0	0	1	0	1
Baird Road & Ross Road	0	0	1	1	0	0	2
Baird Road & Harold Road	0	0	0	1	0	0	1
TOTAL	**1**	**80**	**10**	**67**	**17**	**31**	**206**

Note: Undetermined and Conflicted (conflicting driver statements) crash types have been omitted from the reporting.

The most commonly occurring crash types of the intersections are rear end that takes up 35% of the total crashes. Rear-end collisions generally occur when traffic passes through a traffic signal the nature of having to stop at the signal is a contributing factor to these rear-end collisions.

Additionally, the side impact crashes also contributed significantly, 29% of the total crashes. Side impact collisions at intersections can occur when through traffic runs a red light, left-turning vehicle fails to yield to through traffic or choose an inappropriate gap.

Intersections within the study area support permissive left-turn phases. Careful judgment from drivers is essential to avoid side-impact collisions when turning left when these movements are only permissive and not protected. Side impact collisions occurring at the intersections are likely from vehicles making a poor judgement when turning across traffic with a green phase. These types of crashes could be improved by providing left turn signals, should road right of way allow.

As noted above, Lynn Valley Road & Mountain Highway had the most collisions among all study intersections, notably rear end crashes and side impact crashes. This can be generally attributed to the high traffic volumes at intersection, the traffic signals (rear end) and the permissive left turns operating at the traffic signals.

In addition to this, the Intersection of Lynn Valley Road & Ross Road has reported four side impact crashes out of the six (six defined crashes, 11 total) at this location over the past five years. These findings align with observed

operational issues, including extended queues and difficulty for drivers to find acceptable gaps in traffic. Note: When Bunt observed traffic at this location, vehicles were able to find gaps, however, this observation could vary on a different day under different conditions.

All crashes related to vulnerable users (i.e., pedestrians & cyclists) have been presented in **Table 2.6**.

Table 2.6: ICBC Pedestrian and Cyclist Crash Summary

INTERSECTION	CYCLIST	PEDESTRIAN	TOTAL
Lynn Valley Road & Mountain Highway	2	3	5
Lynn Valley Road & Ross Road	0	0	0
Lynn Valley Road & 29th Street / Valley Centre Avenue	2	1	3
Lynn Valley Road & 27th Street / Fromme Road	0	0	0
Fromme Road & 29th Street	0	0	0
Fromme Road & Ross Road	0	0	0
Fromme Road & Harold Road	0	0	0
Baird Road & Ross Road	0	0	0
Baird Road & Harold Road	0	0	0
TOTAL	4	4	8

Overall crashes involving pedestrian and cyclist crashes make up approximately 4% of the total crashes that have occurred within the last 5 years within the study area.
The two accidents involving cyclists occurred before 2024, which is before shared bike and vehicle lanes were implemented at Lynn Valley Road & Mountain Highway.

Notably, Pedestrian crashes have occurred at Lynn Valley Road & Mountain Highway and Lynn Valley Road & 29th Street intersections, which are both equipped with crosswalks and traffic signals, facilitating the movement of pedestrians. This indicates that although signal control intersection does lower the conflict between vehicles and pedestrians, it does not necessarily eliminate all possibilities of accidents.

2.5.2 Midblock

As mentioned above, this assessment primarily focuses on the intersection given its better data completeness. However, the midblock on Baird Road (between Harold Road and site access) and Ross Road (between Baird Road and Lynn Valley Road) were still reviewed to obtain high level insights into the traffic safety localized near site access.

Based on the ICBC collision data, among the data recorded with specific coordinates, a total of 11 accidents were reported at the analyzed midblock, with 6 occurring on Baird Road and 5 occurring on Ross Road. The crash types are outlined in **Table 2.7**.

Table 2.7: ICBC Crash Type Data Summary - Midblock

ROADWAY	CRASH TYPE					TOTAL
	HEAD ON	REAR END	SIDE IMPACT	SIDE SWIPE OPPOSITE DIRECTION	SINGLE VEHICLE	
Baird Road	0	1	0	0	3	4
Ross Road	1	1	2	1	0	5
TOTAL	1	2	2	1	3	9

Given the limited size of dataset, the available evidence suggests that single vehicle crash potentially may occur more frequently than other types of crashes on Baird Road. None of the reported crashes are associated with cyclists or pedestrians.

While the exact location of the head on collision on Ross Road cannot be determined, Bunt is not surprised to see this data based on the observations made on site around congestion and associated maneuvering of traffic.

The rear end crashes are usually attributed to congestion, noting the rear end crash on Baird Road, this could be correlated with congestion or sudden stopping, however with only one data point this is not a strong trend.

2.5.3 Lynn Valley Centre Shopping Mall

Bunt noted discrepancies in the collision data, with zero incidents reported at the Lynn Valley Road & Mall Access intersection despite it being a notable intersection in the study area. ICBC records' GIS coordinates pinpointed mid-block crashes between Lynn Valley Road & Mall Access and Lynn Valley Road & 29th Street, all classified generically as "parking lot" without precise locations. Consequently, Bunt assumed the crash data at this mid-block all associated with the vehicle activities at Lynn Valley Centre shopping mall, either occurred at the mall entrance (Lynn Valley Road & Mall Access) or inside the surface parking lot.

As summarized in **Table 2.8** below, half of the crashes involved parked vehicles, which reflects collisions occurring within parking lot areas. The predominance of side-impact collisions in parked-vehicle-related crashes may be attributable to vehicle-to-vehicle contact (e.g., rubbing or scraping) under congested parking conditions.

Crashes that did not involve parked vehicles Bunt inferred that these collisions were reported along mall entrances, parking lot drive aisles, or during vehicle maneuvering into or out of parking spaces at the mall entrance.

Table 2.8: ICBC Crash Type Data Summary – Lynn Valley Centre

PARKED VEHICLE FLAG	CRASH TYPE			TOTAL
	SIDE IMPACT	SIDE SWIPE - OPPOSITE DIRECTION	SINGLE VEHICLE	
Parked Vehicle Involved	6	0	1	7
Parked Vehicle not Involved	2	1	4	7
TOTAL	8	1	5	14

Crashes not involving parked vehicles (2 side-impacts, 1 sideswipe, 4 single-vehicle) Bunt has attributed to occurring at the mall entrance. Given the observed queuing at this location Bunt can infer that the side-impact collisions are likely due to drivers failing to accept adequate gaps at the intersection. As noted for the Lynn Valley Road & Ross Road intersection these findings align with observed operational issues, including extended queues and difficulty for drivers to find acceptable gaps in traffic.

2.6 Existing Traffic Volumes

2.6.1 Traffic Data Collection Program

Bunt conducted traffic counts at the study intersections as well as at the existing sites' commercial driveways. Counts at the commercial driveways along Lynn Valley Road took place on Wednesday, June 18th, 2025, during the morning peak period (7AM-9AM) and evening peak period (3PM-6PM). Data collection at the network study intersections were counted on Tuesday, January 13th, 2026, during the extended morning peak period (7AM-9:30AM) and extended evening peak period (2:30PM-6PM) to capture the school peak hours. **Table 2.9** summarizes the traffic data that was collected.

Table 2.9: Summary of Available and Counted Traffic Data

INTERSECTION	SOURCE	DATE OF COUNT	PEAK HOURS	
			AM	PM
Mountain Highway & Lynn Valley Road	Bunt	January 13, 2026	8:15-9:15	15:00-16:00
Ross Road & Lynn Valley Road	Bunt	January 13, 2026	8:15-9:15	15:00-16:00
Mall Access North & Lynn Valley Road	Bunt	January 13, 2026	8:15-9:15	15:00-16:00
29th Street/Valley Centre Avenue & & Lynn Valley Road	Bunt	January 13, 2026	8:15-9:15	15:00-16:00
Fromme Road & & Lynn Valley Road	Bunt	January 13, 2026	8:00-9:00	14:45-15;45
Fromme Road & 29th Street	Bunt	January 13, 2026	8:15-9:15	16:15-17:15
Fromme Road & Ross Road	Bunt	January 13, 2026	8:00-9:00	16:45-17:45
Fromme Road & Harold Road	Bunt	January 13, 2026	8:15-9:15	14:30-15:30
Baird Road & Harold Road	Bunt	January 13, 2026	8:15-9:15	14:30-15:30
Baird Road & Ross Road	Bunt	January 13, 2026	8:30-9:30	16:45-17:45
Site Driveways & Lynn Valley Road	Bunt	June 18, 2025	8:00-9:00	16:45-17:45
OVERALL STUDY AREA PEAK HOUR			8:15-9:15	15:00-16:00

The peak hours of the study intersections were identified as 8:15AM – 9:15AM and 3:00PM – 4:00PM, tying into school pick-up and drop-off times. The traffic data can be referenced in **Appendix B**.

2.6.2 Peak Hour Traffic Volumes

Bunt reviewed the traffic volumes collected and no adjustments were made. Volume discrepancies between intersections can be attributed to local side streets and individual driveways to private properties.

Exhibit 2.6 presents the existing traffic volumes.

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Exhibit 2.6

Existing Peak Hour Vehicle Traffic Volumes

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

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2.6.3 Existing Site Vehicle Trip Generation

Bunt has estimated existing site trips using standard industry methodologies consistent with the Institute of Transportation Engineers (ITE) *Trip Generation Manual*[4], 12th Edition, for the 32 units of existing residential housing, as well as the collected traffic data for the commercial component of the existing site. The ITE *Trip Generation Manual* represents the industry's primary source and best practice reference for trip estimation, providing standardized data and methodologies widely recognized across transportation planning and engineering disciplines. **Table 2.10** presents the existing site trips.

Note: The existing residential trips were calculated using the Land Use Code 221 Multifamily Housing (Mid-Rise) from ITE (details of trip rates presented in **Section 3.1.3**). Although these existing residential units are low rise and resemble townhomes, they are being replaced within the proposed development; therefore, their associated trip estimates are subtracted from the total (in Section 3), effectively netting them out in the future trip generation.

Table 2.10: Existing Site Trip Generation

LAND USE	AM PEAK HOUR			PM PEAK HOUR		
	In	Out	Total	In	Out	Total
Residential Rental	3	9	12	8	4	12
Commercial Driveway	14	7	21	72	66	138
TOTAL	**17**	**16**	**33**	**80**	**70**	**150**

As shown in the table above, the existing development generates approximately a total of 33 (17 in, 16 out) vehicle trips during the AM peak hour and 150 (80 in, 70 out) vehicle trips during the PM peak hour. These trips are split across the existing site's two site accesses, Lynn Valley Road and Baird Road.

Bunt notes that based on aerial measurements and desktop observations the existing commercial floor area is approximately 32,000 sqft (this is greater than proposed commercial area for the future site). Additionally, the commercial elements as Subway and Dairy Queen, both fast-food uses that are well known for generating relatively high trip volumes.

[4] The Institute of Transportation Engineers is an international educational and scientific association of transportation professionals who are responsible for meeting mobility and safety needs. ITE facilitates the application of technology and scientific principles to research, planning, functional design, implementation, operation, policy development, and management for any mode of ground transportation.

2.7 Existing Operations

2.7.1 Performance Thresholds

The existing operations of study area intersections and access points were assessed using the methods outlined in the 2000 Highway Capacity Manual (HCM), using the Synchro 11 analysis software (Version 11.1, Build 0). The traffic operations were assessed using the performance measures of Level of Service (LOS) and volume-to-capacity (V/C) ratio.

The LOS rating is based on average vehicle delay and ranges from "A" to "F" based on the quality of operation at the intersection. LOS "A" represents optimal, minimal delay conditions while a LOS "F" represents an over-capacity condition with considerable congestion and/or delay. Delay is calculated in seconds and is based on the average intersection delay per vehicle.

Table 2.11 below summarizes the LOS thresholds for the six Levels of Service, for both signalized and unsignalized intersections.

Table 2.11: Intersection Level of Service Thresholds

LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	
	Signalized	Unsignalized
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Source: Highway Capacity Manual

The volume to capacity (V/C) ratio of an intersection represents ratio between the demand volume and the available capacity. A V/C ratio of less than 0.85 indicates that there is sufficient capacity to accommodate demands and generally represents reasonable traffic conditions in suburban settings. A V/C value between 0.85 and 0.95 indicates an intersection is approaching practical capacity; a V/C ratio over 0.95 indicates that traffic demands are close to exceeding the available capacity, resulting in saturated conditions. A V/C ratio over 1.0 indicates a very congested intersection where drivers may have to wait through several signal cycles. In downtown and Town Centre contexts, during peak demand periods, V/C ratios over 0.90 and even 1.0 are common.

Industry best practice performance thresholds that were used to trigger consideration of roadway or traffic control improvements to support roadway or traffic control improvements employed in this study are listed below:

Signalized Intersections:

- Overall intersection Level of Service = LOS D or better.
- Overall intersection V/C ratio = 0.85 or less.

- Individual movement Level of Service = LOS E or better; and,
- Individual movement V/C ratio = 0.90 or less.

Unsignalized Intersections and Roundabouts:

- Individual movement Level of Service = LOS E or better, unless the volume is very low, in which case LOS F is acceptable.

In interpreting the analysis results, note that the HCM methodology reports performance differently for various types of intersection traffic control. In this report, the performance reporting convention is as follows:

- For signalized intersections: HCM 2000 output for overall LOS and V/C as well as individual movement LOS and V/C is reported. 95th Percentile Queues are reported as estimated by SimTraffic, the micro-simulation module of the Synchro software.

- For unsignalized two-way stop-controlled intersections: HCM 2000 LOS and V/C output is reported just for individual lanes as the HCM methodology does not report overall performance. SimTraffic estimated queues and delays have also been reported, as the HCM 2000 methodology does not directly take into account the gaps afforded by adjacent signalized intersections.

- For unsignalized All-way Stop controlled intersections: HCM 2000 unsignalized LOS is reported for the overall intersection as well as by intersection approach LOS. The HCM 2000 methodology does not report an overall V/C ratio for All Way Stop controlled intersections. Degree of Utilization calculated with the HCM 2000 methodology is reported for individual movements in place of V/C, which is not part of the HCM 2000 report.

The performance reporting conventions noted above have been consistently applied throughout this document and the detailed outputs are provided in **Appendix C**.

2.7.2 Existing Conditions Analysis Assumptions

Within the Synchro model, overall peak hour factors at each intersection as recorded during the data collection were applied to each intersection leg. Heavy vehicle percentages for each intersection leg as recorded during data collection were input into Synchro onto every movement on the intersection leg.

Existing signal timing plans at the signalized study intersections were provided to Bunt by District staff, and input into the Synchro model. Signals on the Lynn Valley Road corridor are coordinated; however, District staff have noted that at the intersection of Lynn Valley Road & Mountain Highway, the traffic signal is operating in free mode during the PM peak due to operational issues with the westbound left turn movement.

The intersection of Lynn Valley Road & Mall Access, located just west of the intersection at Ross Road, operates in the flashing green/pedestrian operation, where the major road (Lynn Valley Road) is controlled by a traffic signal, while minor road traffic is controlled by a stop sign. As Synchro does not feature an option to model this specific

signal type, two alternative configurations were implemented and analyzed: an actuated traffic signal and a two-way stop.

The actuated signal acts as best-case scenario for east-west traffic and represents the upper performance bound. In contrast, the two-way stop acts as worst-case scenario for east-west traffic and represents the lower performance bound. It can then be expected that the intersection's true performance lies somewhere between this range of values.

In the operations tables, HCM2000 LOS and v/c ratio metrics were recorded for both fully signalized and two-way stop configurations, while SimTraffic 95th percentile queue metrics are only recorded for the fully signalized condition.

Additionally, at the intersection of Lynn Valley Road & Mountain Highway, a short 5m long southbound left turn bay was modelled into the network. While there is no dedicated left turn space provided in the intersection, it was observed that southbound vehicles would often drive around vehicles that were queuing in the intersection to make a left turn, and as such acts as a short turning bay in practice. Results from the southbound left turn in HCM2000 are not included within the operations tables, though note that southbound through movement queuing results from SimTraffic are affected with the turn bay modelled.

2.7.3 Existing Operational Analysis Results

The resulting overall intersection traffic operations for the study area in the existing condition are presented in **Table 2.12**.

Table 2.12: Existing Traffic Operations

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	*0.70*	-	*C*	*0.67*	-
	EB L	B	0.44	40	C	0.56	40
	EB T	B	0.44	60	D	0.74	75
	EB R	A	0.11	0	A	0.15	0
	WB L	C	0.40	60	C	0.56	65
	WB TR	D	0.75	100	D	0.82	115
	NB L	C	0.61	50	B	0.51	55
	NB TR	C	0.48	60	B	0.45	60
	SB LT	C	0.55	85	C	0.37	50
	SB R	A	0.16	**50**	A	0.14	30
Lynn Valley Road & Ross Road *(unsignalized)*	*OVERALL*	-	-	-	-	-	-
	EB L	A	0.05	15	B	0.05	15
	SB R	B	0.11	15	B	0.09	15
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)*[*1]	*OVERALL*	*A*	*0.25*	-	*A*	*0.27*	-
	EB TR	A (A)	0.24	45	A (A)	0.35	45
	WB L	A (A)	0.11	**15**	A (A)	0.27	**10**
	WB T	A (A)	0.31	35	A (A)	0.31	15
	NB L	C (D)	0.07	10	C **(F)**	0.07	35
	NB R	A (B)	0.03	10	A (C)	0.08	20

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

Table continues on the Next page.

Table 2.12: Existing Traffic Operations - Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & 29th Street (signalized)	OVERALL	A	0.37	-	B	0.40	-
	EB L	A	0.09	15	A	0.08	20
	EB TR	A	0.19	30	A	0.27	45
	WB L	A	0.06	10	A	0.13	20
	WB TR	A	0.30	35	A	0.29	40
	NB L	C	0.14	15	C	0.41	45
	NB TR	C	0.16	30	C	0.42	45
	SB L	D	0.59	40	D	0.75	40
	SB TR	C	0.24	30	C	0.41	50
Lynn Valley Road & Fromme Road/27th Street (signalized)	*OVERALL*	*C*	*0.59*	-	*C*	*0.54*	-
	EB L	C	0.57	75	B	0.38	35
	EB T	B	0.39	60	B	0.52	80
	WB L	B	0.02	5	B	0.09	15
	WB TR	B	0.42	45	C	0.39	70
	NB L	D	0.75	35	D	0.68	35
	NB TR	C	0.36	90	C	0.36	75
	SB LT	D	0.42	30	D	0.44	35
	SB R	D	0.29	25	C	0.13	25
Fromme Road & 29th Street (all way stop)	*OVERALL*	*C*	-	-	*C*	-	-
	EB LTR	C	0.67	40	C	0.64	65
	WB LTR	C	0.52	35	B	0.45	35
	NB LTR	C	0.52	30	B	0.34	30
	SB LTR	C	0.63	45	B	0.48	35
Fromme Road & Ross Road (minor road stop)	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.02	10	B	0.02	10
	WB LTR	B	0.13	15	B	0.14	15
	NB LTR	A	0.00	10	A	0.01	10
	SB LTR	A	0.01	10	A	0.01	10
Fromme Road & Harold Road (minor road stop)	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.04	15	B	0.04	10
	NB LTR	-	0.22	5	-	0.20	5
	SB TR	A	0.00	0.1	A	0.00	0
Baird Road & Harold Road (minor road stop)	*OVERALL*	-	-	-	-	-	-
	EB LTR	A	0.02	10	A	0.01	10
	WB LTR	A	0.00	5	A	0.00	5
	NB LTR	A	0.01	5	A	0.01	5
	SB LTR	A	0.00	0	-	0.00	0
Ross Road & Baird Road (minor road stop)	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.01	5	A	0.01	10
	WB TR	-	0.06	5	-	0.08	5
	SB LR	B	0.06	15	B	0.04	15

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

As shown in the table, traffic within the study network is operating within acceptable thresholds for most movements. The exception to this is the northbound left turn movement at Lynn Valley Road & Mall Access when the intersection is modelled as a minor road stop. This is a LOS F (more than 50 seconds of delay) in the PM peak hour. The higher delay times are caused by left-turning vehicles waiting for a gap in traffic on Lynn Valley Road if unsignalized. When treated as a fully actuated signal, the traffic operations operate at LOS C (between 20 – 35

seconds of delay). As described previously, the actuated signal acts a best-case scenario for east-west traffic, and the two-way stop acts as worst-case scenario. The diversity in operation is reflective of Bunt's field observations across the peak hours.

Queuing results in the table highlighted in red indicate that the 95th percentile queues (a 95th percentile queue have a 5% chance of being exceeded within one hour of the day) exceed the available left turn storage, indicating that queues may occasionally overspill from the turn bay storage during the existing condition. Turn bay queues exceeding storage are anticipated within urban centres, and at locations such as at Lynn Valley Road & Ross Road and Mall Access intersections, where there is only space for 1 to 2 vehicles within their respective left turn bays.

2.8 Lynn Valley & Ross Road Intersection Closure of Eastbound Left

As per Terms of Reference discussions the District of North Vancouver requires a traffic modelling scenario exploring the option to remove the eastbound left turn movement from Lynn Valley Road onto Ross Road, converting the intersection to a right-in, right-out configuration for westbound traffic only.

For the purposes of reporting, the existing laning configuration at the Lynn Valley Road & Ross Road intersections will be described as Scenario A, while Scenario B includes the proposed laning adjustments (closure of eastbound left turn at Lynn Valley Road & Ross Road intersection).

2.8.1 Scenario B Condition Assumptions

Today, approximately 34 and 37 vehicles make this movement during the AM and PM network peak hours, respectively, which would instead be required to access the neighbourhood via an alternate route.

For the traffic operations analysis, it was assumed that all traffic making the eastbound left turn onto Ross Road would be entering the study network from Lynn Valley Road. In the scenario the left turn is removed, these trips are anticipated to instead turn left from eastbound Lynn Valley Road onto northbound Fromme Road, then turn right onto eastbound Ross Road. Bunt notes that traffic could also be redistributed to the intersection of Lynn Valley Road & 29th Street, however this is a less direct path and the left turn storage lane at the intersection of 29th is very short compared to Lynn Valley Road & Fromme Road.

Exhibit 2.7 presents the current-day 2026 traffic volumes with the inclusion of rerouted vehicle trips as a result of the eastbound left turn closure.

2.8.2 Scenario B Operational Analysis Results

The resulting overall intersection traffic operations for the study area in the existing condition are presented in **Table 2.13**.

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Exhibit 2.7

2026 Traffic Forecasts, with Lynn Valley & Ross Road Reroute (Scenario B)

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

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Table 2.13: Existing Traffic Operations Scenario B

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	*0.70*	-	*C*	*0.67*	-
	EB L	B	0.44	35	C	0.56	45
	EB T	B	0.44	60	D	0.74	80
	EB R	A	0.11	0	A	0.15	0
	WB L	C	0.40	75	C	0.56	75
	WB TR	D	0.75	135	D	0.82	115
	NB L	C	0.61	60	B	0.51	55
	NB TR	C	0.48	65	B	0.45	50
	SB LT	C	0.55	70	C	0.37	45
	SB R	A	0.16	45	A	0.14	30
Lynn Valley Road & Ross Road *(unsignalized)*	*OVERALL*	-	-	-	-	-	-
	SB R	B	0.11	15	B	0.09	15
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)* minor stop represented by ()	*OVERALL*	*A*	*0.25*	-	*A*	*0.26*	-
	EB TR	A (A)	0.22	45	A (A)	0.33	50
	WB L	A (A)	0.11	15	A (A)	0.26	10
	WB T	A (A)	0.31	30	A (A)	0.31	35
	NB L	C (D)	0.07	15	C (F)	0.07	15
	NB R	A (B)	0.03	15	A (C)	0.08	15
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*B*	*0.37*	-	*B*	*0.40*	-
	EB L	A	0.09	20	A	0.08	15
	EB TR	A	0.17	25	A	0.26	50
	WB L	A	0.05	15	A	0.13	25
	WB TR	A	0.30	40	A	0.29	45
	NB L	C	0.14	20	C	0.41	35
	NB TR	C	0.16	25	C	0.42	45
	SB L	D	0.59	40	D	0.75	40
	SB TR	C	0.24	35	C	0.41	45
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	*0.65*	-	*C*	*0.53*	-
	EB L	C	0.68	80	C	0.51	45
	EB T	B	0.36	65	B	0.50	80
	WB L	B	0.02	5	B	0.09	20
	WB TR	B	0.42	55	B	0.39	60
	NB L	D	0.75	35	D	0.68	35
	NB TR	C	0.36	85	C	0.36	80
	SB LT	D	0.42	30	D	0.44	25
	SB R	D	0.29	25	C	0.13	20
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	*C*	-	-	*C*	-	-
	EB LTR	C	0.68	50	C	0.67	50
	WB LTR	C	0.53	35	B	0.46	35
	NB LTR	C	0.59	35	B	0.42	35
	SB LTR	C	0.65	40	C	0.50	40

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

Table continued on the next page

Table 2.13: Existing Traffic Operations Scenario B - Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.02	15	B	0.02	15
	WB LTR	B	0.13	15	B	0.15	15
	NB LTR	A	0.00	10	A	0.01	10
	SB LTR	A	0.01	19	A	0.01	10
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.04	15	B	0.04	15
	NB LTR	-	0.22	0	-	0.20	5
	SB TR	A	0.00	5	A	0.00	0
Baird Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	A	0.02	10	A	0.01	5
	WB LTR	A	0.00	5	A	0.00	5
	NB LTR	A	0.01	5	A	0.01	5
	SB LTR	A	0.00	0	-	0.00	5
Ross Road & Baird Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.02	5	A	0.01	5
	WB TR	-	0.04	5	-	0.05	5
	SB LR	B	0.07	15	B	0.04	10

As shown in the table, traffic within the study network is operating within acceptable thresholds for most movements. Due to the minor rerouting of left turn traffic most intersections are operating similarly to existing conditions without the closure of the left turn. The 95th percentile queue for the eastbound left turn at the Lynn Valley Road & Fromme Road/27th Street intersection is expected to increase by 5m in the AM peak hour (from 75m to 80m) and just exceeding the available storage.

3. FUTURE TRAFFIC CONDITIONS

This section details the future conditions for the traffic surrounding the development including background traffic growth forecasts, site traffic forecasts, and future traffic operations.

The study horizon years analyzed for the proposed redevelopment include:

- Opening Day (2032)
- Opening Day + 10 Years (2042)

The analysis included two network scenarios as the District's is contemplating turning restrictions at the Lynn Valley Road & Ross Road intersection (i.e. Scenario A and Scenario B as noted in **Section 2.8**). Bunt notes that restricting the left turn movements will affect the routing of trips to the site and of nearby developments.

Further to this, Bunt has undertaken a sensitivity scenario in **Section 3.3** which undertakes traffic modelling with the Districts preferred, more conservative trip generation, based on comments provided on February 18th, 2026.

3.1 Traffic Forecasts

3.1.1 Background Traffic Forecasts

Background traffic can be defined as the traffic that would appear on the network even if the site did not redevelop. To forecast the background traffic volumes on the study area network, a 1% per annum (linear) growth rate was applied to Bunt's counted data.

The 1% growth rate was determined by reviewing the overall traffic volumes in the AM and PM peak hour at the Lynn Valley Road & Mountain Highway intersection between September 2022 (provided by the District) and January 2026 (collected by Bunt). Bunt found that overall traffic volumes at the intersection have remained relatively stable over this period with 0% growth in the AM peak hour and a -1% growth in the PM peak hour. Based on these findings, Bunt (with the approval of the District) conservatively applied a 1% growth per annum to forecast background traffic growth.

The 2032 and 2042 Background traffic forecasts under the existing road network (Scenario A), are presented in **Exhibit 3.1** and **Exhibit 3.2**. Background traffic forecasts for Scenario B are presented in **Exhibit 3.3** and **Exhibit 3.4**.

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Exhibit 3.1

Opening Day (2032) Background Traffic Forecasts, Scenario A

1246 – 1268 Lynn Valley Road
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Exhibit 3.2

Opening Day + 10 Year (2042) Background Traffic Forecasts, Scenario A

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

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Exhibit 3.3

Opening Day (2032) Background Traffic Forecasts, Scenario B

1246 – 1268 Lynn Valley Road
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Exhibit 3.4

Opening Day + 10 Year (2042) Background Traffic Forecasts, Scenario B

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

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3.1.2 Site Traffic

The Institute of Transportation Engineers best practice is that a Transportation Impact Assessment be conducted whenever a proposed development will generate 100 or more added (new) peak direction vehicle trips to or from the site during the adjacent roadways' peak hours or the development's peak hour[5]. This site trip generation threshold is appropriate for the following reasons:

- 100 vehicles per hour (vph) is a magnitude that can change the level of service of an intersection approach; and
- Left- or right-turn lanes may be needed to satisfactorily accommodate site traffic without adversely impacting through (non-site) traffic.

Trip Generation

Bunt used the standard ITE Trip Generation Manual (12th Edition)[6] vehicle trip rates as a basis for analysis. The site-specific land uses have been defined below:

- Land Use Code 221:"Multifamily Housing (Mid-Rise), with Not Close to Rail Transit subcategory in General Urban/Suburban settings". [Sample size: 20 AM peak, 21 PM peak]
- Land Use Code 822, "Strip Retail Plaza (<40k), with All Sites subcategory in General Urban/Suburban settings". [Sample size: 6 AM peak, 24 PM peak]
- Land Use Code 710, "General Office Building, with All Sites subcategory in General Urban/Suburban settings". [Sample size: 54 AM peak, 53 PM peak]

The trip rates were informed by samples from similar sites across 23 US states, including but not limited to California, New York, Florida, and Texas, plus two Canadian provinces (Alberta and Ontario).

Table 3.1 summarizes the peak hour vehicle generation trip rates applied in this study.

Table 3.1: Peak Hour Vehicle Trip Rates

LAND USE	L.U.C	AM PEAK HOUR			PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Residential - Multifamily Mid-Rise	221	23%	77%	0.38	64%	36%	0.38
Retail - Strip Retail Plaza < 40K	822	55%	45%	3.93	50%	50%	6.29
Office	710	88%	12%	1.24	16%	84%	1.18

Note: L.U.C – ITE Land Use Code

To further explain the above, Table 3.1 shows ITE peak-hour trip rates for the proposed 397-unit development: mid-rise multifamily (LUC 221) at 0.38 total vehicle trips/unit in the AM and PM peak hour, which has been based

[5] Report on Traffic Access and Impact Studies and Impact for Site Development (ITE, 1989)

[6] Additional details provided in Section 2.6.3

on peak observed data from similar developments. The rate of 0.38 is only a fraction of the total individuals who may live in the multifamily development, this occurs for a number of reasons:

- Not all residents living in the multifamily development will travel in the peak hour; for example, many individuals have flexible schedules, work remotely, are retired, or stay home.
- Those peak-period commuters spread their trips across time rather than piling into one hour: morning departures and evening arrivals vary based on personal factors like job distances, start times, and school drop-offs, diluting the singular rush hour impact.

Table 3.2 summarizes the ITE trip generation manual site generated vehicle trips for the proposed development based on the rates presented in Table 3.1.

Table 3.2: ITE Estimated Peak Hour Vehicle Trips

LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Residential	397 dwelling units	35	116	151	97	54	151
Retail	11,265 sqft	24	20	44	36	36	71
Office	13,480 sqft	15	2	17	3	13	16
TOTAL		74	138	212	136	103	238

Note: Commercial use allocation is undefined, however for the purposes of traffic modelling a split between Retail and Office has been assumed. Additionally, since the traffic modelling has been undertaken the commercial area being proposed has changed to ~25,090 sqft (2,331m²) this change will have negligible effect on the trip generation (i.e. 1 trip in the PM peak hour).

The above table presents the number of trips expected to be generated by the site in accordance with the ITE trip generation manual, however it does not consider the mixed-use nature of the site or trips that already exist with the existing land uses.

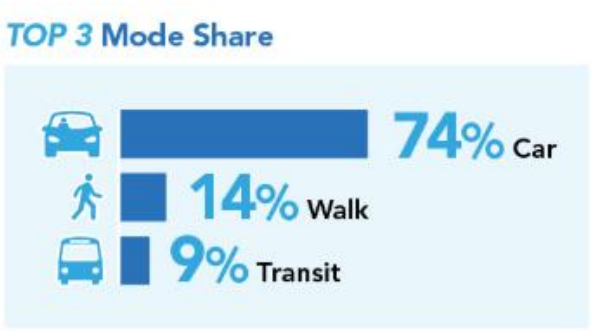
This is critical for the site as many trips like residents 'grabbing coffee downstairs' or workers living next to shops stay internal to the site and do not travel on to the public roads in the peak hours, cutting external vehicle demand depending on the land use mix. This integrated design reduces the need for vehicle travel and helps limit trip generation. Further to this, removing existing trips ensures we only count new traffic from the development, not double-counting vehicles already using the site today.

Bunt undertook the National Cooperative Highway Research Program[7] (NCHRP) report 684 internal capture analysis (**Appendix C**) to account for internal trips generated by the site and estimate the number of vehicles making trips external to the site. Two key assumptions were made when utilizing the NCHRP the auto-occupancy was assumed

[7] The National Cooperative Highway Research Program (NCHRP) is a U.S.-based cooperative research initiative launched in 1962 by the American Association of State Highway and Transportation Officials (AASHTO) to address complex highway and transportation challenges through, applied scientific research. Administered by Transportation Research Board (TRB), a National Academies division advancing transportation research through objective studies, NCHRP uses expert panels from DOTs, universities, and industry for peer-reviewed guidance on topics like internal trip capture.

to be 1.2 and the mode split for private auto modes was assumed to be 74% based on information provided in the Northshore Transportation Survey[8] (**Figure 3.1**).

Figure 3.1: District of North Vancouver Transportation Survey Key Findings 2023



Source: District of North Vancouver

The existing site trips were determined using collected traffic count data for the commercial portion of the existing site and ITE trip generation (L.U.C 221) for the 32 rental residential units on the existing site as noted in Section 2.4.2.

Table 3.3 outlines the trips that are expected to be generated from the proposed site.

[8] https://www.dnv.org/streets-transportation/north-shore-transportation-survey

Table 3.3: Future Vehicle Trips Generated by the Site

	AM PEAK HOUR			PM PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL
ITE Site Generated Vehicle Trips	74	138	212	136	103	238
Person Trips (Based on 1.2 auto occupancy)	89	166	254	163	124	286
NCHRP Internal Capture Percentage	6%	3%	4%	15%*	17%	16%*
District of North Vancouver Auto mode Split	74%	74%	74%	74%	74%	74%
TOTAL FUTURE VEHICLE TRIPS (NCHRP EXTERNAL VEHICLE TRIPS)	**51**	**99**	**151**	**86**	**63**	**149**

Note: * Upon a recalculation of the NCHRP a 2% difference is reported for the 'in' traffic and 1% for the total traffic. By applying these updated percentages would increase the PM total by 2 vehicles. This increase will not have a material impact on the transportation network and therefore and therefore traffic modelling has carried forward the NCHRP External Vehicle trips presented in the table.

As presented in the table above, the future site is anticipated to generate approximately 151 vehicle trips in the AM peak hour and the 149 vehicle trips in the PM peak hour. Note these trips are used within the traffic model as site traffic. In order to not "double count" **Table 3.4** outlines the net future trips net trips that are expected to be generated from the proposed site, which subtracts the existing site trips from the future site trips. The existing trips are removed from the background traffic in the total traffic modelling scenario. It is also noted based on comments with the District, a sensitivity analysis has been undertaken for the ultimate horizon year (Opening day + 10 year total (2042)) to review a higher site vehicle trip generation, presented in **Section 3.3**.

Table 3.4: Net Vehicle Trips Generated by the Site

	AM PEAK HOUR			PM PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Total Future Vehicle Trips (NCHRP External Vehicle Trips)	51	99	151	86	63	149
Total Existing Vehicle Trips	-17	-16	-33	-80	-70	-150
NET EXTERNAL VEHICLE TRIPS	**35**	**83**	**117**	**-**	**-**	**-**

Note: '-' indicates that the site is not expected to generate any additional trips that would be added to the network.

As presented in the table above, the AM peak hour is expected to generate approximately 117 additional vehicle trips, only marginally exceeding the 100-trip threshold (100 trips is typically considered to be the threshold for material impact on the traffic network, per ITE). The PM peak hour is not expected to generate any additional trips above what is already being generated under the existing site conditions. This is largely influenced by the high number of commercial vehicle trips generated in the existing condition and fewer trips for this commercial element expected in the future condition.

Bunt acknowledges that existing commercial trips currently access Lynn Valley Road directly, unlike the proposed future condition with a single Baird Road access. Limiting site accesses on arterial roads like Lynn Valley Road is standard practice across BC and in the District of North Vancouver where alternatives exist, primarily to minimize conflict points, reduce crashes, and preserve through-traffic speeds. While overall site trips remain modest, this

shift concentrates traffic onto Baird Road, a local road designed to accommodate peak volumes up to ~300 – 400 vehicles, as detailed in **Section 2.2.1**.

The following section outlines the distribution and assignment of the site trips through the traffic network.

Trip Distribution & Assignment

Table 3.5 summarizes the trip distribution rates for the site-generated trips, which were estimated based on collected traffic data, Bunt's understanding of the travel behaviors within the study area and surrounding regional context, and of engineering judgement.

Table 3.5: Estimated Trip Distribution

ORIGIN/DESTINATION	AM PEAK HOUR		PM PEAK HOUR	
	IN (%)	OUT (%)	IN (%)	OUT (%)
Fromme Road (North)	5%	15%	5%	15%
Mountain Highway (North)	5%	*1	5%	*1
Lynn Valley Road (East)	5%	*1	5%	*1
Mountain Highway (South)	25%	*2	25%	*2
29th Street (West)	20%	15%	15%	15%
Lynn Valley Road (West)	30%	35%	35%	35%
27th Street (East)	10%	35%	10%	35%
TOTAL	**100%**	**100%**	**100%**	**100%**

Notes:

1) As vehicles that would exit the site onto these roadways would need to exit the study network, outbound traffic is assumed to access these roads via Fromme Road.

2) As vehicles that would exit the site onto these Mountain Highway (South) would need to exit the study network, outbound traffic is assumed to access the route via 27th Street.

The traffic forecasts for future site trips are presented in **Exhibit 3.5** and **Exhibit 3.6** for Scenarios A & B, respectively. *Note that for the traffic analysis, the Total Future Vehicle Trips as shown previously in Table 3.3 were utilized.*

3.1.3 Total Traffic

Total traffic forecasts for the road network were determined by replacing the existing site traffic volumes with the forecasted future site traffic volumes, and then applying the trips to the background traffic forecasts for the respective roadway network scenarios. The Total Traffic Forecasts for the 2032 Horizon year for the two roadway scenarios are presented in **Exhibits 3.7** and **Exhibit 3.8**, and the Total Traffic forecasts for the 2042 Horizon year are presented in **Exhibit 3.9** and **Exhibit 3.10**.

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Exhibit 3.5

Site Traffic Forecasts, Scenario A

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Exhibit 3.6

Site Traffic Forecasts, Scenario B

1246 – 1268 Lynn Valley Road
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Exhibit 3.7

Opening Day (2032) Total Traffic Forecasts, Scenario A

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

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Exhibit 3.8

Opening Day (2032) Total Traffic Forecasts, Scenario B

1246 – 1268 Lynn Valley Road
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Exhibit 3.9

Opening Day + 10 Year (2042) Total Traffic Forecasts, Scenario A

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

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Exhibit 3.10

Opening Day + 10 Year (2042) Total Traffic Forecasts, Scenario B

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

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3.2 Future Traffic Operations

3.2.1 Future Conditions Analysis Assumptions

The following assumptions were used to conduct the future conditions traffic analysis:

- Peak hour factors and heavy vehicle percentages were based on count data and unchanged from the existing conditions analysis.
    - To account for software limitations within SimTraffic, heavy vehicle percentages for the eastbound left turn at Lynn Valley Road & Ross Road were set to 0% in the 2042 Scenario A, PM peak traffic model.
- Future pedestrian and cycling volumes were estimated as follows. Note that these estimates may be conservative in nature:
    - Pedestrians at Lynn Vallery Road & Mountain Road and Lynn Valley Road & Mall Access intersections: 50 pedestrians and pedestrian calls per hour added, per crossing leg.
    - Pedestrians at other intersections, 30 pedestrians and pedestrian calls (if applicable) per hour added, per crossing leg.
    - Cyclist volumes on Lynn Valley Road, 29th Street, and Mountain Highway: 20 cyclists per hour added, per intersection leg.
    - Cyclist volumes on other roadways : 10 cyclists per hour added, per intersection leg.
- Signalized intersections had traffic signal splits optimized within the Synchro software in all 2032 and 2042 horizon year scenarios.

3.2.2 Future Background Traffic Operations

The background traffic operations results for the study network in the Opening Day (2032) horizon year for both Scenario A and Scenario B are presented in **Table 3.6** and **Table 3.7**, respectively.

Table 3.6: Opening Day (2032) Background Vehicle Operations, Scenario A

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	*0.70*	-	*C*	*0.67*	-
	EB L	B	0.44	40	C	0.56	40
	EB T	B	0.44	60	D	0.74	75
	EB R	A	0.11	0	A	0.15	0
	WB L	C	0.40	60	C	0.56	65
	WB TR	D	0.75	100	D	0.82	115
	NB L	C	0.61	50	B	0.51	55
	NB TR	C	0.48	60	B	0.45	60
	SB LT	C	0.55	85	C	0.37	50
	SB R	A	0.16	50	A	0.14	30
Lynn Valley Road & Ross Road *(unsignalized)*	*OVERALL*	-	-	-	-	-	-
	EB L	A	0.05	15	B	0.05	15
	SB R	B	0.11	15	B	0.09	15
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)* minor stop represented by ()	*OVERALL*	*A*	*0.25*	-	*A*	*0.27*	-
	EB TR	A (A)	0.24	45	A (A)	0.35	45
	WB L	A (A)	0.11	**15**	A (B)	0.27	**10**
	WB T	A (A)	0.31	35	A (A)	0.31	15
	NB L	C (E)	0.07	10	C **(F)**	0.07	35
	NB R	A (B)	0.03	10	A (C)	0.08	20
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*A*	*0.37*	-	*B*	*0.40*	-
	EB L	A	0.09	15	A	0.08	**20**
	EB TR	A	0.19	30	A	0.27	45
	WB L	A	0.06	10	A	0.13	20
	WB TR	A	0.30	35	A	0.29	40
	NB L	C	0.14	15	C	0.41	45
	NB TR	C	0.16	30	C	0.42	45
	SB L	D	0.59	**40**	D	0.75	**40**
	SB TR	C	0.24	30	C	0.41	50
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	*0.59*	-	*C*	*0.54*	-
	EB L	C	0.57	75	B	0.38	35
	EB T	B	0.39	60	B	0.52	80
	WB L	B	0.02	5	B	0.09	15
	WB TR	B	0.42	45	C	0.39	70
	NB L	D	0.75	**35**	D	0.68	**35**
	NB TR	C	0.36	90	C	0.36	75
	SB LT	D	0.42	30	D	0.44	35
	SB R	D	0.29	25	C	0.13	25
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	*C*	-	-	*C*	-	-
	EB LTR	C	0.67	40	C	0.64	65
	WB LTR	C	0.52	35	B	0.45	35
	NB LTR	C	0.52	30	B	0.34	30
	SB LTR	C	0.63	45	B	0.48	35

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

Table continued on the next page

Table 3.6: Opening Day (2032) Background Vehicle Operations, Scenario A – Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.02	10	B	0.02	10
	WB LTR	B	0.13	15	B	0.14	15
	NB LTR	A	0.00	10	A	0.01	10
	SB LTR	A	0.01	10	A	0.01	10
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.04	15	B	0.04	10
	NB LTR	-	0.22	5	-	0.20	5
	SB TR	A	0.00	0.1	A	0.00	0
Baird Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	A	0.02	10	A	0.01	10
	WB LTR	A	0.00	5	A	0.00	5
	NB LTR	A	0.01	5	A	0.01	5
	SB LTR	A	0.00	0	-	0.00	0
Ross Road & Baird Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.01	5	A	0.01	10
	WB TR	-	0.06	5	-	0.08	5
	SB LR	B	0.06	15	B	0.04	15

Table 3.7: Opening Day (2032) Background Vehicle Operations, Scenario B

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	*0.76*	-	*C*	*0.74*	-
	EB L	C	0.53	50	C	0.64	50
	EB T	B	0.47	65	D	0.77	80
	EB R	A	0.12	0	A	0.17	0
	WB L	C	0.46	**80**	C	0.63	**85**
	WB TR	D	0.81	155	D	0.84	175
	NB L	C	0.65	60	C	0.58	60
	NB TR	C	0.53	70	B	0.51	75
	SB LT	C	0.58	156	C	0.39	50
	SB R	A	0.17	60	A	0.16	30
Lynn Valley Road & Ross Road	*OVERALL*	-	-	-	-	-	-
	SB R	B	0.12	10	B	0.11	10
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)*[*1]	*OVERALL*	*A*	*0.27*	-	*A*	*0.28*	-
	EB TR	B (A)	0.24	45	A (A)	0.35	50
	WB L	A (A)	0.12	**15**	A (A)	0.30	**10**
	WB T	A (A)	0.33	35	A (A)	0.33	35
	NB L	C (E)	0.07	15	C **(F)**	0.07	15
	NB R	A (B)	0.04	15	A (C)	0.09	25
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*B*	*0.40*	-	*B*	*0.44*	-
	EB L	A	0.10	**15**	A	0.09	**15**
	EB TR	A	0.18	30	A	0.28	45
	WB L	A	0.06	10	A	0.15	20
	WB TR	A	0.33	40	A	0.31	40
	NB L	C	0.15	15	C	0.44	40
	NB TR	C	0.17	25	C	0.45	45
	SB L	D	0.64	**45**	D	0.81	**45**
	SB TR	C	0.26	45	C	0.42	50
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	*0.74*	-	*C*	*0.59*	-
	EB L	D	0.76	**95**	C	0.58	65
	EB T	B	0.38	155	B	0.54	110
	WB L	A	0.02	5	B	0.10	15
	WB TR	B	0.44	45	B	0.41	60
	NB L	D	0.82	**35**	D	0.72	**35**
	NB TR	C	0.40	110	C	0.39	90
	SB LT	D	0.46	45	D	0.47	30
	SB R	D	0.55	30	D	0.30	25
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	*D*	-	-	*C*	-	-
	EB LTR	D	0.78	70	D	0.74	100
	WB LTR	C	0.61	45	C	0.51	45
	NB LTR	D	0.67	45	C	0.47	55
	SB LTR	D	0.74	65	C	0.56	50
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	10	C	0.02	10
	WB LTR	C	0.17	15	C	0.19	20
	NB LTR	A	0.01	10	A	0.01	10
	SB LTR	A	0.01	15	A	0.01	10

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

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Table 3.7: Opening Day (2032) Background Vehicle Operations, Scenario B – Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	C	0.06	15	B	0.06	10
	NB LTR	-	0.23	5	-	0.21	10
	SB TR	A	0.00	5	A	0.00	5
Baird Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.02	10	B	0.01	10
	WB LTR	B	0.00	5	B	0.00	5
	NB LTR	A	0.01	5	A	0.01	5
	SB LTR	A	0.00	5	-	0.00	0
Ross Road & Baird Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.02	5	A	0.01	10
	WB TR	-	0.04	5	-	0.05	5
	SB LR	B	0.08	15	B	0.05	15

Traffic operations under both scenarios in 2032 are expected to see performance metrics within acceptable thresholds in the background condition, though left turn 95th percentile queues at some intersections continue to increase in length, sometimes exceeding available storage, like in the existing condition.

On Lynn Valley Road, under Scenario B, The HCM2000 performance at the eastbound left turn at the upstream left turn at Fromme Road is expected to worsen but remain within an acceptable range. In contrast, SimTraffic 95th percentile queues are expected to increase significantly in the AM peak to 95m, exceeding the available left turn bay capacity, which also results in the eastbound through queues increasing to 155m.

The background traffic operations results for the study network in the Opening Day + 10 Years (2042) horizon year are presented in **Table 3.8** and **Table 3.9**.

Table 3.8: Opening Day + 10 Year (2042) Background Vehicle Operations, Scenario A

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	*0.86*	-	*C*	*0.83*	-
	EB L	D	0.67	50	D	0.79	55
	EB T	B	0.52	75	D	0.80	80
	EB R	A	0.13	0	A	0.18	0
	WB L	C	0.53	**95**	D	0.76	**90**
	WB TR	D	**0.90**	285	D	0.87	260
	NB L	C	0.75	90	C	0.67	95
	NB TR	C	0.58	70	C	0.57	90
	SB LT	C	0.63	145	C	0.43	60
	SB R	A	0.19	65	A	0.17	40
Lynn Valley Road & Ross Road *(unsignalized)*	*OVERALL*	-	-	-	-	-	-
	EB L	B	0.06	15	B	0.07	15
	SB R	B	0.15	15	B	0.13	15
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)*[1]	*OVERALL*	*A*	*0.29*	-	*A*	*0.32*	-
	EB TR	B (A)	0.28	50	A (A)	0.41	85
	WB L	A (A)	0.15	**15**	B (B)	0.38	**10**
	WB T	A (A)	0.36	35	A (A)	0.36	35
	NB L	C **(F)**	0.08	15	C **(F)**	0.08	125
	NB R	A (B)	0.04	15	A (C)	0.10	0
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*B*	*0.43*	-	*B*	*0.50*	-
	EB L	A	0.12	**15**	A	0.11	**20**
	EB TR	A	0.22	25	A	0.33	60
	WB L	A	0.07	15	A	0.19	30
	WB TR	A	0.37	45	A	0.35	40
	NB L	C	0.16	15	C	0.47	35
	NB TR	C	0.18	25	C	0.48	50
	SB L	D	0.67	**40**	E	0.86	35
	SB TR	C	0.27	40	C	0.43	55
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	*0.81*	-	*C*	*0.64*	-
	EB L	D	0.82	**90**	C	0.54	50
	EB T	B	0.46	130	C	0.63	90
	WB L	A	0.03	10	B	0.15	20
	WB TR	B	0.49	50	C	0.46	70
	NB L	D	0.86	**35**	D	0.76	**35**
	NB TR	C	0.42	145	C	0.40	80
	SB LT	D	0.49	35	D	0.51	35
	SB R	D	0.75	30	D	0.48	25
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	***E***	-	-	*D*	-	-
	EB LTR	**F**	**0.94**	95	E	0.85	130
	WB LTR	D	0.74	50	C	0.60	55
	NB LTR	D	0.74	50	C	0.46	40
	SB LTR	F	0.90	80	C	0.64	60
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	15	C	0.03	10
	WB LTR	C	0.19	15	C	0.22	20
	NB LTR	A	0.01	10	A	0.01	15
	SB LTR	A	0.01	25	A	0.01	15

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

Table continued on the next page

Table 3.8: Opening Day + 10 Year (2042) Background Vehicle Operations, Scenario A - Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	LOS	V/C	LOS	V/C
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	C	0.07	15	C	0.07	10
	NB LTR	-	0.26	10	-	0.23	5
	SB TR	A	0.00	5	A	0.00	10
Baird Road & Harold Road (minor road stop)	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.02	10	B	0.01	5
	WB LTR	B	0.00	5	B	0.00	5
	NB LTR	A	0.01	5	A	0.01	5
	SB LTR	A	0.00	0	-	0.00	0
Ross Road & Baird Road (minor road stop)	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.01	5	A	0.01	10
	WB TR	-	0.07	5	-	0.09	5
	SB LR	B	0.08	15	B	0.06	15

Table 3.9: Opening Day + 10 Year (2042) Background Vehicle Operations, Scenario B

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	*0.86*	-	*C*	*0.82*	-
	EB L	C	0.67	55	D	0.82	55
	EB T	B	0.52	70	D	0.82	80
	EB R	A	0.13	0	A	0.18	0
	WB L	C	0.53	**105**	D	0.78	**85**
	WB TR	D	**0.90**	265	D	0.89	140
	NB L	C	0.75	105	C	0.65	75
	NB TR	C	0.58	70	C	0.56	75
	SB LT	C	0.63	220	C	0.43	70
	SB R	A	0.19	60	A	0.17	45
Lynn Valley Road & Ross Road	*OVERALL*	-	-	-	-	-	-
	SB R	B	0.15	10	B	0.13	15
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)*[1]	*OVERALL*	*A*	*0.29*	-	*A*	*0.31*	-
	EB TR	B (A)	0.26	45	A (A)	0.39	45
	WB L	A (A)	0.14	**15**	B (B)	0.36	**10**
	WB T	A (A)	0.36	35	A (A)	0.36	35
	NB L	C (E)	0.08	15	C **(F)**	0.08	20
	NB R	A (B)	0.04	15	A (C)	0.10	20
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*B*	*0.43*	-	*B*	*0.50*	-
	EB L	A	0.12	**15**	A	0.11	**10**
	EB TR	A	0.20	35	A	0.31	50
	WB L	A	0.07	15	A	0.18	25
	WB TR	A	0.37	40	A	0.35	45
	NB L	C	0.16	20	C	0.47	35
	NB TR	C	0.18	25	C	0.47	50
	SB L	D	0.67	**40**	E	0.87	**45**
	SB TR	C	0.27	40	C	0.43	50
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	*0.90*	-	*C*	*0.69*	-
	EB L	E	**0.97**	**100**	C	0.71	60
	EB T	B	0.43	295	B	0.60	85
	WB L	A	0.03	10	B	0.13	10
	WB TR	B	0.49	50	B	0.46	60
	NB L	D	0.86	**35**	D	0.77	**40**
	NB TR	C	0.42	120	C	0.41	95
	SB LT	D	0.49	35	D	0.51	40
	SB R	D	0.75	30	D	0.49	25
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	***F***	-	-	*D*	-	-
	EB LTR	**F**	**1.00**	115	E	**0.90**	140
	WB LTR	E	0.79	55	C	0.63	55
	NB LTR	E	0.87	45	C	0.57	45
	SB LTR	**F**	**0.96**	90	C	0.68	50
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	15	C	0.03	10
	WB LTR	C	0.19	30	C	0.23	20
	NB LTR	A	0.01	10	A	0.01	25
	SB LTR	A	0.01	35	A	0.01	15

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

Table continued on the next page

Table 3.9: Opening Day + 10 Year (2042) Background Vehicle Operations, Scenario B - Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	C	0.07	15	C	0.07	10
	NB LTR	-	0.26	5	-	0.23	10
	SB TR	A	0.00	5	A	0.00	10
Baird Road & Harold Road (minor road stop)	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.02	10	B	0.01	10
	WB LTR	B	0.00	5	B	0.00	5
	NB LTR	A	0.01	5	A	0.01	5
	SB LTR	A	0.00	0	-	0.00	0
Ross Road & Baird Road (minor road stop)	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.02	5	A	0.02	10
	WB TR	-	0.04	5	-	0.06	5
	SB LR	B	0.09	15	B	0.06	15

In the 2042 horizon year, background traffic operations at some intersections and intersection legs are expected to approach or operate worse than performance thresholds in the AM peak hour. At the Lynn Valley Road & Mountain Highway intersection, the v/c ratio for the intersection overall in the AM peak is at or above 0.85, while the westbound through movement is expected to see a v/c ratio of 0.90, with queues reaching up to approximately 285m.

The all-way stop configuration at Fromme Road and 29th Street is expected to perform with an overall AM peak performance of LOS E (delays between 35 – 50 seconds) in Scenario A. In Scenario B the intersection is expected to operate with LOS F (delays greater than 50 seconds), with eastbound and southbound directions both expected to experience LOS F and v/c ratios at or above 0.90.

With the removal of the left turn movement at Ross Road in Scenario B, the eastbound left turn at Lynn Valley Road and Fromme Road is expected to perform at LOS E (delays between 55 – 80 seconds). Additionally, the intersection is expected to perform with a v/c ratio of 0.95 (as opposed to LOS D (delays between 35 – 55 seconds) and a v/c ratio of 0.82 is Scenario A). Scenario B is expected to have 95th percentile left turn queues worsen to 100m, exceeding the available 75m of storage. Overspill from the turn bay is also expected to further worsen the eastbound through traffic (queues expected to approach 295m).

3.2.3 Future Total Traffic Operations

The total traffic operations results for the study network in the Opening Day (2032) horizon year for both Scenario A and Scenario B are presented in **Tables 3.10** and **3.11** respectively.

Table 3.10: Opening Day (2032) Total Vehicle Operations, Scenario A

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	*0.77*	-	*C*	*0.74*	-
	EB L	C	0.53	40	C	0.62	40
	EB T	B	0.47	65	D	0.78	75
	EB R	A	0.12	0	A	0.17	0
	WB L	C	0.46	**90**	C	0.65	**75**
	WB TR	D	0.81	190	D	0.83	140
	NB L	C	0.68	70	C	0.59	70
	NB TR	C	0.53	70	B	0.50	70
	SB LT	C	0.58	215	C	0.39	70
	SB R	A	0.18	60	A	0.15	40
Lynn Valley Road & Ross Road *(unsignalized)*	*OVERALL*	-	-	-	-	-	-
	EB L	B	0.08	15	B	0.10	15
	SB R	B	0.20	15	B	0.16	15
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)*[1]	*OVERALL*	*A*	*0.27*	-	*A*	*0.29*	-
	EB TR	A (A)	0.26	55	A (A)	0.37	65
	WB L	A (A)	0.13	**15**	B (B)	0.31	**15**
	WB T	A (A)	0.34	35	A (A)	0.31	35
	NB L	C (E)	0.07	10	C **(F)**	0.07	15
	NB R	A (B)	0.04	15	A (C)	0.09	20
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*A*	*0.41*	-	*B*	*0.43*	-
	EB L	A	0.11	**15**	A	0.09	**20**
	EB TR	A	0.20	25	A	0.29	50
	WB L	A	0.06	15	A	0.15	20
	WB TR	A	0.34	30	A	0.30	45
	NB L	C	0.15	40	C	0.44	35
	NB TR	C	0.17	25	C	0.45	50
	SB L	D	0.64	**40**	D	0.81	**40**
	SB TR	C	0.26	30	C	0.42	40
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	*0.68*	-	*C*	*0.58*	-
	EB L	C	0.63	**80**	B	0.40	35
	EB T	B	0.41	75	B	0.57	95
	WB L	A	0.08	15	B	0.10	15
	WB TR	B	0.45	50	C	0.39	65
	NB L	D	0.81	**40**	D	0.71	**35**
	NB TR	C	0.41	100	C	0.41	85
	SB LT	D	0.52	30	D	0.49	45
	SB R	D	0.65	30	C	0.29	30
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	*D*	-	-	*C*	-	-
	EB LTR	E	0.81	80	D	0.77	105
	WB LTR	C	0.62	45	C	0.51	50
	NB LTR	C	0.61	50	C	0.41	35
	SB LTR	E	0.83	80	C	0.60	65
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	15	C	0.02	10
	WB LTR	C	0.37	30	C	0.28	20
	NB LTR	A	0.01	10	A	0.01	15
	SB LTR	A	0.01	15	A	0.01	15

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

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Table 3.10: Opening Day (2032) Total Vehicle Operations, Scenario A - Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.08	15	B	0.08	15
	NB LTR	-	0.23	10	-	0.20	5
	SB TR	A	0.01	5	A	0.01	5
Baird Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.02	10	B	0.02	10
	WB LTR	B	0.00	5	B	0.00	5
	NB LTR	A	0.02	5	A	0.02	5
	SB LTR	A	0.00	0	-	0.00	0
Ross Road & Baird Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.02	10	A	0.03	15
	WB TR	-	0.08	5	-	0.11	10
	SB LR	B	0.21	20	B	0.19	20
Baird Road & Site Access *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.14	15	B	0.10	15
	NB TR	-	0.06	5	-	0.07	5
	SB LT	A	0.00	0	A	0.00	5

Table 3.11: Opening Day (2032) Total Vehicle Operations, Scenario B

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	*0.77*	-	*C*	*0.74*	-
	EB L	C	0.53	45	C	0.62	40
	EB T	B	0.47	50	D	0.78	80
	EB R	A	0.12	0	A	0.17	0
	WB L	C	0.46	**105**	C	0.65	**70**
	WB TR	D	0.81	250	D	0.83	105
	NB L	C	0.68	65	C	0.59	65
	NB TR	C	0.53	60	B	0.50	65
	SB LT	C	0.58	110	C	0.39	70
	SB R	A	0.18	55	A	0.15	40
Lynn Valley Road & Ross Road	*OVERALL*	-	-	-	-	-	-
	SB R	B	0.24	15	B	0.18	15
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)*[1]	*OVERALL*	*A*	*0.28*	-	*A*	*0.27*	-
	EB TR	A (A)	0.23	40	A (A)	0.34	45
	WB L	A (A)	0.12	**15**	A (B)	0.29	**15**
	WB T	A (A)	0.35	40	A (A)	0.32	35
	NB L	C (E)	0.07	15	C **(F)**	0.07	15
	NB R	A (B)	0.04	10	A (C)	0.09	20
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*B*	*0.41*	-	*B*	*0.43*	-
	EB L	A	0.11	**15**	A	0.09	**20**
	EB TR	A	0.18	30	A	0.26	45
	WB L	A	0.06	15	A	0.14	20
	WB TR	A	0.35	35	A	0.30	40
	NB L	C	0.15	20	C	0.44	35
	NB TR	C	0.17	25	C	0.45	50
	SB L	D	0.64	**40**	D	0.81	**45**
	SB TR	C	0.26	35	C	0.42	40
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	*0.80*	-	*C*	*0.63*	-
	EB L	D	0.86	**100**	C	0.64	60
	EB T	B	0.38	230	B	0.51	75
	WB L	A	0.08	15	B	0.09	15
	WB TR	B	0.46	45	B	0.40	55
	NB L	D	0.82	**40**	D	0.72	**45**
	NB TR	C	0.41	115	C	0.42	90
	SB LT	D	0.52	40	D	0.50	45
	SB R	D	0.57	30	C	0.26	30
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	***E***	-	-	*C*	-	-
	EB LTR	E	0.86	100	D	0.81	120
	WB LTR	D	0.66	45	C	0.55	60
	NB LTR	D	0.76	40	C	0.56	45
	SB LTR	E	0.85	75	C	0.61	60
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	10	C	0.03	15
	WB LTR	C	0.29	20	C	0.24	15
	NB LTR	A	0.01	10	A	0.01	15
	SB LTR	A	0.01	20	A	0.01	15

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection

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Table 3.11: Opening Day (2032) Total Vehicle Operations, Scenario B

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.08	15	B	0.08	15
	NB LTR	-	0.23	5	-	0.20	5
	SB TR	A	0.01	5	A	0.01	10
Baird Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.02	10	B	0.02	10
	WB LTR	B	0.00	5	B	0.00	5
	NB LTR	A	0.02	5	A	0.02	5
	SB LTR	A	0.00	0	-	0.00	0
Ross Road & Baird Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.04	5	A	0.06	20
	WB TR	-	0.05	5	-	0.06	10
	SB LR	B	0.23	20	B	0.19	15
Baird Road & Site Access *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.14	15	B	0.10	15
	NB TR	-	0.06	5	-	0.07	5
	SB LT	A	0.00	0	A	0.00	0

In the 2032 horizon year, total traffic operations are expected to remain within acceptable thresholds at the study intersections with the exception of Scenario B's overall performance at the all-way stop at Fromme Road & 29th Street in the AM peak. This intersection is expected to perform at LOS E (delays between 55 – 80 seconds). The worsened performance in Scenario B can be attributed to the rerouted network and site trips due to the left turn closure at Lynn Valley Road & Ross Road intersection. Eastbound left queues at Lynn Valley Road & Fromme Road in the Scenario B AM peak are expected to exceed the available 75m capacity, approaching around 100m, with eastbound through movement worsening to 230m as a result.

The total traffic operations results for the study network in the Opening Day + 10 Year (2042) horizon year for both Scenario A and Scenario B are presented in **Table 3.12** and **Table 3.13**, respectively.

Table 3.12: Opening Day + 10 Year (2042) Total Vehicle Operations, Scenario A

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	***0.87***	-	*C*	*0.82*	-
	EB L	D	0.67	45	D	0.79	45
	EB T	B	0.52	75	D	0.83	80
	EB R	A	0.13	0	A	0.18	0
	WB L	C	0.53	**105**	D	0.79	**80**
	WB TR	D	**0.90**	245	D	0.86	235
	NB L	C	0.79	75	C	0.66	80
	NB TR	C	0.58	75	C	0.55	80
	SB LT	C	0.63	270	C	0.43	100
	SB R	A	0.19	65	A	0.16	45
Lynn Valley Road & Ross Road *(unsignalized)*	*OVERALL*	-	-	-	-	-	-
	EB L	B	0.09	15	B	0.11	15
	SB R	C	0.23	20	B	0.17	20
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)*[1]	*OVERALL*	*A*	*0.30*	-	*A*	*0.31*	-
	EB TR	B (A)	0.28	50	A (A)	0.40	80
	WB L	A (A)	0.15	**15**	B (B)	0.37	**15**
	WB T	A (A)	0.37	35	A (A)	0.34	40
	NB L	C **(F)**	0.08	15	C **(F)**	0.08	20
	NB R	A (B)	0.04	15	A (C)	0.10	25
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*B*	*0.44*	-	*B*	*0.48*	-
	EB L	A	0.13	**20**	A	0.11	**20**
	EB TR	A	0.22	30	A	0.33	75
	WB L	A	0.07	15	A	0.18	30
	WB TR	A	0.38	35	A	0.33	50
	NB L	C	0.16	20	C	0.47	40
	NB TR	C	0.18	25	C	0.48	50
	SB L	D	0.67	**40**	E	0.86	**45**
	SB TR	C	0.27	40	C	0.43	65
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	*0.82*	-	*C*	*0.64*	-
	EB L	D	0.81	**95**	C	0.50	40
	EB T	B	0.47	195	C	0.62	90
	WB L	A	0.10	15	B	0.13	20
	WB TR	B	0.51	55	C	0.43	70
	NB L	D	0.86	**35**	D	0.75	**35**
	NB TR	C	0.43	120	C	0.44	90
	SB LT	D	0.53	35	D	0.54	50
	SB R	E	0.81	30	D	0.48	35
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	***F***	-	-	*D*	-	-
	EB LTR	**F**	**0.99**	145	E	**0.92**	110
	WB LTR	E	0.77	65	C	0.63	45
	NB LTR	E	0.76	45	C	0.49	35
	SB LTR	**F**	**1.04**	105	D	0.72	60
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	20	C	0.03	10
	WB LTR	D	0.43	45	C	0.32	20
	NB LTR	A	0.01	10	A	0.01	15
	SB LTR	A	0.01	105	A	0.01	15

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

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Table 3.12: Opening Day + 10 Year (2042) Total Vehicle Operations, Scenario A - Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.10	15	B	0.09	15
	NB LTR	-	0.25	5	-	0.22	10
	SB TR	A	0.01	10	A	0.01	15
Baird Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	10	B	0.02	10
	WB LTR	B	0.00	5	B	0.00	5
	NB LTR	A	0.02	10	A	0.02	5
	SB LTR	A	0.00	5	-	0.00	0
Ross Road & Baird Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.02	10	A	0.03	15
	WB TR	-	0.09	5	-	0.12	10
	SB LR	B	0.22	20	B	0.19	15
Baird Road & Site Access *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.14	20	B	0.10	15
	NB TR	-	0.06	5	-	0.07	5
	SB LT	A	0.00	0	A	0.00	5

Table 3.13: Opening Day + 10 Year (2042) Total Vehicle Operations, Scenario B

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	***0.87***	-	*C*	*0.82*	-
	EB L	D	0.67	40	D	0.79	50
	EB T	B	0.52	65	D	0.83	80
	EB R	A	0.13	0	A	0.18	0
	WB L	C	0.53	**100**	D	0.79	**80**
	WB TR	D	**0.90**	285	D	0.86	160
	NB L	C	0.79	65	C	0.66	95
	NB TR	C	0.58	80	C	0.55	80
	SB LT	C	0.63	230	C	0.43	65
	SB R	A	0.19	65	A	0.16	40
Lynn Valley Road & Ross Road	*OVERALL*	-	-	-	-	-	-
	SB R	C	0.27	15	B	0.20	15
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)*[1]	*OVERALL*	*A*	*0.31*	-	*A*	*0.29*	-
	EB TR	B (A)	0.25	40	A (A)	0.37	45
	WB L	A (A)	0.14	**15**	B (B)	0.34	**15**
	WB T	A (A)	0.38	40	A (A)	0.34	35
	NB L	C (E)	0.08	15	C **(F)**	0.08	15
	NB R	A (B)	0.04	15	A (C)	0.10	20
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*B*	*0.45*	-	*B*	*0.48*	-
	EB L	A	0.13	**20**	A	0.11	**20**
	EB TR	A	0.20	25	A	0.30	55
	WB L	A	0.07	10	A	0.17	35
	WB TR	A	0.39	40	A	0.34	45
	NB L	C	0.16	15	C	0.47	40
	NB TR	C	0.18	25	C	0.48	55
	SB L	D	0.67	**40**	E	0.87	**45**
	SB TR	C	0.27	35	C	0.43	55
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	***0.97***	-	*C*	*0.73*	-
	EB L	**F**	**1.09**	**100**	D	0.77	65
	EB T	B	0.43	300	B	0.57	85
	WB L	A	0.09	10	B	0.11	25
	WB TR	B	0.51	45	B	0.44	70
	NB L	D	0.86	**35**	D	0.77	**35**
	NB TR	C	0.43	145	C	0.44	95
	SB LT	D	0.55	40	D	0.55	50
	SB R	D	0.74	30	D	0.44	35
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	***F***	-	-	***E***	-	-
	EB LTR	**F**	**1.03**	95	**F**	**1.00**	225
	WB LTR	E	0.80	50	D	0.69	65
	NB LTR	**F**	**0.91**	55	D	0.69	60
	SB LTR	**F**	**1.03**	95	D	0.76	75
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	15	C	0.03	10
	WB LTR	C	0.34	55	C	0.28	20
	NB LTR	A	0.01	10	A	0.01	20
	SB LTR	A	0.02	30	A	0.01	20

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

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Table 3.13: Opening Day + 10 Year (2042) Total Vehicle Operations, Scenario B - Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.10	15	B	0.09	15
	NB LTR	-	0.25	5	-	0.22	15
	SB TR	A	0.01	5	A	0.01	15
Baird Road & Harold Road (minor road stop)	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	10	B	0.02	10
	WB LTR	B	0.00	5	B	0.00	5
	NB LTR	A	0.02	5	A	0.02	5
	SB LTR	A	0.00	5	-	0.00	0
Ross Road & Baird Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.04	10	A	0.06	20
	WB TR	-	0.05	5	-	0.07	10
	SB LR	B	0.24	20	B	0.20	15
Baird Road & Site Access *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.14	15	B	0.10	15
	NB TR	-	0.06	5	-	0.07	5
	SB LT	A	0.00	0	A	0.00	0

In the 2042 horizon year, traffic operation performance worsens slightly under total traffic conditions as compared to the background traffic conditions. Overall intersection performance at Fromme Road & 29th Street are expected to perform as a LOS F (delays greater than 80 seconds) in both scenarios for the AM peak, and as a LOS E in the PM peak for Scenario B. At the intersection, v/c ratios for most legs are expected to approach or have performance worsen past the acceptable threshold of 0.90. In Scenario B, the eastbound left turn at Lynn Valley Road & Fromme Road is expected to be an LOS F and a v/c ratio of 1.09. The overall v/c ratio for the intersection is at 0.97, above performance thresholds. AM peak hour eastbound left turn queues in both scenarios exceed the available storage of 95-100m in length. Additionally, eastbound through queues are expected to worsen to 195m in Scenario A, and to 300m in Scenario B.

In both horizon years, performance metrics at the Lynn Valley Road & Mountain Highway intersection remain very similar in the total condition as compared to the background condition, indicating the trips generated by the proposed site have a minimal effect on traffic operations.

Noting that the proposed site access will be on Baird Road (as compared to before where the commercial-bound traffic access the existing site from Lynn Valley Road directly), traffic operations along Baird Road at the site access and at Ross Road operate within acceptable thresholds. This indicates that the roadway is expected to be able to support the additional site trips in the future.

3.2.4 Summary of Traffic Impacts & Recommended Mitigations

In future horizon years, traffic performance at some intersections expect traffic operations metrics approach or worsen beyond performance thresholds. Key findings at intersections are noted below, with Bunt recommending potential mitigations to improve operations in the future.

Lynn Valley Road & Mountain Highway

In the 2042 background and total horizon years, the v/c ratio for the westbound through movement in the AM peak is expected to reach 0.90, with queues spilling back up to 285m. Overall intersection v/c ratios in the 2042 AM peak hour in both scenarios are at 0.87. Site-generated trips have a minimal effect on intersection performance. Potential mitigation options for signal timing in the 2042 horizon year are limited without changes in intersection laning and cycle length, as changes in signal green time for one direction (i.e. north – southbound) may have an adverse effect on queues in another direction (i.e. east – westbound).

Bunt recommends that the District explore options to adjust laning at the intersection to increase capacity in certain traffic directions, while maintaining the current signal cycle lengths.

Lynn Valley Road & Mall Access

As noted previously in Section 2.7.2, this pedestrian-controlled signalized intersection was modelled as both an actuated signal and as a minor road stop intersection, with true intersection performance expected to fall between the results of the two metrics. Traffic modelling indicated that when operating as a minor road stop in the PM peak, northbound left turn delays were high, resulting in a LOS F for the movement in all scenarios (including the existing). This results in vehicles needing to wait for a gap in traffic on Lynn Valley Road before they can complete the left turn. When modelled as a signal, LOS results for the left turn remain at LOS C or better in all scenarios.

As previously discussed in Section 2.4.6 (existing conditions), westbound left turn queuing was observed to overspill onto Lynn Valley Road in the PM peak due to the minimal queuing storage at the intersection. If the District proceeds with removal of the eastbound left turn at the adjacent intersection of Lynn Valley Road & Ross Road, it is recommended to extend the westbound left turn bay to 30m, to accommodate PM peak hour queues.

Considering the high delays for northbound left turn vehicles and the high pedestrian volumes during the AM and PM peak hour periods (frequent pedestrian calls at the intersection), the District should consider the option of converting the pedestrian signal to a full traffic signal. This location would be coordinated with the other signals on Lynn Valley Road and would alleviate the left turn vehicle queues. Bunt advises that the District consider this option in parallel with the nature of the Mall Access and the existing queuing that has been observed to overspill from the Mall Access into the intersection due to the short throat length at the Mall access. Alternatively, the District could consider restricting this location to right-in, right-out only (eastbound) improving pedestrian safety by removing vehicle conflict points. Note, Bunt has not undertaken a detailed analysis of the implications on the rest of the transportation network under this right turn in & right turn out option. Additionally, Bunt notes that this may not be a preferred option as it affects / reduces accessibility to the Mall.

Lynn Valley Road & 27th Street / Fromme Road

In the future, demand for the eastbound left turn at this intersection is expected to increase, especially in the AM peak hour. Queues are expected to exceed the available left turn storage in the 2042 horizon year, and especially so in Scenario B. In the Scenario B 2042 AM peak hour, the eastbound left turn is at LOS F (delay greater than 80 seconds) with a v/c ratio of 1.09, with an overall intersection v/c ratio of 0.97.

As the current traffic signal does not have a dedicated left turn phase for eastbound traffic, Bunt recommends adding a protected-permissive eastbound left turn signal at the intersection to alleviate left turn queuing.

Fromme Road & 29th Street

In the 2032 horizon year total conditions, the overall intersection is expected to reach an LOS E which is above the threshold of overall intersection operations (all individual vehicle movements are within operational thresholds). In the 2042 horizon year, traffic operations at the all-way stop intersection are expected to operate worse than performance thresholds in the background traffic condition in both scenarios (background and total traffic), indicating that the intersection will be above capacity under its current configuration by the horizon year, with long queues during the peak hour periods. These results indicate that the site traffic in 2032 has a marginal impact on the threshold triggers with the majority of the capacity and delays as a result of background traffic growth. To alleviate queues and improve 2042 traffic operations, Bunt recommends the District implement full traffic signal with dedicated left-turn bays to support the background conditions which are projected to operate at LOS F prior to site traffic.

3.2.5 Future Mitigated Traffic Operations

As discussed in the previous section, Bunt proposes several mitigations to the road network to improve operations in the 2042 horizon year. Bunt analyzed the effects of the following mitigation measures onto the study network under 2042 Total traffic conditions:

- Provisions of a protected-permissive eastbound left turn signal phase at the Lynn Valley Road & Fromme Road/27th Street intersection.
- Replacement of the all-way stop configuration at 29th Street & Fromme Road with a full traffic signal, with dedicated left turning bays. The District notes that the addition of dedicated left-turn bays will need to be balanced with existing right-of-way constraints, as well as consideration for bicycle lanes and on-street parking.

Note that for the Lynn Valley Road & Mall Access intersection, where Bunt suggests replacing the pedestrian signal with a full traffic signal, HCM2000 and SimTraffic operations results already show the intersection in the full signal operation in the previous sections.

As shown through the background and total operations results, these traffic mitigations would be required for sufficient traffic operation on the roadway network regardless of the proposed development. The addition of the eastbound left turn phase at Lynn Valley Road & Fromme Road / 27th Street would be especially vital for implementation in Scenario B, where more traffic would be routed in that direction.

*Note: The mitigations in this section are based on the intersection configurations and trip generation assumptions outlined in Section 3.2 of the traffic analysis. Results and corresponding mitigation measures changes as higher trip generation assumptions are evaluated in the subsequent sensitivity analysis sections (**Sections 3.3** and beyond).*

Tables 3.14 and **3.15** present the traffic operations in the 2042 horizon year for the mitigated study intersections, for Scenario A and Scenario B, respectively.

Table 3.14: Opening Day + 10 Year (2042) Mitigated Total Vehicle Operations, Scenario A

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*C*	*0.71*	-	*C*	*0.67*	-
	EB L	C	0.64	50	B	0.41	45
	EB T	B	0.46	70	C	0.62	95
	WB L	C	0.11	**25**	B	0.13	**15**
	WB TR	C	0.70	85	C	0.59	70
	NB L	D	0.85	**35**	D	0.75	**35**
	NB TR	C	0.43	115	C	0.44	85
	SB LT	D	0.56	**45**	D	0.54	**40**
	SB R	D	0.31	35	C	0.17	31
Fromme Road & 29th Street *(signalized)*	*OVERALL*	*A*	*0.51*	-	*A*	*0.49*	-
	EB L	A	0.41	40	A	0.25	35
	EB TR	A	0.39	45	A	0.52	50
	WB L	A	0.08	20	A	0.09	15
	WB TR	A	0.45	40	A	0.40	40
	NB L	A	0.26	30	A	0.16	20
	NB TR	A	0.30	40	A	0.25	35
	SB L	A	0.07	20	A	0.10	25
	SB TR	A	0.56	60	A	0.47	40

Table 3.15: Opening Day + 10 Year (2042) Mitigated Total Vehicle Operations, Scenario B

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Fromme Road/27th Street (signalized)	*OVERALL*	*C*	*0.81*	-	*C*	*0.66*	-
	EB L	C	0.81	65	B	0.62	45
	EB T	B	0.43	60	B	0.58	85
	WB L	C	0.11	**30**	B	0.12	**15**
	WB TR	C	0.76	80	C	0.63	75
	NB L	D	0.85	**35**	D	0.75	**35**
	NB TR	C	0.43	115	C	0.44	85
	SB LT	D	0.56	50	D	0.54	50
	SB R	D	0.22	**35**	C	0.16	**35**
Fromme Road & 29th Street (signalized)	*OVERALL*	*A*	*0.50*	-	*A*	*0.49*	-
	EB L	A	0.41	35	A	0.25	35
	EB TR	A	0.39	45	A	0.51	45
	WB L	A	0.08	15	A	0.09	20
	WB TR	A	0.45	40	A	0.40	40
	NB L	A	0.26	30	A	0.16	20
	NB TR	A	0.38	45	A	0.37	35
	SB L	A	0.08	15	A	0.11	20
	SB TR	A	0.54	50	A	0.46	45

With the traffic network mitigations in place, traffic operations at both intersections improve significantly. Acceptable traffic performance thresholds achieved at all the intersection legs and for the intersection overall at the two intersections. The eastbound left turn phase added at the Lynn Valley Road & Fromme Road intersection, eastbound left turn & through movement queues are reduced, with left turns queues being contained within the left turn bay storage.

However, westbound left, northbound left, southbound right 95th percentile queues exceed the available storage length at the Lynn Valley Road & Fromme Road intersection. Practically only the westbound left storage lane can be extended by adjusting the median (30m total storage lane required). Northbound left has restricted road width available to extend the left storage lane and the southbound right extends into a no stopping zone in front of the fire department.

Note: DNV Fire Hall #2 is located on Fromme Road, and the recommended traffic signal should consider traffic signal pre-emption for Fire purposes as per the direction of the DVN Fire Department.

3.3 Trip Generation Sensitivity Analysis

Based on discussion with the District and the District review comments, a sensitivity analysis has been undertaken for the ultimate horizon year (Opening day + 10 Year Total (2042)) to review a higher site vehicle trip generation scenario.

3.3.1 Site Traffic – Sensitivity Scenario

District staff has outlined that a reduced residential trip generation factor to a minimum of 0.30 total trips per unit in the AM and PM peak hours may be applied for multifamily residential land uses. In addition to the residential rate reduction outlined above, no further rate reductions have been applied to any of the land uses, however existing site trips have been removed for the traffic modeling. These trip rates and the estimated peak hour vehicle trips are shown in **Table 3.16** and **Table 3.17**.

Table 3.16: Peak Hour Vehicle Trip Rates – Sensitivity Scenario

LAND USE	L.U.C	AM PEAK HOUR			PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Residential - Multifamily Mid-Rise	221	23%	77%	0.30	64%	36%	0.30
Retail - Strip Retail Plaza < 40K	822	55%	45%	3.93	50%	50%	6.29
Office	710	88%	12%	1.24	16%	84%	1.18

Note: L.U.C – ITE Land Use Code

Table 3.17: ITE Estimated Peak Hour Vehicle Trips – Sensitivity Scenario

LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR		
		In	Out	Total	In	Out	Total
Residential	397 dwelling units	27	92	119	76	43	119
Retail	11,265 sqft	24	20	44	36	36	72
Office	13,480 sqft	15	2	17	3	13	16
TOTAL		**66**	**114**	**180**	**115**	**92**	**207**

Note: Commercial use allocation is undefined, however for the purposes of traffic modelling a split between Retail and Office has been assumed. Additionally, since the traffic modelling has been undertaken the commercial area being proposed has changed to ~25,090 sqft (2,331m²) this change will have negligible effect on the trip generation (i.e. 1 trip in the PM peak hour).

The sensitivity scenario increases the trip generation by 16% in the AM peak hour and 28% in the PM peak hour before the removal of existing site trips.

Net traffic forecasts (i.e. removal of the existing site trips) using the Districts preferred trip generation method are presented in **Table 3.17a.** After removing site trips there are effectively a total of 147 new trips in the AM peak hour and a total of 57 new trips in the PM peak hour compared to the original scenario.

Table 3.17a: Net Vehicle Trips Generated by the Site – Sensitivity Scenario

	AM PEAK HOUR			PM PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Total Future Vehicle Trips (NCHRP External Vehicle Trips)	66	114	180	115	92	207
Total Existing Vehicle Trips	-17	-16	-33	-80	-70	-150
NET EXTERNAL VEHICLE TRIPS	**49**	**98**	**147**	**35**	**22**	**57**

The distribution of the updated site traffic forecasts and 2042 total traffic forecasts are shown in **Exhibit 3.12** and **Exhibit 3.13**, for Scenario A and Scenario B respectively.

Exhibit 3.14 presents the Opening day + 10 year total traffic forecasts using the District's preferred site trip generation.

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Exhibit 3.11

Site Traffic Forecasts, Scenario A - Sensitivity Scenario

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

bunt & associates

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Exhibit 3.12

Site Traffic Forecasts, Scenario B - Sensitivity Scenario

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

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Exhibit 3.13

Opening Day + 10 Year (2042) Total Traffic Forecasts, Scenario B - Sensitivity Scenario

1246 – 1268 Lynn Valley Road
04-25-0159 January 2026

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3.3.2 Future Conditions Analysis Assumptions – Sensitivity Scenario

The modelling assumptions for the sensitivity scenario are consistent with the previous modelling assumptions.

3.3.3 Future Total Traffic Operations with Sensitivity Scenario

The total traffic operations results for the study network in the Opening Day + 10 Year (2042) horizon year Scenario B with the Districts updated trip generation is presented in **Table 3.18.**

Table 3.18: Opening Day +10 Year (2042) Total Vehicle Operations, Scenario B – Sensitivity Scenario

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	***0.88***	-	*C*	*0.83*	-
	EB L	C	0.67	40	D	0.79	50
	EB T	B	0.52	65	D	0.83	80
	EB R	A	0.13	0	A	0.18	0
	WB L	C	0.53	**100**	D	0.79	**80**
	WB TR	D	**0.90**	195	D	0.86	155
	NB L	D	0.80	110	C	0.68	90
	NB TR	C	0.58	75	C	0.55	80
	SB LT	C	0.63	185	C	0.43	60
	SB R	A	0.19	65	A	0.17	40
Lynn Valley Road & Ross Road *(unsignalized)*	*OVERALL*	-	-	-	-	-	-
	SB R	C	0.28	20	C	0.24	20
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)* minor stop represented by ()	*OVERALL*	*A*	*0.31*	-	*A*	*0.29*	-
	EB TR	B (A)	0.25	45	A (A)	0.37	45
	WB L	A (A)	0.14	**15**	B (A)	0.34	**10**
	WB T	A (A)	0.38	40	A (B)	0.35	40
	NB L	C (E)	0.08	15	C **(F)**	0.08	15
	NB R	A (B)	0.04	15	A (C)	0.10	20
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*B*	*0.45*	-	*B*	*0.49*	-
	EB L	A	0.13	**15**	A	0.11	**20**
	EB TR	A	0.20	25	A	0.30	40
	WB L	A	0.07	15	A	0.17	25
	WB TR	A	0.39	40	A	0.35	35
	NB L	C	0.16	20	C	0.47	35
	NB TR	C	0.18	25	C	0.48	50
	SB L	D	0.67	**40**	E	0.86	**45**
	SB TR	C	0.27	40	C	0.43	50
Lynn Valley Road & Fromme Road/27th Street *(signalized)*	*OVERALL*	*D*	***1.01***	-	*C*	*0.76*	-
	EB L	**F**	**1.16**	**95**	D	0.82	80
	EB T	B	0.43	350	B	0.57	85
	WB L	A	0.10	20	B	0.14	20
	WB TR	B	0.52	50	B	0.44	65
	NB L	D	0.86	**35**	D	0.77	**40**
	NB TR	C	0.44	130	C	0.45	90
	SB LT	D	0.56	50	D	0.56	45
	SB R	D	0.74	35	D	0.45	35

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

Table continued on the next page

Table 3.18: Opening Day +10 Year (2042) Total Vehicle Operations, Scenario B – Sensitivity Scenario – Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	***F***	-	-	***E***	-	-
	EB LTR	**F**	**1.06**	120	**F**	**1.03**	195
	WB LTR	E	0.81	60	D	0.69	50
	NB LTR	**F**	**0.95**	45	D	0.71	60
	SB LTR	**F**	**1.06**	95	D	0.77	75
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	15	C	0.03	10
	WB LTR	D	0.37	25	C	0.33	20
	NB LTR	A	0.01	15	A	0.01	15
	SB LTR	A	0.02	35	A	0.01	15
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.10	15	B	0.10	15
	NB LTR	-	0.25	5	-	0.22	15
	SB TR	A	0.01	10	A	0.01	15
Baird Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	10	B	0.02	10
	WB LTR	B	0.00	5	B	0.00	5
	NB LTR	A	0.02	10	A	0.02	5
	SB LTR	A	0.00	0	-	0.00	0
Ross Road & Baird Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.05	10	A	0.08	20
	WB TR	-	0.06	5	-	0.07	5
	SB LR	B	0.28	20	C	0.28	20

With the adjusted trip generation traffic operations on the transportation network are not significantly different to previously reported results. This is due to the traffic being distributed across the Transportation network.

Lynn Valley Road & Mountain Highway

The intersection of Lynn Valley Road & Mountain Highway experiences queues in the westbound direction for AM and PM peak hours as well as capacity constraints for westbound through and overall intersection in the AM peak hour. The overall V/C is slightly higher in the sensitivity scenario (0.88 AM and 0.83 PM) compared to (0.87 AM and 0.82 PM) in the original analysis.

Potential mitigation options for signal timing in the 2042 horizon year are limited without changes in intersection laning and cycle length, as changes in signal green time for one direction (i.e. north – southbound) may have an adverse effect on queues in another direction (i.e. east – westbound).

Bunt recommends that the District explore options to adjust laning at the intersection to increase capacity in certain traffic directions, while maintaining the current signal cycle lengths.

Lynn Valley Road & Mall Access

The overall V/C is higher in the sensitivity scenario (0.28 AM and 0.24 PM) compared to (0.27 AM and 0.20 PM) in the original analysis and the LOS moves from a B to a C in the PM peak hour.

As noted previously in Section 2.7.2, this pedestrian-controlled signalized intersection was modelled as both an actuated signal and as a minor road stop intersection, with true intersection performance expected to fall between the results of the two metrics and likely will operate sufficiently. The westbound left should be extended to 40m to prevent blocking of westbound through traffic.

Lynn Valley Road & 29th Street

The intersection of Lynn Valley Road & 29th Street is not expected to experience any capacity constraints or delays which exceeds the allowable thresholds. However, the eastbound left turn lanes should be extended to accommodate the 20m 95th percentile queue. Similarly, with the southbound left 95th percentile queue is expected to exceed the available storage length however there may be limited ability to extend based on the current road

Bunt notes that the following assumption was made:

- No site traffic was routed to use the eastbound left turn (instead all left movements for the site and the background traffic as a result of the westbound left turn closure at Ross Road are made at the Lynn Valley Road & Fromme Road/27th Street intersection which is a more direct route).

Therefore this queue reported is associated with background growth.

However, as an additional test, for the closure of the eastbound left-turn at Lynn Valley Road and Ross Road, Bunt has redirected the background traffic that currently turns left toward the McDonald's drive-through at Ross Road to instead turn left at E 29th. This impact is reflected in the sensitivity scenario presented in **Section 3.4**. Note: Site traffic is not redirected on this route to access the McDonald's as this would then not be attributed to a site trip.

3.3.4 Future Mitigated Traffic Operations

As per the original scenario, both the Lynn Valley Road & 27th Street / Fromme Road intersection and Fromme Road & 29th Street intersection required mitigation for acceptable traffic operations.

Lynn Valley Road & 27th Street / Fromme Road

As the current traffic signal does not have a dedicated left turn phase for eastbound traffic, Bunt recommends adding a protected-permissive eastbound left turn signal at the intersection to alleviate left turn queuing.

Fromme Road & 29th Street

Bunt recommends a full traffic signal is implemented at the intersection with dedicated left turn bays to improve operations.

Operational traffic modelling results of the mitigations described are presented in **Table 3.19.**

Table 3.19: Opening Day + 10 Year (2042) Mitigated Total Vehicle Operations, Scenario B – Sensitivity Scenario

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Fromme Road/27th Street (signalized)	*OVERALL*	*C*	*0.82*	-	*C*	*0.67*	-
	EB L	D	0.83	75	B	0.63	50
	EB T	B	0.42	85	B	0.57	80
	WB L	C	0.13	15	B	0.15	25
	WB TR	C	0.79	85	C	0.65	75
	NB L	D	0.86	35	D	0.76	40
	NB TR	C	0.44	150	C	0.45	90
	SB LT	D	0.57	60	D	0.56	55
	SB R	C	0.18	35	C	0.16	35
Fromme Road & 29th Street (signalized)	*OVERALL*	*A*	*0.50*	-	*A*	*0.49*	-
	EB L	A	0.42	35	A	0.26	35
	EB TR	A	0.39	45	A	0.52	50
	WB L	A	0.08	15	A	0.09	15
	WB TR	A	0.44	45	A	0.40	35
	NB L	A	0.26	30	A	0.16	25
	NB TR	A	0.40	50	A	0.38	40
	SB L	A	0.08	25	A	0.11	25
	SB TR	A	0.55	60	A	0.46	50

Consistent with the non-sensitivity scenarios, with the traffic network mitigations in place, traffic operations at both intersections improve significantly. In addition to these mitigations Bunt recommends that the westbound left storage lane at the Lynn Valley Road & Fromme Road intersection be extended by adjusting the median to accommodate the 95th percentile queue (25 - 30 total storage lane required).

The results compared to the original scenario are included slightly higher V/C ratios and slightly longer 95th percentile queues.

3.4 Background Trip Redistribution Analysis

In addition to the site trip generation sensitivity analysis discussed in the previous section, Bunt conducted an additional background trip redistribution sensitivity analysis for the 2042 Total Traffic scenario following additional comments from District staff.

3.4.1 Background Traffic - Fromme Road & 29th Street Redistribution

Bunt reviewed a minor redistribution of background network trips that as part of Scenario B, in which the eastbound left turn at Lynn Valley Road & Ross Road is closed. District staff noted that some trips travelling eastbound on Lynn Valley Road that would've completed a left turn at Ross Road to access the nearby retail complex and McDonald's drive thru facility (via its north access) would turn into that complex at 29th Street instead (via its south access), and as such would turn left from Lynn Valley Road onto 29th Street.

In the previously explored scenarios, trips are being redistributed by turning left from Lynn Valley Road eastbound onto Fromme Road northbound, then turning right onto Ross Road eastbound. Per the District comments, Bunt

redirected approximately 75% of the background redistributed trips from currently turning left onto Fromme Road and instead turning left onto 29th Street and into the retail complex, consisting of 19 and 20 trips in the AM and PM peak periods, respectively.

3.4.2 Future Conditions Analysis Assumptions – Background Trip Redistribution Scenario

The modelling assumptions for the background trip redistribution scenario are consistent with the previous modelling assumptions.

3.4.3 Future Total Traffic Operations with Background Trip Redistribution Scenario

The total traffic operations results for the study network in the Opening Day + 10 Year (2042) horizon year Scenario B with the District-requested background trip redistribution is presented in **Table 3.20.**

Table 3.20: Opening Day +10 Year (2042) Total Vehicle Operations, Scenario B – Background Trip Redistribution Scenario

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Mountain Highway *(signalized)*	*OVERALL*	*C*	***0.88***	-	*C*	*0.83*	-
	EB L	C	0.67	40	D	0.79	50
	EB T	B	0.52	60	D	0.83	80
	EB R	A	0.13	0	A	0.18	0
	WB L	C	0.53	**105**	D	0.79	**85**
	WB TR	D	**0.90**	265	D	0.86	200
	NB L	D	0.80	85	C	0.68	95
	NB TR	C	0.58	65	C	0.55	80
	SB LT	C	0.63	190	C	0.43	70
	SB R	A	0.19	**65**	A	0.17	**45**
Lynn Valley Road & Ross Road *(unsignalized)*	*OVERALL*	-	-	-	-	-	-
	SB R	C	0.28	20	C	0.24	20
Lynn Valley Road & Mall Access *(pedestrian signal / minor road stop)* minor stop represented by ()	*OVERALL*	*A*	*0.31*	-	*A*	*0.29*	-
	EB TR	B (A)	0.25	50	A (A)	0.37	45
	WB L	A (A)	0.14	**15**	A (A)	0.34	**10**
	WB T	A (A)	0.38	30	A (A)	0.35	40
	NB L	C (E)	0.08	15	C **(F)**	0.08	15
	NB R	A (B)	0.04	15	A (C)	0.10	25
Lynn Valley Road & 29th Street *(signalized)*	*OVERALL*	*B*	*0.45*	-	*B*	*0.49*	-
	EB L	A	0.20	**20**	A	0.18	**25**
	EB TR	A	0.20	35	A	0.30	60
	WB L	A	0.07	15	A	0.17	30
	WB TR	A	0.39	50	A	0.35	35
	NB L	C	0.16	20	C	0.47	35
	NB TR	C	0.18	30	C	0.48	50
	SB L	D	0.67	**40**	E	0.86	**40**
	SB TR	C	0.27	40	C	0.43	45

Notes: 1) Results in brackets represent the unsignalized, minor road stop condition for the intersection.

Table continued on the next page

Table 3.20: Opening Day +10 Year (2042) Total Vehicle Operations, Scenario B – Background Trip Redistribution Scenario – Continued

INTERSECTION / TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Fromme Road/27th Street (signalized)	*OVERALL*	*C*	***0.95***	-	*C*	*0.70*	-
	EB L	**F**	**1.05**	**100**	D	0.72	75
	EB T	B	0.44	320	B	0.59	105
	WB L	A	0.10	10	B	0.15	15
	WB TR	B	0.52	45	B	0.44	75
	NB L	D	0.86	**35**	D	0.77	**35**
	NB TR	C	0.44	155	C	0.45	75
	SB LT	D	0.56	40	D	0.56	45
	SB R	D	0.74	30	D	0.45	30
Fromme Road & 29th Street *(all way stop)*	*OVERALL*	***F***	-	-	***E***	-	-
	EB LTR	**F**	**1.04**	120	**F**	**1.01**	200
	WB LTR	E	0.79	55	D	0.68	65
	NB LTR	**F**	0.89	55	D	0.65	60
	SB LTR	**F**	**1.03**	90	D	0.76	70
Fromme Road & Ross Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	10	C	0.03	10
	WB LTR	D	0.37	35	C	0.33	20
	NB LTR	A	0.01	15	A	0.01	15
	SB LTR	A	0.02	25	A	0.01	10
Fromme Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	WB LR	B	0.10	15	B	0.10	15
	NB LTR	-	0.25	5	-	0.22	10
	SB TR	A	0.01	10	A	0.01	15
Baird Road & Harold Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LTR	B	0.03	10	B	0.02	10
	WB LTR	B	0.00	5	B	0.00	5
	NB LTR	A	0.02	5	A	0.02	5
	SB LTR	A	0.00	0	-	0.00	0
Ross Road & Baird Road *(minor road stop)*	*OVERALL*	-	-	-	-	-	-
	EB LT	A	0.05	10	A	0.08	25
	WB TR	-	0.06	5	-	0.07	5
	SB LR	B	0.27	20	C	0.28	20

With the adjusted background trips, traffic operations on the transportation network are not significantly different to previously reported results, with overall intersection v/c ratio seeing improvements. The v/c ratio metric for the eastbound left turn on Lynn Valley Road onto 29th Street increases from 0.13 to 0.20, well within capacity, while the left turn queues increase by 5 metres across both peak hour periods. As reported previously, redistribution results in the movement of background traffic while site traffic is rerouted on the most direct route.

3.4.4 Future Mitigated Traffic Operations

As per the previous scenarios explored, both the Lynn Valley Road & 27th Street / Fromme Road intersection and Fromme Road & 29th Street intersection required mitigation for acceptable traffic operations.

Lynn Valley Road & 27th Street / Fromme Road

As the current traffic signal does not have a dedicated left turn phase for eastbound traffic, Bunt recommends adding a protected-permissive eastbound left turn signal at the intersection to alleviate left turn queuing.

Fromme Road & 29th Street

Bunt recommends a full traffic signal is implemented at the intersection with dedicated left turn bays to improve operations.

Operational traffic modelling results of the mitigations described are presented in **Table 3.21.**

Table 3.21: Opening Day + 10 Year (2042) Mitigated Total Vehicle Operations, Scenario B – Background Trip Redistribution Scenario

INTERSECTION / TRAFFIC CONTROL	Movement	AM			PM		
		LOS	v/c	95th Q (m)	LOS	v/c	95th Q (m)
Lynn Valley Road & Fromme Road/27th Street (signalized)	*OVERALL*	*C*	*0.79*	-	*C*	*0.66*	-
	EB L	C	0.77	50	B	0.57	35
	EB T	B	0.44	60	B	0.59	90
	WB L	C	0.13	25	B	0.15	20
	WB TR	C	0.76	85	C	0.64	80
	NB L	D	0.86	35	D	0.76	35
	NB TR	C	0.44	120	C	0.45	100
	SB LT	D	0.57	40	D	0.56	55
	SB R	C	0.18	35	C	0.16	35
Fromme Road & 29th Street (signalized)	*OVERALL*	*A*	*0.50*	-	*A*	*0.49*	-
	EB L	A	0.42	40	A	0.26	35
	EB TR	A	0.39	55	A	0.52	50
	WB L	A	0.08	15	A	0.09	15
	WB TR	A	0.44	40	A	0.40	35
	NB L	A	0.26	35	A	0.16	25
	NB TR	A	0.37	40	A	0.34	35
	SB L	A	0.08	25	A	0.11	20
	SB TR	A	0.55	50	A	0.46	45

Consistent with the non-sensitivity and sensitivity scenarios previously explored, traffic operations at both intersections improve significantly with the traffic network mitigations in place. As previously noted, Bunt recommends that the westbound left storage lane at the Lynn Valley Road & Fromme Road intersection be extended by adjusting the median to accommodate the 95th percentile queue (25 - 30 total storage lane required).

The traffic performance LOS results remain similar to the non-sensitivity and sensitivity scenarios, with the v/c ratio results the same, or slightly improved compared to the non-sensitivity scenario. Across the intersection movements, 95th percentile queues see slight increases as compared. to the non-sensitivity scenario.

4. SITE PLAN DESIGN REVIEW

4.1 Site Access Design

The site is proposing one vehicular access from Baird Road which will provide access to the buildings' underground parkade, commercial loading, and waste collection areas. On the site, residential parking, commercial parking, and visitor parking will be accessed via the ramp leading to the underground.

Further to the vehicle access, the development will be providing enhanced pedestrian access and connections on the site frontage and through the site as listed below:

- Sidewalk along the full site frontage on Baird Road (contributing to the initiative of providing students with a continuous sidewalk on Baird Road).
- Lynn Valley Town Center Pedestrian Pathways one connecting north-south from the lane to Lynn Valley Road and the other providing an east-west connection from Baird Road through the site.
- A 'Covered Breezeway' connecting the site to the existing frequent transit stop via Lynn Valley Road.

4.2 Parking & Loading Supply

The sections below presents the vehicle, bicycle parking and loading supply and requirements. Requirements have been calculated in accordance with the District of North Vancouver Zoning Bylaw 1965, Bylaw 3210, the Alternative Vehicle Parking Rates (AVPR) Guidelines and the Bicycle Parking and End-of-Trip Facilities (BPEF) Guidelines.

4.2.1 Vehicle Parking

Table 4.1 presents the vehicle parking supply requirement based on Bylaw 3210 and the proposed supply of the Development.

Table 4.1: Vehicle Parking Supply Bylaw 3210 Requirement

LAND USE	DENSITY	BYLAW RATE	BYLAW SUPPLY REQUIREMENT (SPACES)	PROPOSED SUPPLY (SPACES)	DIFFERENCE (SPACES)
Residential & Residential Visitor**	397 D.U & ~363,300 ft² GFA	1 space per unit plus 1 per 100m² of residential GFA & 0.25 spaces per unit for visitors (inclusive of the residential rate)	535 (inclusive of 107 for visitors)	390 residents + 40 visitors	-105
Retail / Office	2,331m²	1 per 45m²	52	52	0
TOTAL			587	482	-105

Note: D.U. = Dwelling Units

* Residential Visitor space requirements are inclusive of the residential rate.

The development is proposing 482 vehicle spaces which is 105 spaces below the bylaw requirement. Due to this the development is seeking use of the AVPR process. **Table 4.2** outlines the base parking reductions (for the full site buildout) based on the AVPR policy.

The site is located less than 20m from FTN and is a mixed-use site and therefore is eligible for both transit and shared parking reductions which are reflected in Table 4.2. The AVPR allows for reduction parking spaces based on a shared parking analysis using the lesser of the Urban Land Institute (ULI) Shared Parking methodology and 0.05 spaces per unit. This number is a maximum of 20 spaces which can be shared between residential visitors and commercial land uses. Details and assumptions of the ULI shared parking calculations are presented in **Appendix E**.

Table 4.2: AVPR Rates & Reductions (Full Site Buildout)

LAND USE		DENSITY	BASE AVPR RATE	BASE AVPR REQUIREMENT (SPACES)	TRANSIT REDUCTION (SPACES)	SHARED PARKING REDUCTION (SPACES)	AVPR REQUIREMENT AFTER REDUCTIONS (SPACES)
Residential - Strata	Studio	0 D.U	1.05 per D.U	0	-20	-	378
	1-Bed	122 D.U	1.05 per D.U	129			
	2-Bed	185 D.U	1.25 per D.U	232			
	3-Bed	26 D.U	1.4 per D.U	37			
Residential – Rental	Studio	0 D.U	0.7 per D.U	0	-3	-	58
	1-Bed	20 D.U	0.7 per D.U	14			
	2-Bed	12 D.U	0.85 per D.U	11			
	3-Bed	32 D.U	1.1 per D.U	36			
Residential Visitor		397 D.U.	0.1 per D.U.	40	-	-	40
Retail		2,331m²	1 per 40m²	59	-3	-3 (up to -20 possible)	53
Office							
TOTAL				558	-26	-3	529

Note: Based on Bunt's understanding from past projects in the District of North Vancouver standard rounding rules apply. However, in this case AVPR calculations have been rounded up consistent with the architectural set.

Given the phased buildout schedule, Building 1 is the only phase that provides shared visitor and commercial parking spaces, with up to 3 shared stalls available. At full buildout, the site will have the potential for up to 20 shared parking spaces, which would further reduce the AVPR requirement to 512 stalls.

Table 4.3 compares the parking requirements (for the full site buildout) and the provisions

Table 4.3: Vehicle Parking AVPR Requirements & Provisions (Full Site Buildout)

LAND USE		DENSITY	BASE AVPR REQUIREMENT (SPACES)	AVPR REQUIREMENT AFTER BASE REDUCTIONS (SPACES)	PROPOSED PARKING RATE	PROPOSED (SPACES)	DIFFERENCE [AFTER REDUCTIONS – PROPOSED] (SPACES)
Residential - Strata	Studio	0 D.U	398	378	1 per D.U	333	-45
	1-Bed	114 D.U					
	2-Bed	189 D.U					
	3-Bed	30 D.U					
Residential – Rental	Studio	0 D.U	61	58	0.70 – 1.0 per D.U	57	-1
	1-Bed	20 D.U					
	2-Bed	12 D.U					
	3-Bed	32 D.U					
Residential Visitor		397 D.U.	40	40	0.1 per D.U.	92 (3 of which are shared)*	-1
Retail		11,265 ft^2	59	53	1 per 45m^2		
Office		13,480 ft^2					
TOTAL			558	529		482	-47

* The site is currently providing 3 shared spaces, and the rest are distributed across Residential Visitor and Commercial spaces in proportion to the requirements. Note: proposed spaces have been rounded up.

As the tables indicate, the base DNV AVPR policy requires 558 vehicle spaces, and after transit and shared parking reductions 529 spaces are required. The project is proposing 482 vehicle parking spaces, which represents a difference of 47 spaces below the base reductions allowable in the AVPR when considering transit and shared parking reductions.

Table 4.4 shows that the development is within the minimum parking threshold of the AVPR for the full site buildout. Note that the minimum parking threshold in Table 4.4 is theoretical and cannot always be practically achieved.

Table 4.4: AVPR - Vehicle Parking Minimums & Provision (Full Site Buildout)

LAND USE		DENSITY	BASE AVPR RATE	MINIMUM AVPR RATE	MINIMUM AVPR REQUIREMENT (SPACES)	PROPOSED (SPACES)	DIFFERENCE (SPACES)
Residential - Strata	Studio	0 D.U	1.05 per D.U	0.9 per D.U	300	333	+33
	1-Bed	114 D.U	1.05 per D.U				
	2-Bed	189 D.U	1.25 per D.U				
	3-Bed	30 D.U	1.4 per D.U				
Residential – Rental	Studio	0 D.U	0.7 per D.U	0.5 per D.U	32	57	+25
	1-Bed	20 D.U	0.7 per D.U				
	2-Bed	12 D.U	0.85 per D.U				
	3-Bed	32 D.U	1.1 per D.U				
Residential Visitor		397 D.U.	0.1 per D.U.	0.05 per D.U.	20	92	+22
Retail		11,265 ft²	1 per 40m²	1 per 45m2	50		
Office		13,480 ft²					
TOTAL					402	482	+80

Note: Minimum calculated standard rounding rules and proposed is rounded up.

To further expand on Table 4.4, the APVR policy allows for reduction towards the minimum requirement with selected Transportation Demand Management (TDM) measures, such as car share, unbundling of parking and parking pricing. At this time the development is only seeking to utilize shared parking and transit proximity as a measure for reductions (outlined in Table 4.2).

As the site is located within the neighbourhood of the Lynn Valley Town Centre and a designated Municipal Town Centre in the District of North Vancouver's OCP, the area is envisioned as a compact, mixed-use, transit-oriented hub, where increased residential and commercial density is supported by integrated active transportation and transit infrastructure. The OCP explicitly encourages reduced reliance on private automobiles and supports the implementation of TDM strategies, including reduced parking supply to promote alternative transportation choices.

In this context, providing lower parking provisions aligns with the OCP's policy direction and acts as a TDM measure in itself, attracting residents who are more likely to rely on one vehicle or no vehicle households, and commercial patrons who access the site via walking, cycling, or transit.

The site intends on providing parking provisions for 1 space per unit for Residential Strata and between 1 - 0.7 spaces per unit for Residential Rental. Recent Metro Vancouver Regional Parking Study[9] (Which Bunt was the primary consultant) suggests that current parking standards often exceed demand, especially in well-located, mixed-use urban centres. Findings from the study indicated the following:

[9] Regional Planning Committee Agenda Package - July 3, 2025

- Distance to transit is a predictor of parking supply and occupancy. Near SkyTrain there is an average of 1.09 parking spaces per unit with an average occupancy rate of 64%; in areas without frequent transit there is an average of 1.47 spaces per unit with an average occupancy rate of 68%.

In the case of the subject site, it is located next to a frequent transit bus stop, but not next to a SkyTrain, as such the site would fall between the two findings presented. SkyTrain average occupancy rate: 0.70 per unit, Areas without frequent transit: 1 per unit.

- Parking supply and occupancy are influenced by housing tenure. In strata buildings, an average of 1.3 spaces per unit are provided with an average occupancy of 65%; in market rental buildings, an average of 0.77 spaces per unit are provided with an average occupancy of 67%.

For the subject site, there are both Residential Strata and Rental housing. Strata average occupancy rate: 0.85 spaces per unit, Rental average occupancy rate: 0.52 spaces per unit.

The proposed residential rates by the subject development are above all the observed average rates defined within the Metro Vancouver Regional Parking study for strata and residential and exceeds the minimum threshold specified within the AVPR. In this context, the proposed parking strategy not only aligns with regional demand patterns, but also directly supports municipal and regional objectives for sustainable, multimodal urban development.

It is of Bunt's opinion that the proposed vehicle parking spaces of 482 will adequately be able to support the proposed site.

Accessible Parking Spaces

The DNV Accessible Space Requirements are outlined by the *Accessible Design Policy for Multi-Family Housing*[10]. The development is required to provide 529 parking spaces for the full site buildout. For a requirement of 450+ parking spaces the development must provide 4.5% of the total parking spaces as accessible spaces.

The project requires 24 accessible spaces and is providing 26 spaces therefore meeting the requirement.

Small Car Spaces

The District's Bylaw allows for up to 35% of spaces to be designated as small car spaces. Based on the current plans, 482 vehicle spaces are provided for the full site buildout, of which 0 small car spaces are proposed, which is within the bylaw maximum.

4.2.2 Bicycle Parking

Table 4.5 shows bicycle parking bylaw rates, the District of North Vancouver Parking and End-of-Trip Facilities (DNVBPETF) rates. Class 1 parking spaces are defined as secure spaces with gated entry which are typically located

[10] https://www.dnv.org/community-environment/accessibility

inside a building and reserved for specific users. Class 2 parking spaces are spaces that are provided in a publicly accessible area and may be used by anyone. Class 2 spaces are typically provided via a traditional outdoor bicycle rack; however, the proposed development will be providing these next to the visitor vehicle parking spaces on P1.

Table 4.5: Bicycle Parking Supply Requirement Rates

USE	BYLAW REQUIREMENTS		DNVBPETF	
	Class 1: Long Term*	Class 2: Short Term	Class 1: Long Term	Class 2: Short Term
Multifamily Residential	-	0.2 space / unit	1.5 space / one-bedroom unit plus 2 spaces / multiple bedroom unit	6 spaces / 60 units or part thereof
Commercial	-	3 spaces / 500m²	1 space / 250m²	3 spaces / 500m²
Office	-	3 spaces / 1000m²	1 space / 250m²	3 spaces / 1000m²

*Bylaw does not officially have a Class 1 requirement.

Table 4.6 Presents the required bicycle parking supply and provisions for the proposed development.

Table 4.6: Bicycle Parking Supply Requirement and Provisions

USE	BYLAW REQUIREMENTS		DNVBPETF		PROPOSED	
	Class 1: Long Term*	Class 2: Short Term	Class 1: Long Term	Class 2: Short Term	Class 1: Long Term	Class 2: Short Term
Multifamily Residential: Studio and 1 bed	-	79	213	13	725	51
Multifamily Residential: 2+ beds	-		510	26		
Commercial	-	7	4	7	9	
Office	-	4	5	4		
		89	**732**	**51**	**734**	**51**

*Bylaw does not officially have a Class 1 requirement. Rounding Up has been applied.

The developer proposes to supply 734 Class 1 bicycle spaces, which is 2 spaces above the DNVBPETF requirement and 51 Class 2 spaces, which also meets the DNVBETF requirement.

4.2.3 Service Loading

Loading bays are required for buildings with more than 500m² of floor area on the main floor used for office, personal service, restaurant, retail or service uses (Bylaw: 600-A.15 Parking and Loading Regulations).

The proposed development is not required to provide loading for the site for the residential element. However, the site is providing two loading spaces. One space is being provided for residential loading, and one space is being provided for commercial loading, both are located next to the parkade entrance.

4.2.4 Waste Collection

The planned operations for garbage / recycling collections are to have a Jitney (F350 + Dumpster) vehicle access the P1 garbage and recycling room as well as the use of compactors. The Jitney vehicle would move refuse to the ground level garbage and recycling staging area which will be shared with the loading bay north of the parkade ramp (loading bay should be kept clear on waste collection days). Thereafter, a DNV municipal garbage / recycling truck or private waste removal company garbage would remove the refuse from the site.

It is noted that the design is currently under revision and pending District review, and that the loading bay design will be updated as the project progresses to accommodate District requirements.

4.3 Parking Layout & On-Site Vehicle Circulation

Bunt completed a vehicle swept path analysis in AutoTURN software to confirm functionality of required on-site vehicle maneuvers, including passenger vehicle access/circulation, parking, moving/delivery activities, and waste collection activities.

The swept path analysis is attached in **Appendix F**. The following summarizes the analysis:

- **General:** The development is providing a height clearance within the entire parkade of 2.3m, meeting the accessible parking space height clearance requirements of 2.3m clear space over the drivable path.
- **Exhibit F1.1** illustrates two-way concurrent passenger vehicle site access using one 5.6m design vehicle (P-TAC) and one 4.6m small car (2017 Honda Civic), showing that both can pass each other at the driveway access. No issues were identified.
- **Exhibit F1.2** illustrates fire truck access to the site using one 13.64m DNV fire truck. No issues were identified.
- **Exhibit F2.1** illustrates two-way concurrent passenger vehicle circulation using one 5.6m design vehicle (P-TAC) and one 4.6m small car (2017 Honda Civic), demonstrating that both vehicles can pass each other at ground level and at ramp access. It is recommended to relocate the enter phone to accommodate two-way concurrent passenger vehicle circulation. Bunt recommends shifting the enter phone 6m east.
- **Exhibits F2.2.1**, **F2.2.2**, **F2.3.1**, and **F2.3.2** illustrate two-way concurrent passenger vehicle circulation using one 5.6 m design vehicle (P-TAC) and one 4.6 m small car (2017 Honda Civic) on Level P1, and **Exhibits F2.4.1**, **F2.4.2**, **F2.5.1**, and **F2.5.2** illustrate the same circulation scenario on Level P2. Key recommendations are identified as follows:
    - The 6m transition slope at 10% grade is acceptable. However, Bunt recommends providing a transition slope at 7.5% grade as the preferred design.
    - It is recommended that vehicle reversing distances not exceed 10 m; therefore, relocation of the highlighted existing accessible parking space and adjacent column is recommended to facilitate vehicle turnaround.

- **Exhibit F3** illustrates fire truck circulation on the ground level using one 13.64m DNV fire truck. Bunt recommends ensuring the turn around area as indicated is drivable to accommodate fire truck maneuver.

- **Exhibits F4.1** and **F4.2** illustrate loading vehicle maneuver using one 9.10m Class B loading truck (SU9). Note that loading vehicles are required to complete a turnaround maneuver (blue path) prior to reversing into the commercial loading space (orange path).

  It is noted that the design is currently under revision and pending District review, and that the loading bay design will be updated as the project progresses to accommodate District requirements.

- **Exhibits F5.1, F5.2.1, F5.2.2, F5.3.1, F5.3.2, F5.4.1, and F5.4.2** illustrate waste collection vehicle maneuvers into and out of four attaching areas on Level P1 using the 7.15 m jitney vehicle (Ford F350 with Dumpster) / 7.11 m low-profile compactor (F550 compactor). Key notes and recommendations are identified as follows:

  - It is assumed that some jitney trucks and low-profile compactors will first turn around, as indicated by the orange path, before proceeding to collect the waste, recycling/cardboard dumpsters/bins from the designated waste rooms, as shown by the blue paths.

  - The high clearance for jitney and low-profile compactor waste collection service must be at least 2.1m over the entire driving path, which is achieved with the 2.3m clearance over the entire parking levels. However, a minimum 2.4m height clearance must be maintained in the tipping area of the low-profile compactor.

  - After attaching totes/bins, jitney will transport them to the staging area which is recommended to be shared with the loading area. However, the loading area will be required to be kept clear on waste collection days.

- **Exhibit F5.5** illustrates waste collection vehicle maneuvers into and out of the staging area on ground level using one 7.15 m jitney vehicle (Ford F350 with Dumpster). Key notes/recommendations are identified as follows:

  - After emptying the totes within the staging area, the jitney will return the totes to the garbage rooms in the underground P1 parkade.

  - It is recommended to relocate the enter phone to accommodate jitney truck ingress and egress at the ramp. Bunt recommends shifting the enter phone 6m east.

- **Exhibit F5.6** and **F5.7** illustrate waste collection vehicle maneuvers into and out of the staging area on ground level using one 10.92m garbage truck (Superduty 2) / 10.67m Side Loading Recycling truck. Key notes/recommendations are identified as follows:

  - Operators will transport totes and/or bins from garbage rooms to the tipping and staging area, as indicated, via jitney trucks for subsequent Superduty 2 Truck waste collection servicing.

- Bunt recommends that all the loading bays be kept clear during waste collection periods.
- Height clearance for Superduty 2 must be at least 4.5m over entire driving path and 7.2m in the tipping area.
- Height clearance for Side Loading Recycling truck must be at least 4.5m over entire driving path and 6.1m in the tipping area.
- Bunt recommends maintaining a minimum clearance of 1.75m at the right side of the Side Loading Recycling truck where bins or totes will be picked up.

- **Exhibits F6.1** to **F6.2** illustrate a 5.6 m design vehicle (P-TAC)/4.6m small car (2017 Honda Civic) maneuvering into the Level P1 end space. It is recommended to maintain the highlighted standard parking space dimensions, but to add signage designating the space for small vehicles only.
- **Exhibits F7.1** to **F7.2** illustrate a 5.6 m design vehicle (P-TAC)/4.6m small car (2017 Honda Civic) maneuvering into the Level P2 end space. It is recommended to maintain the highlighted standard parking space dimensions, but to add signage designating the space for small vehicles only. It is also recommended to relocate or remove the highlighted column within the drive aisle to accommodate passenger vehicle (P-TAC) end-stall access maneuvering.

4.4 Sightline Review

Bunt has undertaken a high-level sightline at the approximate location of both access points considering Stopping Sight Distance (SSD). Stopping Sight Distance (SSD) is defined in Section 2.4.3 of the TAC guide as "the sum of the distance travelled during the perception and reaction time and the braking distance", where the braking distance is "the distance that it takes to stop a vehicle once the brakes have been applied". This can refer to either an object on the road or to another vehicle. The minimum criterion for vehicles approaching an intersection is Stopping Sight Distance (SSD) based on design speed, and it is desirable that driveways be designed and located to meet the same sight distance criteria as intersections.

The minimum required SSD is calculated as a function of the design speed, brake reaction time, deceleration rate, and grade. The design speed is assumed to be 40km/h to account for the on-street parking and the nature of a narrow local road. The road topography along Baird Road is noted as:

- A 3% downgrade southbound approaching the site access, and
- A 3% upgrade northbound approaching the site access.

The sightline analysis for the vehicle access is presented in **Exhibit 4.1**. The SSD at the site access is 50m to the north and 31m the south. Although the exhibit indicates the first parked vehicle in the on-street parking bays north and south of the access may partially encroach into the required sight triangle, adequate visibility to expected to be achieved as vehicles at site access would proceed slowly and creep forward, a maneuver commonly observed on low-speed local roads. As such, the available sightline is considered acceptable.

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\Sightline\04-25-0159_1246 & 1268 Lynn Valley Rd_Sightline_V01-2.dwg
2026/03/03 16:29, Plotted by Neil Imada

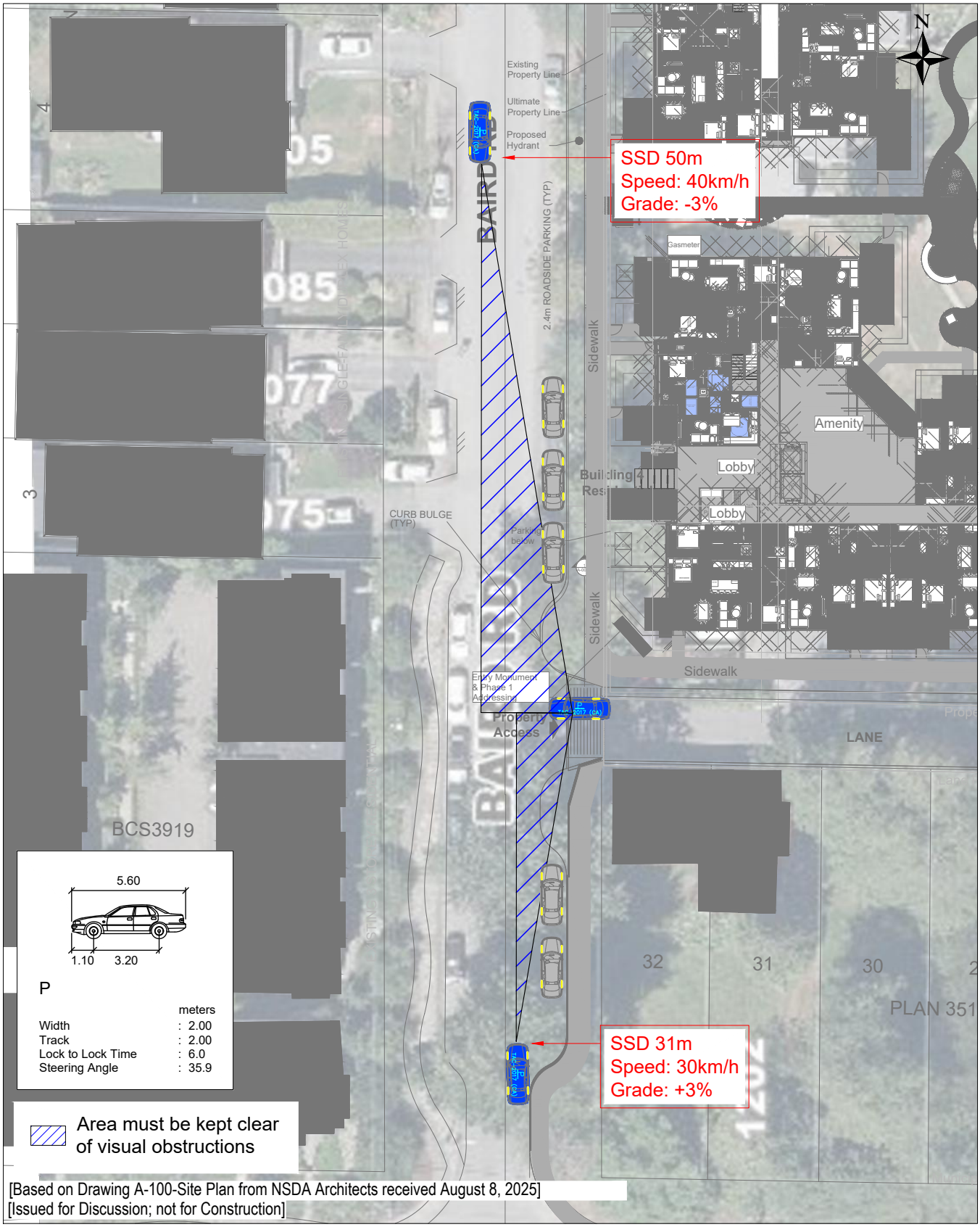


Exhibit 4.1

Baird Road Sightline Review

1246-1268 Lynn Valley Road
04-25-0159 February 2026 Scale 1:500_1 on Letter Prepared by SJ

bunt & associates

5. TRANSPORTATION DEMAND MANAGEMENT PLAN

As part of the DNV AVPR policy, if the District accepts the developer's Transportation Demand Management (TDM) Plan, parking can be provided at a rate lower than the Zoning Bylaw. To use the base rates from the DNV AVPR, an adequate number of TDM points must be achieved. The proposed development falls into the "*Any single or combined mix of land use having total site size of 6000m2 or greater, or propose a GFA of 20,000m2 or greater*" category, which requires 30 TDM points to receive the parking relaxation. **Table 5.1** below lists the proposed TDM measures, and the number of points awarded for each to achieve the 30-point requirement.

Table 5.1: TDM Plan

REFERENCE CODE	TDM MEASURE	TDM POINTS ACHIEVED	
		Residential	Commercial
AT-01	Improved Access to Class 1 Bicycle Parking	2	2
AT-02	Enhanced Class 2 Bicycle Parking	2	2
AT-06	Bicycle Maintenance Facility	2	2
AT-07	Walking Improvements	6	6
AT-09	Transit Stop Improvements	8	8
SP-01	Transportation Marketing Services	2	2
SP-03	Multi-modal Wayfinding Information	2	2
PM-03	Shared Parking	2	2
OT-01	Innovative Strategies	4	4
TOTAL		30	30

The following sections describe the TDM measures listed above and details how they will be implemented for the proposed development.

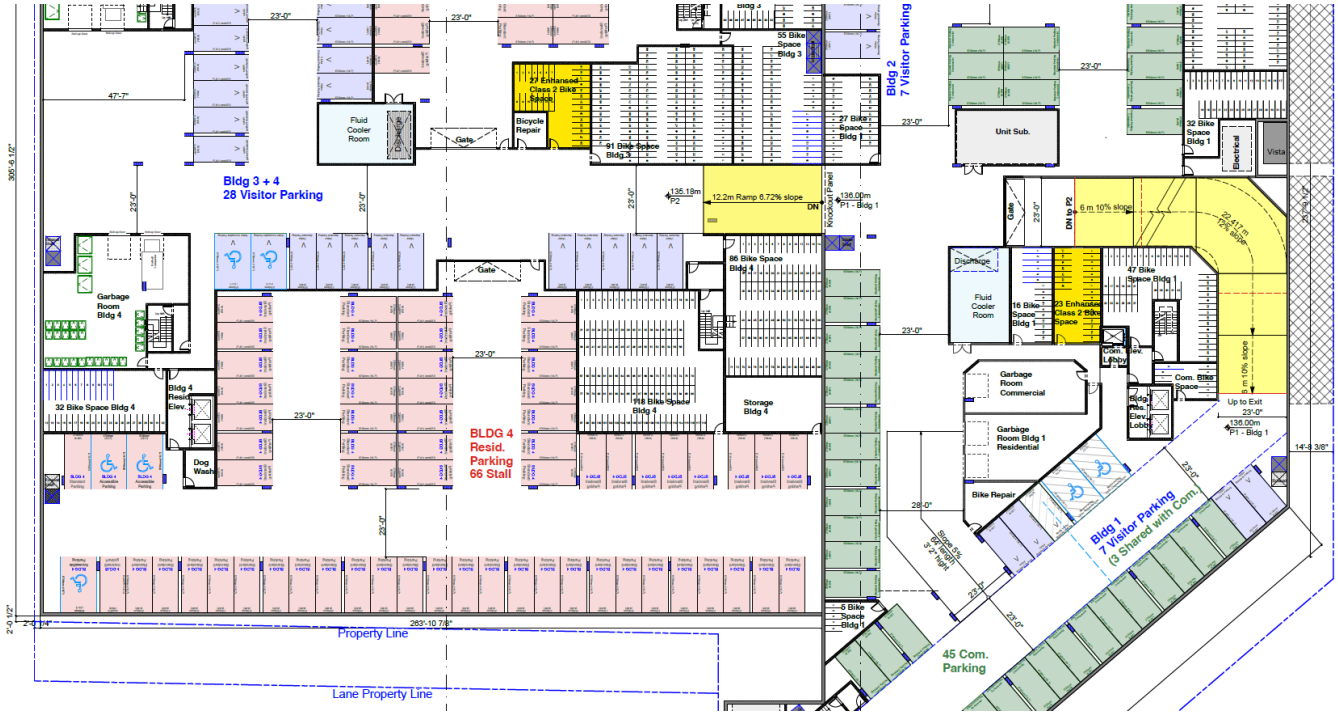
AT-01: Improved Access to Class 1 Bicycle parking

The development will achieve **2 TDM points for residential** and **2 TDM points for commercial** improved access to Class 1 Bicycle Parking. The development will provide excellent design of lighting, finishes, grades, and convenience to bikes including wayfinding. It is envisioned that this will take the form of high-end lighting fixtures in the bicycle precinct, as well as strategic and bold cycle wayfinding which will clearly identify direction to the bicycle storage facilities, maintenance facilities, and bike wash. Bicycle wayfinding will include signage such as, large wall signage and painted floor graphics.

AT-02: Enhanced Class 2 Bicycle Parking

The development seeks to earn **2 TDM points for residential** and **2 TDM points for commercial use** through enhanced Class 2 Bicycle Parking. The development will provide well-lit, secure, indoor facilities on P1. This may include excellent design of lighting, finishes, and convenience. The locations of this Class 2 Bicycle Parking are highlighted in **Figure 6.1** below, with the commercial spaces conveniently located next to the commercial lobby elevator and the residential spaces adjacent to the bicycle repair room.

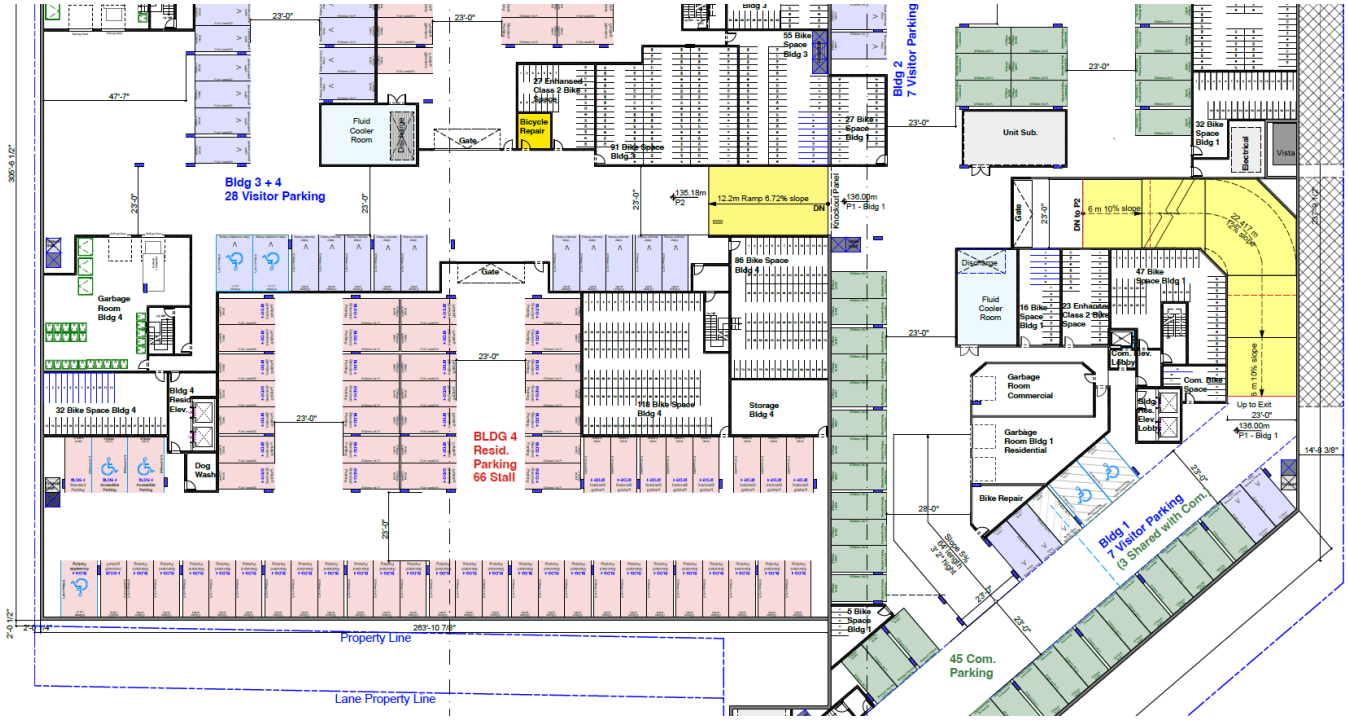
Figure 5.1: Enhanced Class 2 Bicycle Parking Locations



AT-06: Bicycle Maintenance Facilities

The bicycle maintenance and repair area is located on P1, as shown in **Figure 6.2**, which grants **2 residential TDM points** and **2 commercial TDM points**. This designated area should be secure, well-drained, and should permanently supply tools for fixing a flat tire, adjusting a chain, and performing other basic bicycle maintenance activities. Examples of tools that could be provided include bicycle pumps, wrenches, chain tools, lubricants, tire levers, hex keys/Allen wrenches, torx keys, screwdrivers, and spoke wrenches.

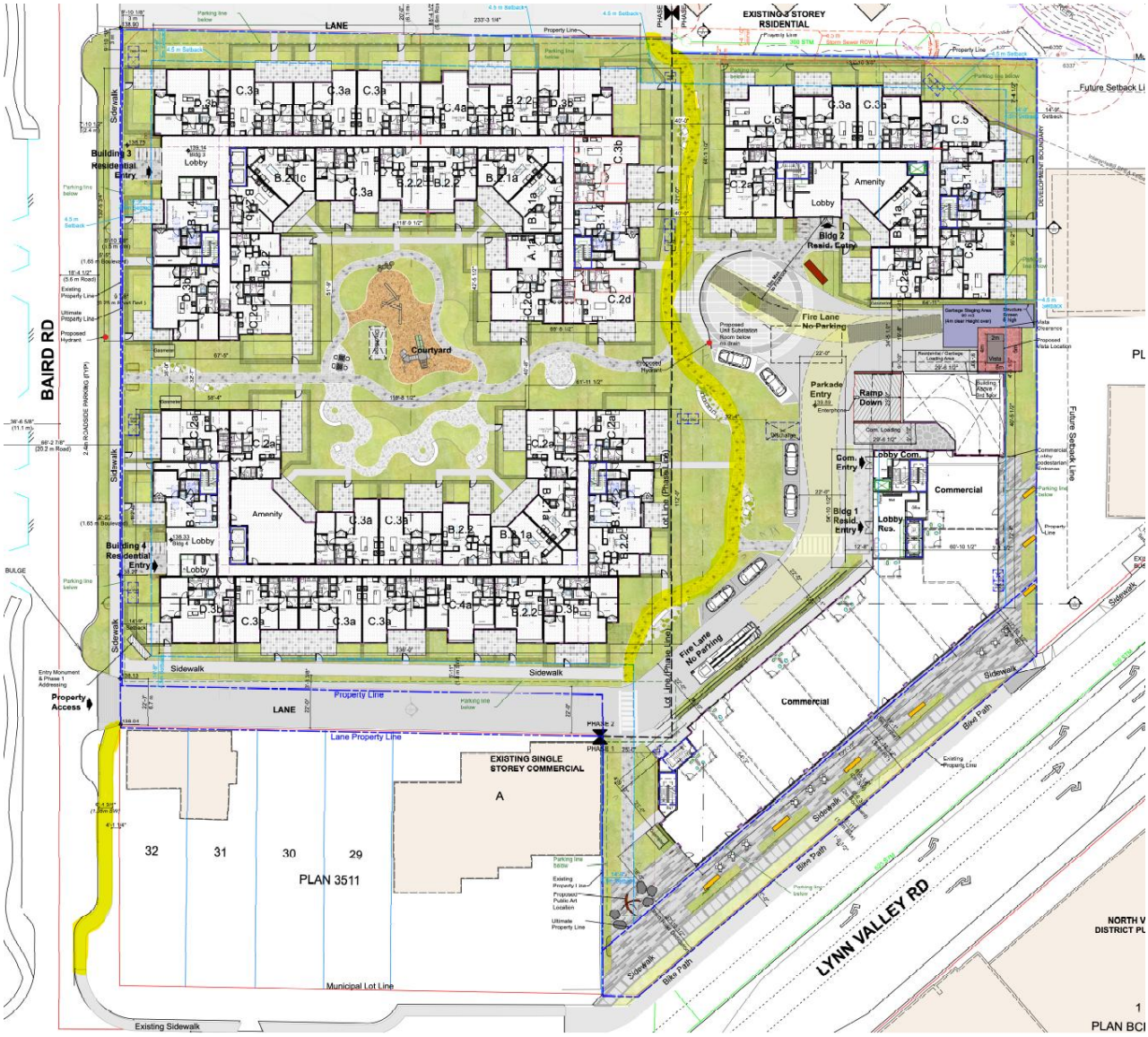
Figure 5.2: Bicycle Maintenance Facility Location



AT-07: Walking Improvements

The development will improve pedestrian connections with the surrounding network by a pedestrian pathway cutting through the site – connecting north-south from the lane to Lynn Valley Road. An additional pedestrian connection will be provided as a sidewalk on the East side of Baird Road, south of the site access. These pathways are illustrated in **Figure 6.3**. These connections grant **4 residential TDM points** and **4 commercial TDM points**. Additionally, the north-south pathway will include lighting, earning **2 residential TDM points** and **2 commercial TDM points**.

Figure 5.3: Walking Improvement Locations



Note: This figure reflects site plans at the time of writing and excludes roadway plans under discussion.

AT-09: Transit Stop Improvements

The development will achieve **4 TDM points** residential and **4 TDM points** commercial for providing a high-quality walking connection through the site to the existing frequent transit stop. This pathway provides easy, convenient, and direct access to Lynn Valley Road, shortening the existing pedestrian route which would connect via Baird Road and Ross Road. The walking connection provides a link from a centralized location on the site for both residential and commercial land uses.

Additionally, the District has indicated that the existing frequent transit stop is likely to be relocated to the TransLink dedication along the property frontage. The District has also indicated that the site would be eligible to achieve **4 TDM points** for residential and **4 TDM points** for commercial associated with the relocation (which would include a bus shelter, concrete pad, and benches). Bunt notes that it is unknown when TransLink would require the relocation of the bus stop to suit the Rapid Bus provisions and it is not expected to be in the near future.

SPI-01: Transportation Marketing Services

To achieve **2 TDM points** for residential and **2 TDM points** for commercial, the selected TDM coordinator shall develop and deploy promotions to encourage use of sustainable transportation modes. This will include targeted messaging and communications campaigns, incentives and contests, and other creative strategies.

Residents and commercial tenants will be provided with tailored marketing information about sustainable transportation options associated with accessing the project site (e.g., specific transit routes and schedules; bicycle routes; carpooling programs, etc.) as part of a welcome package.

SPI-03: Multi-modal Wayfinding Information

To achieve **2 TDM points** for residential and **2 TDM points** for commercial in this category, the project will provide durable multimodal wayfinding signage outside the main building entrance so that the residents and visitors are directed to the nearby transportation network and amenities.

PM-04: Shared Parking

To achieve **2 TDM points for residential** and **2 TDM points for commercial,** the development is sharing a number of commercial parking spaces with residential visitor spaces.

OTH-01: Innovative Strategy

As an innovative TDM strategy, the development proposes that the 7m wide boulevard dedication along their Lynn Valley Road frontage to the District / TransLink for future Bus Rapid Transit (BRT) be attributed to TDM points. The site is seeking **4 residential TDM points** and **4 commercial TDM points** for the dedication. In the interim until TransLink implements BRT, the space will serve pedestrians with a continuous sidewalk, landscaping, and street furniture, creating a vibrant hub along Lynn Valley Road that promotes active transportation.

6. CONCLUSIONS & RECOMMENDATIONS

Polygon is proposing to construct a mixed-use development consisting of 397 residential units and 2,331 m2 of commercial space located at 1246-1268 Lynn Valley Road and 3050 Baird Road in the District of North Vancouver. The site is located within the Lynn Valley Town Center. There are presently 32 residential rental units on the existing site, these units are planned to be transferred into the proposed development.

6.1 Conclusions

Existing Conditions

- The site is bordered by the Lynn Valley Road (arterial road) to the east and Baird Road (local road) to the West. Arterial roads typically have a capacity of ~3,000 vehicles in a peak hour and local roads ~300 - 400 vehicles in a peak hour.

- There is an FTN transit stop located on Lynn Valley Road less than 20m from the site. Additionally, the site is within regular transit connections to most points in the District of North Vancouver and scores 51/100 ("Good Transit") from Walkscore.

- The site is well connected to cycling facilities, scoring 81/100 ("Very Bikeable") from Walk score. The site has multiple bicycle facilities surrounding the site including bike lanes on both sides, with intermittent concrete barrier protection beginning after the intersection on Lynn Valley Road and on-street bike routes on Mountain Highway. The surrounding network offers strong connections to the broader regional cycling system, including but not limited to the Spirit Trail, Seymour Valley Trail, and Lynn Valley Link.

- The ability to connect to desired services and amenities through walking is also rated high on Walkscore (82/100 - "Very Walkable"). Sidewalks are provided on both sides of Lynn Valley Road, Ross Road, and Mountain Highway. However, Baird Road has a discontinuous sidewalk along its length. As part of the redevelopment, the site is including provisions to provide a sidewalk along the site frontage on Baird Road.

Current Policies and Plans

- The District of North Vancouver's updated OCP outlines a vision for sustainable, transit-oriented development, with Lynn Valley Town Centre and a key hub for higher-density, mixed-use growth. The plan targets 35% of all trips to be made by walking, cycling, or transit by 2030, emphasizing integrated mobility planning, enhanced pedestrian and cycling infrastructure, and reduced car dependency through thoughtful land use and parking strategies.

- TransLink's *Access for Everyone* (2022) sets the regional vision for equitable and sustainable transportation across Metro Vancouver, prioritizing investment in frequent and rapid transit corridors. The plan identifies the Lynn Valley–Lower Lonsdale–Downtown corridor as a near-term candidate for Bus Rapid Transit (BRT) or RapidBus service, reinforcing Lynn Valley Road's role as a strategic transit corridor and

supporting higher-density, transit-oriented land use with improved pedestrian access and reduced parking demand over time

Existing Network Observations

- Following community feedback, Bunt reviewed resident concerns and conducted site observations to assess local traffic and pedestrian issues. Key concerns included limited site access on Baird Road, congestion and queuing on Ross Road from the McDonald's Drive-Thru, missing sidewalk segments causing students to walk in the roadway, and general parking and transit limitations. Observations confirmed these conditions, with peak-period student conflicts and Drive-Thru overspill causing localized congestion. The site will be providing a sidewalk along the frontage of Baird Road which should alleviate some elements of this existing issue surrounding the students , creating a safer and more appropriate space for pedestrians.

- Bunt observed short left-turn lanes (10–15m) at the mall access and Ross Road intersections causing overspill into through lanes, extended queues up to five minutes, and complex driver maneuvers including U-turns and misaligned left turns. Less congestion was noted for the north-eastbound turn into Ross Road.

Crash History

- Between 2020 and 2024, 270 collisions were reported within the Lynn Valley study area, with most occurring at Lynn Valley Road & Mountain Highway (60% of all incidents). Rear-end (35%) and side-impact (29%) crashes were most common; Bunt has inferred that these are associated with high traffic volumes and permissive left-turn operations.

- Although ICBC data showed no crashes directly at the Mall Access intersection, spatial records indicate mid-block "parking-lot" collisions likely related to mall activity. Fourteen crashes were attributed to this area, half involving parked vehicles and the rest linked to turning or gap-acceptance errors at the mall entrance, consistent with observed queuing and congestion.

- Localized around the site, one head on collision occurred on Ross Road which is consistent with complex vehicle maneuvering in the area, even though the exact location cannot be confirmed. Additionally, one rear end occurred on Baird Road, which likely relates to congestion or abrupt stopping, but with only one recorded incident, this does not indicate a clear trend.

- At the Lynn Valley Road & Ross Road intersection four out of six defined crash types were side impacts, reflecting operational issues such as long queues and limited gap acceptance for turning drivers.

Site Trip Generation

- Bunt used the standard ITE Trip Generation Manual (12th Edition) vehicle trip rates as a basis for determining the site trips. The proposed development is estimated to generate approximately 117 net trips in the AM peak hour, marginally exceeding the industry best practice 100-trip threshold. The PM peak hour is not expected to generate any additional trips above what is already being generated under the existing site conditions.

- The AM and PM peak hour residential ITE trip rate is 0.38 trips per unit. This represents only a fraction of total residents anticipated to be living in the future development. This rate is attributed to accredited data from similar types of developments across North America including Canada. This rate is reflected as not all residents will travel during the same peak hour for personal reasons, (for example: some will have flexible schedules, work remotely, or will be retired) so travel demand is dispersed across the day rather than concentrated in a single rush-hour period. Further, although the site will have one access point on Baird Road, a portion of the future trips will remain internal to the site due to the mixed-use design, operating differently to existing site interaction.

- As directed by the District Bunt completed a sensitivity scenario which increased the trip generation by 16% in the AM peak hour and 28% in the PM peak hour before the removal of existing site trips.

Traffic Operations Analysis

Traffic Operations Analysis within this study includes, Existing Conditions and two future horizon years, Opening Day (2032) and Opening Day + 10 Years (2042). Each horizon year includes a Background traffic scenario and a Total traffic scenario. Background Traffic is defined as the traffic that would appear on the network even if the site did not redevelop and Total traffic is defined as the Background traffic + the Site traffic.

In addition, two Network Scenarios were analyzed as per the discussions with the District. Scenario A reflects existing road layout conditions. Scenario B includes closure of the eastbound left turn at the Lynn Valley Road & Ross Road Intersection. Notably, Scenario A and Scenario B did not have many significantly different implications on the transportation network study area.

- **Existing intersection operations Scenario A:** Overall, intersections within the study area operate within acceptable thresholds; however, the northbound left turn at Lynn Valley Road & Mall Access is noted to experience delays between LOS C (20 – 35 seconds of delay) and LOS F (greater than 50 seconds of delay). The intersection currently operates under a flashing-green/pedestrian configuration, where Lynn Valley Road is signal-controlled and the mall access is stop-controlled. Because this hybrid setup cannot be directly modelled in Synchro, Bunt analyzed both the actuated signal (best-case) and two-way stop (worst-case) scenarios, indicating that real-world performance likely falls between these conditions and aligns with observed peak-hour variability including the spill back of the westbound left into the mall.

- **Opening Day (2032) Background traffic Scenario A & B:** All intersections are expected to operate within acceptable thresholds, except for Lynn Valley Road & Mall Access as described in the existing conditions.

- **Opening Day (2032) Total traffic Scenario A & B:** Under Scenario A total traffic is not expected to worsen conditions from that which is already experienced in the background condition. Scenario B, the overall intersection at Fromme Road & 29th Street is expected to operate at LOS E in the AM peak hour, however, all individual movements are expected to operate within acceptable thresholds.

- **Opening Day + 10 Years (2042) Background traffic Scenario A & B:** In this horizon year several intersections are expected to approach or exceed capacity in the AM peak hour.

- Under Scenario A, the all-way stop at Fromme Road & 29th Street is expected to operate at LOS E in the AM peak, worsening to LOS F in Scenario B as delays increase and volumes approach capacity. Operations are improved with the implementation of a traffic signal at this location.

- The removal of the left turn at Ross Road (Scenario B) is expected to impact operations at Lynn Valley Road & Fromme Road. The eastbound left turn is expected to degrade from LOS D to E and queues are expected to exceed available storage, affecting eastbound through traffic. This LOS and queues are expected to be improved with a dedicated left turn phase for eastbound traffic.

- At Lynn Valley Road & Mountain Highway, the v/c ratio is expected to reach 0.85 overall and 0.90 westbound, with queues up to 285 m, indicating increasing future congestion. Potential mitigation options for signal timing in the 2042 horizon year are limited without changes in intersection laning and cycle length, as changes in signal green time for one direction (i.e. north – southbound) may have an adverse effect on queues in another direction (i.e. east – westbound).

- **Opening Day + 10 Years (2042) Total traffic Scenario A & B:** Site traffic is not expected to worsen conditions from that which is already experienced in the background condition. Noting that the proposed site access will be on Baird Road, traffic operations along Baird Road at the site access and at Ross Road operate within acceptable thresholds. This indicates that the roadway is expected to be able to support the additional site trips in the future.

- Further to this, as directed by the District Bunt completed a Sensitivity scenario on the ultimate build out horizon (Opening Day + 10 Years (2042)) with the Districts preferred trip generation rates. The results of sensitivity scenario did not significantly vary from the previous scenarios. Note that storage length recommendations have been made based on the sensitivity scenario.

- DNV Fire Hall #2 is located on Fromme Road, and the recommended traffic signal should consider traffic signal pre-emption for Fire purposes as per the direction of the DVN Fire Department.

Parking and Loading Supply

- The site is proposing a total of 482 vehicle parking spaces including sharing commercial and residential visitor parking for Building 1. The AVPR requires the 529 spaces when considering allowable transit and shared parking reductions for Building 1, however the site will have the potential for up to 20 shared parking spaces, which would further reduce the AVPR requirement to 512 stalls.

- The theoretical minimum requirement within the AVPR is 402 spaces, however additional TDM measures (car share, unbundling of parking and parking pricing) are requirement of 402 minimum space. The site is located within the Lynn Valley Town Centre, the site supports the District's OCP vision for compact, transit-oriented development with reduced car dependency. The proposed parking provisions (1.0 space per strata unit and between 1 – 0.7 per rental unit) exceed regional average occupancy rates. This strategy supports both municipal policy and regional findings, promoting sustainable, multimodal access while responding appropriately to actual parking demand, it is in Bunt's opinion that the parking supply will be able to support the proposed development.

- The site is exceeding the requirement for accessible parking spaces and within the allowable threshold for small vehicle spaces.
- The site will provide 734 Class 1 bicycle spaces and 51 Class 2 spaces, exceeding the DNVBETF requirements.
- The site is providing two loading spaces, exceeding the bylaw requirements. The loading space north of the parkade ramp should be kept clear on garbage collection days.

Site Design

- The site is providing 2.3m height clearance across the parkade levels meeting the accessible parking space height clearance requirements. Additionally, The site design review of the site plan revealed a couple of recommendations which are detailed below.
- Waste and recycling will be collected by a jitney truck from the P1 garbage rooms and transferred to the ground-level staging area, where municipal or private trucks will remove the refuse from the site. Compactors will also be used on site.
- A high-level sightline review at both access points confirmed adequate visibility based. Although parked vehicles may slightly encroach into the sight triangle along Baird Road, sightlines are acceptable, as vehicles exiting the site will move slowly and can safely creep forward on this low-speed local road.
- It is noted that the loading area design is currently under revision and pending District review, and that the loading bay design will be updated as the project progresses to accommodate District requirements.

Transportation Demand Management

- In order to use the DVN AVPR, the development proposes to provide 30 TDM points for residential and 30 points for commercial land uses using the following TDM measures:
    - Improved Access to Class 1 Bicycle parking
    - Bicycle Maintenance Facility
    - Walking improvements
    - Transit Stop Improvements
    - Transportation Marketing Services
    - Multi-modal Wayfinding Information
    - Shared Parking
    - Innovative Strategies

6.2 Recommendations

1. To address the existing condition with Students walking on Baird Road the site will be providing a sidewalk along the Baird Road frontage. Further improvements will require educational initiatives by the school and, to some extent, enforcement by the District to encourage sidewalk use once these

facilities are in place as well as in the long term a continuous sidewalk along the entire length of Baird Road (likely to occur upon the redevelopment of surrounding properties).

2. To address the existing condition of queues at the McDonald's Drive Thru, Bunt recommends the installation of cross-hatched pavement markings along Ross Road in front of the driveway to clearly indicate a no-stopping zone, supported by enforcement to prevent vehicles from queuing on the roadway by the District.

3. To address existing queues for westbound left turns and complicated vehicle intersections at the Lynn Valley Road & Mall Access, it is recommended that the westbound left-turn bay is extended by 40m and the eastbound left turn into Ross Road is closed.

   While not required, Given high pedestrian activity, the District should evaluate converting the existing pedestrian signal to a coordinated full traffic signal or restricting the access to right-in/right-out to enhance operations and safety.

4. Bunt recommends that the District explore options to adjust laning at the Lynn Valley Road & Mountain Highway intersection to increase capacity in certain traffic directions, while maintaining the current signal cycle lengths to address the expected extended queues in 2042.

5. Bunt recommends a protected-permissive eastbound left turn signal at the Lynn Valley Road & Fromme Road intersection to alleviate left turn queuing in 2042 associated with background traffic growth and then exacerbated with the closure of the eastbound left at Ross Road and by site traffic. Additionally, Bunt recommends that the westbound left storage lane be extended by adjusting the median to accommodate the 95th percentile queue (25 - 30 total storage lane required) as result of background traffic growth.

6. At the Lynn Valley Road & 29th Street intersection the eastbound left turn lanes should be extended to accommodate the 25m 95th percentile queue as a result of background traffic growth. This recommendation considers the 75% redistribution of background traffic from the westbound left at the Ross Road intersection. Note: site trips were not rerouted on this route.

7. Bunt recommends the implementation of a full traffic signal at the Fromme Road & 29th Street intersection with dedicated left turn bays regardless of the eastbound left closure at Ross Road. The closure of the eastbound left at Ross Road and the site traffic is expected to accelerate the need for the traffic signal to the site opening day (2032).

The following recommendations have been provided to the design team and will be worked through for the development permit application process:

8. Relocate the enter phone 6m to the east to allow concurrent vehicle maneuvers into the parkade.

9. Reconfigure the ramp slope to 7.5% (10% grade is acceptable, a 7.5% grade is preferred).

10. Label the indicated parking spaces as small car spaces while remaining standard vehicle parking space size to accommodate end stall accessibility.

11. Ensure 2.4m height clearance over the tipping area for the compactors.

12. Ensure the full turn around area is drivable to accommodate a fire truck maneuver.

13. Ensure that vehicle reversing distances do not exceed 10 m; therefore, relocation of the highlighted existing accessible parking space and adjacent column is recommended to facilitate vehicle turnaround.

14. Keep the north loading bay clear during waste collection periods.

15. Ensure a minimum 7.2m height clearance is provided in waste collection tipping areas.

The attached information is provided to support the agency's review process and shall not be distributed to other parties without written consent from Bunt & Associates Engineering Ltd.

APPENDIX A

TERMS OF REFERENCE

MEMO

DATE: December 15, 2025
PROJECT NO: 04-25-0159
PROJECT: 1246 – 1268 Lynn Valley Road & 3050 Baird Road
SUBJECT: Transportation Impact Assessment – Terms of Reference – DRAFT

TO: James Craxton & Phillip Lu
District of North Vancouver

PREPARED BY: Josie Ackroyd, P.Eng.
REVIEWED BY: Daniel Fung, P.Eng

1. INTRODUCTION

Bunt & Associates Engineering Ltd. (Bunt) has prepared the following Terms of Reference (ToR) to undertake a Transportation Impact Assessment (TIA) for the proposed mixed-use, two phased redevelopment of the properties located at 1246-1268 Lynn Valley Road and 3050 Baird Road (including the southern laneway) in the District of North Vancouver, BC. The development is proposed to consist of 408 residential units and 27,190 sqft commercial space.

This ToR has been based on the District's Staff Referral Response – 6555609 (dated September 24, 2025). Prior to this response Bunt has prepared a Transportation Review that already covers much of the study content expected in the TIA. The following sections set out the study parameters proposed for the District of North Vancouver (District) staff approval. Within this ToR Bunt will indicate which certain items have already been covered in the Transportation Review and will be carried through into this study.

Bunt would also like to highlight that this study should also address the issues and concerns of local residents.

2. TRIP GENERATION & TRAFFIC ANALYSIS

Bunt has completed a trip generation analysis for the site and found there to be a 100 net vehicle trip increase over AM peak hour and no change from existing in the PM peak hour (please refer to Bunt's Transportation Review V02- August 22nd 2025, for full details). As 100 peak hour trips are typically considered the threshold for material impact on the traffic network, Bunt is of the opinion that the site will have only minor impact to the transportation network beyond what is existing and future background

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growth. Bunt acknowledges that shifting vehicles from across two access points to one access away from Lynn Valley Road may 'feel' impactful to local residents.

The District's Staff Referral Response (dated September 24th, 2025) has indicated 10 intersections are to be included within the traffic operations of TIA. With the above trip generation in mind, we have reviewed the requested materials and note that several of the items appear to relate more to a broader background or area-wide study rather than information specific to this site, this includes:

- Optimized signal timing plans for 5 intersections on Lynn Valley Road, which are most likely going to governed by background traffic volume.
- Signalization including Transit Priority and pre-emption. While the site will have patrons likely using this service, this is a district-wide and TransLink initiative.

For a development of this size, the proposed district-wide review looks to be more extensive than normal. Also, the resident noted issues (i.e. students walking in the middle of the street, overspilling of traffic from fast food drive-thrus, and street parking leading to congestion) cannot be modelled adequately. Nonetheless, Bunt proposes to undertake traffic operations at the requested intersections which are outlined in **Table 2.1** and evaluate the noted issues to support the local residents concerns.

Table 2.1: Study Intersections

INTERSECTION NUMBER	INTERSECTION NAME / LOCATION
1	Lynn Valley Road & Mountain Highway
2	Lynn Valley Road & Ross Road
3	Lynn Valley Road & Mall Access (southwest of Ross Road)
4	Lynn Valley Road & 29th Street / Valley Centre Avenue
5	Lynn Valley Road & 27th Street / Fromme Road
6	Fromme Road & 29th Street
7	Fromme Road & Ross Road
8	Fromme Road & Harold Road
9	Baird Road & Ross Road
10	Baird Road & Harold Road

Bunt suspects that the traffic modelling presented in the TIA will present an 'ideal case' as current issues in the area (specifically, Drive Thru queuing and students walking in the street) are unable to be solved with typical traffic modelling interventions. Existing conditions will be observed and recommendations will be made for mitigation measures to address these existing issues. However, as a result, future operational conditions could be skewed.

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3. STUDY CONTENT

3.1 Introduction

- Background and purpose of the study. *-provided within Transportation Review*
- Description of the proposed development (existing and proposed land use, general site access, etc.) *- provided within Transportation Review*

3.2 Transportation System

- Review of the existing study area characteristics and nearby roadway infrastructure. *- provided within Transportation Review*
- Provide descriptions of existing transportation systems of all modes (vehicle, pedestrian, cyclist, and public transit) that service the development. *- provided within Transportation Review*
- Provide a high-level summary of key transportation-related objectives contained in the Distict's OCP and other relevant plan or policy documents. *- provided within Transportation Review*
    - Describe TransLink's plans for Bus Rapid Transit to service Lynn Valley. – *District or Translink to confirm plans.*

3.3 Traffic Impact Analysis

3.3.1 Proposed Study Network

- Peak hour periods: AM (7am-9:30am) and PM (2:30pm-6pm). Bunt is proposing extended data collection hours to ensure school peak is captured.
- Horizon Years: Existing 2026, Full-Buildout Opening Day and Full Buildout +10 years.
- Background traffic growth rates and future scenario conditions (such as Lynn Valley Road & Ross Road turning restriction) implemented as directed by the District.

*Note: Intersections as defined in **Table 2.1**.*

Note: that traffic modelling is proposed to be undertaken in Synchro. Which has known limitations for transit priority.

Note: Bunt is <u>not</u> proposing to model Transit Priority on Lynn Valley Road or provide specific Signal Timing Plans for intersections.

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3.3.2 Existing Conditions Analysis

- Undertake a site visit during AM and PM peak hours to confirm existing operations and confirm scenarios experience by local residents.
- Assess existing weekday AM and PM peak hour traffic operations at the study intersections using the Synchro/SimTraffic modelling software and identify any existing traffic issues.

3.3.3 Future Conditions Analysis

- Forecast future Background traffic volumes (i.e., traffic without subject development), for Full-Buildout Opening Day, and Full Buildout +10 years AM and PM peak hours.
- Estimate the site-generated traffic volumes (by phase) during the weekday AM and PM peak hours using the Institute of Transportation Engineers (ITE) Trip Generation Manual (12th ed.) trip rates. - *provided within Transportation Review*
- Consider the multimodal volumes for the site based on the District's mode split targets. Adjust the trip generation based on the mode split where appropriate. - *Considered within Transportation Review*
- Assess future traffic operations for the weekday AM and PM peak hours at the study intersections and site access points, for the proposed future horizon years (Full-Buildout Opening Day and Full Buildout +10 years) AM and PM peak hours under Total (with development) traffic conditions.
- Identify any mitigation measures to address the traffic impact anticipated with the proposed development.

3.4 Parking and Loading Supply Review

- Review of the vehicle parking supply required by the District's Zoning Bylaw, Alternative Vehicle Parking Rates and Bike Parking Policy, and summary of the proposed supply.
- Outline the sites Transportation Demand Management (TDM) Measures to support the site's parking supply. These TDM measures will follow the District's Alternative Vehicle Parking Rates and Bike Parking Policy.
- Review of the bicycle parking required and summary of the proposed supply.
- Review of the passenger and goods loading supply required and summary of the proposed supply.

3.5 Site Design Review

- Confirmation of the site access feasibility, parkade circulation, loading vehicle operations, and garbage/recycling accessibility using AutoTURN software. - *provided within Transportation Review can be updated based on recent site plan revisions.*

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- Confirm sightlines (Stopping Sight Distance SSD) from development site access.
- Identify any safety concerns related to the existing transportation network. This review will include ICBC crash history data for the study intersections, a desktop review and incorporate any observations from site visits.

3.6 Conclusions and Recommendations

- Provide a summary of the study's findings and recommendations.

4. REQUEST FOR INFORMATION

The following information is required from the District (or governing authority):

- Details provided so information regarding TransLink's Plans for Bus Rapid Transit to Service Lynn Valley can be described within the TIA.
- Confirm what methodology would be appropriate for the background traffic forecast, such as a blanket growth rate. If a blanket growth rate is applicable, what should this be?
- Signal timing plans for all the signalized intersections that are included in the study area.
- Confirm any future year background assumptions, such as intersection upgrades, new road links or turning restrictions.

* * * * *

cc: Devon Smart, Polygon

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The attached information is provided to support the agency's review process and shall not be distributed to other parties without written consent from Bunt & Associates Engineering Ltd.

APPENDIX B

TRAFFIC DATA

Mountain Hwy @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:15 - 9:15
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	17	8	6	0	30	35	16	16	11	25	45	1	0	3	2	1
7:15 - 7:30	21	16	14	0	33	36	15	20	9	23	66	0	1	3	1	4
7:30 - 7:45	17	15	12	0	52	51	12	22	19	41	78	3	0	3	3	2
7:45 - 8:00	28	28	17	2	49	62	18	42	20	44	85	0	5	1	4	3
8:00 - 8:15	40	28	24	0	57	65	17	66	18	36	111	0	4	4	2	4
8:15 - 8:30	49	44	33	5	59	50	24	81	25	30	111	5	3	2	1	6
8:30 - 8:45	53	53	48	8	66	60	18	44	46	34	89	13	3	4	3	14
8:45 - 9:00	57	58	35	10	59	50	39	66	41	40	87	10	1	17	12	27
9:00 - 9:15	41	42	19	18	66	80	31	46	40	44	73	8	4	51	49	11
9:15 - 9:30	33	23	22	3	41	42	21	59	25	27	56	6	4	3	2	9
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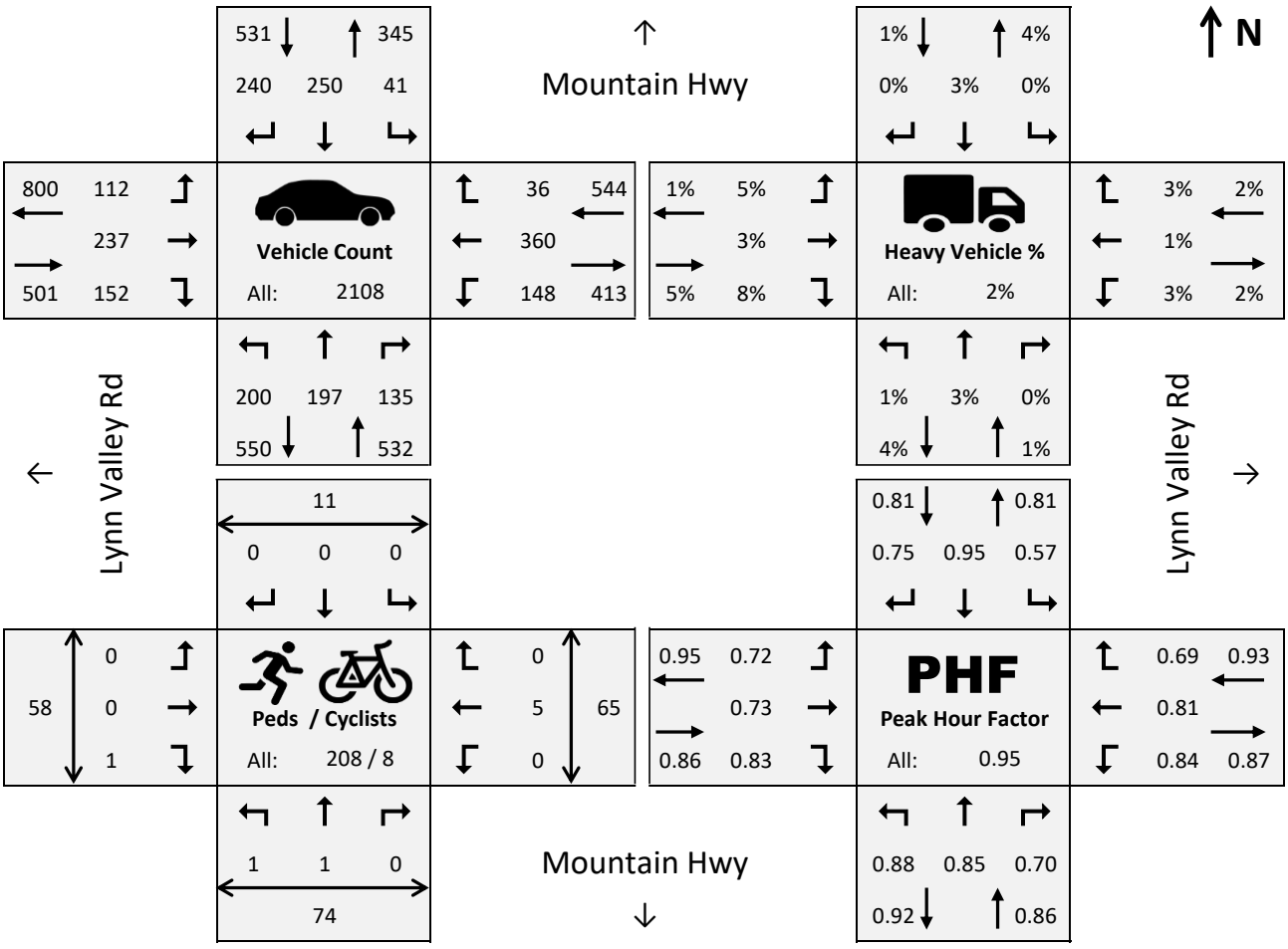
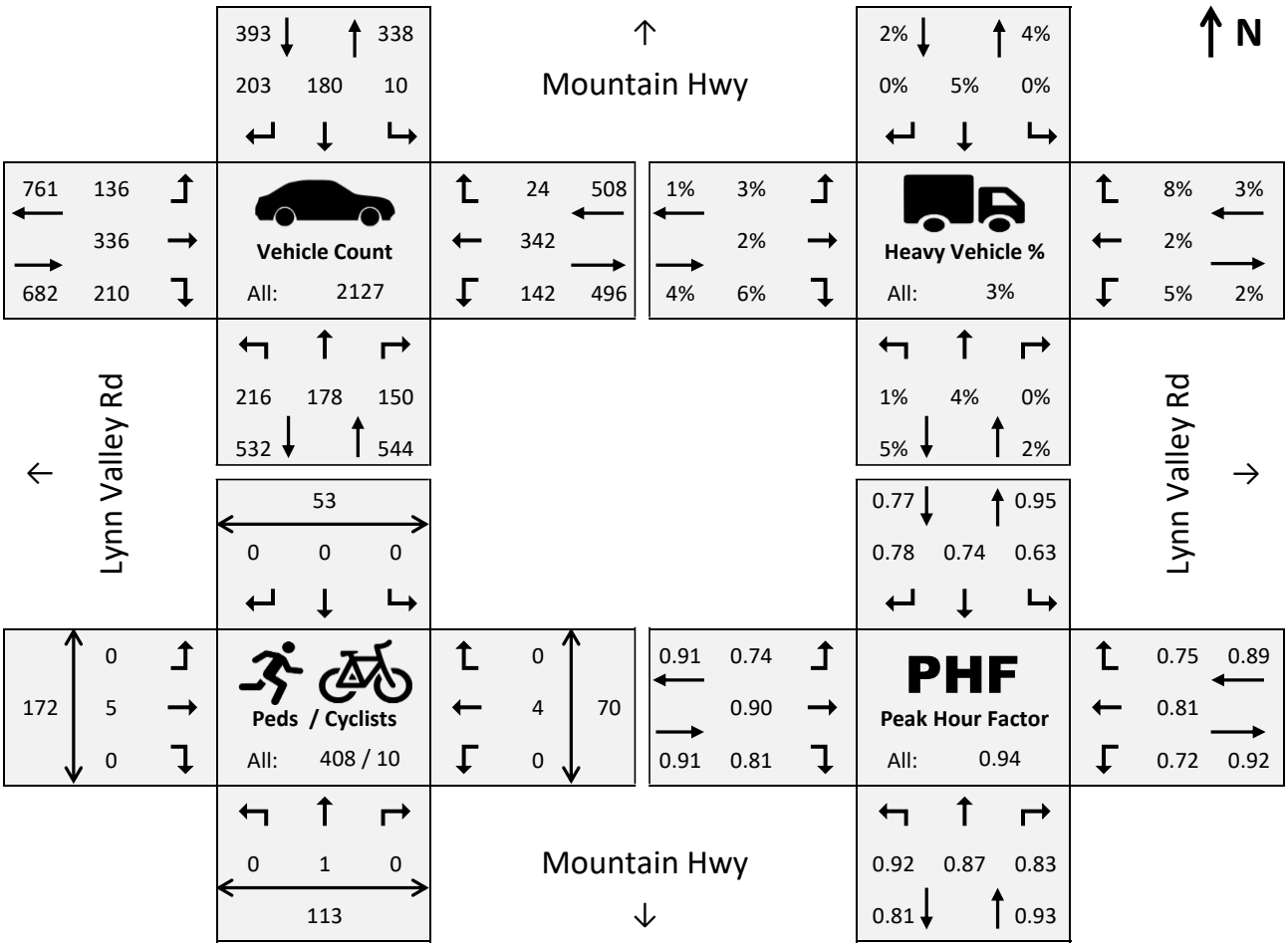


Mountain Hwy @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	15:00 - 16:00
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	37	26	35	5	36	30	30	78	37	28	62	2	7	10	9	17
14:45 - 15:00	35	45	46	3	34	35	37	84	38	33	61	5	10	23	12	16
15:00 - 15:15	56	51	39	3	61	64	25	76	55	49	81	8	14	27	26	87
15:15 - 15:30	59	41	40	1	48	65	46	93	49	36	86	2	19	22	9	36
15:30 - 15:45	48	46	26	4	32	42	32	79	65	29	105	8	8	56	34	22
15:45 - 16:00	53	40	45	2	39	32	33	88	41	28	70	6	12	8	1	27
16:00 - 16:15	44	42	31	1	40	34	42	84	44	21	63	0	4	20	9	18
16:15 - 16:30	35	40	34	1	47	40	41	53	41	33	63	1	10	10	4	16
16:30 - 16:45	30	39	35	1	35	48	56	84	52	25	91	2	5	15	5	11
16:45 - 17:00	52	51	40	1	41	41	48	91	55	28	65	1	17	16	4	43
17:00 - 17:15	43	46	35	5	38	34	52	101	56	33	68	4	7	10	2	21
17:15 - 17:30	39	65	45	4	38	43	45	71	51	25	60	1	2	11	4	14
17:30 - 17:45	33	46	35	2	38	49	50	68	42	22	68	0	6	12	2	11
17:45 - 18:00	40	50	31	5	34	36	40	82	36	11	60	2	3	14	2	34
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Ross Rd @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:15 - 9:15
Notes:					

TIME	AUTOMOBILE COUNT												PEDESTRIANS			
INTERVAL	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	0	0	0	0	10	6	46	0	0	105	11	2	0	2	0
7:15 - 7:30	0	0	0	0	0	7	6	44	0	0	110	13	2	0	1	0
7:30 - 7:45	0	0	0	0	0	16	1	53	0	0	143	12	2	0	0	0
7:45 - 8:00	0	0	0	1	0	4	5	82	0	0	167	13	4	0	0	0
8:00 - 8:15	0	0	0	0	0	7	6	108	0	0	204	11	6	0	0	0
8:15 - 8:30	0	0	0	0	0	13	4	122	0	0	189	20	4	0	0	0
8:30 - 8:45	0	0	0	0	0	18	9	123	0	0	187	18	2	0	0	0
8:45 - 9:00	0	0	0	0	0	8	10	138	0	0	180	35	2	0	0	0
9:00 - 9:15	0	0	0	0	0	18	11	128	0	0	169	31	5	0	1	0
9:15 - 9:30	0	0	0	0	0	12	14	108	0	0	113	25	6	0	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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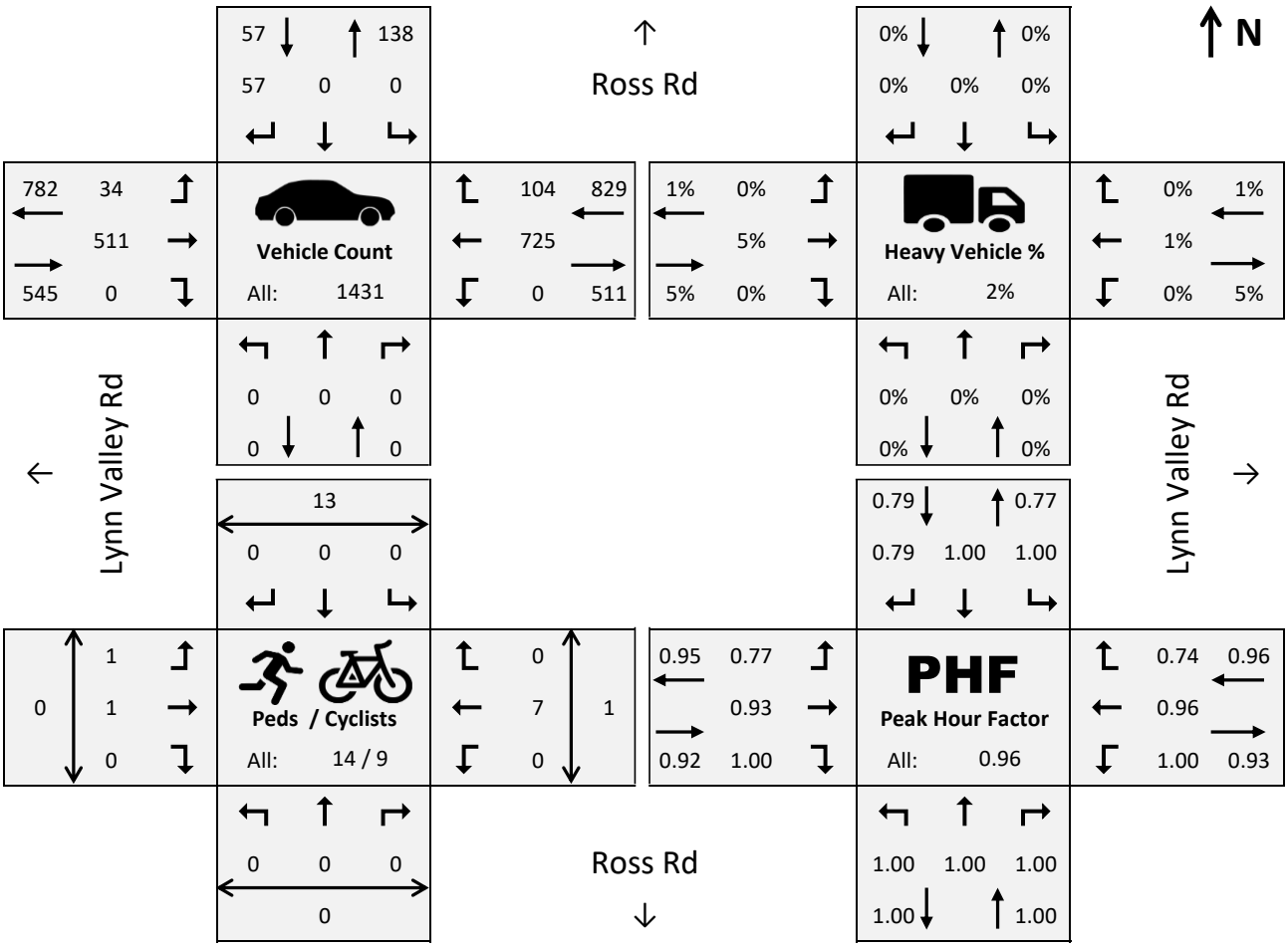
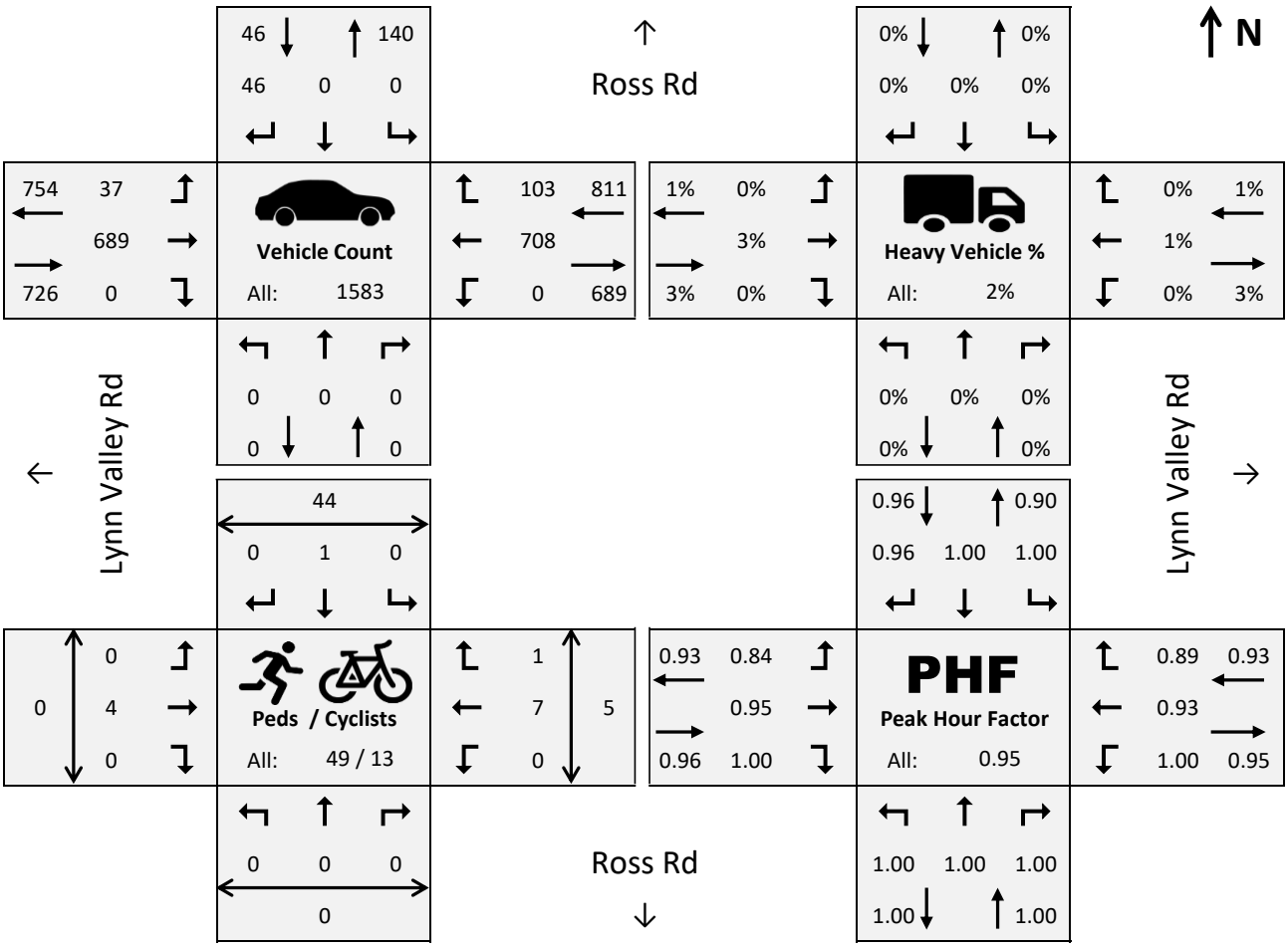


Ross Rd @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	15:00 - 16:00
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	0	0	0	0	0	17	7	145	0	0	122	13	11	0	0	0
14:45 - 15:00	0	0	0	0	0	13	13	168	0	0	116	21	10	0	1	0
15:00 - 15:15	0	0	0	0	0	12	10	172	0	0	190	29	13	0	0	0
15:15 - 15:30	0	0	0	0	0	12	9	181	0	0	189	26	11	0	0	0
15:30 - 15:45	0	0	0	0	0	12	7	179	0	0	186	21	6	0	3	0
15:45 - 16:00	0	0	0	0	0	10	11	157	0	0	143	27	14	0	2	0
16:00 - 16:15	0	0	0	0	0	5	12	177	0	0	138	18	7	0	1	0
16:15 - 16:30	0	0	0	1	0	10	10	151	0	0	117	18	9	0	0	0
16:30 - 16:45	0	0	0	0	0	13	12	192	0	0	152	18	9	0	0	0
16:45 - 17:00	0	0	0	0	0	12	13	205	0	0	145	30	8	0	1	0
17:00 - 17:15	0	0	0	0	0	13	12	218	0	0	143	21	11	0	0	0
17:15 - 17:30	0	0	0	0	0	20	10	195	0	0	125	30	11	0	0	0
17:30 - 17:45	0	0	0	0	0	19	14	172	0	0	133	23	23	0	0	0
17:45 - 18:00	0	0	0	2	0	16	9	173	0	0	126	24	7	0	0	0
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



North Mall access @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:15 - 9:15
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	6	0	4	0	0	0	0	48	0	10	105	0	0	5	2	2
7:15 - 7:30	2	0	5	0	0	0	0	43	5	9	108	0	0	2	1	3
7:30 - 7:45	4	0	1	0	0	0	0	55	10	13	145	0	0	3	5	6
7:45 - 8:00	1	0	8	0	0	0	0	79	5	5	166	0	0	1	7	7
8:00 - 8:15	4	0	9	0	0	0	0	105	5	8	197	0	0	7	9	9
8:15 - 8:30	3	0	6	0	0	0	0	120	5	6	192	0	0	3	4	19
8:30 - 8:45	5	0	13	0	0	0	0	121	9	12	191	0	0	3	2	13
8:45 - 9:00	8	0	13	0	0	0	0	133	13	20	167	0	0	2	6	15
9:00 - 9:15	6	0	12	0	0	0	0	126	9	22	162	0	0	16	8	19
9:15 - 9:30	1	0	12	0	0	0	0	111	7	14	111	0	0	35	4	11
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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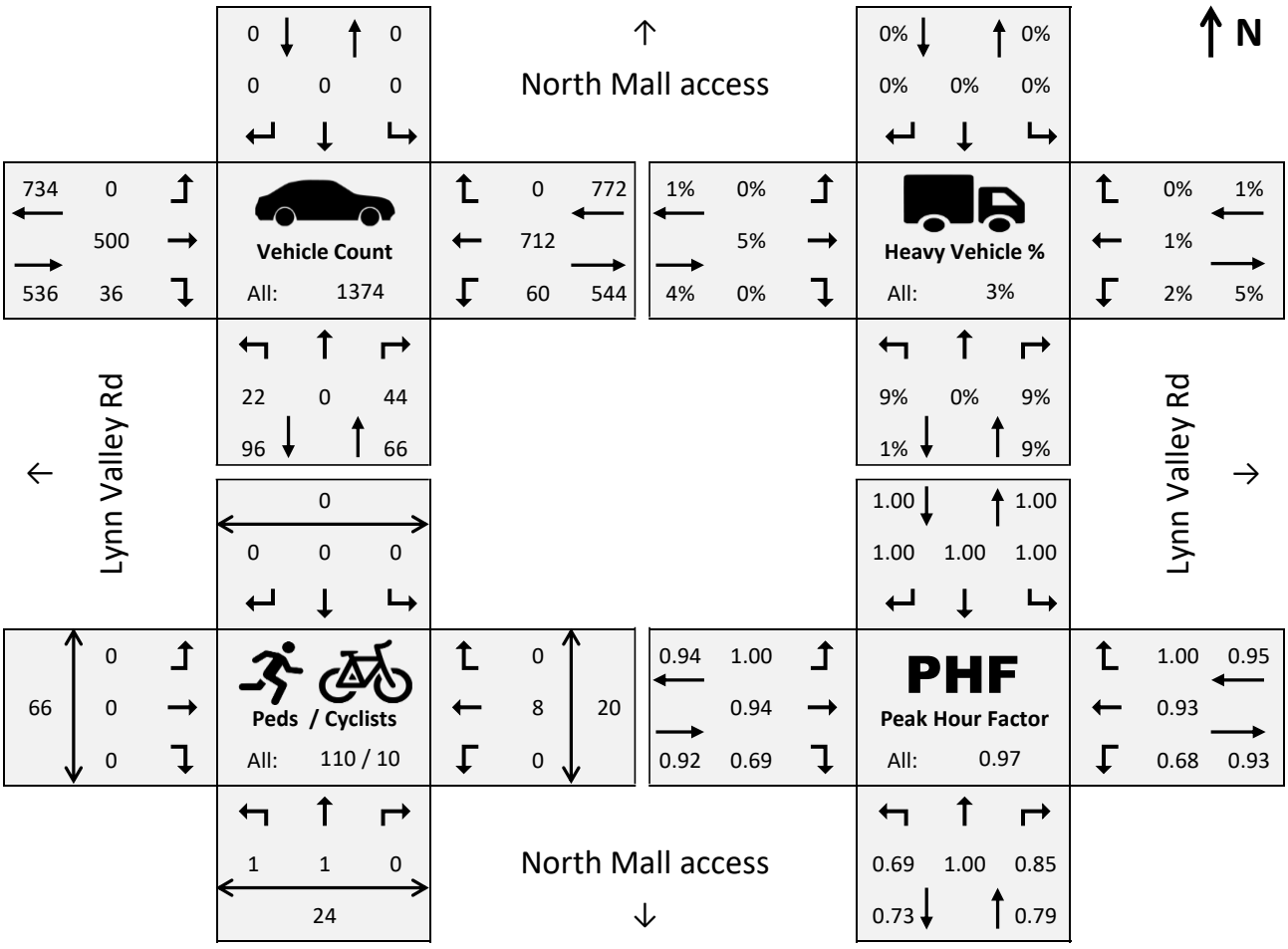

North Mall access @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	15:00 - 16:00
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	15	0	20	0	0	0	0	136	17	13	128	0	0	6	14	22
14:45 - 15:00	16	0	27	0	0	0	0	155	15	15	112	0	0	10	15	14
15:00 - 15:15	5	0	22	0	0	0	0	163	14	21	177	0	0	12	72	34
15:15 - 15:30	4	0	23	0	0	0	0	173	16	32	170	0	0	8	36	24
15:30 - 15:45	10	0	29	0	0	0	0	158	10	29	166	0	0	10	20	27
15:45 - 16:00	10	0	23	0	0	0	0	158	24	18	135	0	0	11	21	31
16:00 - 16:15	4	0	27	0	0	0	0	163	9	12	131	0	0	9	12	19
16:15 - 16:30	3	0	13	0	0	0	0	147	15	11	110	0	0	7	17	13
16:30 - 16:45	7	0	25	0	0	0	0	183	15	16	148	0	0	7	12	22
16:45 - 17:00	9	0	24	0	0	0	0	193	14	14	143	0	0	13	16	25
17:00 - 17:15	9	0	30	0	0	0	0	197	15	18	138	0	0	5	21	19
17:15 - 17:30	12	0	29	0	0	0	0	172	17	22	121	0	0	7	15	17
17:30 - 17:45	13	0	21	0	0	0	0	167	11	17	139	0	0	1	24	15
17:45 - 18:00	11	0	25	0	0	0	0	158	4	21	119	0	0	9	3	13
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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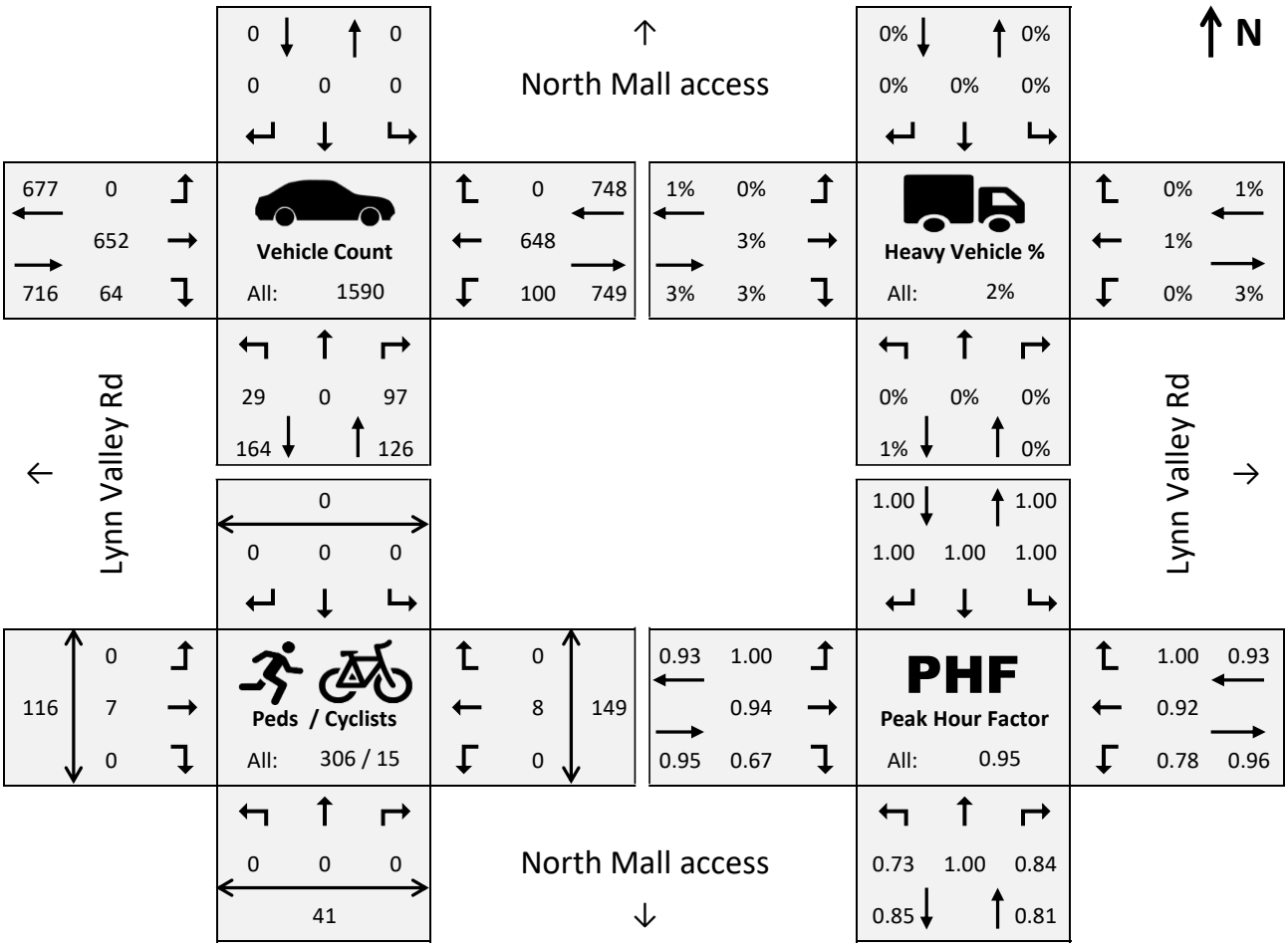

29th St E @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:15 - 9:15
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	8	2	4	6	6	9	6	39	4	5	94	11	1	2	4	0
7:15 - 7:30	8	2	4	7	7	6	5	36	5	2	103	9	0	1	3	2
7:30 - 7:45	15	7	3	13	10	11	7	54	10	1	136	14	2	0	2	0
7:45 - 8:00	12	10	6	16	12	10	8	59	5	4	149	15	2	1	1	1
8:00 - 8:15	15	13	3	23	10	9	7	87	7	3	173	29	2	1	0	2
8:15 - 8:30	6	6	6	26	9	6	14	93	13	3	162	35	5	1	3	3
8:30 - 8:45	9	9	6	40	17	9	7	83	16	10	144	48	0	1	1	3
8:45 - 9:00	8	18	6	31	21	3	6	114	16	11	135	29	1	2	6	4
9:00 - 9:15	9	11	10	40	24	7	13	80	17	10	139	24	4	1	17	1
9:15 - 9:30	13	12	5	28	16	10	13	88	17	9	88	16	3	33	12	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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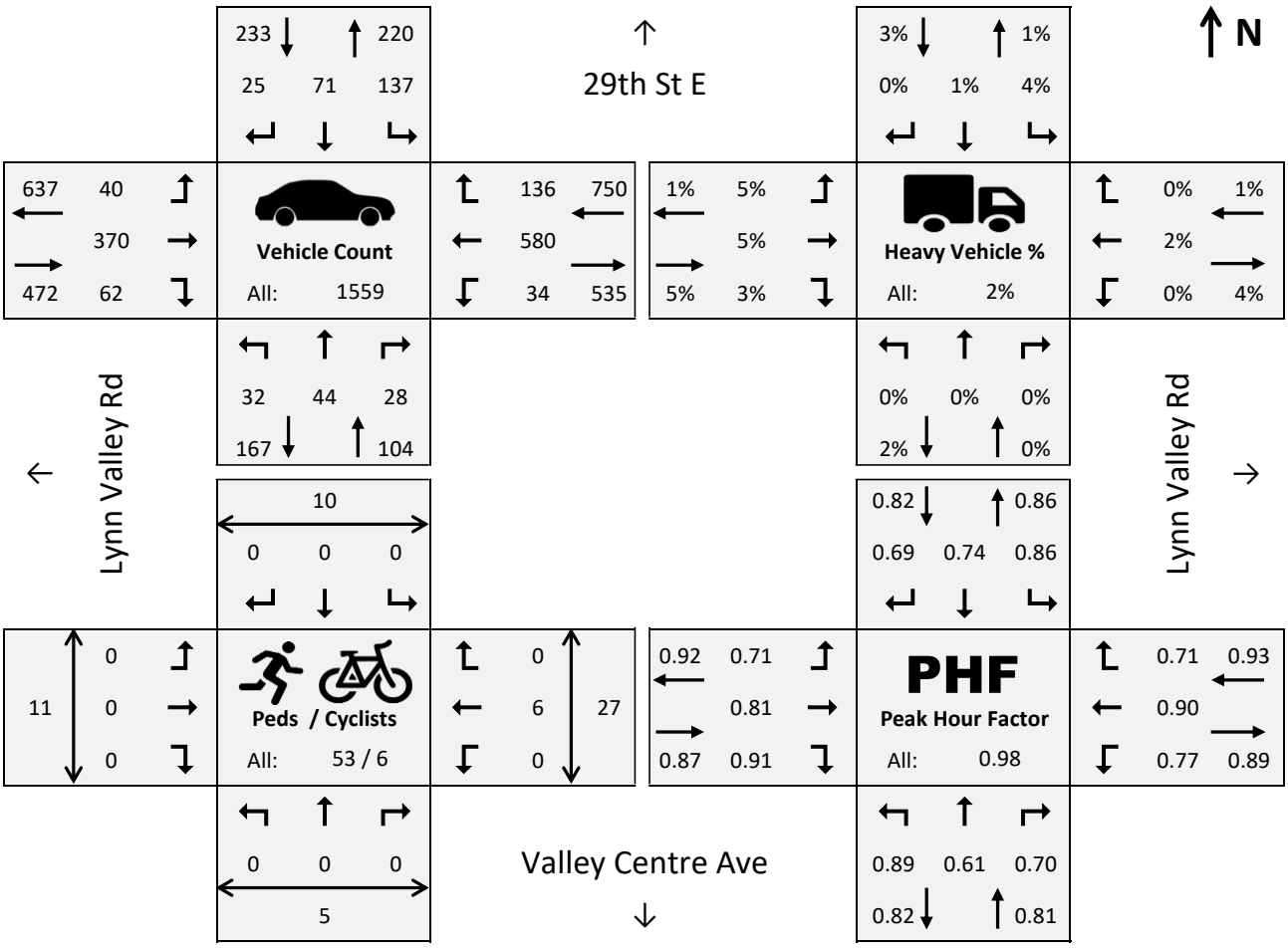
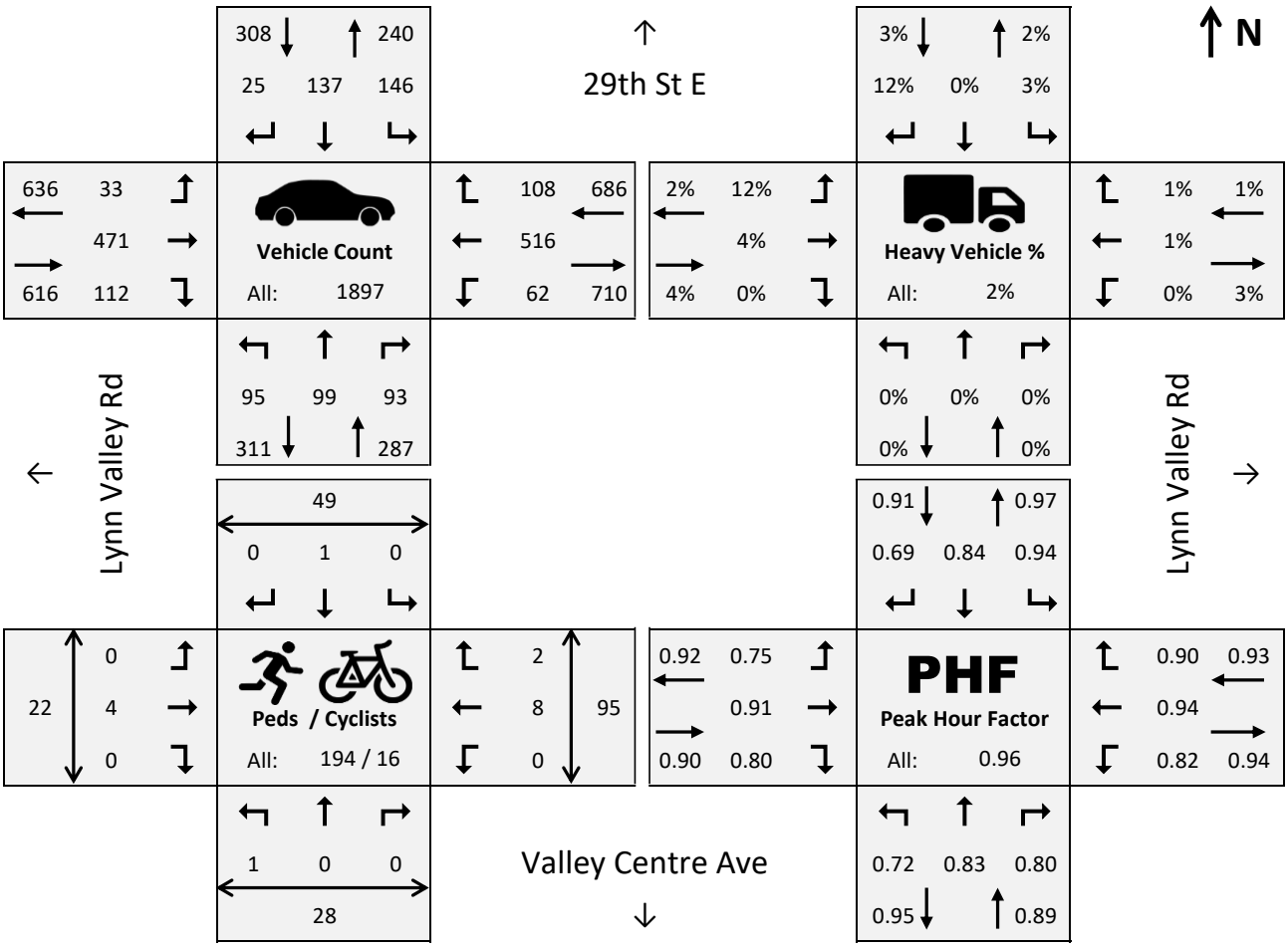


29th St E @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	15:00 - 16:00
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	29	28	21	35	29	3	12	98	26	12	101	25	0	4	9	6
14:45 - 15:00	20	30	23	29	23	9	6	115	24	9	94	30	3	2	5	5
15:00 - 15:15	20	23	17	34	30	6	7	129	35	16	136	30	30	15	49	10
15:15 - 15:30	18	25	29	37	34	9	9	122	26	19	137	28	7	5	10	2
15:30 - 15:45	33	21	27	36	41	8	6	105	29	12	131	30	10	5	20	7
15:45 - 16:00	24	30	20	39	32	2	11	115	22	15	112	20	2	3	16	3
16:00 - 16:15	15	29	27	34	25	5	7	109	25	15	103	25	1	8	12	3
16:15 - 16:30	29	28	25	43	33	4	14	98	24	14	86	22	3	5	15	5
16:30 - 16:45	24	12	27	42	42	7	9	127	30	12	120	22	2	8	17	10
16:45 - 17:00	15	29	29	39	35	1	5	137	26	14	107	30	8	7	17	2
17:00 - 17:15	19	27	27	40	32	1	6	139	29	18	100	32	2	2	16	4
17:15 - 17:30	24	26	31	39	26	6	5	126	26	15	95	22	9	1	7	6
17:30 - 17:45	19	28	20	36	31	11	9	117	27	13	110	27	6	2	7	0
17:45 - 18:00	13	23	26	39	31	2	2	95	22	11	99	20	2	4	9	4
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Fromme Rd @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:00 - 9:00
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	29	5	5	0	6	39	11	40	12	0	107	0	2	6	0	10
7:15 - 7:30	29	7	1	0	10	37	10	44	14	0	115	0	0	2	0	4
7:30 - 7:45	53	6	7	1	6	50	13	60	18	2	157	1	1	3	0	10
7:45 - 8:00	60	10	1	0	14	46	22	72	23	2	164	1	1	5	0	10
8:00 - 8:15	55	10	6	0	20	51	20	92	23	1	187	0	5	5	0	14
8:15 - 8:30	70	30	2	4	25	46	42	119	27	0	175	2	4	5	0	20
8:30 - 8:45	64	22	4	1	24	53	40	95	31	1	156	2	1	5	0	12
8:45 - 9:00	57	33	3	0	20	47	38	131	33	3	142	0	1	5	0	9
9:00 - 9:15	40	20	6	1	28	43	28	104	32	2	148	4	3	4	0	7
9:15 - 9:30	44	16	1	1	9	27	10	111	33	3	112	1	2	36	0	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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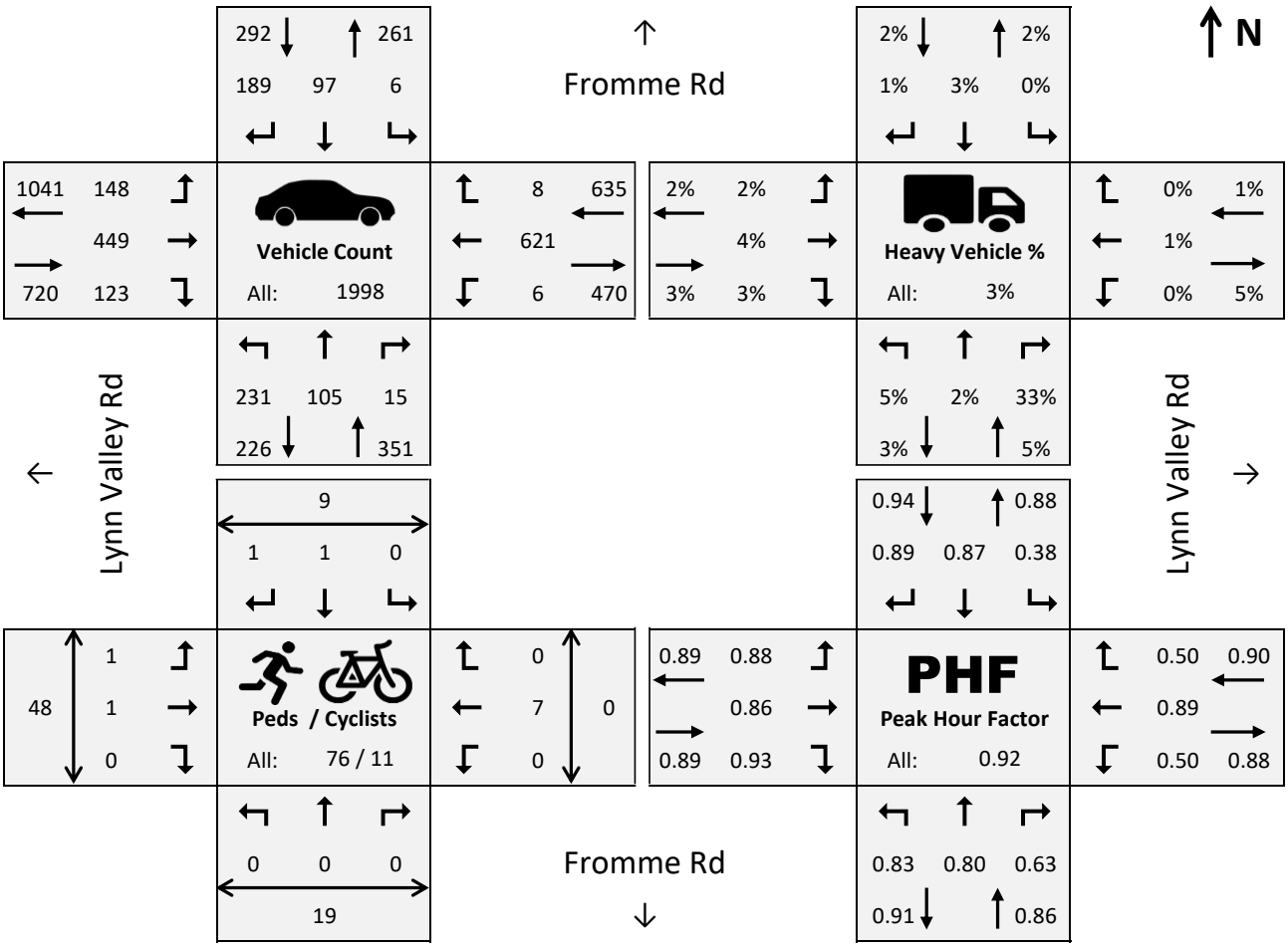
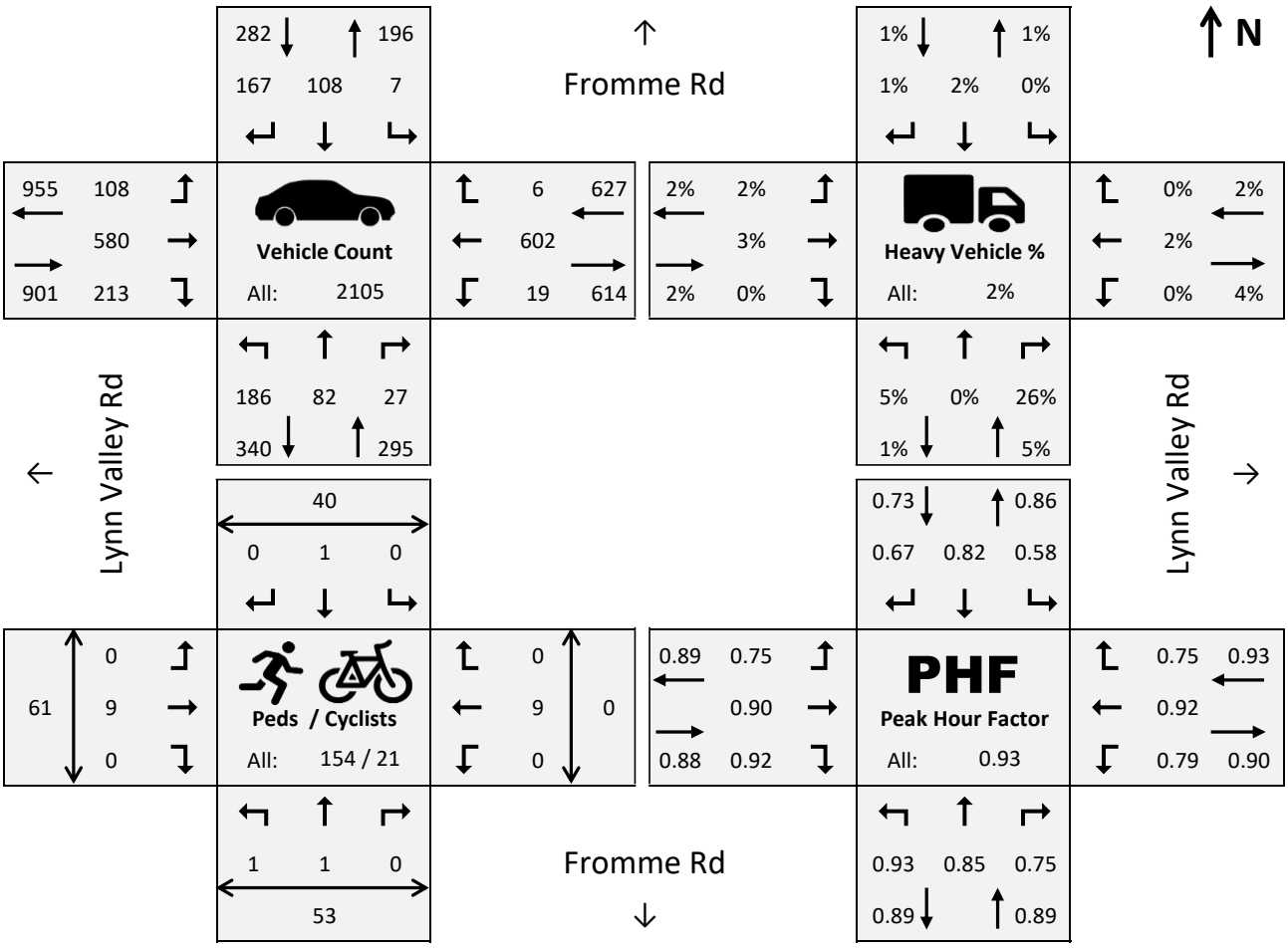


Fromme Rd @ Lynn Valley Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	14:45 - 15:45
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	42	28	4	2	17	27	17	127	42	4	128	1	1	1	0	11
14:45 - 15:00	46	27	11	0	15	31	44	132	43	4	121	0	3	6	0	10
15:00 - 15:15	49	20	8	1	30	48	36	162	58	6	144	1	18	17	0	18
15:15 - 15:30	47	20	4	1	33	62	26	152	56	6	158	2	16	22	0	19
15:30 - 15:45	50	24	9	3	23	32	20	127	53	4	164	1	4	5	0	14
15:45 - 16:00	40	18	6	2	22	25	26	139	46	3	136	2	2	9	0	10
16:00 - 16:15	37	19	8	2	27	25	31	131	45	2	117	1	2	7	0	13
16:15 - 16:30	52	32	5	3	24	45	38	129	53	3	113	3	3	8	1	10
16:30 - 16:45	39	21	6	2	29	41	39	157	50	3	145	2	4	4	0	14
16:45 - 17:00	36	18	7	4	19	31	45	161	53	2	115	3	3	12	0	9
17:00 - 17:15	48	20	8	6	21	36	37	162	53	4	120	1	4	5	0	7
17:15 - 17:30	37	18	9	4	18	37	48	146	79	5	115	3	9	1	0	5
17:30 - 17:45	43	20	6	1	17	36	44	154	57	4	135	1	7	3	0	8
17:45 - 18:00	43	15	5	1	13	39	22	114	48	5	105	1	1	7	0	7
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Fromme Rd @ 29th St E – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:15 - 9:15
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	4	10	0	3	36	4	6	3	3	2	13	1	0	0	0	0
7:15 - 7:30	3	6	0	6	37	7	2	10	4	5	20	2	0	3	1	1
7:30 - 7:45	4	10	2	4	45	9	3	12	3	8	15	4	1	0	0	3
7:45 - 8:00	8	17	0	3	39	13	10	23	6	4	33	3	2	8	0	9
8:00 - 8:15	7	17	0	3	49	24	18	33	5	12	40	6	2	2	1	5
8:15 - 8:30	14	55	1	8	40	20	40	29	15	6	53	11	3	1	0	1
8:30 - 8:45	21	35	3	3	61	35	22	45	10	7	58	5	0	4	0	8
8:45 - 9:00	23	39	0	10	40	25	31	39	12	5	49	7	2	3	0	5
9:00 - 9:15	10	40	3	3	49	24	26	52	9	4	35	7	2	0	2	1
9:15 - 9:30	8	10	2	8	27	11	3	37	2	5	24	7	3	2	1	2
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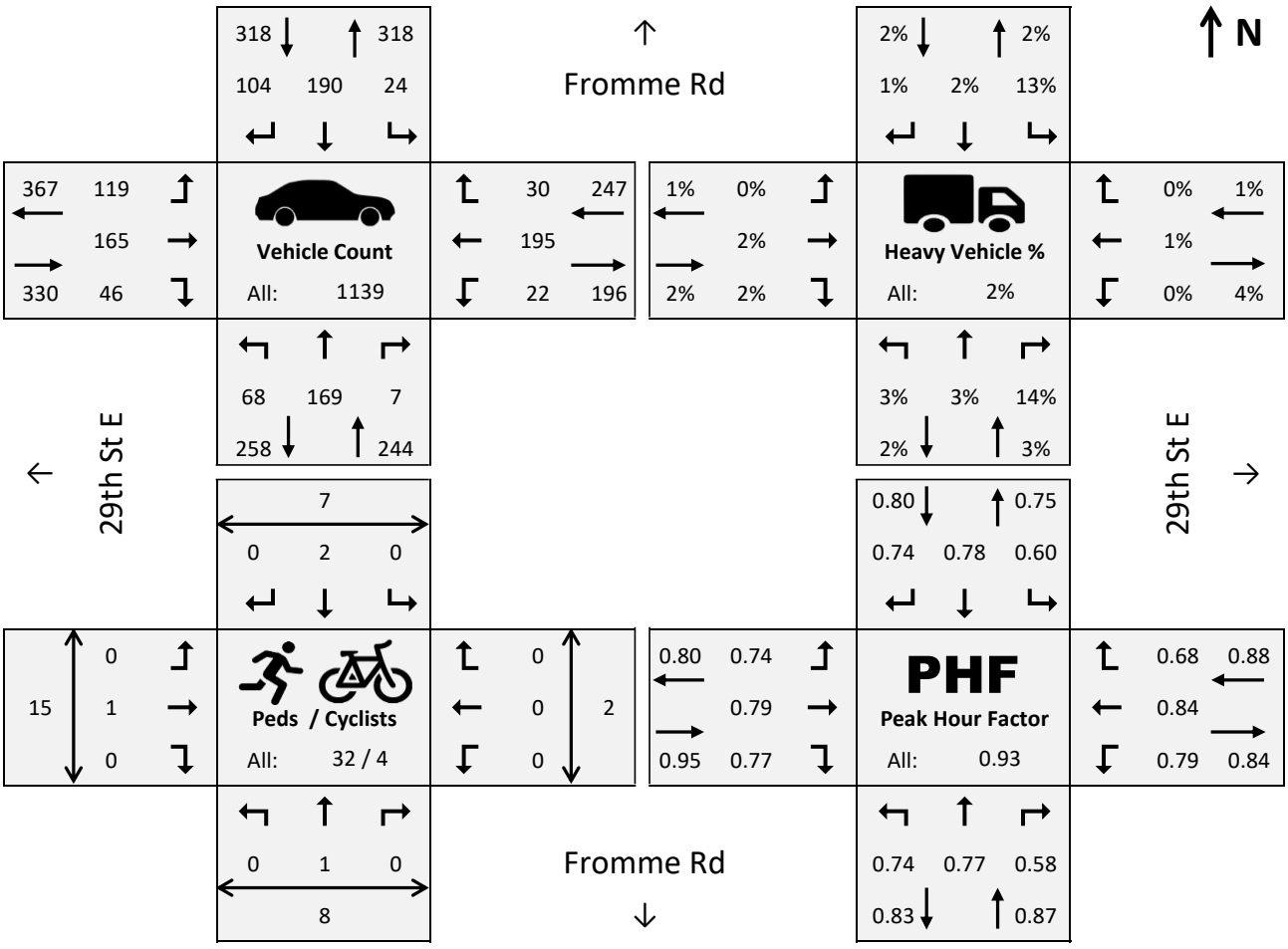

Fromme Rd @ 29th St E – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	16:15 - 17:15
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	14	24	1	6	26	7	21	57	10	11	49	14	2	6	4	3
14:45 - 15:00	13	48	0	6	24	12	22	47	8	8	49	15	3	2	1	6
15:00 - 15:15	12	38	2	4	40	24	19	47	17	5	42	9	30	1	4	15
15:15 - 15:30	8	26	3	10	64	16	11	59	18	8	46	9	4	3	6	11
15:30 - 15:45	12	19	4	9	29	12	22	60	19	4	46	8	3	6	2	3
15:45 - 16:00	14	29	2	10	25	10	14	56	12	6	39	14	4	4	9	1
16:00 - 16:15	10	27	4	5	29	4	11	45	20	5	46	11	1	5	1	5
16:15 - 16:30	15	40	5	6	38	10	15	65	11	9	42	12	4	2	0	6
16:30 - 16:45	11	40	3	10	43	12	18	60	16	11	44	2	4	2	2	3
16:45 - 17:00	9	45	2	10	27	11	21	63	14	5	56	12	4	1	0	0
17:00 - 17:15	11	37	4	8	37	16	20	50	12	5	57	12	6	0	0	1
17:15 - 17:30	10	44	5	12	30	14	27	53	14	9	23	17	3	1	2	3
17:30 - 17:45	9	48	4	7	33	6	20	45	8	9	48	19	4	0	2	2
17:45 - 18:00	8	20	1	8	32	15	18	59	11	3	29	10	1	2	0	4
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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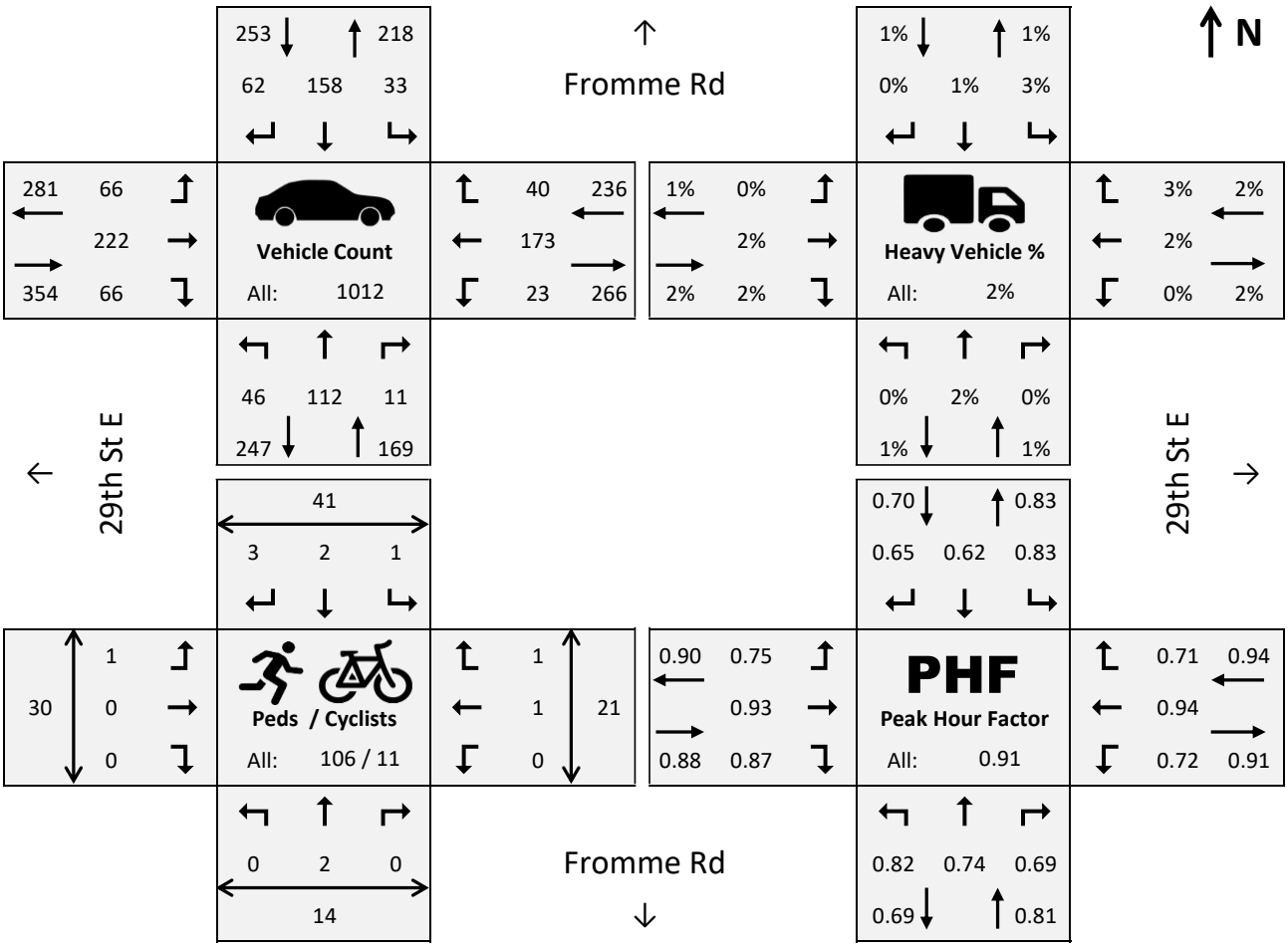

Fromme Rd @ Ross Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:00 - 9:00
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	14	2	1	39	0	0	1	0	3	1	2	0	1	1	1
7:15 - 7:30	0	12	1	2	49	0	0	0	1	4	0	3	0	2	1	2
7:30 - 7:45	2	18	1	2	45	0	1	0	4	7	0	1	0	1	0	1
7:45 - 8:00	1	30	4	2	53	0	0	1	3	9	0	3	0	2	2	7
8:00 - 8:15	0	60	2	3	67	0	0	1	1	8	0	6	0	4	2	7
8:15 - 8:30	0	98	3	1	74	1	1	0	2	4	0	8	0	4	0	7
8:30 - 8:45	0	52	6	3	91	1	1	0	4	3	1	5	0	10	0	11
8:45 - 9:00	2	74	3	4	61	0	0	0	2	4	1	13	0	10	0	6
9:00 - 9:15	2	50	5	4	55	0	0	0	0	4	1	10	0	1	0	2
9:15 - 9:30	2	18	4	3	30	0	1	0	1	8	1	3	0	0	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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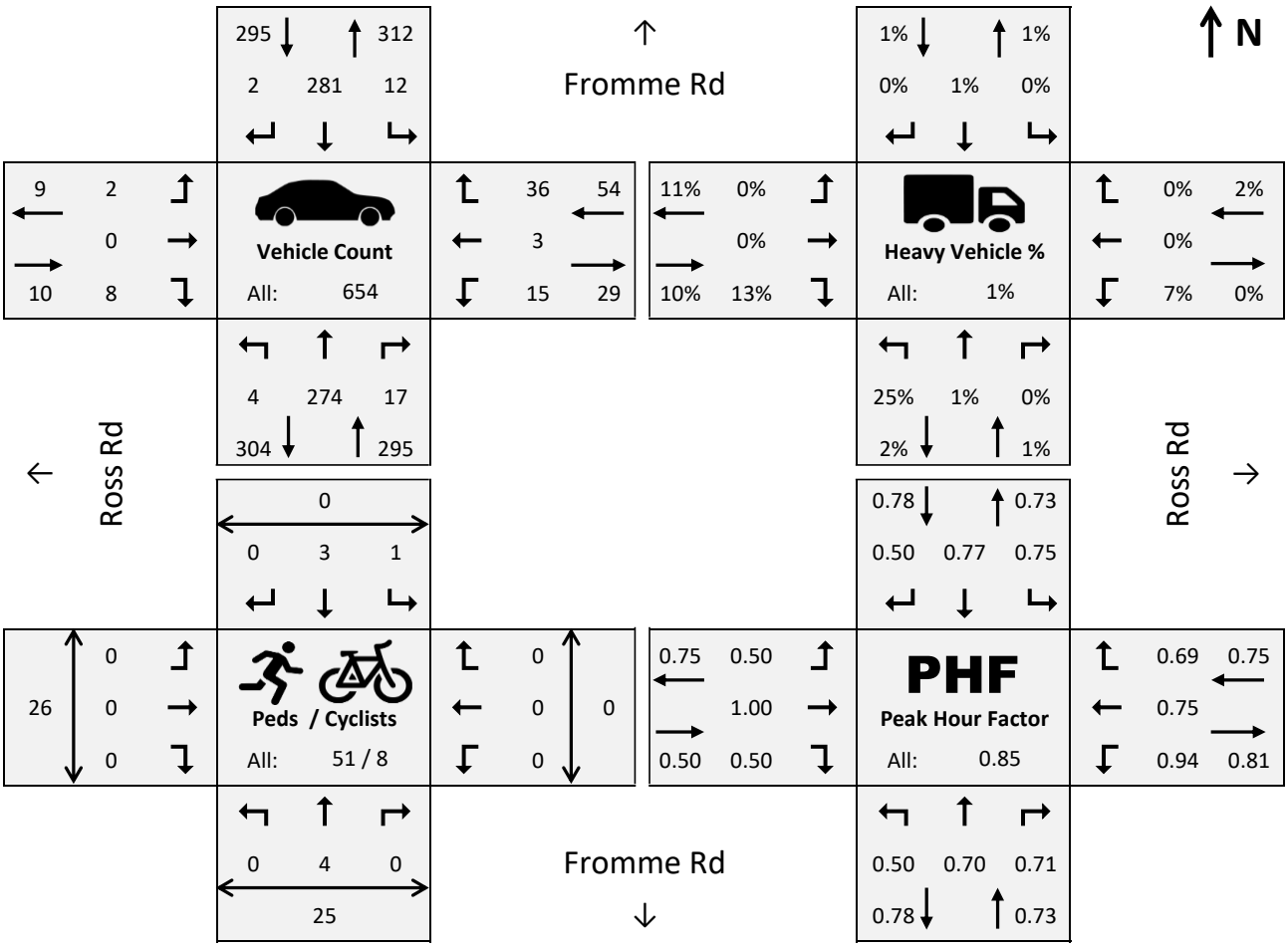

Fromme Rd @ Ross Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	16:45 - 17:45
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	0	56	3	3	37	0	0	0	2	1	0	3	0	5	0	5
14:45 - 15:00	1	84	7	0	30	1	0	0	1	10	0	11	0	10	3	7
15:00 - 15:15	0	62	8	2	73	2	1	0	2	1	1	11	1	10	3	23
15:15 - 15:30	3	41	8	6	77	0	0	1	0	5	1	9	0	9	1	20
15:30 - 15:45	1	49	4	1	40	0	0	0	0	13	1	5	1	10	1	4
15:45 - 16:00	3	49	6	1	39	0	1	1	1	4	2	6	1	7	4	4
16:00 - 16:15	1	43	7	3	39	0	1	0	1	5	1	8	0	6	2	5
16:15 - 16:30	2	62	6	5	57	1	0	0	1	3	1	6	1	7	1	10
16:30 - 16:45	2	52	10	0	49	0	0	1	2	6	1	10	1	4	1	7
16:45 - 17:00	2	62	14	2	39	0	1	0	5	8	2	8	0	7	0	10
17:00 - 17:15	0	69	6	4	45	0	0	0	0	11	2	10	3	7	0	10
17:15 - 17:30	0	83	9	6	51	0	0	0	0	6	1	10	0	7	1	8
17:30 - 17:45	3	76	9	5	44	1	0	0	2	6	0	18	0	7	2	9
17:45 - 18:00	0	45	8	0	42	1	0	0	1	11	2	7	0	2	0	6
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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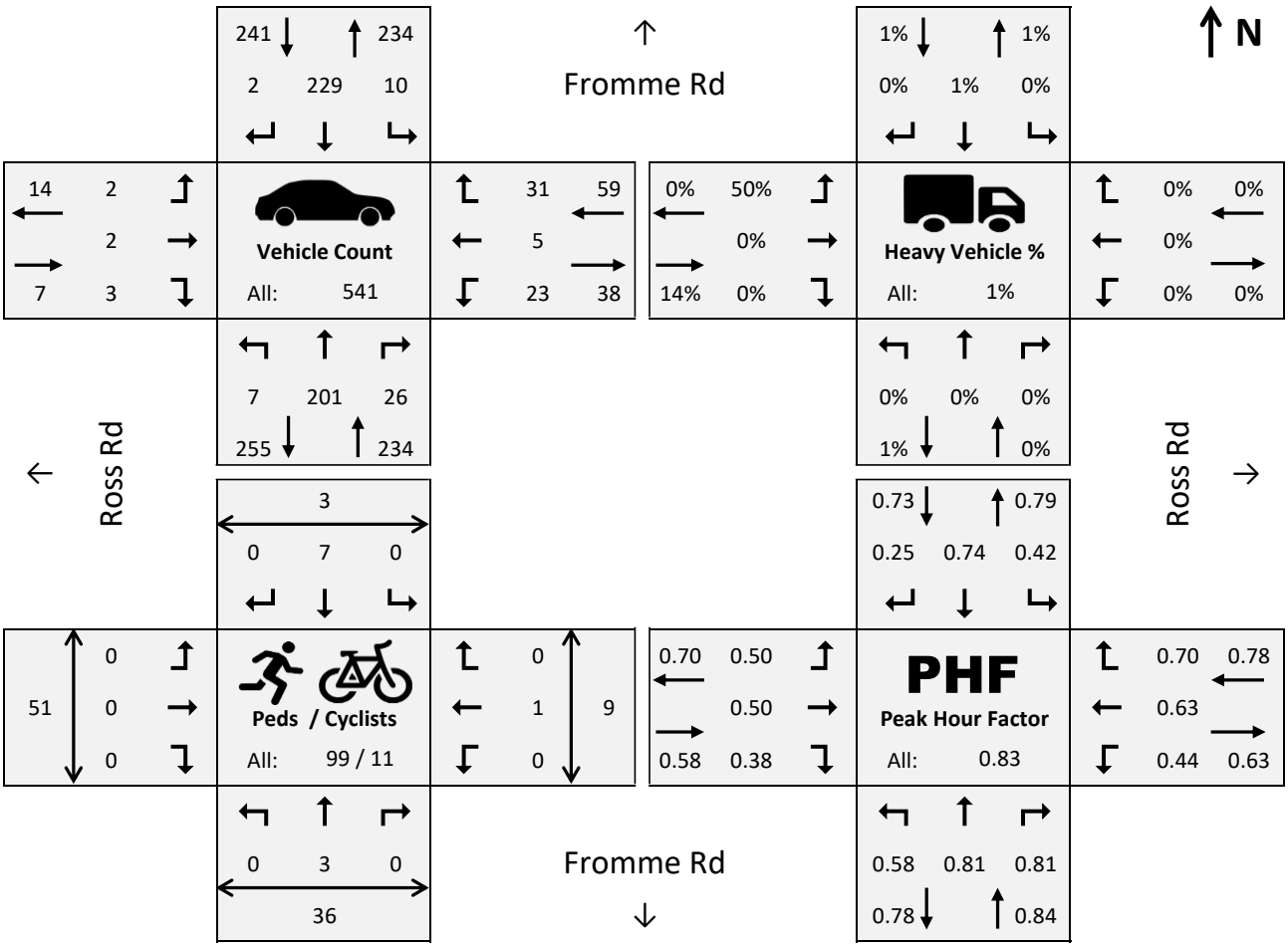

Fromme Rd @ Harold Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:15 - 9:15
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	14	2	1	38	1	0	0	0	0	0	1	0	0	0	0
7:15 - 7:30	0	14	0	0	38	0	0	0	0	6	0	0	0	1	0	1
7:30 - 7:45	0	13	2	0	45	0	0	0	0	3	0	0	0	0	1	0
7:45 - 8:00	0	27	1	0	41	0	0	0	0	3	0	0	0	0	0	0
8:00 - 8:15	0	44	1	0	66	0	0	0	0	6	0	1	0	0	1	0
8:15 - 8:30	0	111	4	1	56	0	0	0	0	4	0	0	0	2	0	0
8:30 - 8:45	0	67	2	1	107	1	0	0	0	4	0	1	0	1	0	0
8:45 - 9:00	0	84	2	1	88	0	0	0	0	2	0	4	0	0	0	0
9:00 - 9:15	0	90	3	0	74	0	0	0	0	4	0	1	0	2	0	0
9:15 - 9:30	0	25	1	0	35	0	0	0	0	1	0	0	0	0	0	0
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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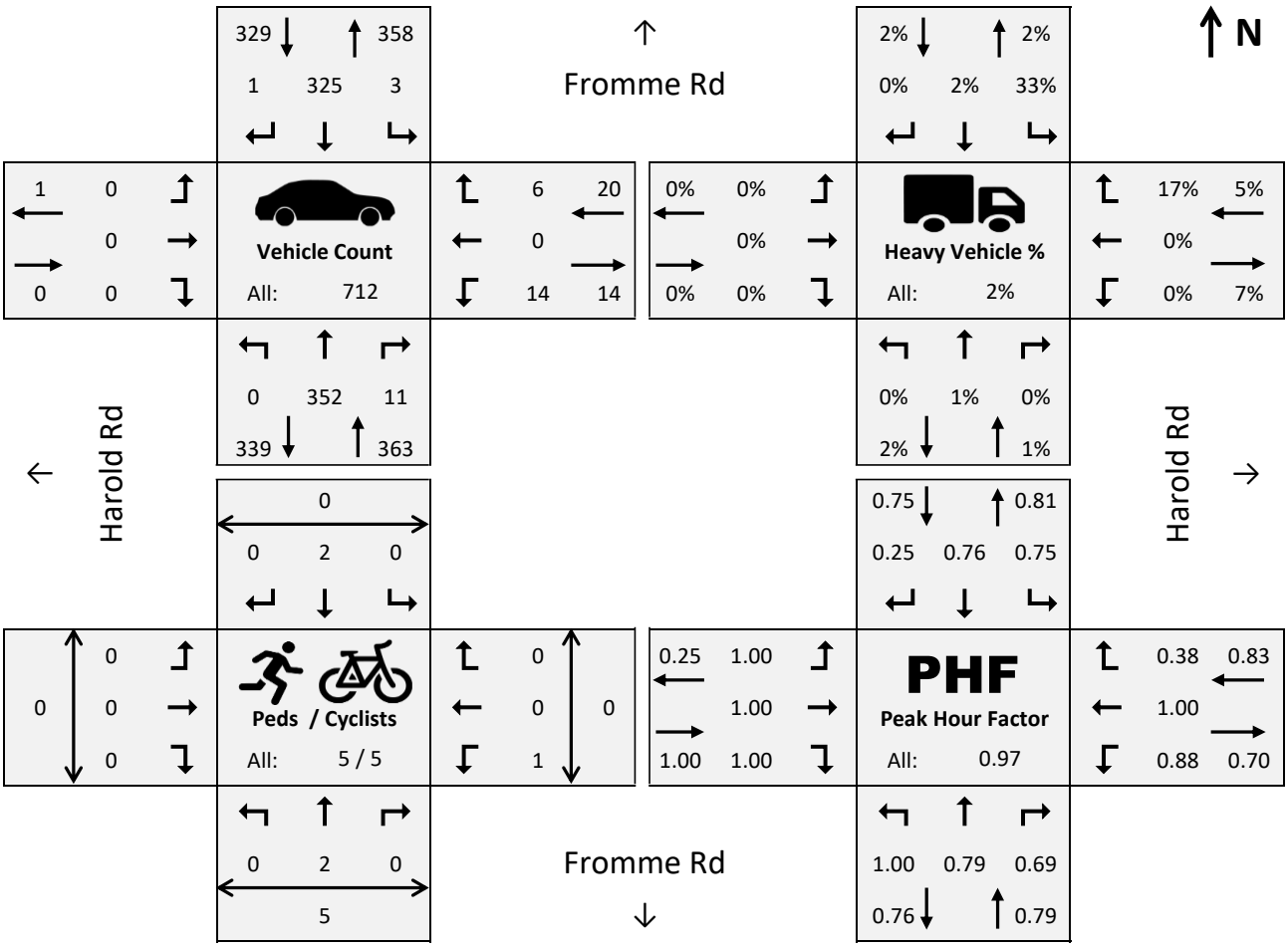

Fromme Rd @ Harold Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	14:30 - 15:30
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	0	61	0	0	37	0	0	0	0	2	0	2	0	0	0	0
14:45 - 15:00	0	85	3	0	28	0	0	0	0	5	0	4	1	0	0	0
15:00 - 15:15	0	84	3	0	81	0	0	0	0	2	0	2	1	7	0	0
15:15 - 15:30	0	44	2	0	85	0	0	0	0	3	0	1	2	5	0	0
15:30 - 15:45	0	53	2	0	34	0	0	0	0	4	0	2	1	3	0	0
15:45 - 16:00	0	44	6	1	33	0	0	0	0	1	0	0	0	2	0	0
16:00 - 16:15	0	49	2	0	36	0	0	0	0	3	1	0	0	2	0	0
16:15 - 16:30	2	59	3	0	56	1	0	0	0	8	0	1	0	0	0	0
16:30 - 16:45	0	60	5	0	49	0	0	0	0	1	0	0	0	0	0	0
16:45 - 17:00	0	54	6	2	33	4	0	0	0	1	0	1	0	4	0	0
17:00 - 17:15	0	70	6	1	47	0	0	0	0	2	0	0	0	0	0	0
17:15 - 17:30	0	89	3	0	50	1	0	0	0	1	0	2	0	0	0	0
17:30 - 17:45	0	90	4	1	45	0	0	0	0	1	0	0	0	0	0	0
17:45 - 18:00	0	45	4	0	42	0	0	0	0	2	0	0	0	0	0	0
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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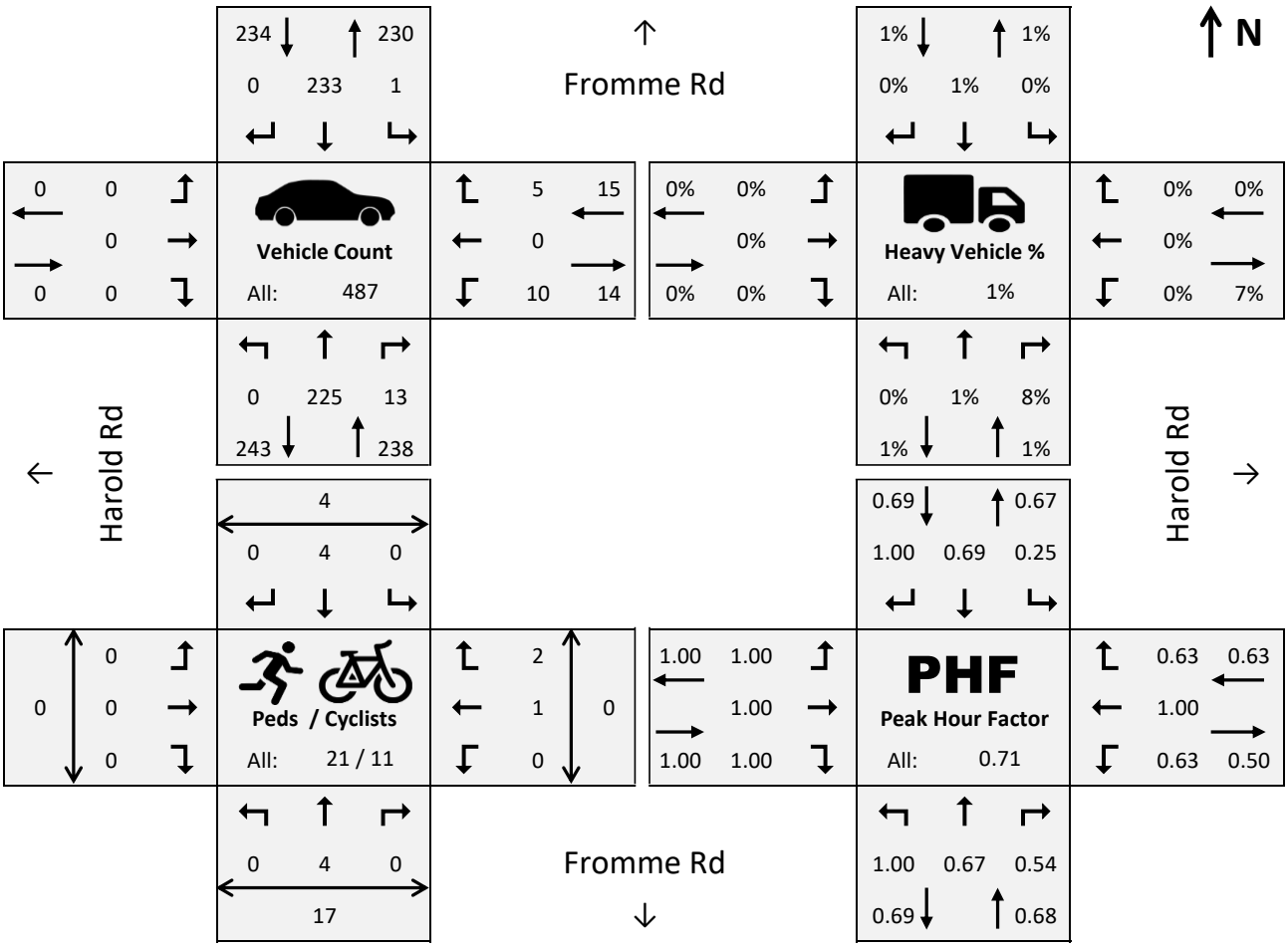

Baird Rd @ Harold Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:15 - 9:15
Notes:	AM students in the middle of the road: NB: 88 students and SB: 11 students				

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	1	1	0	0	3	0	1	0	1	0	0	0	0	1	0	1
7:15 - 7:30	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
7:30 - 7:45	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0
7:45 - 8:00	0	1	0	0	0	0	0	0	0	0	0	0	1	3	1	0
8:00 - 8:15	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
8:15 - 8:30	2	4	0	0	1	1	0	0	4	0	0	0	1	1	3	6
8:30 - 8:45	2	3	0	1	4	0	1	0	4	0	1	0	4	23	2	11
8:45 - 9:00	2	6	0	0	5	1	1	0	1	0	0	0	0	28	0	6
9:00 - 9:15	0	5	0	0	4	2	1	1	1	1	0	0	0	4	2	22
9:15 - 9:30	1	3	0	1	1	0	0	0	1	1	0	0	1	0	0	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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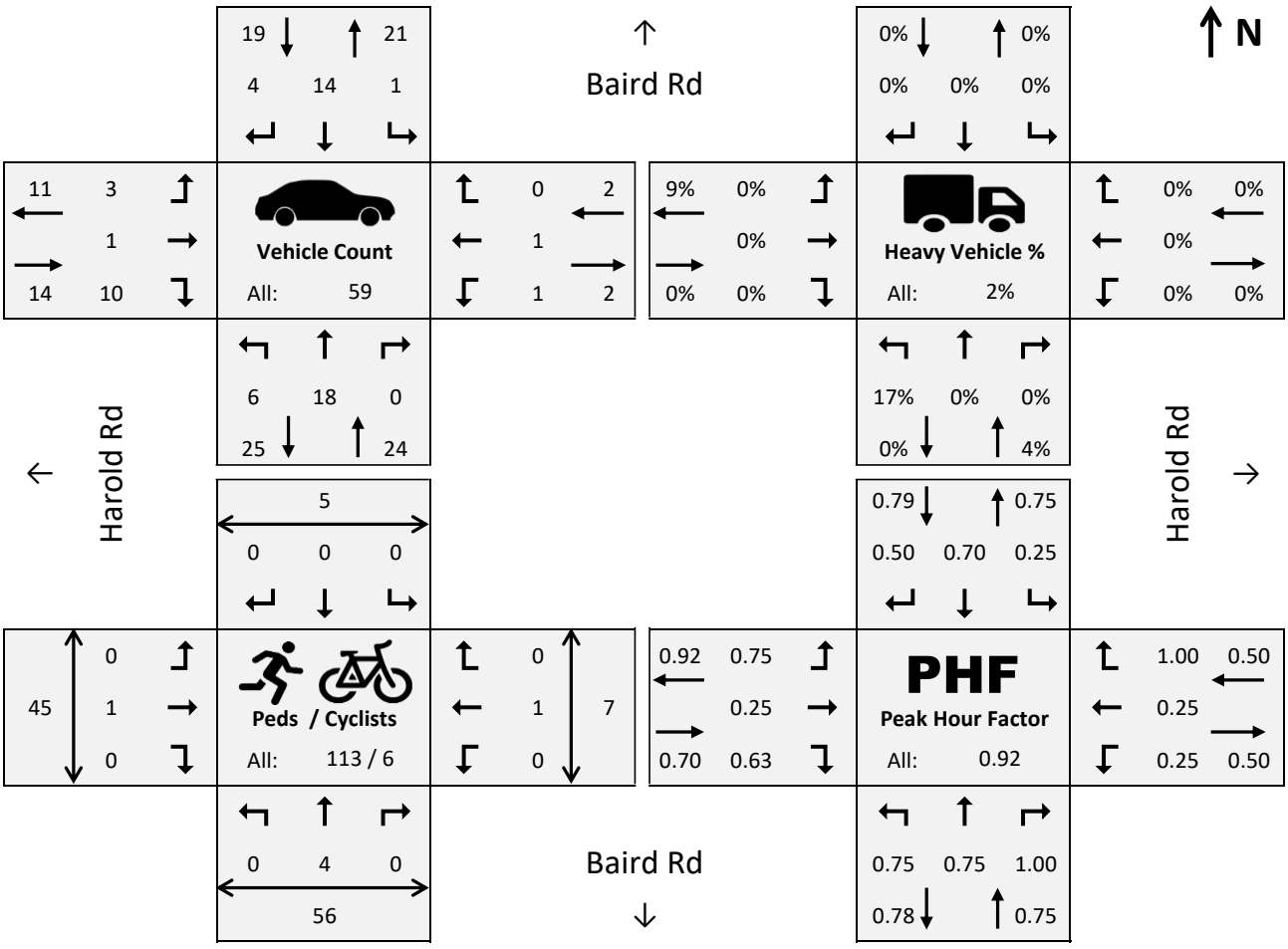

Baird Rd @ Harold Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	14:30 - 15:30
Notes:	AM students in the middle of the road: NB: 10 students and SB: 189 students				

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	4	2	0	0	3	0	0	0	1	0	1	0	0	2	1	0
14:45 - 15:00	4	3	2	0	2	1	0	0	2	0	0	1	1	13	2	3
15:00 - 15:15	1	2	0	0	2	2	1	0	0	0	0	0	0	18	1	56
15:15 - 15:30	1	3	0	0	1	1	1	0	0	0	0	0	2	5	1	12
15:30 - 15:45	3	3	1	0	1	1	1	0	0	1	0	0	0	5	0	12
15:45 - 16:00	2	2	0	0	1	1	0	1	1	0	0	0	0	5	0	8
16:00 - 16:15	1	2	0	0	1	1	0	0	0	0	0	0	3	5	0	3
16:15 - 16:30	4	1	1	0	1	0	2	0	1	0	1	0	0	9	0	5
16:30 - 16:45	3	1	0	0	1	0	0	1	1	0	0	0	0	5	0	2
16:45 - 17:00	0	2	1	0	2	1	0	0	2	1	0	0	0	4	1	4
17:00 - 17:15	3	1	0	0	2	0	0	1	3	0	0	0	0	3	0	9
17:15 - 17:30	1	2	1	0	0	0	0	0	1	0	0	0	0	6	0	1
17:30 - 17:45	1	1	0	0	2	0	0	0	1	0	1	0	0	5	1	4
17:45 - 18:00	1	3	0	0	0	0	2	0	2	0	0	0	0	0	3	4
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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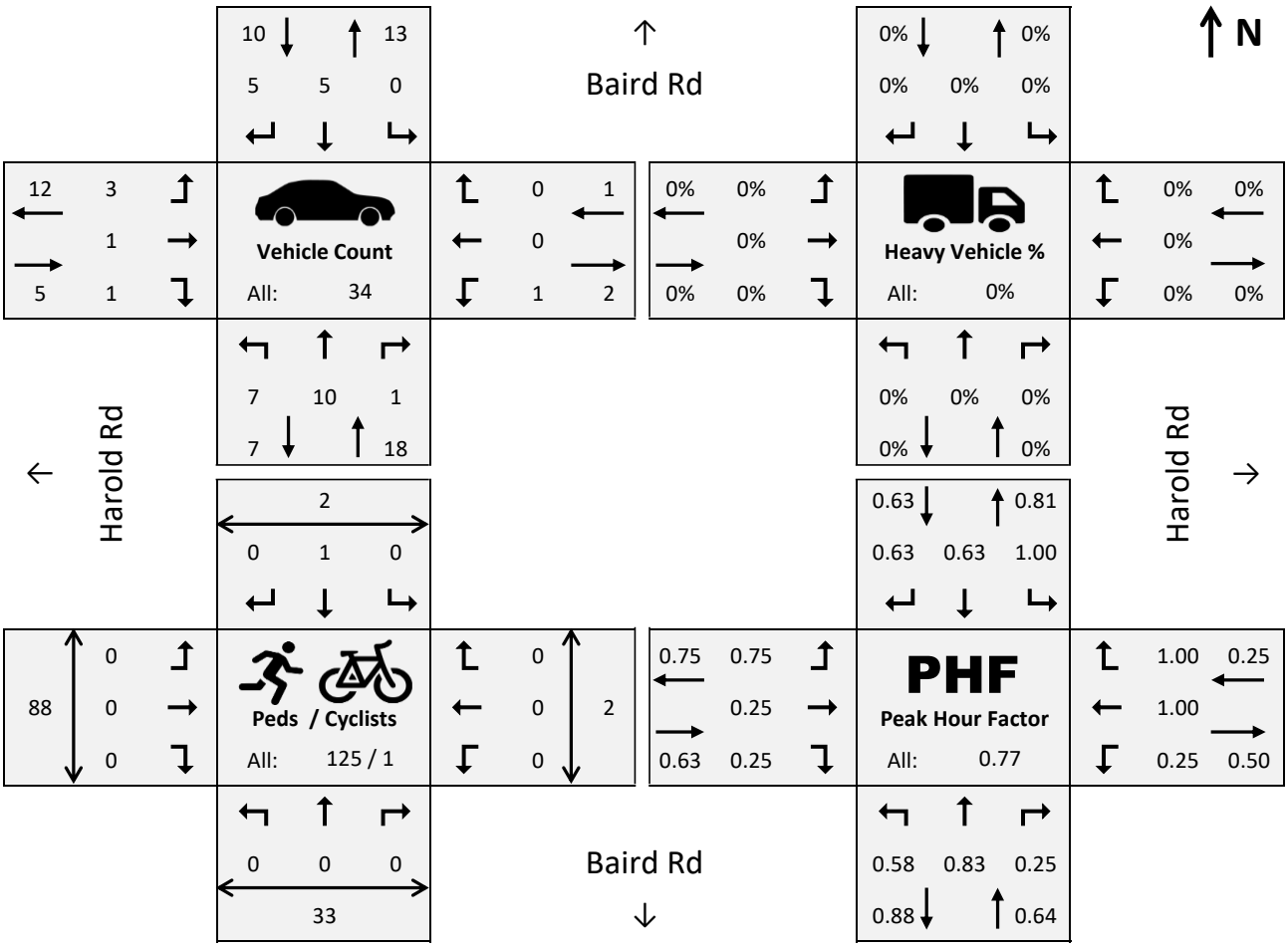

Baird Rd @ Ross Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	8:15 - 9:15
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	8:30 - 9:30
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	0	0	3	0	1	0	9	0	0	6	2	0	0	0	2
7:15 - 7:30	0	0	0	5	0	0	0	3	0	0	6	2	0	0	1	3
7:30 - 7:45	0	0	0	6	0	0	0	8	0	0	3	0	0	0	0	0
7:45 - 8:00	0	0	0	2	0	3	1	5	0	0	4	7	0	0	3	7
8:00 - 8:15	0	0	0	3	0	5	2	6	0	0	9	0	1	0	3	6
8:15 - 8:30	0	0	0	9	0	1	2	5	0	0	8	6	3	0	15	10
8:30 - 8:45	0	0	0	10	0	2	3	10	0	0	12	5	0	0	8	5
8:45 - 9:00	0	0	0	5	0	2	2	4	0	0	15	13	0	0	13	24
9:00 - 9:15	0	0	0	8	0	1	3	9	0	0	21	6	0	0	26	9
9:15 - 9:30	0	0	0	3	0	2	1	17	0	0	17	10	2	0	2	8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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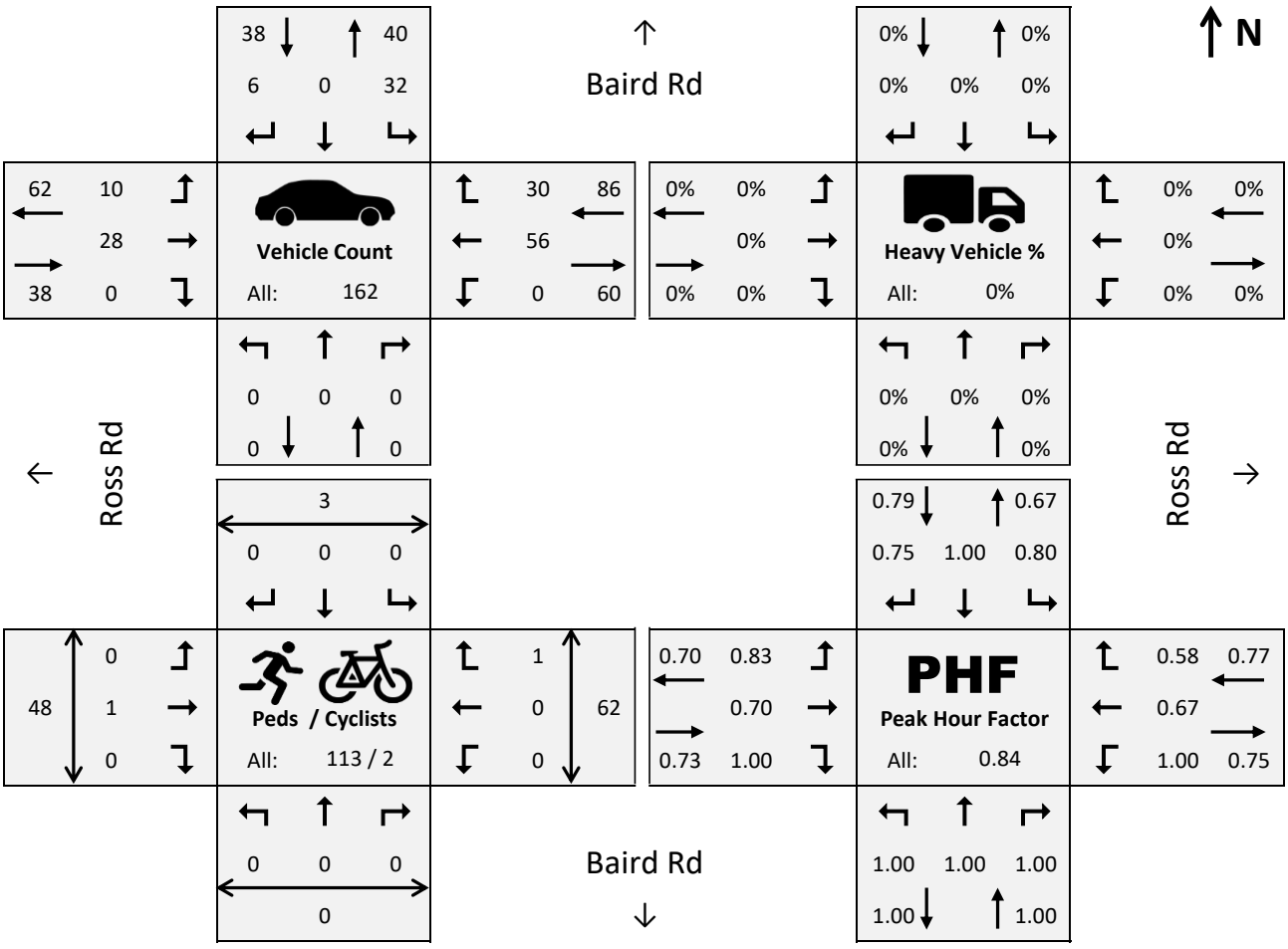

Baird Rd @ Ross Rd – DNV, BC

Project#:	04-25-0159	**Weather:**	Cloudy	**Analysis Period:**	15:00 - 16:00
Date:	Jan 13, 2026 (Tue)	**Road Cond:**	Wet	**Intersection Peak:**	16:45 - 17:45
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
14:30 - 14:45	0	0	0	6	0	1	1	5	0	0	5	8	5	0	7	8
14:45 - 15:00	0	0	0	9	0	3	3	4	0	0	20	7	1	0	2	17
15:00 - 15:15	0	0	0	3	0	4	4	9	0	0	21	10	9	0	28	162
15:15 - 15:30	0	0	0	3	0	1	5	13	0	0	15	5	1	0	13	39
15:30 - 15:45	0	0	0	0	0	4	0	8	0	0	17	4	7	0	7	24
15:45 - 16:00	0	0	0	3	0	1	0	2	0	0	19	7	2	0	5	10
16:00 - 16:15	0	0	0	2	0	1	1	3	0	0	13	4	5	0	0	6
16:15 - 16:30	0	0	0	3	0	1	1	6	0	0	14	6	2	0	8	9
16:30 - 16:45	0	0	0	3	0	1	3	9	0	0	20	3	3	0	3	12
16:45 - 17:00	0	0	0	3	0	3	3	11	0	0	24	6	2	0	3	17
17:00 - 17:15	0	0	0	5	0	6	5	8	0	0	16	6	2	0	2	15
17:15 - 17:30	0	0	0	6	0	2	4	8	0	0	20	6	3	0	8	19
17:30 - 17:45	0	0	0	5	0	1	4	12	0	0	20	7	3	0	0	12
17:45 - 18:00	0	0	0	4	0	1	1	6	0	0	18	8	0	0	3	5
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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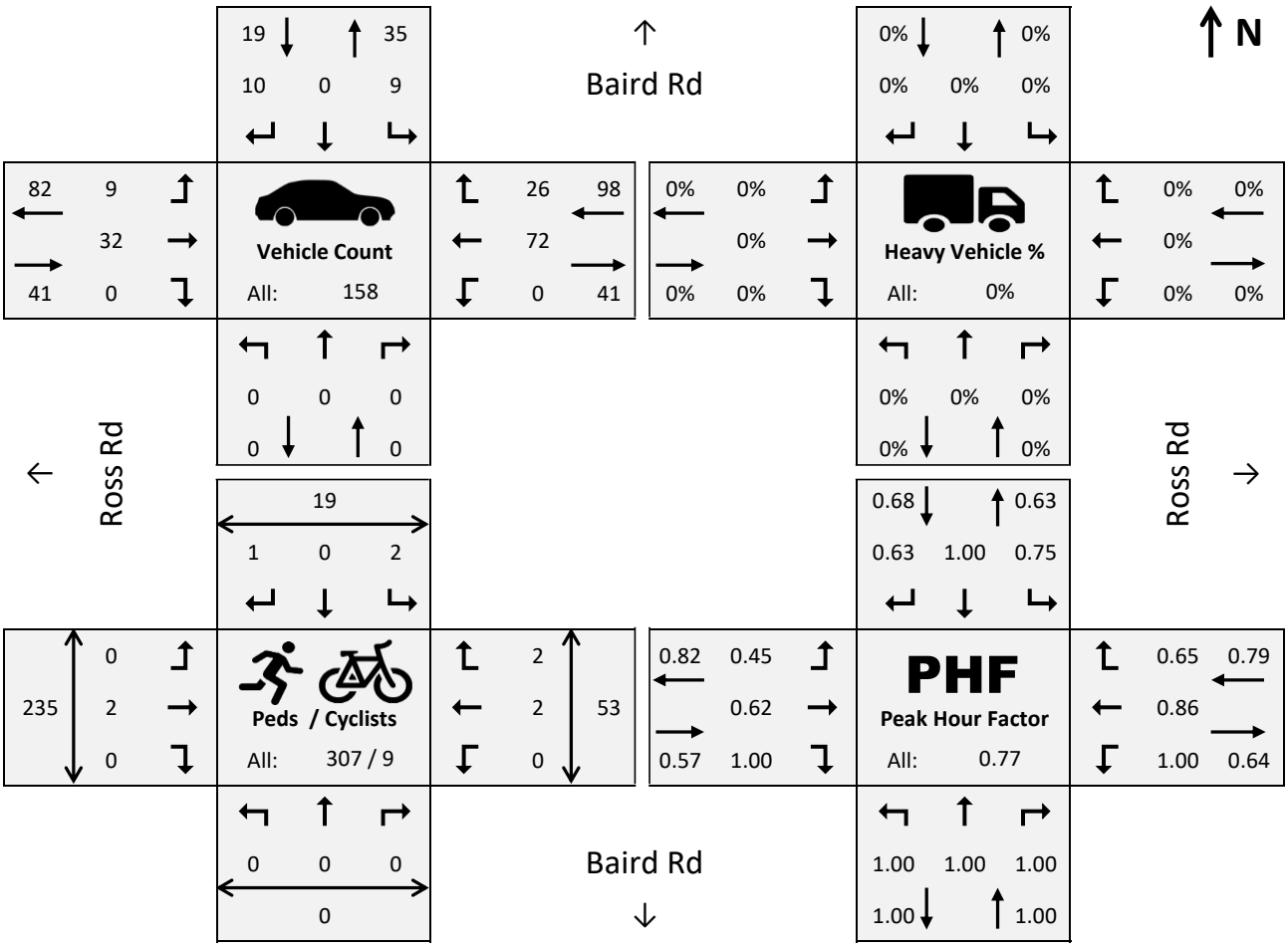

Site Driveways @ Lynn Valley Rd – North Vancouver, BC

Project#:	04-25-0159	**Weather:**	Sunny	**Analysis Period:**	8:15 - 9:15
Date:	Jun 18, 2025 (Wed)	**Road Cond:**	Dry	**Intersection Peak:**	8:00 - 9:00
Notes:					

TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
7:00 - 7:15	0	0	0	1	0	4	1	0	0	0	0	2	4	0	0	0
7:15 - 7:30	0	0	0	0	0	5	1	0	0	0	0	1	2	0	0	0
7:30 - 7:45	0	0	0	0	0	1	1	0	0	0	0	1	2	0	0	0
7:45 - 8:00	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0	3	0	0	0	0	1	2	0	0	0
8:30 - 8:45	0	0	0	0	0	2	4	0	0	0	0	3	8	0	0	0
8:45 - 9:00	0	0	0	0	0	5	2	0	0	0	0	1	5	0	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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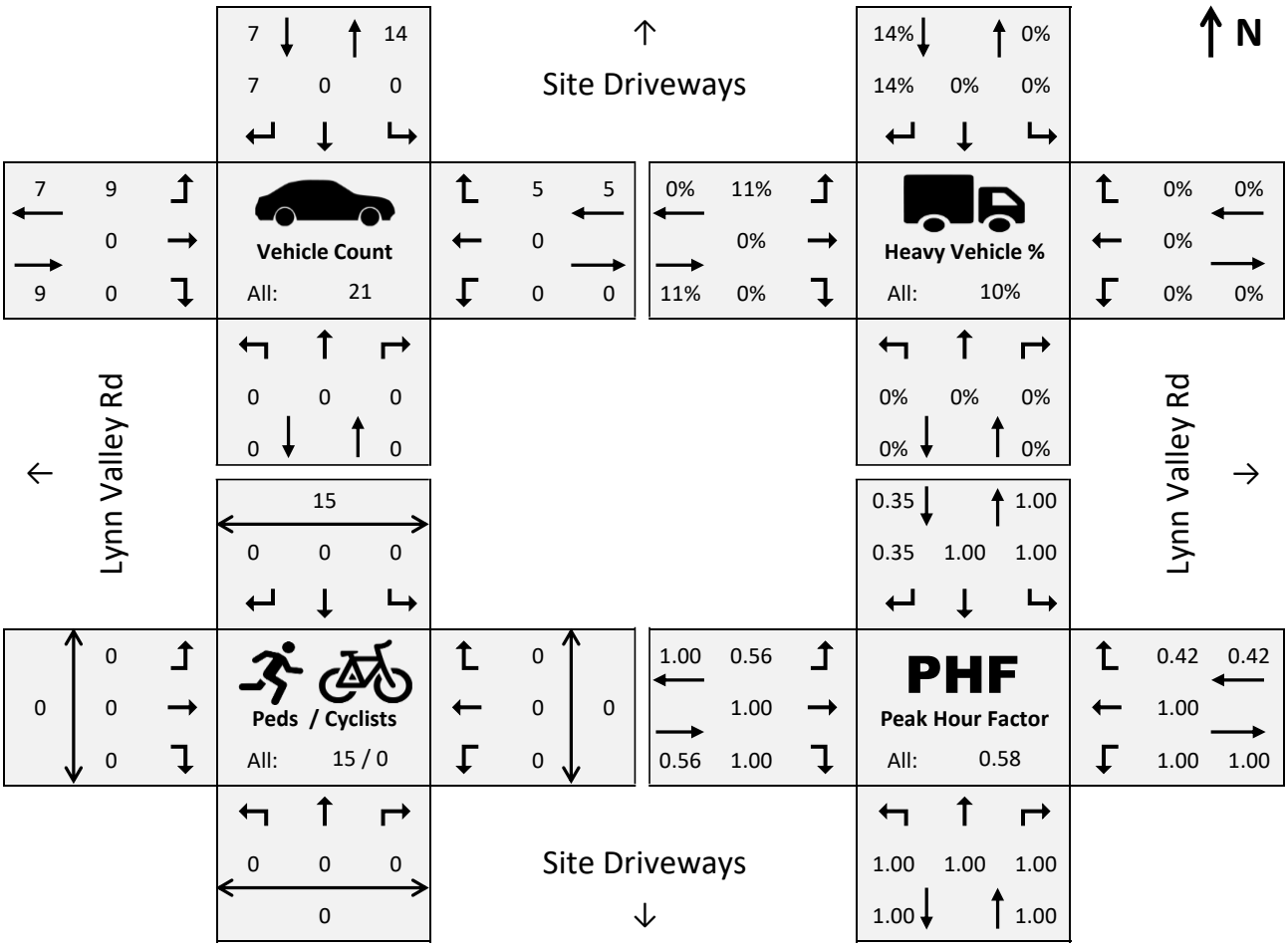
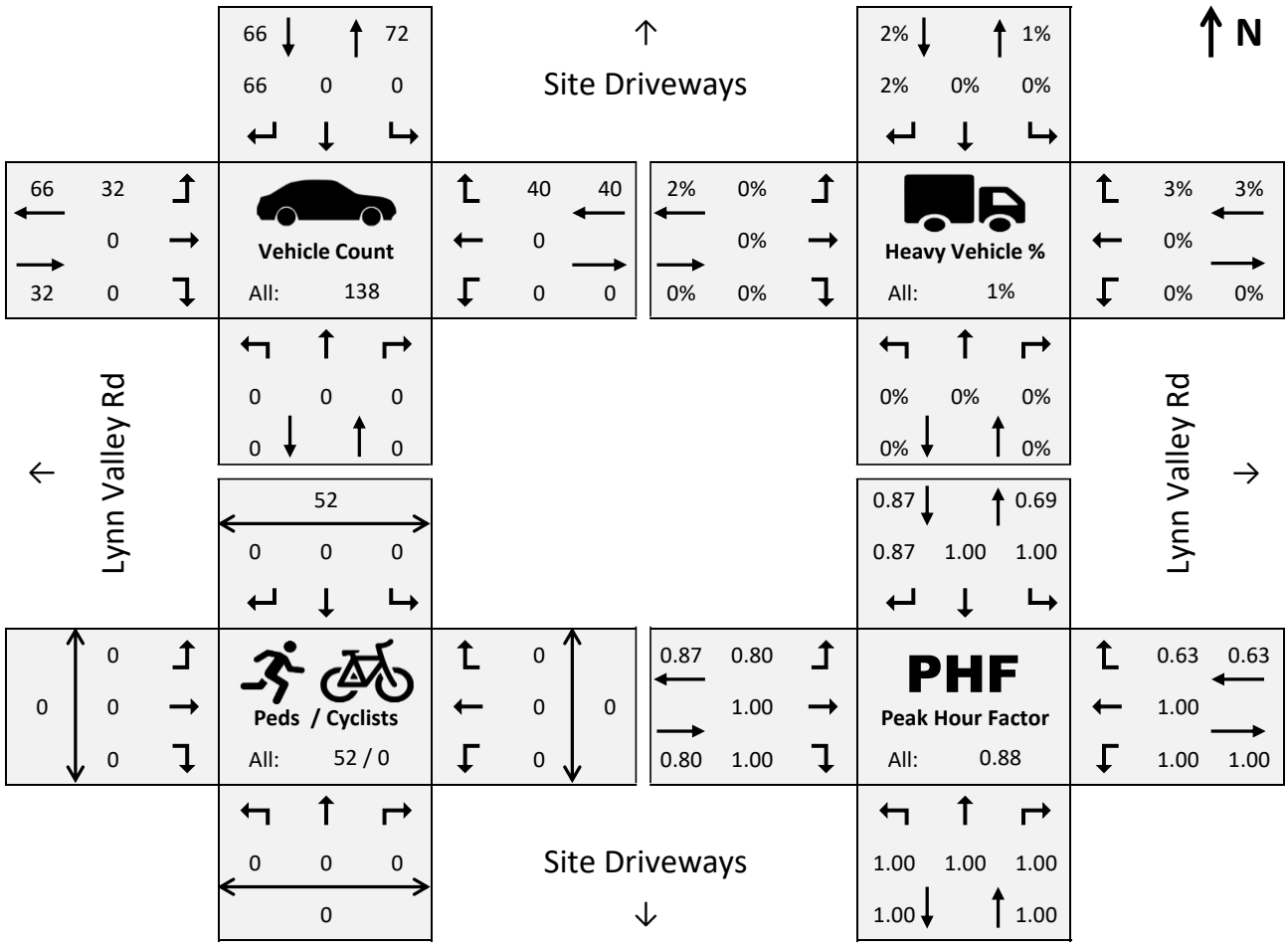


Site Driveways @ Lynn Valley Rd – North Vancouver, BC

Project#:	04-25-0159	**Weather:**	Sunny	**Analysis Period:**	15:00 - 16:00
Date:	Jun 18, 2025 (Wed)	**Road Cond:**	Dry	**Intersection Peak:**	16:45 - 17:45
Notes:					

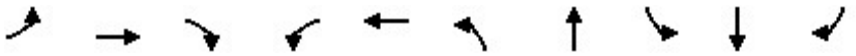
TIME INTERVAL	AUTOMOBILE COUNT												PEDESTRIANS			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	N	S	E	W
15:00 - 15:15	0	0	0	0	0	15	3	0	0	0	0	11	20	0	0	0
15:15 - 15:30	0	0	0	0	0	13	10	0	0	0	0	16	13	0	0	0
15:30 - 15:45	0	0	0	0	0	19	9	0	0	0	0	6	10	0	0	0
15:45 - 16:00	0	0	0	0	0	19	10	0	0	0	0	7	9	0	0	0
16:00 - 16:15	0	0	0	0	0	14	5	0	0	0	0	6	11	0	0	0
16:15 - 16:30	0	0	0	0	0	19	10	0	0	0	0	11	8	0	0	0
16:30 - 16:45	0	0	0	0	0	29	6	0	0	0	0	5	6	0	0	0
16:45 - 17:00	0	0	0	0	0	14	9	0	0	0	0	8	2	0	0	0
17:00 - 17:15	0	0	0	1	0	21	13	0	0	0	0	12	9	0	0	0
17:15 - 17:30	0	0	0	1	0	26	11	0	0	0	1	17	6	0	0	0
17:30 - 17:45	0	0	0	0	0	22	8	0	0	0	0	12	7	0	0	0
17:45 - 18:00	0	0	0	0	0	8	2	0	0	0	0	3	7	0	0	0
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



The attached information is provided to support the agency's review process and shall not be distributed to other parties without written consent from Bunt & Associates Engineering Ltd.

APPENDIX C

TRAFFIC MODELLING REPORTS



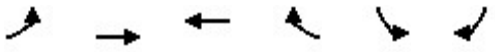
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	118	249	160	156	417	211	349	43	263	253
v/c Ratio	0.45	0.44	0.11	0.42	0.75	0.62	0.50	0.17	0.55	0.16
Control Delay	20.6	19.2	0.2	22.1	38.8	27.7	19.6	26.0	32.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	19.2	0.2	22.1	38.8	27.7	19.6	26.0	32.7	0.2
Queue Length 50th (m)	11.6	25.6	0.0	17.7	69.3	24.5	38.1	5.8	39.4	0.0
Queue Length 95th (m)	17.4	20.0	0.0	31.2	#117.3	40.8	62.9	14.4	63.3	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	260	575	1443	370	559	340	739	283	547	1560
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.43	0.11	0.42	0.75	0.62	0.47	0.15	0.48	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	237	152	148	360	36	200	197	135	41	250	240
Future Volume (vph)	112	237	152	148	360	36	200	197	135	41	250	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.95		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	0.97	1.00		0.99	1.00		0.93	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1741	1872	1443	1681	1800		1777	1671		1672	1872	1560
Flt Permitted	0.29	1.00	1.00	0.52	1.00		0.37	1.00		0.55	1.00	1.00
Satd. Flow (perm)	529	1872	1443	922	1800		685	1671		971	1872	1560
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	249	160	156	379	38	211	207	142	43	263	253
RTOR Reduction (vph)	0	0	0	0	4	0	0	29	0	0	0	0
Lane Group Flow (vph)	118	249	160	156	413	0	211	320	0	43	263	253
Confl. Peds. (#/hr)	11		74	74		11	58		65	65		58
Confl. Bikes (#/hr)			1			5			1			
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	33.0	27.5	90.0	33.4	27.7		35.9	35.9		23.1	23.1	90.0
Effective Green, g (s)	33.0	27.5	90.0	33.4	27.7		35.9	35.9		23.1	23.1	90.0
Actuated g/C Ratio	0.37	0.31	1.00	0.37	0.31		0.40	0.40		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	268	572	1443	390	554		346	666		249	480	1560
v/s Ratio Prot	c0.03	0.13		0.03	c0.23		0.04	c0.19			0.14	
v/s Ratio Perm	0.13		0.11	0.12			c0.20			0.04		c0.16
v/c Ratio	0.44	0.44	0.11	0.40	0.75		0.61	0.48		0.17	0.55	0.16
Uniform Delay, d1	20.3	25.0	0.0	19.8	28.0		20.9	20.1		26.0	28.9	0.0
Progression Factor	0.85	0.63	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	2.4	0.2	0.5	8.8		2.6	0.5		0.3	1.3	0.2
Delay (s)	18.1	18.2	0.2	20.2	36.8		23.5	20.7		26.3	30.2	0.2
Level of Service	B	B	A	C	D		C	C		C	C	A
Approach Delay (s)		12.7			32.3			21.7			16.3	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	510	725	104	0	57
Future Volume (Veh/h)	34	510	725	104	0	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	35	531	755	108	0	59
Pedestrians			1		13	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.95	
vC, conflicting volume	876				1158	444
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	876				1060	444
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	89
cM capacity (veh/h)	758				196	555

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	35	266	266	503	360	59
Volume Left	35	0	0	0	0	0
Volume Right	0	0	0	0	108	59
cSH	758	1700	1700	1700	1700	555
Volume to Capacity	0.05	0.16	0.16	0.30	0.21	0.11
Queue Length 95th (m)	1.2	0.0	0.0	0.0	0.0	2.8
Control Delay (s)	10.0	0.0	0.0	0.0	0.0	12.3
Lane LOS	A					B
Approach Delay (s)	0.6			0.0		12.3
Approach LOS						B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

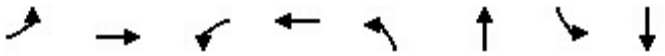
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	552	62	744	23	45
v/c Ratio	0.23	0.11	0.30	0.05	0.03
Control Delay	10.4	6.8	6.2	25.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	6.8	6.2	25.1	0.0
Queue Length 50th (m)	28.0	3.4	23.3	3.1	0.0
Queue Length 95th (m)	48.8	m6.3	32.4	9.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2386	571	2481	441	1433
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.11	0.30	0.05	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	500	36	60	722	22	44
Future Volume (vph)	500	36	60	722	22	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00		0.98	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3396		1735	3539	1656	1433
Flt Permitted	1.00		0.45	1.00	0.95	1.00
Satd. Flow (perm)	3396		814	3539	1656	1433
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	515	37	62	744	23	45
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	547	0	62	744	23	45
Confl. Peds. (#/hr)		24	24		66	20
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2309		553	2406	353	1369
v/s Ratio Prot	0.16			c0.21	c0.01	
v/s Ratio Perm			0.08			0.03
v/c Ratio	0.24		0.11	0.31	0.07	0.03
Uniform Delay, d1	5.5		5.0	5.8	28.2	0.1
Progression Factor	1.59		0.91	0.84	1.00	1.00
Incremental Delay, d2	0.2		0.4	0.3	0.2	0.0
Delay (s)	8.9		4.9	5.2	28.4	0.1
Level of Service	A		A	A	C	A
Approach Delay (s)	8.9			5.2	9.7	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



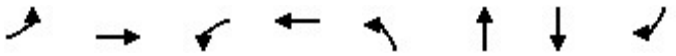
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	442	35	725	33	74	140	98
v/c Ratio	0.09	0.19	0.06	0.31	0.14	0.22	0.59	0.28
Control Delay	5.0	4.0	3.0	3.2	29.2	20.3	42.6	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.0	4.0	3.0	3.2	29.2	20.3	42.6	24.6
Queue Length 50th (m)	1.8	9.1	1.2	4.1	5.2	7.1	24.1	12.1
Queue Length 95th (m)	3.6	10.5	1.7	0.3	12.2	17.2	39.5	23.6
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	453	2343	628	2345	426	593	425	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.19	0.06	0.31	0.08	0.12	0.33	0.16

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	371	62	34	574	136	32	44	28	137	71	25
Future Volume (vph)	40	371	62	34	574	136	32	44	28	137	71	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.97	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1731	3409		1759	3408		1750	1724		1711	1804	
Flt Permitted	0.36	1.00		0.50	1.00		0.69	1.00		0.71	1.00	
Satd. Flow (perm)	664	3409		918	3408		1277	1724		1277	1804	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	41	379	63	35	586	139	33	45	29	140	72	26
RTOR Reduction (vph)	0	10	0	0	15	0	0	24	0	0	18	0
Lane Group Flow (vph)	41	432	0	35	710	0	33	50	0	140	80	0
Confl. Peds. (#/hr)	10		5	5		10	11		27	27		11
Confl. Bikes (#/hr)						6						
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	61.6	61.6		61.6	61.6		16.7	16.7		16.7	16.7	
Effective Green, g (s)	61.6	61.6		61.6	61.6		16.7	16.7		16.7	16.7	
Actuated g/C Ratio	0.68	0.68		0.68	0.68		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	454	2333		628	2332		236	319		236	334	
v/s Ratio Prot		0.13			c0.21			0.03			0.04	
v/s Ratio Perm	0.06			0.04			0.03			c0.11		
v/c Ratio	0.09	0.19		0.06	0.30		0.14	0.16		0.59	0.24	
Uniform Delay, d1	4.8	5.1		4.7	5.7		30.6	30.8		33.5	31.2	
Progression Factor	0.71	0.70		0.44	0.47		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.2		0.2	0.3		0.3	0.2		4.0	0.4	
Delay (s)	3.8	3.8		2.2	3.0		30.9	31.0		37.5	31.6	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		3.8			2.9			31.0			35.1	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	161	622	7	684	251	130	112	205
v/c Ratio	0.57	0.40	0.02	0.42	0.76	0.38	0.42	0.59
Control Delay	30.8	17.0	14.0	15.9	48.3	31.6	39.5	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	17.0	14.0	15.9	48.3	31.6	39.5	16.2
Queue Length 50th (m)	21.7	36.7	0.5	29.8	42.9	19.2	18.5	5.9
Queue Length 95th (m)	#55.9	56.5	m1.9	63.2	66.5	34.4	33.9	26.5
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	283	1566	306	1616	402	418	336	397
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.40	0.02	0.42	0.62	0.31	0.33	0.52

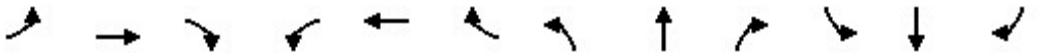
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	449	123	6	621	8	231	105	15	6	97	189
Future Volume (vph)	148	449	123	6	621	8	231	105	15	6	97	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			1.00	0.89
Flpb, ped/bikes	0.99	1.00		0.98	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1783	3370		1742	3530		1667	1710			1895	1459
Flt Permitted	0.33	1.00		0.36	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	620	3370		669	3530		1667	1710			1895	1459
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	161	488	134	7	675	9	251	114	16	7	105	205
RTOR Reduction (vph)	0	24	0	0	1	0	0	6	0	0	0	144
Lane Group Flow (vph)	161	598	0	7	683	0	251	124	0	0	112	61
Confl. Peds. (#/hr)	9		19	19		9	48					48
Confl. Bikes (#/hr)			1			7						2
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.1	41.1		41.1	41.1		18.0	18.0			12.8	12.8
Effective Green, g (s)	41.1	41.1		41.1	41.1		18.0	18.0			12.8	12.8
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	283	1538		305	1612		333	342			269	207
v/s Ratio Prot		0.18			0.19		c0.15	0.07			c0.06	
v/s Ratio Perm	c0.26			0.01								0.04
v/c Ratio	0.57	0.39		0.02	0.42		0.75	0.36			0.42	0.29
Uniform Delay, d1	17.9	16.1		13.4	16.5		33.9	31.1			35.2	34.6
Progression Factor	1.00	1.00		0.82	0.85		1.00	1.00			1.00	1.00
Incremental Delay, d2	8.1	0.7		0.1	0.8		9.3	0.7			1.0	0.8
Delay (s)	26.0	16.9		11.1	14.7		43.2	31.7			36.2	35.4
Level of Service	C	B		B	B		D	C			D	D
Approach Delay (s)		18.8			14.7			39.3			35.7	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

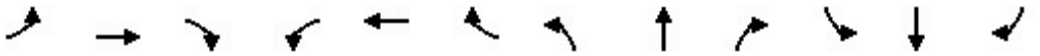
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	119	165	46	22	195	30	68	169	7	24	190	104
Future Volume (vph)	119	165	46	22	195	30	68	169	7	24	190	104
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	128	177	49	24	210	32	73	182	8	26	204	112

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	354	266	263	342
Volume Left (vph)	128	24	73	26
Volume Right (vph)	49	32	8	112
Hadj (s)	0.02	-0.02	0.09	-0.13
Departure Headway (s)	6.8	7.0	7.1	6.7
Degree Utilization, x	0.67	0.52	0.52	0.63
Capacity (veh/h)	494	459	445	496
Control Delay (s)	22.3	17.2	17.5	20.6
Approach Delay (s)	22.3	17.2	17.5	20.6
Approach LOS	C	C	C	C

Intersection Summary				
Delay		19.7		
Level of Service		C		
Intersection Capacity Utilization		72.6%	ICU Level of Service	C
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	15	3	36	4	274	17	12	281	2
Future Volume (Veh/h)	2	0	8	15	3	36	4	274	17	12	281	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	9	18	4	42	5	322	20	14	331	2
Pedestrians		26						25				
Lane Width (m)		3.6						3.6				
Walking Speed (m/s)		1.2						1.2				
Percent Blockage		2						2				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	772	738	383	736	729	332	359			342		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	772	738	383	736	729	332	359			342		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	99	94	99	94	100			99		
cM capacity (veh/h)	281	333	616	307	336	709	1060			1217		

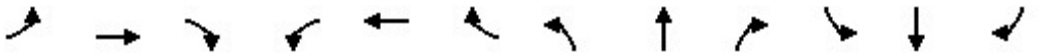
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	64	347	347
Volume Left	2	18	5	14
Volume Right	9	42	20	2
cSH	507	493	1060	1217
Volume to Capacity	0.02	0.13	0.00	0.01
Queue Length 95th (m)	0.5	3.5	0.1	0.3
Control Delay (s)	12.3	13.4	0.2	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	12.3	13.4	0.2	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	37.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	6	352	11	3	325
Future Volume (Veh/h)	14	6	352	11	3	325
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	14	6	363	11	3	335
Pedestrians			5			
Lane Width (m)			3.6			
Walking Speed (m/s)			1.2			
Percent Blockage			0			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	714	368			374	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	714	368			374	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	96	99			100	
cM capacity (veh/h)	394	644			1033	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	20	374	338
Volume Left	14	0	3
Volume Right	6	11	0
cSH	446	1700	1033
Volume to Capacity	0.04	0.22	0.00
Queue Length 95th (m)	1.1	0.0	0.1
Control Delay (s)	13.5	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	13.5	0.0	0.1
Approach LOS	B		

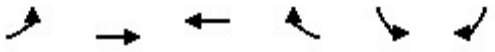
Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		29.5%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	10	1	1	0	6	18	0	1	14	4
Future Volume (Veh/h)	3	1	10	1	1	0	6	18	0	1	14	4
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	11	1	1	0	7	20	0	1	15	4
Pedestrians		45			7			56			5	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		4			1			5			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	104	105	118	128	107	32	64			27		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	104	105	118	128	107	32	64			27		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	99	100	100	100	99			100		
cM capacity (veh/h)	809	747	857	761	745	1031	1394			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	2	27	20
Volume Left	3	1	7	1
Volume Right	11	0	0	4
cSH	839	753	1394	1578
Volume to Capacity	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.4	0.1	0.1	0.0
Control Delay (s)	9.4	9.8	2.0	0.4
Lane LOS	A	A	A	A
Approach Delay (s)	9.4	9.8	2.0	0.4
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	29.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	28	56	30	32	9
Future Volume (Veh/h)	10	28	56	30	32	9
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	12	33	67	36	38	11
Pedestrians		48	62		3	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		4	5		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	106				207	136
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	106				207	136
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	99
cM capacity (veh/h)	1481				733	874

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	45	103	49
Volume Left	12	0	38
Volume Right	0	36	11
cSH	1481	1700	761
Volume to Capacity	0.01	0.06	0.06
Queue Length 95th (m)	0.2	0.0	1.6
Control Delay (s)	2.0	0.0	10.1
Lane LOS	A		B
Approach Delay (s)	2.0	0.0	10.1
Approach LOS			B

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	26.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	38	2	0	27
Future Volume (Veh/h)	7	0	38	2	0	27
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	41	2	0	29
Pedestrians	50					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	4					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	121	92			93	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	121	92			93	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	838	925			1439	

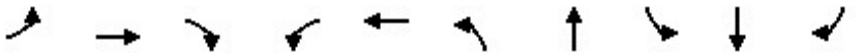
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	43	29
Volume Left	8	0	0
Volume Right	0	2	0
cSH	838	1700	1439
Volume to Capacity	0.01	0.03	0.00
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	9.3	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.3	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	500	36	60	722	22	44
Future Volume (Veh/h)	500	36	60	722	22	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	515	37	62	744	23	45
Pedestrians	66			20	24	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	6			2	2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.99		0.99	0.99
vC, conflicting volume			576		1120	320
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			545		1096	286
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			94		86	93
cM capacity (veh/h)			987		169	657

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	343	209	62	372	372	23	45
Volume Left	0	0	62	0	0	23	0
Volume Right	0	37	0	0	0	0	45
cSH	1700	1700	987	1700	1700	169	657
Volume to Capacity	0.20	0.12	0.06	0.22	0.22	0.14	0.07
Queue Length 95th (m)	0.0	0.0	1.6	0.0	0.0	3.7	1.8
Control Delay (s)	0.0	0.0	8.9	0.0	0.0	29.7	10.9
Lane LOS			A			D	B
Approach Delay (s)	0.0		0.7			17.2	
Approach LOS						C	

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		



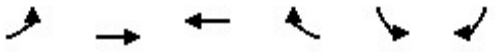
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	145	357	223	151	390	230	349	11	191	216
v/c Ratio	0.59	0.74	0.15	0.59	0.83	0.53	0.47	0.04	0.37	0.14
Control Delay	28.9	41.5	0.2	29.1	47.8	23.3	18.8	27.1	30.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	41.5	0.2	29.1	47.8	23.3	18.8	27.1	30.9	0.2
Queue Length 50th (m)	17.4	62.0	0.0	18.3	69.2	27.8	38.6	1.6	29.5	0.0
Queue Length 95th (m)	30.4	93.7	0.0	31.8	#104.3	47.9	67.6	6.1	51.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	249	568	1445	257	552	436	743	267	512	1507
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.63	0.15	0.59	0.71	0.53	0.47	0.04	0.37	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	336	210	142	342	24	216	178	150	10	180	203
Future Volume (vph)	136	336	210	142	342	24	216	178	150	10	180	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.93		1.00	1.00	0.94
Flpb, ped/bikes	0.99	1.00	1.00	0.98	1.00		0.95	1.00		0.92	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1761	1853	1445	1665	1794		1698	1627		1657	1837	1507
Flt Permitted	0.26	1.00	1.00	0.31	1.00		0.48	1.00		0.55	1.00	1.00
Satd. Flow (perm)	475	1853	1445	542	1794		859	1627		962	1837	1507
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	145	357	223	151	364	26	230	189	160	11	191	216
RTOR Reduction (vph)	0	0	0	0	3	0	0	30	0	0	0	0
Lane Group Flow (vph)	145	357	223	151	387	0	230	319	0	11	191	216
Confl. Peds. (#/hr)	53		113	113		53	172		70	70		172
Confl. Bikes (#/hr)			5			4			1			
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	31.6	24.5	93.5	31.6	24.5		41.0	41.0		26.1	26.1	93.5
Effective Green, g (s)	31.6	24.5	93.5	31.6	24.5		41.0	41.0		26.1	26.1	93.5
Actuated g/C Ratio	0.34	0.26	1.00	0.34	0.26		0.44	0.44		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	258	485	1445	268	470		449	713		268	512	1507
v/s Ratio Prot	0.04	0.19		c0.04	c0.22		0.04	c0.20			0.10	
v/s Ratio Perm	0.15		0.15	0.15			c0.18			0.01		0.14
v/c Ratio	0.56	0.74	0.15	0.56	0.82		0.51	0.45		0.04	0.37	0.14
Uniform Delay, d1	23.3	31.5	0.0	23.3	32.5		17.6	18.3		24.6	27.1	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.3	5.7	0.2	2.2	11.2		0.7	0.4		0.1	0.5	0.2
Delay (s)	25.6	37.3	0.2	25.5	43.6		18.3	18.8		24.6	27.6	0.2
Level of Service	C	D	A	C	D		B	B		C	C	A
Approach Delay (s)		23.6			38.5			18.6			13.4	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	93.5	Sum of lost time (s)	27.7
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	714	708	103	0	46
Future Volume (Veh/h)	37	714	708	103	0	46
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	39	752	745	108	0	48
Pedestrians			5		44	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.90	
vC, conflicting volume	897				1302	470
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	897				1123	470
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				100	91
cM capacity (veh/h)	725				164	520

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	39	376	376	497	356	48
Volume Left	39	0	0	0	0	0
Volume Right	0	0	0	0	108	48
cSH	725	1700	1700	1700	1700	520
Volume to Capacity	0.05	0.22	0.22	0.29	0.21	0.09
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.0	2.4
Control Delay (s)	10.2	0.0	0.0	0.0	0.0	12.6
Lane LOS	B					B
Approach Delay (s)	0.5			0.0		12.6
Approach LOS						B

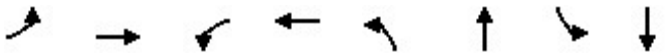
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	755	105	688	31	102
v/c Ratio	0.35	0.27	0.31	0.07	0.08
Control Delay	7.8	9.8	8.2	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	9.8	8.2	25.2	0.1
Queue Length 50th (m)	25.0	7.8	27.6	4.2	0.0
Queue Length 95th (m)	31.2	16.9	37.0	11.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2158	387	2217	472	1324
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.27	0.31	0.07	0.08

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	654	64	100	654	29	97
Future Volume (vph)	654	64	100	654	29	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.84
Flpb, ped/bikes	1.00		0.98	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3430		1729	3539	1770	1324
Flt Permitted	1.00		0.34	1.00	0.95	1.00
Satd. Flow (perm)	3430		618	3539	1770	1324
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	688	67	105	688	31	102
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	747	0	105	688	31	102
Confl. Peds. (#/hr)		41	41		116	149
Confl. Bikes (#/hr)		7				
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2149		387	2217	472	1265
v/s Ratio Prot	c0.22			0.19	0.02	
v/s Ratio Perm			0.17			c0.08
v/c Ratio	0.35		0.27	0.31	0.07	0.08
Uniform Delay, d1	8.0		7.6	7.8	24.6	0.1
Progression Factor	0.94		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		1.7	0.4	0.1	0.1
Delay (s)	7.9		9.3	8.2	24.8	0.2
Level of Service	A		A	A	C	A
Approach Delay (s)	7.9			8.3	5.9	
Approach LOS	A			A	A	

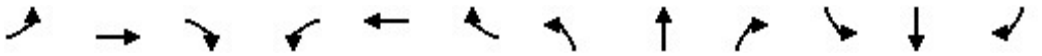
Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	616	65	647	99	200	152	169
v/c Ratio	0.08	0.28	0.13	0.29	0.41	0.49	0.76	0.42
Control Delay	1.6	1.1	5.7	4.9	33.6	22.9	54.9	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.6	1.1	5.7	4.9	33.6	22.9	54.9	29.6
Queue Length 50th (m)	0.5	2.8	2.5	7.3	14.7	19.5	24.7	23.1
Queue Length 95th (m)	m0.9	4.3	5.3	15.5	27.9	37.3	44.1	38.9
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	427	2223	487	2210	492	760	412	811
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.28	0.13	0.29	0.20	0.26	0.37	0.21

Intersection Summary

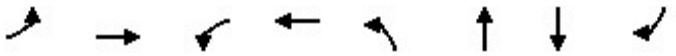
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	479	112	62	513	108	95	99	93	146	137	25
Future Volume (vph)	33	479	112	62	513	108	95	99	93	146	137	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.94		1.00	0.99	
Flpb, ped/bikes	0.96	1.00		0.97	1.00		0.98	1.00		0.92	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1565	3381		1724	3366		1734	1626		1638	1809	
Flt Permitted	0.40	1.00		0.41	1.00		0.61	1.00		0.54	1.00	
Satd. Flow (perm)	651	3381		744	3366		1108	1626		933	1809	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	499	117	65	534	112	99	103	97	152	143	26
RTOR Reduction (vph)	0	14	0	0	12	0	0	53	0	0	10	0
Lane Group Flow (vph)	34	602	0	65	635	0	99	147	0	152	159	0
Confl. Peds. (#/hr)	49		28	28		49	22		95	95		22
Confl. Bikes (#/hr)			4			10						1
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	58.8	58.8		58.8	58.8		19.5	19.5		19.5	19.5	
Effective Green, g (s)	58.8	58.8		58.8	58.8		19.5	19.5		19.5	19.5	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.22	0.22		0.22	0.22	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	425	2208		486	2199		240	352		202	391	
v/s Ratio Prot		0.18			c0.19			0.09			0.09	
v/s Ratio Perm	0.05			0.09			0.09			c0.16		
v/c Ratio	0.08	0.27		0.13	0.29		0.41	0.42		0.75	0.41	
Uniform Delay, d1	5.7	6.6		5.9	6.7		30.3	30.4		33.0	30.3	
Progression Factor	0.16	0.12		0.64	0.63		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.3		0.6	0.3		1.2	0.8		14.6	0.7	
Delay (s)	1.3	1.0		4.4	4.5		31.5	31.2		47.6	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		1.0			4.5			31.3			38.8	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



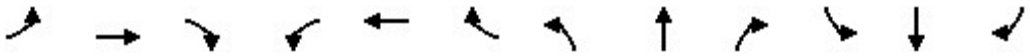
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	116	853	20	653	200	117	124	180
v/c Ratio	0.38	0.54	0.09	0.39	0.68	0.38	0.44	0.49
Control Delay	22.5	18.0	22.1	24.0	45.7	30.2	39.5	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	18.0	22.1	24.0	45.7	30.2	39.5	10.5
Queue Length 50th (m)	13.2	51.6	2.5	55.4	34.3	16.1	20.6	0.0
Queue Length 95th (m)	32.9	81.3	6.4	48.1	52.9	29.8	37.2	17.9
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	304	1589	217	1668	402	409	340	400
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.54	0.09	0.39	0.50	0.29	0.36	0.45

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	580	213	19	602	6	186	82	27	7	108	167
Future Volume (vph)	108	580	213	19	602	6	186	82	27	7	108	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.96		1.00	1.00		1.00	1.00			1.00	0.87
Flpb, ped/bikes	0.96	1.00		0.97	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1732	3292		1721	3530		1667	1638			1912	1421
Flt Permitted	0.35	1.00		0.25	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	643	3292		460	3530		1667	1638			1912	1421
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	116	624	229	20	647	6	200	88	29	8	116	180
RTOR Reduction (vph)	0	35	0	0	1	0	0	14	0	0	0	153
Lane Group Flow (vph)	116	818	0	20	652	0	200	103	0	0	124	27
Confl. Peds. (#/hr)	40		53	53		40	61					61
Confl. Bikes (#/hr)			9			9			1			1
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.6	42.6		42.6	42.6		15.9	15.9			13.4	13.4
Effective Green, g (s)	42.6	42.6		42.6	42.6		15.9	15.9			13.4	13.4
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	304	1558		217	1670		294	289			284	211
v/s Ratio Prot		c0.25			0.18		c0.12	0.06			c0.06	
v/s Ratio Perm	0.18			0.04								0.02
v/c Ratio	0.38	0.52		0.09	0.39		0.68	0.36			0.44	0.13
Uniform Delay, d1	15.2	16.6		13.1	15.3		34.7	32.6			34.9	33.2
Progression Factor	1.00	1.00		1.27	1.40		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.6	1.3		0.8	0.7		6.3	0.8			1.1	0.3
Delay (s)	18.8	17.9		17.4	22.1		41.0	33.3			35.9	33.5
Level of Service	B	B		B	C		D	C			D	C
Approach Delay (s)		18.0			22.0			38.2			34.5	
Approach LOS		B			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

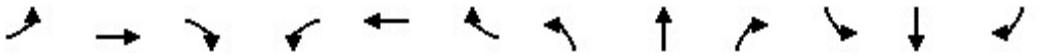
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	66	222	66	23	173	40	46	112	11	33	158	62
Future Volume (vph)	66	222	66	23	173	40	46	112	11	33	158	62
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	73	244	73	25	190	44	51	123	12	36	174	68

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	390	259	186	278
Volume Left (vph)	73	25	51	36
Volume Right (vph)	73	44	12	68
Hadj (s)	-0.04	-0.05	0.05	-0.08
Departure Headway (s)	5.9	6.2	6.6	6.3
Degree Utilization, x	0.64	0.45	0.34	0.48
Capacity (veh/h)	574	521	470	511
Control Delay (s)	19.0	14.1	13.0	15.0
Approach Delay (s)	19.0	14.1	13.0	15.0
Approach LOS	C	B	B	B

Intersection Summary				
Delay	15.8			
Level of Service	C			
Intersection Capacity Utilization	56.2%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	23	5	31	7	201	26	10	229	2
Future Volume (Veh/h)	2	2	3	23	5	31	7	201	26	10	229	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	28	6	37	8	242	31	12	276	2
Pedestrians		51			9			36			3	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		4			1			3			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	668	650	364	624	636	270	329			282		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	668	650	364	624	636	270	329			282		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	92	98	95	99			99		
cM capacity (veh/h)	268	364	633	359	369	761	1178			1271		

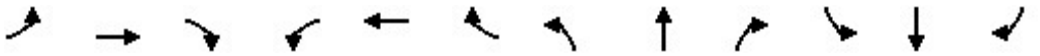
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	71	281	290
Volume Left	2	28	8	12
Volume Right	4	37	31	2
cSH	415	497	1178	1271
Volume to Capacity	0.02	0.14	0.01	0.01
Queue Length 95th (m)	0.5	4.0	0.2	0.2
Control Delay (s)	13.8	13.4	0.3	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	13.8	13.4	0.3	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	33.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	5	225	13	1	233
Future Volume (Veh/h)	10	5	225	13	1	233
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	14	7	317	18	1	328
Pedestrians			17			4
Lane Width (m)			3.6			3.6
Walking Speed (m/s)			1.2			1.2
Percent Blockage			1			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	673	330			335	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	673	330			335	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	413	709			1224	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	335	329
Volume Left	14	0	1
Volume Right	7	18	0
cSH	480	1700	1224
Volume to Capacity	0.04	0.20	0.00
Queue Length 95th (m)	1.1	0.0	0.0
Control Delay (s)	12.8	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	12.8	0.0	0.0
Approach LOS	B		

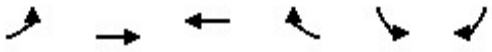
Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		24.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	1	1	0	0	7	10	1	0	5	5
Future Volume (Veh/h)	3	1	1	1	0	0	7	10	1	0	5	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	1	1	0	0	9	13	1	0	6	6
Pedestrians		88			2			33			2	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			0			3			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	130	131	130	77	134	18	100			16		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	130	131	130	77	134	18	100			16		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	99			100		
cM capacity (veh/h)	731	698	829	829	696	1058	1383			1599		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	1	23	12
Volume Left	4	1	9	0
Volume Right	1	0	1	6
cSH	740	829	1383	1599
Volume to Capacity	0.01	0.00	0.01	0.00
Queue Length 95th (m)	0.2	0.0	0.2	0.0
Control Delay (s)	9.9	9.3	3.0	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.9	9.3	3.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	29.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	9	32	72	26	9	10
Future Volume (Veh/h)	9	32	72	26	9	10
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	12	42	94	34	12	13
Pedestrians		235	53		19	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		20	4		2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	147				249	365
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	147				249	365
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	98
cM capacity (veh/h)	1412				690	538

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	54	128	25
Volume Left	12	0	12
Volume Right	0	34	13
cSH	1412	1700	602
Volume to Capacity	0.01	0.08	0.04
Queue Length 95th (m)	0.2	0.0	1.0
Control Delay (s)	1.7	0.0	11.2
Lane LOS	A		B
Approach Delay (s)	1.7	0.0	11.2
Approach LOS			B

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	0	29	6	0	8
Future Volume (Veh/h)	3	0	29	6	0	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	32	7	0	9
Pedestrians	100					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	8					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	144	136			139	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	144	136			139	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	777	837			1324	

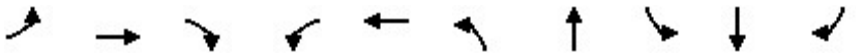
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	39	9
Volume Left	3	0	0
Volume Right	0	7	0
cSH	777	1700	1324
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	654	64	100	654	29	97
Future Volume (Veh/h)	654	64	100	654	29	97
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	688	67	105	688	31	102
Pedestrians	116			149	41	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	10			12	3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.96		0.96	0.96
vC, conflicting volume			796		1432	568
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			698		1363	460
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		69	77
cM capacity (veh/h)			827		101	444

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	459	296	105	344	344	31	102
Volume Left	0	0	105	0	0	31	0
Volume Right	0	67	0	0	0	0	102
cSH	1700	1700	827	1700	1700	101	444
Volume to Capacity	0.27	0.17	0.13	0.20	0.20	0.31	0.23
Queue Length 95th (m)	0.0	0.0	3.5	0.0	0.0	9.3	7.0
Control Delay (s)	0.0	0.0	10.0	0.0	0.0	55.5	15.5
Lane LOS			A			F	C
Approach Delay (s)	0.0		1.3			24.8	
Approach LOS						C	

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		



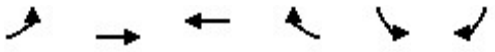
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	118	249	160	156	417	211	349	43	263	253
v/c Ratio	0.45	0.44	0.11	0.42	0.75	0.62	0.50	0.17	0.55	0.16
Control Delay	19.8	18.2	0.2	22.1	38.8	27.7	19.6	26.0	32.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	18.2	0.2	22.1	38.8	27.7	19.6	26.0	32.7	0.2
Queue Length 50th (m)	11.0	24.3	0.0	17.7	69.3	24.5	38.1	5.8	39.4	0.0
Queue Length 95th (m)	17.3	20.8	0.0	31.2	#117.3	40.8	62.9	14.4	63.3	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	260	575	1443	370	559	340	739	283	547	1560
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.43	0.11	0.42	0.75	0.62	0.47	0.15	0.48	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	237	152	148	360	36	200	197	135	41	250	240
Future Volume (vph)	112	237	152	148	360	36	200	197	135	41	250	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	0.95		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	0.97	1.00		0.99	1.00		0.93	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1741	1872	1443	1681	1800		1777	1671		1672	1872	1560
Flt Permitted	0.29	1.00	1.00	0.52	1.00		0.37	1.00		0.55	1.00	1.00
Satd. Flow (perm)	529	1872	1443	922	1800		685	1671		971	1872	1560
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	249	160	156	379	38	211	207	142	43	263	253
RTOR Reduction (vph)	0	0	0	0	4	0	0	29	0	0	0	0
Lane Group Flow (vph)	118	249	160	156	413	0	211	320	0	43	263	253
Confl. Peds. (#/hr)	11		74	74		11	58		65	65		58
Confl. Bikes (#/hr)			1			5			1			
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	33.0	27.5	90.0	33.4	27.7		35.9	35.9		23.1	23.1	90.0
Effective Green, g (s)	33.0	27.5	90.0	33.4	27.7		35.9	35.9		23.1	23.1	90.0
Actuated g/C Ratio	0.37	0.31	1.00	0.37	0.31		0.40	0.40		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	268	572	1443	390	554		346	666		249	480	1560
v/s Ratio Prot	c0.03	0.13		0.03	c0.23		0.04	c0.19			0.14	
v/s Ratio Perm	0.13		0.11	0.12			c0.20			0.04		c0.16
v/c Ratio	0.44	0.44	0.11	0.40	0.75		0.61	0.48		0.17	0.55	0.16
Uniform Delay, d1	20.3	25.0	0.0	19.8	28.0		20.9	20.1		26.0	28.9	0.0
Progression Factor	0.81	0.60	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.8	2.4	0.2	0.5	8.8		2.6	0.5		0.3	1.3	0.2
Delay (s)	17.2	17.3	0.2	20.2	36.8		23.5	20.7		26.3	30.2	0.2
Level of Service	B	B	A	C	D		C	C		C	C	A
Approach Delay (s)		12.1			32.3			21.7			16.3	
Approach LOS		B			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	510	725	104	0	57
Future Volume (Veh/h)	0	510	725	104	0	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	531	755	108	0	59
Pedestrians			1		13	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.95	
vC, conflicting volume	876				1088	444
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	876				989	444
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	758				228	555

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	266	266	503	360	59
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	108	59
cSH	1700	1700	1700	1700	1700	555
Volume to Capacity	0.00	0.16	0.16	0.30	0.21	0.11
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	2.8
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	12.3
Lane LOS						B
Approach Delay (s)	0.0			0.0		12.3
Approach LOS						B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

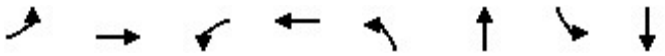
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	517	62	744	23	45
v/c Ratio	0.22	0.11	0.30	0.05	0.03
Control Delay	10.4	6.8	6.2	25.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	6.8	6.2	25.1	0.0
Queue Length 50th (m)	27.7	3.4	23.3	3.1	0.0
Queue Length 95th (m)	45.8	m6.3	32.4	9.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2384	590	2481	441	1433
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.22	0.11	0.30	0.05	0.03

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	466	36	60	722	22	44
Future Volume (vph)	466	36	60	722	22	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00		1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00		0.98	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3393		1734	3539	1656	1433
Flt Permitted	1.00		0.46	1.00	0.95	1.00
Satd. Flow (perm)	3393		841	3539	1656	1433
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	480	37	62	744	23	45
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	512	0	62	744	23	45
Confl. Peds. (#/hr)		24	24		66	20
Confl. Bikes (#/hr)						1
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2307		571	2406	353	1369
v/s Ratio Prot	0.15			c0.21	c0.01	
v/s Ratio Perm			0.07			0.03
v/c Ratio	0.22		0.11	0.31	0.07	0.03
Uniform Delay, d1	5.4		5.0	5.8	28.2	0.1
Progression Factor	1.59		0.91	0.84	1.00	1.00
Incremental Delay, d2	0.2		0.3	0.3	0.2	0.0
Delay (s)	8.9		4.9	5.2	28.4	0.1
Level of Service	A		A	A	C	A
Approach Delay (s)	8.9			5.2	9.7	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	6.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



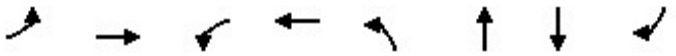
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	407	35	725	33	74	140	98
v/c Ratio	0.09	0.17	0.05	0.31	0.14	0.22	0.59	0.28
Control Delay	5.2	4.1	3.0	3.2	29.2	20.3	42.6	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	4.1	3.0	3.2	29.2	20.3	42.6	24.6
Queue Length 50th (m)	1.9	8.0	1.2	4.1	5.2	7.1	24.1	12.1
Queue Length 95th (m)	3.6	9.7	1.7	0.3	12.2	17.2	39.5	23.6
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	453	2338	649	2345	426	593	425	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.17	0.05	0.31	0.08	0.12	0.33	0.16

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	337	62	34	574	136	32	44	28	137	71	25
Future Volume (vph)	40	337	62	34	574	136	32	44	28	137	71	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	0.98		1.00	0.99	
Flpb, ped/bikes	0.99	1.00		0.99	1.00		0.99	1.00		0.97	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1731	3402		1758	3408		1750	1724		1711	1804	
Flt Permitted	0.36	1.00		0.51	1.00		0.69	1.00		0.71	1.00	
Satd. Flow (perm)	664	3402		949	3408		1277	1724		1277	1804	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	41	344	63	35	586	139	33	45	29	140	72	26
RTOR Reduction (vph)	0	11	0	0	15	0	0	24	0	0	18	0
Lane Group Flow (vph)	41	396	0	35	710	0	33	50	0	140	80	0
Confl. Peds. (#/hr)	10		5	5		10	11		27	27		11
Confl. Bikes (#/hr)						6						
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	61.6	61.6		61.6	61.6		16.7	16.7		16.7	16.7	
Effective Green, g (s)	61.6	61.6		61.6	61.6		16.7	16.7		16.7	16.7	
Actuated g/C Ratio	0.68	0.68		0.68	0.68		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	454	2328		649	2332		236	319		236	334	
v/s Ratio Prot		0.12			c0.21			0.03			0.04	
v/s Ratio Perm	0.06			0.04			0.03			c0.11		
v/c Ratio	0.09	0.17		0.05	0.30		0.14	0.16		0.59	0.24	
Uniform Delay, d1	4.8	5.1		4.7	5.7		30.6	30.8		33.5	31.2	
Progression Factor	0.73	0.73		0.44	0.47		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.2	0.3		0.3	0.2		4.0	0.4	
Delay (s)	3.8	3.8		2.2	3.0		30.9	31.0		37.5	31.6	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		3.8			2.9			31.0			35.1	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	192	585	7	684	251	130	112	205
v/c Ratio	0.68	0.37	0.02	0.42	0.76	0.38	0.42	0.59
Control Delay	37.0	16.5	13.7	14.4	48.3	31.6	39.5	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	16.5	13.7	14.4	48.3	31.6	39.5	16.2
Queue Length 50th (m)	27.7	33.5	0.4	25.3	42.9	19.2	18.5	5.9
Queue Length 95th (m)	#70.5	52.3	m1.9	63.2	66.5	34.4	33.9	26.5
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	283	1565	323	1616	402	418	336	397
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.37	0.02	0.42	0.62	0.31	0.33	0.52

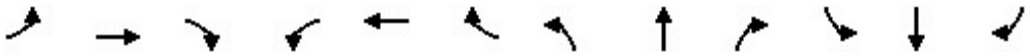
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	177	415	123	6	621	8	231	105	15	6	97	189
Future Volume (vph)	177	415	123	6	621	8	231	105	15	6	97	189
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00			1.00	0.89
Flpb, ped/bikes	0.99	1.00		0.98	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1783	3361		1740	3530		1667	1710			1895	1459
Flt Permitted	0.33	1.00		0.39	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	620	3361		707	3530		1667	1710			1895	1459
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	451	134	7	675	9	251	114	16	7	105	205
RTOR Reduction (vph)	0	27	0	0	1	0	0	6	0	0	0	144
Lane Group Flow (vph)	192	558	0	7	683	0	251	124	0	0	112	61
Confl. Peds. (#/hr)	9		19	19		9	48					48
Confl. Bikes (#/hr)			1			7						2
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.1	41.1		41.1	41.1		18.0	18.0			12.8	12.8
Effective Green, g (s)	41.1	41.1		41.1	41.1		18.0	18.0			12.8	12.8
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	283	1534		322	1612		333	342			269	207
v/s Ratio Prot		0.17			0.19		c0.15	0.07			c0.06	
v/s Ratio Perm	c0.31			0.01								0.04
v/c Ratio	0.68	0.36		0.02	0.42		0.75	0.36			0.42	0.29
Uniform Delay, d1	19.2	15.9		13.4	16.5		33.9	31.1			35.2	34.6
Progression Factor	1.00	1.00		0.80	0.77		1.00	1.00			1.00	1.00
Incremental Delay, d2	12.4	0.7		0.1	0.8		9.3	0.7			1.0	0.8
Delay (s)	31.6	16.6		10.8	13.4		43.2	31.7			36.2	35.4
Level of Service	C	B		B	B		D	C			D	D
Approach Delay (s)		20.3			13.4			39.3			35.7	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

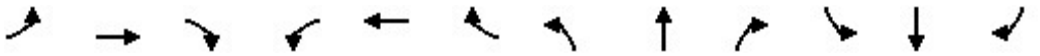
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	118	165	46	22	195	30	68	198	7	24	190	104
Future Volume (vph)	118	165	46	22	195	30	68	198	7	24	190	104
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	127	177	49	24	210	32	73	213	8	26	204	112

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	353	266	294	342
Volume Left (vph)	127	24	73	26
Volume Right (vph)	49	32	8	112
Hadj (s)	0.02	-0.02	0.09	-0.13
Departure Headway (s)	7.0	7.2	7.2	6.9
Degree Utilization, x	0.68	0.53	0.59	0.65
Capacity (veh/h)	478	442	448	481
Control Delay (s)	23.8	18.1	20.0	21.8
Approach Delay (s)	23.8	18.1	20.0	21.8
Approach LOS	C	C	C	C

Intersection Summary				
Delay		21.1		
Level of Service		C		
Intersection Capacity Utilization		73.6%	ICU Level of Service	D
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	15	3	36	4	274	44	12	281	2
Future Volume (Veh/h)	2	0	8	15	3	36	4	274	44	12	281	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	9	18	4	42	5	322	52	14	331	2
Pedestrians		26						25				
Lane Width (m)		3.6						3.6				
Walking Speed (m/s)		1.2						1.2				
Percent Blockage		2						2				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	788	770	383	752	745	348	359			374		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	788	770	383	752	745	348	359			374		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	99	94	99	94	100			99		
cM capacity (veh/h)	274	319	616	299	329	695	1060			1184		

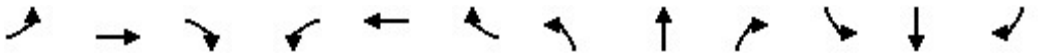
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	64	379	347
Volume Left	2	18	5	14
Volume Right	9	42	52	2
cSH	502	482	1060	1184
Volume to Capacity	0.02	0.13	0.00	0.01
Queue Length 95th (m)	0.5	3.6	0.1	0.3
Control Delay (s)	12.3	13.6	0.2	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	12.3	13.6	0.2	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	14	6	352	11	3	325
Future Volume (Veh/h)	14	6	352	11	3	325
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	14	6	363	11	3	335
Pedestrians			5			
Lane Width (m)			3.6			
Walking Speed (m/s)			1.2			
Percent Blockage			0			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	714	368			374	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	714	368			374	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	96	99			100	
cM capacity (veh/h)	394	644			1033	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	20	374	338
Volume Left	14	0	3
Volume Right	6	11	0
cSH	446	1700	1033
Volume to Capacity	0.04	0.22	0.00
Queue Length 95th (m)	1.1	0.0	0.1
Control Delay (s)	13.5	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	13.5	0.0	0.1
Approach LOS	B		

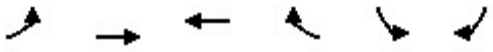
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	10	1	1	0	6	18	0	1	14	4
Future Volume (Veh/h)	3	1	10	1	1	0	6	18	0	1	14	4
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	11	1	1	0	7	20	0	1	15	4
Pedestrians		45			7			56			5	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		4			1			5			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	104	105	118	128	107	32	64			27		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	104	105	118	128	107	32	64			27		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	99	100	100	100	99			100		
cM capacity (veh/h)	809	747	857	761	745	1031	1394			1578		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	2	27	20
Volume Left	3	1	7	1
Volume Right	11	0	0	4
cSH	839	753	1394	1578
Volume to Capacity	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.4	0.1	0.1	0.0
Control Delay (s)	9.4	9.8	2.0	0.4
Lane LOS	A	A	A	A
Approach Delay (s)	9.4	9.8	2.0	0.4
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	29.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	54	34	19	32	9
Future Volume (Veh/h)	19	54	34	19	32	9
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	23	64	40	23	38	11
Pedestrians		48	62		3	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		4	5		0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	66				226	102
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66				226	102
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				95	99
cM capacity (veh/h)	1532				710	912

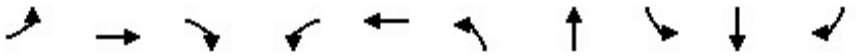
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	87	63	49
Volume Left	23	0	38
Volume Right	0	23	11
cSH	1532	1700	747
Volume to Capacity	0.02	0.04	0.07
Queue Length 95th (m)	0.4	0.0	1.7
Control Delay (s)	2.0	0.0	10.2
Lane LOS	A		B
Approach Delay (s)	2.0	0.0	10.2
Approach LOS			B

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	28.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	38	2	0	27
Future Volume (Veh/h)	7	0	38	2	0	27
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	41	2	0	29
Pedestrians	50					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	4					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	121	92			93	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	121	92			93	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	838	925			1439	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	43	29
Volume Left	8	0	0
Volume Right	0	2	0
cSH	838	1700	1439
Volume to Capacity	0.01	0.03	0.00
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	9.3	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.3	0.0	0.0
Approach LOS	A		

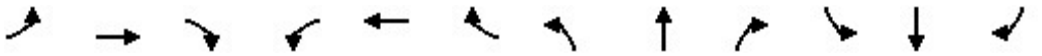
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	145	357	223	151	390	230	349	11	191	216
v/c Ratio	0.59	0.74	0.15	0.59	0.83	0.53	0.47	0.04	0.37	0.14
Control Delay	28.9	41.5	0.2	29.1	47.8	23.3	18.8	27.1	30.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	41.5	0.2	29.1	47.8	23.3	18.8	27.1	30.9	0.2
Queue Length 50th (m)	17.4	62.0	0.0	18.3	69.2	27.8	38.6	1.6	29.5	0.0
Queue Length 95th (m)	30.4	93.7	0.0	31.8	#104.3	47.9	67.6	6.1	51.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	249	568	1445	257	552	436	743	267	512	1507
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.63	0.15	0.59	0.71	0.53	0.47	0.04	0.37	0.14

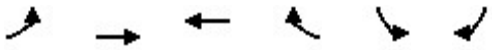
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	336	210	142	342	24	216	178	150	10	180	203
Future Volume (vph)	136	336	210	142	342	24	216	178	150	10	180	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.93		1.00	1.00	0.94
Flpb, ped/bikes	0.99	1.00	1.00	0.98	1.00		0.95	1.00		0.92	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1761	1853	1445	1665	1794		1698	1627		1657	1837	1507
Flt Permitted	0.26	1.00	1.00	0.31	1.00		0.48	1.00		0.55	1.00	1.00
Satd. Flow (perm)	475	1853	1445	542	1794		859	1627		962	1837	1507
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	145	357	223	151	364	26	230	189	160	11	191	216
RTOR Reduction (vph)	0	0	0	0	3	0	0	30	0	0	0	0
Lane Group Flow (vph)	145	357	223	151	387	0	230	319	0	11	191	216
Confl. Peds. (#/hr)	53		113	113		53	172		70	70		172
Confl. Bikes (#/hr)			5			4			1			
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	31.6	24.5	93.5	31.6	24.5		41.0	41.0		26.1	26.1	93.5
Effective Green, g (s)	31.6	24.5	93.5	31.6	24.5		41.0	41.0		26.1	26.1	93.5
Actuated g/C Ratio	0.34	0.26	1.00	0.34	0.26		0.44	0.44		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	258	485	1445	268	470		449	713		268	512	1507
v/s Ratio Prot	0.04	0.19		c0.04	c0.22		0.04	c0.20			0.10	
v/s Ratio Perm	0.15		0.15	0.15			c0.18			0.01		0.14
v/c Ratio	0.56	0.74	0.15	0.56	0.82		0.51	0.45		0.04	0.37	0.14
Uniform Delay, d1	23.3	31.5	0.0	23.3	32.5		17.6	18.3		24.6	27.1	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.3	5.7	0.2	2.2	11.2		0.7	0.4		0.1	0.5	0.2
Delay (s)	25.6	37.3	0.2	25.5	43.6		18.3	18.8		24.6	27.6	0.2
Level of Service	C	D	A	C	D		B	B		C	C	A
Approach Delay (s)		23.6			38.5			18.6			13.4	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	93.5	Sum of lost time (s)	27.7
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	714	708	103	0	46
Future Volume (Veh/h)	2	714	708	103	0	46
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	752	745	108	0	48
Pedestrians			5		44	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.91	
vC, conflicting volume	897				1228	470
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	897				1049	470
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	91
cM capacity (veh/h)	725				193	520

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	2	376	376	497	356	48
Volume Left	2	0	0	0	0	0
Volume Right	0	0	0	0	108	48
cSH	725	1700	1700	1700	1700	520
Volume to Capacity	0.00	0.22	0.22	0.29	0.21	0.09
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	2.4
Control Delay (s)	10.0	0.0	0.0	0.0	0.0	12.6
Lane LOS	A					B
Approach Delay (s)	0.0			0.0		12.6
Approach LOS						B

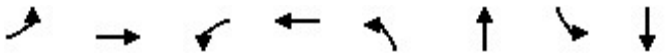
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	719	105	688	31	102
v/c Ratio	0.33	0.26	0.31	0.07	0.08
Control Delay	8.1	9.5	8.2	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	9.5	8.2	25.2	0.1
Queue Length 50th (m)	25.4	7.7	27.6	4.2	0.0
Queue Length 95th (m)	31.6	16.6	37.0	11.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2155	405	2217	472	1324
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.33	0.26	0.31	0.07	0.08

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	619	64	100	654	29	97
Future Volume (vph)	619	64	100	654	29	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.84
Flpb, ped/bikes	1.00		0.98	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3426		1726	3539	1770	1324
Flt Permitted	1.00		0.36	1.00	0.95	1.00
Satd. Flow (perm)	3426		647	3539	1770	1324
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	652	67	105	688	31	102
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	710	0	105	688	31	102
Confl. Peds. (#/hr)		41	41		116	149
Confl. Bikes (#/hr)		7				
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2146		405	2217	472	1265
v/s Ratio Prot	c0.21			0.19	0.02	
v/s Ratio Perm			0.16			c0.08
v/c Ratio	0.33		0.26	0.31	0.07	0.08
Uniform Delay, d1	7.9		7.5	7.8	24.6	0.1
Progression Factor	0.99		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		1.5	0.4	0.1	0.1
Delay (s)	8.3		9.0	8.2	24.8	0.2
Level of Service	A		A	A	C	A
Approach Delay (s)	8.3			8.3	5.9	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	34	580	65	647	99	200	152	169
v/c Ratio	0.08	0.26	0.13	0.29	0.41	0.49	0.76	0.42
Control Delay	1.6	1.0	5.7	4.9	33.6	22.9	54.9	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.6	1.0	5.7	4.9	33.6	22.9	54.9	29.6
Queue Length 50th (m)	0.5	2.8	2.5	7.3	14.7	19.5	24.7	23.1
Queue Length 95th (m)	m1.0	4.3	5.3	15.5	27.9	37.3	44.1	38.9
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	427	2217	508	2210	492	760	412	811
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.26	0.13	0.29	0.20	0.26	0.37	0.21

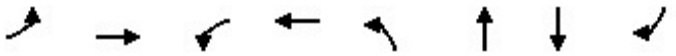
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	444	112	62	513	108	95	99	93	146	137	25
Future Volume (vph)	33	444	112	62	513	108	95	99	93	146	137	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.94		1.00	0.99	
Flpb, ped/bikes	0.96	1.00		0.97	1.00		0.98	1.00		0.92	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1565	3372		1721	3366		1734	1626		1638	1809	
Flt Permitted	0.40	1.00		0.43	1.00		0.61	1.00		0.54	1.00	
Satd. Flow (perm)	651	3372		776	3366		1108	1626		933	1809	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	462	117	65	534	112	99	103	97	152	143	26
RTOR Reduction (vph)	0	15	0	0	12	0	0	53	0	0	10	0
Lane Group Flow (vph)	34	565	0	65	635	0	99	147	0	152	159	0
Confl. Peds. (#/hr)	49		28	28		49	22		95	95		22
Confl. Bikes (#/hr)			4			10						1
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	58.8	58.8		58.8	58.8		19.5	19.5		19.5	19.5	
Effective Green, g (s)	58.8	58.8		58.8	58.8		19.5	19.5		19.5	19.5	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.22	0.22		0.22	0.22	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	425	2203		506	2199		240	352		202	391	
v/s Ratio Prot		0.17			c0.19			0.09			0.09	
v/s Ratio Perm	0.05			0.08			0.09			c0.16		
v/c Ratio	0.08	0.26		0.13	0.29		0.41	0.42		0.75	0.41	
Uniform Delay, d1	5.7	6.5		5.9	6.7		30.3	30.4		33.0	30.3	
Progression Factor	0.17	0.11		0.65	0.63		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.2		0.5	0.3		1.2	0.8		14.6	0.7	
Delay (s)	1.3	1.0		4.3	4.5		31.5	31.2		47.6	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		1.0			4.5			31.3			38.8	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	154	815	20	653	200	117	124	180
v/c Ratio	0.51	0.51	0.09	0.39	0.68	0.38	0.44	0.49
Control Delay	26.4	17.4	18.4	20.9	45.7	30.2	39.5	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	17.4	18.4	20.9	45.7	30.2	39.5	10.5
Queue Length 50th (m)	18.9	47.9	2.3	51.0	34.3	16.1	20.6	0.0
Queue Length 95th (m)	#47.9	76.0	6.4	48.1	52.9	29.8	37.2	17.9
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	304	1588	231	1668	402	409	340	400
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.51	0.09	0.39	0.50	0.29	0.36	0.45

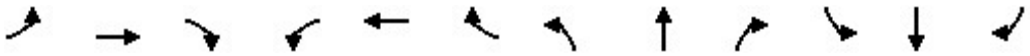
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	545	213	19	602	6	186	82	27	7	108	167
Future Volume (vph)	143	545	213	19	602	6	186	82	27	7	108	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.96		1.00	1.00		1.00	1.00			1.00	0.87
Flpb, ped/bikes	0.96	1.00		0.97	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1732	3279		1717	3530		1667	1638			1912	1421
Flt Permitted	0.35	1.00		0.27	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	643	3279		490	3530		1667	1638			1912	1421
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	154	586	229	20	647	6	200	88	29	8	116	180
RTOR Reduction (vph)	0	39	0	0	1	0	0	14	0	0	0	153
Lane Group Flow (vph)	154	776	0	20	652	0	200	103	0	0	124	27
Confl. Peds. (#/hr)	40		53	53		40	61					61
Confl. Bikes (#/hr)			9			9			1			1
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.6	42.6		42.6	42.6		15.9	15.9			13.4	13.4
Effective Green, g (s)	42.6	42.6		42.6	42.6		15.9	15.9			13.4	13.4
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	304	1552		231	1670		294	289			284	211
v/s Ratio Prot		0.24			0.18		c0.12	0.06			c0.06	
v/s Ratio Perm	c0.24			0.04								0.02
v/c Ratio	0.51	0.50		0.09	0.39		0.68	0.36			0.44	0.13
Uniform Delay, d1	16.4	16.4		13.0	15.3		34.7	32.6			34.9	33.2
Progression Factor	1.00	1.00		1.07	1.21		1.00	1.00			1.00	1.00
Incremental Delay, d2	5.9	1.2		0.7	0.7		6.3	0.8			1.1	0.3
Delay (s)	22.3	17.5		14.6	19.2		41.0	33.3			35.9	33.5
Level of Service	C	B		B	B		D	C			D	C
Approach Delay (s)		18.3			19.1			38.2			34.5	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	74.9%	ICU Level of Service	D
Analysis Period (min)	15		

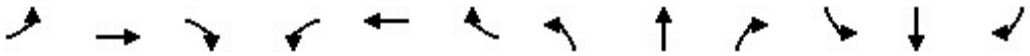
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	66	222	66	23	173	40	46	147	11	33	158	62
Future Volume (vph)	66	222	66	23	173	40	46	147	11	33	158	62
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	73	244	73	25	190	44	51	162	12	36	174	68

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	390	259	225	278
Volume Left (vph)	73	25	51	36
Volume Right (vph)	73	44	12	68
Hadj (s)	-0.04	-0.05	0.05	-0.08
Departure Headway (s)	6.1	6.4	6.7	6.5
Degree Utilization, x	0.67	0.46	0.42	0.50
Capacity (veh/h)	546	501	471	497
Control Delay (s)	20.5	14.8	14.5	15.7
Approach Delay (s)	20.5	14.8	14.5	15.7
Approach LOS	C	B	B	C

Intersection Summary				
Delay	16.9			
Level of Service	C			
Intersection Capacity Utilization	57.7%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	23	5	31	7	201	61	10	229	2
Future Volume (Veh/h)	2	2	3	23	5	31	7	201	61	10	229	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	28	6	37	8	242	73	12	276	2
Pedestrians		51			9			36			3	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		4			1			3			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	690	692	364	646	656	290	329			324		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	690	692	364	646	656	290	329			324		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	92	98	95	99			99		
cM capacity (veh/h)	259	344	633	348	359	741	1178			1226		

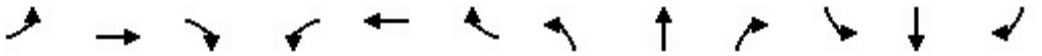
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	71	323	290
Volume Left	2	28	8	12
Volume Right	4	37	73	2
cSH	403	482	1178	1226
Volume to Capacity	0.02	0.15	0.01	0.01
Queue Length 95th (m)	0.5	4.1	0.2	0.2
Control Delay (s)	14.1	13.7	0.3	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	14.1	13.7	0.3	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	34.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	5	225	13	1	233
Future Volume (Veh/h)	10	5	225	13	1	233
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	14	7	317	18	1	328
Pedestrians			17			4
Lane Width (m)			3.6			3.6
Walking Speed (m/s)			1.2			1.2
Percent Blockage			1			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	673	330			335	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	673	330			335	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	413	709			1224	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	335	329
Volume Left	14	0	1
Volume Right	7	18	0
cSH	480	1700	1224
Volume to Capacity	0.04	0.20	0.00
Queue Length 95th (m)	1.1	0.0	0.0
Control Delay (s)	12.8	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	12.8	0.0	0.0
Approach LOS	B		

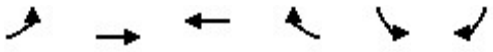
Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		24.3%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	1	1	0	0	7	10	1	0	5	5
Future Volume (Veh/h)	3	1	1	1	0	0	7	10	1	0	5	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	1	1	0	0	9	13	1	0	6	6
Pedestrians		88			2			33			2	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			0			3			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	130	131	130	77	134	18	100			16		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	130	131	130	77	134	18	100			16		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	99			100		
cM capacity (veh/h)	731	698	829	829	696	1058	1383			1599		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	1	23	12
Volume Left	4	1	9	0
Volume Right	1	0	1	6
cSH	740	829	1383	1599
Volume to Capacity	0.01	0.00	0.01	0.00
Queue Length 95th (m)	0.2	0.0	0.2	0.0
Control Delay (s)	9.9	9.3	3.0	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.9	9.3	3.0	0.0
Approach LOS	A	A		

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	29.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	62	46	17	9	10
Future Volume (Veh/h)	14	62	46	17	9	10
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	18	81	60	22	12	13
Pedestrians		235	53		19	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		20	4		2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	101				260	325
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	101				260	325
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	98
cM capacity (veh/h)	1468				678	567

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	99	82	25
Volume Left	18	0	12
Volume Right	0	22	13
cSH	1468	1700	615
Volume to Capacity	0.01	0.05	0.04
Queue Length 95th (m)	0.3	0.0	1.0
Control Delay (s)	1.4	0.0	11.1
Lane LOS	A		B
Approach Delay (s)	1.4	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay		2.0	
Intersection Capacity Utilization		30.7%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	0	29	6	0	8
Future Volume (Veh/h)	3	0	29	6	0	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	32	7	0	9
Pedestrians	100					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	8					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	144	136			139	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	144	136			139	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	777	837			1324	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	39	9
Volume Left	3	0	0
Volume Right	0	7	0
cSH	777	1700	1324
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.6	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	619	64	100	654	29	97
Future Volume (Veh/h)	619	64	100	654	29	97
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	652	67	105	688	31	102
Pedestrians	116			149	41	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	10			12	3	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			760		1396	550
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			681		1340	463
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		71	77
cM capacity (veh/h)			846		106	446

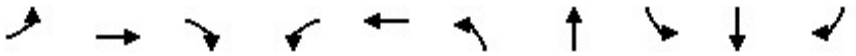
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	435	284	105	344	344	31	102
Volume Left	0	0	105	0	0	31	0
Volume Right	0	67	0	0	0	0	102
cSH	1700	1700	846	1700	1700	106	446
Volume to Capacity	0.26	0.17	0.12	0.20	0.20	0.29	0.23
Queue Length 95th (m)	0.0	0.0	3.4	0.0	0.0	8.9	7.0
Control Delay (s)	0.0	0.0	9.9	0.0	0.0	52.3	15.5
Lane LOS			A			F	C
Approach Delay (s)	0.0		1.3			24.1	
Approach LOS						C	

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	48.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	466	36	60	722	22	44
Future Volume (Veh/h)	466	36	60	722	22	44
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	480	37	62	744	23	45
Pedestrians	66			20	24	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	6			2	2	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			1.00		1.00	1.00
vC, conflicting volume			541		1084	302
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			530		1076	290
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			94		87	93
cM capacity (veh/h)			1008		176	658

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	320	197	62	372	372	23	45
Volume Left	0	0	62	0	0	23	0
Volume Right	0	37	0	0	0	0	45
cSH	1700	1700	1008	1700	1700	176	658
Volume to Capacity	0.19	0.12	0.06	0.22	0.22	0.13	0.07
Queue Length 95th (m)	0.0	0.0	1.6	0.0	0.0	3.5	1.8
Control Delay (s)	0.0	0.0	8.8	0.0	0.0	28.5	10.9
Lane LOS			A			D	B
Approach Delay (s)	0.0		0.7			16.9	
Approach LOS						C	

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		



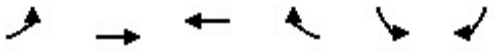
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	125	264	169	165	442	223	371	45	279	267
v/c Ratio	0.55	0.47	0.12	0.49	0.81	0.67	0.55	0.19	0.58	0.17
Control Delay	29.2	18.2	0.2	24.9	43.6	29.3	20.4	26.6	33.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	18.2	0.2	24.9	43.6	29.3	20.4	26.6	33.5	0.2
Queue Length 50th (m)	11.1	24.4	0.0	19.2	75.5	25.7	41.4	6.1	42.3	0.0
Queue Length 95th (m)	#24.6	20.5	0.0	33.5	#131.0	42.2	68.1	15.2	67.2	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	226	566	1415	340	543	335	717	260	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.47	0.12	0.49	0.81	0.67	0.52	0.17	0.52	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	251	161	157	382	38	212	209	143	43	265	254
Future Volume (vph)	119	251	161	157	382	38	212	209	143	43	265	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.96	1.00		0.98	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1728	1872	1415	1657	1781		1764	1600		1583	1872	1530
Flt Permitted	0.25	1.00	1.00	0.50	1.00		0.35	1.00		0.54	1.00	1.00
Satd. Flow (perm)	450	1872	1415	869	1781		644	1600		901	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	125	264	169	165	402	40	223	220	151	45	279	267
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	125	264	169	165	438	0	223	343	0	45	279	267
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.4	27.2	90.0	32.6	27.3		36.6	36.6		23.3	23.3	90.0
Effective Green, g (s)	32.4	27.2	90.0	32.6	27.3		36.6	36.6		23.3	23.3	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	565	1415	361	540		342	650		233	484	1530
v/s Ratio Prot	c0.03	0.14		0.03	c0.25		0.05	c0.21			0.15	
v/s Ratio Perm	0.16		0.12	0.14			c0.22			0.05		c0.17
v/c Ratio	0.53	0.47	0.12	0.46	0.81		0.65	0.53		0.19	0.58	0.17
Uniform Delay, d1	21.1	25.5	0.0	21.1	29.0		20.7	20.2		26.0	29.1	0.0
Progression Factor	1.03	0.57	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	2.7	0.2	0.7	12.5		3.9	0.8		0.4	1.7	0.2
Delay (s)	23.5	17.3	0.2	21.7	41.4		24.7	20.9		26.4	30.7	0.2
Level of Service	C	B	A	C	D		C	C		C	C	A
Approach Delay (s)		13.5			36.1			22.3			16.6	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	541	769	110	0	60
Future Volume (Veh/h)	36	541	769	110	0	60
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	38	564	801	115	0	62
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	959				1260	501
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	959				1158	501
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	88
cM capacity (veh/h)	687				162	497

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	38	282	282	534	382	62
Volume Left	38	0	0	0	0	0
Volume Right	0	0	0	0	115	62
cSH	687	1700	1700	1700	1700	497
Volume to Capacity	0.06	0.17	0.17	0.31	0.22	0.12
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.0	3.4
Control Delay (s)	10.5	0.0	0.0	0.0	0.0	13.3
Lane LOS	B					B
Approach Delay (s)	0.7			0.0		13.3
Approach LOS						B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

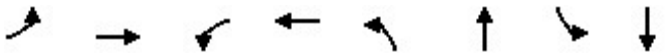
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	585	66	789	24	48
v/c Ratio	0.25	0.12	0.32	0.05	0.04
Control Delay	11.0	6.8	6.2	25.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	6.8	6.2	25.1	0.0
Queue Length 50th (m)	24.2	3.6	24.5	3.3	0.0
Queue Length 95th (m)	50.1	m6.3	m34.0	9.5	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2371	529	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.32	0.05	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	530	38	64	765	23	47
Future Volume (vph)	530	38	64	765	23	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.94	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3375		1670	3539	1656	1355
Flt Permitted	1.00		0.43	1.00	0.95	1.00
Satd. Flow (perm)	3375		754	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	546	39	66	789	24	48
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	580	0	66	789	24	48
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2295		512	2406	353	1294
v/s Ratio Prot	0.17			c0.22	c0.01	
v/s Ratio Perm			0.09			0.04
v/c Ratio	0.25		0.13	0.33	0.07	0.04
Uniform Delay, d1	5.6		5.1	5.9	28.3	0.1
Progression Factor	1.63		0.89	0.83	1.00	1.00
Incremental Delay, d2	0.3		0.4	0.3	0.2	0.0
Delay (s)	9.4		4.9	5.3	28.4	0.1
Level of Service	A		A	A	C	A
Approach Delay (s)	9.4			5.2	9.6	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



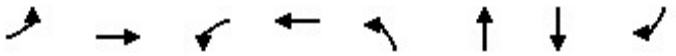
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	468	37	767	35	79	148	105
v/c Ratio	0.10	0.20	0.06	0.33	0.15	0.23	0.64	0.29
Control Delay	5.7	4.5	3.0	3.2	29.2	20.2	44.9	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	4.5	3.0	3.2	29.2	20.2	44.9	24.7
Queue Length 50th (m)	2.0	10.6	1.2	3.7	5.4	7.5	25.4	13.0
Queue Length 95th (m)	4.3	13.1	1.7	0.0	12.7	18.0	42.1	25.2
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	420	2301	587	2295	451	640	451	667
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.20	0.06	0.33	0.08	0.12	0.33	0.16

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	393	66	36	608	144	34	47	30	145	75	27
Future Volume (vph)	42	393	66	36	608	144	34	47	30	145	75	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.97	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	3372		1697	3358		1696	1685		1656	1776	
Flt Permitted	0.35	1.00		0.48	1.00		0.69	1.00		0.71	1.00	
Satd. Flow (perm)	616	3372		864	3358		1230	1685		1230	1776	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	43	401	67	37	620	147	35	48	31	148	77	28
RTOR Reduction (vph)	0	10	0	0	15	0	0	25	0	0	19	0
Lane Group Flow (vph)	43	458	0	37	752	0	35	54	0	148	86	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	61.2	61.2		61.2	61.2		17.1	17.1		17.1	17.1	
Effective Green, g (s)	61.2	61.2		61.2	61.2		17.1	17.1		17.1	17.1	
Actuated g/C Ratio	0.68	0.68		0.68	0.68		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	418	2292		587	2283		233	320		233	337	
v/s Ratio Prot		0.14			c0.22			0.03			0.05	
v/s Ratio Perm	0.07			0.04			0.03			c0.12		
v/c Ratio	0.10	0.20		0.06	0.33		0.15	0.17		0.64	0.26	
Uniform Delay, d1	5.0	5.3		4.8	5.9		30.4	30.5		33.6	31.0	
Progression Factor	0.77	0.75		0.44	0.44		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.2		0.2	0.4		0.3	0.3		5.6	0.4	
Delay (s)	4.3	4.2		2.3	3.0		30.7	30.8		39.1	31.4	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		4.2			3.0			30.7			35.9	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

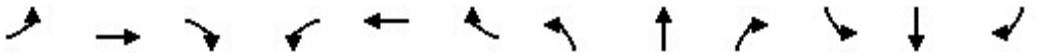
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	171	658	7	724	266	138	119	217
v/c Ratio	0.64	0.42	0.02	0.44	0.81	0.40	0.46	0.72
Control Delay	34.1	16.5	10.7	14.2	54.6	33.2	41.2	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	16.5	10.7	14.2	54.6	33.2	41.2	29.3
Queue Length 50th (m)	25.0	40.5	0.4	29.1	45.1	20.2	19.8	13.8
Queue Length 95th (m)	#58.5	55.1	m1.4	58.5	#81.9	37.8	36.6	#43.0
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	267	1568	289	1644	358	372	294	323
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.42	0.02	0.44	0.74	0.37	0.40	0.67

Intersection Summary

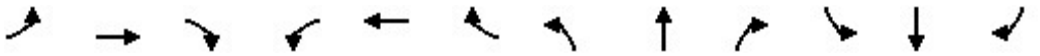
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	476	130	6	658	8	245	111	16	6	103	200
Future Volume (vph)	157	476	130	6	658	8	245	111	16	6	103	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	0.97	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1743	3312		1702	3526		1667	1705			1896	1347
Flt Permitted	0.31	1.00		0.35	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	573	3312		622	3526		1667	1705			1896	1347
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	171	517	141	7	715	9	266	121	17	7	112	217
RTOR Reduction (vph)	0	26	0	0	1	0	0	6	0	0	0	116
Lane Group Flow (vph)	171	632	0	7	723	0	266	132	0	0	119	101
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.8	41.8		41.8	41.8		17.7	17.7			12.4	12.4
Effective Green, g (s)	41.8	41.8		41.8	41.8		17.7	17.7			12.4	12.4
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	266	1538		288	1637		327	335			261	185
v/s Ratio Prot		0.19			0.21		c0.16	0.08			0.06	
v/s Ratio Perm	c0.30			0.01								c0.08
v/c Ratio	0.64	0.41		0.02	0.44		0.81	0.40			0.46	0.55
Uniform Delay, d1	18.4	16.0		13.1	16.2		34.6	31.5			35.7	36.2
Progression Factor	1.00	1.00		0.69	0.78		1.00	1.00			1.00	1.00
Incremental Delay, d2	11.4	0.8		0.2	0.8		14.3	0.8			1.3	3.3
Delay (s)	29.8	16.8		9.1	13.5		48.8	32.3			37.0	39.5
Level of Service	C	B		A	B		D	C			D	D
Approach Delay (s)		19.5			13.4			43.2			38.6	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

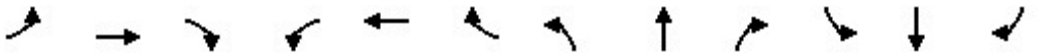
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	126	175	49	23	207	32	72	179	7	25	201	110
Future Volume (vph)	126	175	49	23	207	32	72	179	7	25	201	110
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	135	188	53	25	223	34	77	192	8	27	216	118

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	376	282	277	361
Volume Left (vph)	135	25	77	27
Volume Right (vph)	53	34	8	118
Hadj (s)	0.02	-0.02	0.09	-0.13
Departure Headway (s)	7.2	7.4	7.5	7.1
Degree Utilization, x	0.75	0.58	0.58	0.71
Capacity (veh/h)	472	432	427	471
Control Delay (s)	28.4	20.2	20.5	25.6
Approach Delay (s)	28.4	20.2	20.5	25.6
Approach LOS	D	C	C	D

Intersection Summary				
Delay	24.1			
Level of Service	C			
Intersection Capacity Utilization	77.2%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	16	3	38	4	290	18	13	298	2
Future Volume (Veh/h)	2	0	8	16	3	38	4	290	18	13	298	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	9	19	4	45	5	341	21	15	351	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	846	840	463	838	830	382	409			392		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	846	840	463	838	830	382	409			392		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	92	99	93	99			99		
cM capacity (veh/h)	232	276	527	239	278	649	988			1137		

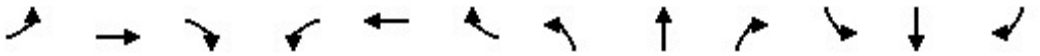
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	68	367	368
Volume Left	2	19	5	15
Volume Right	9	45	21	2
cSH	428	416	988	1137
Volume to Capacity	0.03	0.16	0.01	0.01
Queue Length 95th (m)	0.6	4.6	0.1	0.3
Control Delay (s)	13.6	15.3	0.2	0.5
Lane LOS	B	C	A	A
Approach Delay (s)	13.6	15.3	0.2	0.5
Approach LOS	B	C		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	42.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	6	373	12	3	345
Future Volume (Veh/h)	15	6	373	12	3	345
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	15	6	385	12	3	356
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	818	421			427	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	818	421			427	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	99			100	
cM capacity (veh/h)	325	586			960	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	397	359
Volume Left	15	0	3
Volume Right	6	12	0
cSH	373	1700	960
Volume to Capacity	0.06	0.23	0.00
Queue Length 95th (m)	1.4	0.0	0.1
Control Delay (s)	15.2	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	15.2	0.0	0.1
Approach LOS	C		

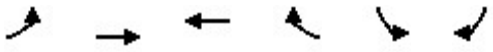
Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		30.5%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	11	1	1	0	6	19	0	1	15	4
Future Volume (Veh/h)	3	1	11	1	1	0	6	19	0	1	15	4
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	12	1	1	0	7	21	0	1	16	4
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	166	167	179	190	169	93	95			58		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	166	167	179	190	169	93	95			58		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	99			100		
cM capacity (veh/h)	673	656	752	630	654	907	1322			1498		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	2	28	21
Volume Left	3	1	7	1
Volume Right	12	0	0	4
cSH	729	642	1322	1498
Volume to Capacity	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.5	0.1	0.1	0.0
Control Delay (s)	10.0	10.6	2.0	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	10.0	10.6	2.0	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	32.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	30	59	32	34	6
Future Volume (Veh/h)	11	30	59	32	34	6
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	13	36	70	38	40	7
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	141				276	200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	141				276	200
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				94	99
cM capacity (veh/h)	1402				635	765

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	49	108	47
Volume Left	13	0	40
Volume Right	0	38	7
cSH	1402	1700	652
Volume to Capacity	0.01	0.06	0.07
Queue Length 95th (m)	0.2	0.0	1.9
Control Delay (s)	2.1	0.0	11.0
Lane LOS	A		B
Approach Delay (s)	2.1	0.0	11.0
Approach LOS			B

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	40	2	0	29
Future Volume (Veh/h)	7	0	40	2	0	29
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	43	2	0	32
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	156	124			125	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	156	124			125	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	780	865			1364	

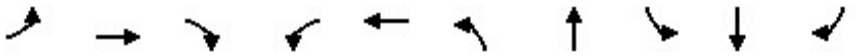
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	45	32
Volume Left	8	0	0
Volume Right	0	2	0
cSH	780	1700	1364
Volume to Capacity	0.01	0.03	0.00
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	9.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	530	38	64	765	23	47
Future Volume (Veh/h)	530	38	64	765	23	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	546	39	66	789	24	48
Pedestrians	106			70	74	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	9			6	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			659		1272	436
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			618		1242	391
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			93		80	91
cM capacity (veh/h)			884		122	511

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	364	221	66	394	394	24	48
Volume Left	0	0	66	0	0	24	0
Volume Right	0	39	0	0	0	0	48
cSH	1700	1700	884	1700	1700	122	511
Volume to Capacity	0.21	0.13	0.07	0.23	0.23	0.20	0.09
Queue Length 95th (m)	0.0	0.0	1.9	0.0	0.0	5.5	2.5
Control Delay (s)	0.0	0.0	9.4	0.0	0.0	41.4	12.8
Lane LOS			A			E	B
Approach Delay (s)	0.0		0.7			22.3	
Approach LOS						C	

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		



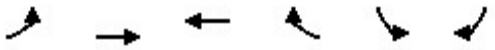
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	153	379	237	161	413	244	370	12	203	229
v/c Ratio	0.68	0.78	0.17	0.67	0.86	0.60	0.53	0.05	0.39	0.16
Control Delay	35.4	43.6	0.3	33.9	50.0	25.6	20.0	26.3	30.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	43.6	0.3	33.9	50.0	25.6	20.0	26.3	30.4	0.2
Queue Length 50th (m)	18.1	65.9	0.0	19.3	72.9	30.7	44.0	1.7	32.0	0.0
Queue Length 95th (m)	#35.5	99.4	0.0	#36.1	#120.7	49.3	72.4	6.2	52.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	226	536	1417	242	529	407	701	249	515	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.71	0.17	0.67	0.78	0.60	0.53	0.05	0.39	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	356	223	151	363	25	229	189	159	11	191	215
Future Volume (vph)	144	356	223	151	363	25	229	189	159	11	191	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.98	1.00		0.93	1.00		0.87	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1749	1853	1417	1662	1780		1678	1549		1566	1837	1477
Flt Permitted	0.24	1.00	1.00	0.27	1.00		0.47	1.00		0.54	1.00	1.00
Satd. Flow (perm)	441	1853	1417	473	1780		824	1549		892	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	153	379	237	161	386	27	244	201	169	12	203	229
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	153	379	237	161	410	0	244	339	0	12	203	229
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.9	24.4	92.7	32.1	25.0		40.3	40.3		26.1	26.1	92.7
Effective Green, g (s)	30.9	24.4	92.7	32.1	25.0		40.3	40.3		26.1	26.1	92.7
Actuated g/C Ratio	0.33	0.26	1.00	0.35	0.27		0.43	0.43		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	487	1417	254	480		426	673		251	517	1477
v/s Ratio Prot	0.04	0.20		c0.05	c0.23		0.05	c0.22			0.11	
v/s Ratio Perm	0.17		c0.17	0.17			c0.20			0.01		0.16
v/c Ratio	0.64	0.78	0.17	0.63	0.85		0.57	0.50		0.05	0.39	0.16
Uniform Delay, d1	23.7	31.6	0.0	22.9	32.1		18.9	19.0		24.3	26.9	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.2	7.7	0.3	4.5	13.8		1.5	0.6		0.1	0.5	0.2
Delay (s)	28.9	39.3	0.3	27.4	45.9		20.5	19.6		24.3	27.4	0.2
Level of Service	C	D	A	C	D		C	B		C	C	A
Approach Delay (s)		25.2			40.7			19.9			13.3	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	92.7	Sum of lost time (s)	27.7
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	39	757	750	109	0	49
Future Volume (Veh/h)	39	757	750	109	0	49
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	41	797	789	115	0	52
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.90	
vC, conflicting volume	978				1406	526
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	978				1219	526
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	89
cM capacity (veh/h)	658				135	466

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	41	398	398	526	378	52
Volume Left	41	0	0	0	0	0
Volume Right	0	0	0	0	115	52
cSH	658	1700	1700	1700	1700	466
Volume to Capacity	0.06	0.23	0.23	0.31	0.22	0.11
Queue Length 95th (m)	1.6	0.0	0.0	0.0	0.0	3.0
Control Delay (s)	10.8	0.0	0.0	0.0	0.0	13.7
Lane LOS	B					B
Approach Delay (s)	0.5			0.0		13.7
Approach LOS						B

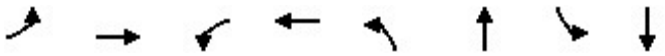
Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	801	112	729	33	108
v/c Ratio	0.37	0.32	0.33	0.07	0.09
Control Delay	8.1	10.8	8.4	25.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	10.8	8.4	25.3	0.1
Queue Length 50th (m)	26.9	8.6	29.7	4.5	0.0
Queue Length 95th (m)	33.9	19.0	39.6	11.8	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2139	355	2217	491	1177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.32	0.33	0.07	0.09

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	693	68	106	693	31	103
Future Volume (vph)	693	68	106	693	31	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3399		1686	3539	1770	1241
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	3399		568	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	729	72	112	729	33	108
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	793	0	112	729	33	108
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2130		355	2217	472	1185
v/s Ratio Prot	c0.23			0.21	0.02	
v/s Ratio Perm			0.20			c0.09
v/c Ratio	0.37		0.32	0.33	0.07	0.09
Uniform Delay, d1	8.2		7.8	7.9	24.7	0.1
Progression Factor	0.94		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		2.3	0.4	0.1	0.1
Delay (s)	8.2		10.1	8.3	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	8.2			8.5	5.9	
Approach LOS	A			A	A	

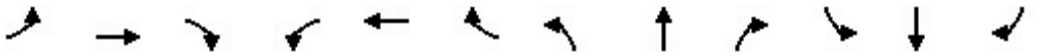
Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	653	69	686	105	212	161	179
v/c Ratio	0.09	0.30	0.15	0.32	0.44	0.52	0.82	0.43
Control Delay	1.7	1.1	6.4	5.3	34.0	24.0	61.7	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.7	1.1	6.4	5.3	34.0	24.0	61.7	29.2
Queue Length 50th (m)	0.5	3.1	2.7	7.8	15.8	22.0	26.8	24.8
Queue Length 95th (m)	m0.9	4.7	6.3	18.8	28.5	39.2	46.0	39.3
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	392	2159	448	2151	442	708	369	765
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.30	0.15	0.32	0.24	0.30	0.44	0.23

Intersection Summary

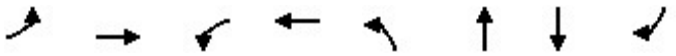
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	508	119	66	544	114	101	105	99	155	145	27
Future Volume (vph)	35	508	119	66	544	114	101	105	99	155	145	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.95	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1530	3331		1681	3323		1688	1584		1598	1793	
Flt Permitted	0.38	1.00		0.39	1.00		0.59	1.00		0.52	1.00	
Satd. Flow (perm)	604	3331		691	3323		1050	1584		881	1793	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	36	529	124	69	567	119	105	109	103	161	151	28
RTOR Reduction (vph)	0	15	0	0	13	0	0	50	0	0	10	0
Lane Group Flow (vph)	36	638	0	69	673	0	105	162	0	161	169	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	58.0	58.0		58.0	58.0		20.3	20.3		20.3	20.3	
Effective Green, g (s)	58.0	58.0		58.0	58.0		20.3	20.3		20.3	20.3	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.23	0.23		0.23	0.23	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	389	2146		445	2141		236	357		198	404	
v/s Ratio Prot		0.19			c0.20			0.10			0.09	
v/s Ratio Perm	0.06			0.10			0.10			c0.18		
v/c Ratio	0.09	0.30		0.16	0.31		0.44	0.45		0.81	0.42	
Uniform Delay, d1	6.0	7.0		6.3	7.1		30.0	30.1		33.1	29.8	
Progression Factor	0.15	0.10		0.65	0.63		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.7	0.4		1.3	0.9		21.9	0.7	
Delay (s)	1.3	1.0		4.8	4.9		31.3	31.0		54.9	30.5	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		1.0			4.9			31.1			42.1	
Approach LOS		A			A			C			D	

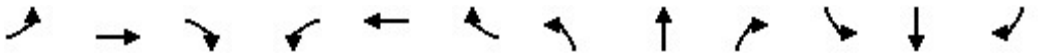
Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	123	904	22	692	212	125	131	190
v/c Ratio	0.44	0.58	0.11	0.41	0.72	0.41	0.47	0.58
Control Delay	23.6	18.2	20.4	22.8	48.9	31.7	40.8	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.6	18.2	20.4	22.8	48.9	31.7	40.8	17.2
Queue Length 50th (m)	14.8	57.0	2.8	59.1	36.3	17.3	21.9	5.4
Queue Length 95th (m)	33.7	81.2	6.4	47.1	58.6	33.0	39.7	26.4
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	282	1570	198	1680	355	362	297	335
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.58	0.11	0.41	0.60	0.35	0.44	0.57

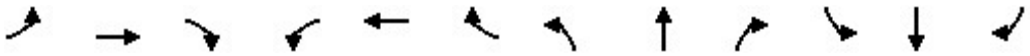
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	615	226	20	638	6	197	87	29	7	114	177
Future Volume (vph)	114	615	226	20	638	6	197	87	29	7	114	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.94		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.94	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1692	3219		1702	3528		1667	1633			1913	1312
Flt Permitted	0.33	1.00		0.23	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	592	3219		417	3528		1667	1633			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	123	661	243	22	686	6	212	94	31	8	123	190
RTOR Reduction (vph)	0	38	0	0	1	0	0	14	0	0	0	133
Lane Group Flow (vph)	123	866	0	22	691	0	212	111	0	0	131	57
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.8	42.8		42.8	42.8		15.9	15.9			13.2	13.2
Effective Green, g (s)	42.8	42.8		42.8	42.8		15.9	15.9			13.2	13.2
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	281	1530		198	1677		294	288			280	192
v/s Ratio Prot		c0.27			0.20		c0.13	0.07			c0.07	
v/s Ratio Perm	0.21			0.05								0.04
v/c Ratio	0.44	0.57		0.11	0.41		0.72	0.39			0.47	0.30
Uniform Delay, d1	15.6	16.9		13.1	15.4		35.0	32.7			35.2	34.3
Progression Factor	1.00	1.00		1.21	1.34		1.00	1.00			1.00	1.00
Incremental Delay, d2	4.9	1.5		1.1	0.7		8.4	0.9			1.2	0.9
Delay (s)	20.5	18.5		16.9	21.4		43.4	33.6			36.4	35.1
Level of Service	C	B		B	C		D	C			D	D
Approach Delay (s)		18.7			21.3			39.8			35.7	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

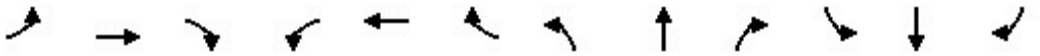
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	70	235	70	24	183	42	49	119	12	35	167	66
Future Volume (vph)	70	235	70	24	183	42	49	119	12	35	167	66
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	77	258	77	26	201	46	54	131	13	38	184	73

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	412	273	198	295
Volume Left (vph)	77	26	54	38
Volume Right (vph)	77	46	13	73
Hadj (s)	-0.04	-0.05	0.05	-0.09
Departure Headway (s)	6.2	6.5	6.9	6.5
Degree Utilization, x	0.71	0.49	0.38	0.53
Capacity (veh/h)	545	498	440	494
Control Delay (s)	22.7	15.5	14.1	16.7
Approach Delay (s)	22.7	15.5	14.1	16.7
Approach LOS	C	C	B	C

Intersection Summary				
Delay		18.1		
Level of Service		C		
Intersection Capacity Utilization		59.9%	ICU Level of Service	B
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	24	5	33	7	213	28	11	243	2
Future Volume (Veh/h)	2	2	3	24	5	33	7	213	28	11	243	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	29	6	40	8	257	34	13	293	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	767	747	441	720	731	346	376			330		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	767	747	441	720	731	346	376			330		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	90	98	94	99			99		
cM capacity (veh/h)	205	303	543	282	308	655	1103			1190		

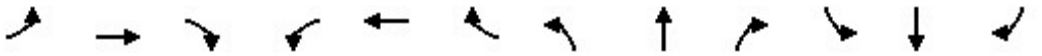
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	75	299	308
Volume Left	2	29	8	13
Volume Right	4	40	34	2
cSH	337	409	1103	1190
Volume to Capacity	0.02	0.18	0.01	0.01
Queue Length 95th (m)	0.6	5.3	0.2	0.3
Control Delay (s)	15.9	15.8	0.3	0.4
Lane LOS	C	C	A	A
Approach Delay (s)	15.9	15.8	0.3	0.4
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.2			
Intersection Capacity Utilization	36.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	5	239	14	1	247
Future Volume (Veh/h)	11	5	239	14	1	247
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	15	7	337	20	1	348
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	774	411			387	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	411			387	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			100	
cM capacity (veh/h)	342	607			1142	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	22	357	349
Volume Left	15	0	1
Volume Right	7	20	0
cSH	398	1700	1142
Volume to Capacity	0.06	0.21	0.00
Queue Length 95th (m)	1.4	0.0	0.0
Control Delay (s)	14.6	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	14.6	0.0	0.0
Approach LOS	B		

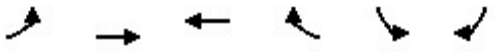
Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		30.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	1	1	0	0	7	11	1	0	5	5
Future Volume (Veh/h)	3	1	1	1	0	0	7	11	1	0	5	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	1	1	0	0	9	14	1	0	6	6
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	192	192	190	138	194	78	130			47		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	192	192	190	138	194	78	130			47		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	99			100		
cM capacity (veh/h)	608	613	728	690	611	930	1312			1519		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	1	24	12
Volume Left	4	1	9	0
Volume Right	1	0	1	6
cSH	626	690	1312	1519
Volume to Capacity	0.01	0.00	0.01	0.00
Queue Length 95th (m)	0.2	0.0	0.2	0.0
Control Delay (s)	10.8	10.2	2.9	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.8	10.2	2.9	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	34	76	28	10	11
Future Volume (Veh/h)	10	34	76	28	10	11
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	13	44	99	36	13	14
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	184				319	431
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	184				319	431
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	97
cM capacity (veh/h)	1334				597	467

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	57	135	27
Volume Left	13	0	13
Volume Right	0	36	14
cSH	1334	1700	521
Volume to Capacity	0.01	0.08	0.05
Queue Length 95th (m)	0.2	0.0	1.3
Control Delay (s)	1.8	0.0	12.3
Lane LOS	A		B
Approach Delay (s)	1.8	0.0	12.3
Approach LOS			B

Intersection Summary			
Average Delay		2.0	
Intersection Capacity Utilization		32.0%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	0	31	6	0	8
Future Volume (Veh/h)	3	0	31	6	0	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	34	7	0	9
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	176	168			171	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	176	168			171	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	725	782			1254	

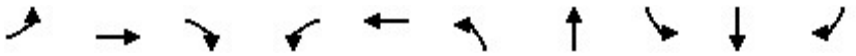
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	41	9
Volume Left	3	0	0
Volume Right	0	7	0
cSH	725	1700	1254
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	10.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	10.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	693	68	106	693	31	103
Future Volume (Veh/h)	693	68	106	693	31	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	729	72	112	729	33	108
Pedestrians	166			199	91	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	14			17	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			892		1610	690
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			778		1536	566
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		52	68
cM capacity (veh/h)			732		68	342

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	486	315	112	364	364	33	108
Volume Left	0	0	112	0	0	33	0
Volume Right	0	72	0	0	0	0	108
cSH	1700	1700	732	1700	1700	68	342
Volume to Capacity	0.29	0.19	0.15	0.21	0.21	0.48	0.32
Queue Length 95th (m)	0.0	0.0	4.3	0.0	0.0	15.6	10.6
Control Delay (s)	0.0	0.0	10.8	0.0	0.0	99.4	20.3
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.4			38.8	
Approach LOS						E	

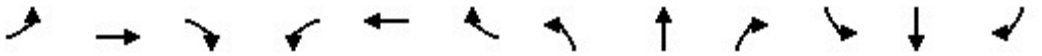
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	125	264	169	165	442	223	371	45	279	267
v/c Ratio	0.55	0.47	0.12	0.49	0.81	0.67	0.55	0.19	0.58	0.17
Control Delay	28.0	16.3	0.2	24.9	43.6	29.3	20.4	26.6	33.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	16.3	0.2	24.9	43.6	29.3	20.4	26.6	33.5	0.2
Queue Length 50th (m)	7.8	17.4	0.0	19.2	75.5	25.7	41.4	6.1	42.3	0.0
Queue Length 95th (m)	#24.6	21.2	0.0	33.5	#131.0	42.2	68.1	15.2	67.2	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	226	566	1415	340	543	335	717	260	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.47	0.12	0.49	0.81	0.67	0.52	0.17	0.52	0.17

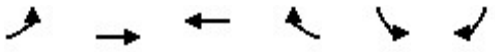
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	251	161	157	382	38	212	209	143	43	265	254
Future Volume (vph)	119	251	161	157	382	38	212	209	143	43	265	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.96	1.00		0.98	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1728	1872	1415	1657	1781		1764	1600		1583	1872	1530
Flt Permitted	0.25	1.00	1.00	0.50	1.00		0.35	1.00		0.54	1.00	1.00
Satd. Flow (perm)	450	1872	1415	869	1781		644	1600		901	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	125	264	169	165	402	40	223	220	151	45	279	267
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	125	264	169	165	438	0	223	343	0	45	279	267
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.4	27.2	90.0	32.6	27.3		36.6	36.6		23.3	23.3	90.0
Effective Green, g (s)	32.4	27.2	90.0	32.6	27.3		36.6	36.6		23.3	23.3	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	565	1415	361	540		342	650		233	484	1530
v/s Ratio Prot	c0.03	0.14		0.03	c0.25		0.05	c0.21			0.15	
v/s Ratio Perm	0.16		0.12	0.14			c0.22			0.05		c0.17
v/c Ratio	0.53	0.47	0.12	0.46	0.81		0.65	0.53		0.19	0.58	0.17
Uniform Delay, d1	21.1	25.5	0.0	21.1	29.0		20.7	20.2		26.0	29.1	0.0
Progression Factor	0.96	0.50	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	2.7	0.2	0.7	12.5		3.9	0.8		0.4	1.7	0.2
Delay (s)	22.1	15.6	0.2	21.7	41.4		24.7	20.9		26.4	30.7	0.2
Level of Service	C	B	A	C	D		C	C		C	C	A
Approach Delay (s)		12.4			36.1			22.3			16.6	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	85.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	541	769	110	0	60
Future Volume (Veh/h)	0	541	769	110	0	60
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	564	801	115	0	62
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.95	
vC, conflicting volume	959				1184	501
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	959				1081	501
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	88
cM capacity (veh/h)	687				193	497

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	282	282	534	382	62
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	115	62
cSH	1700	1700	1700	1700	1700	497
Volume to Capacity	0.00	0.17	0.17	0.31	0.22	0.12
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	3.4
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	13.3
Lane LOS						B
Approach Delay (s)	0.0			0.0		13.3
Approach LOS						B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

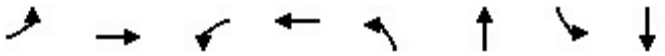
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	548	66	789	24	48
v/c Ratio	0.23	0.12	0.32	0.05	0.04
Control Delay	11.7	6.8	6.2	25.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	6.8	6.2	25.1	0.0
Queue Length 50th (m)	39.7	3.6	24.5	3.3	0.0
Queue Length 95th (m)	47.1	m6.2	m34.0	9.5	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2367	550	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.12	0.32	0.05	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	494	38	64	765	23	47
Future Volume (vph)	494	38	64	765	23	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.94	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3371		1664	3539	1656	1355
Flt Permitted	1.00		0.45	1.00	0.95	1.00
Satd. Flow (perm)	3371		783	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	509	39	66	789	24	48
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	543	0	66	789	24	48
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2292		532	2406	353	1294
v/s Ratio Prot	0.16			c0.22	c0.01	
v/s Ratio Perm			0.08			0.04
v/c Ratio	0.24		0.12	0.33	0.07	0.04
Uniform Delay, d1	5.5		5.0	5.9	28.3	0.1
Progression Factor	1.78		0.89	0.83	1.00	1.00
Incremental Delay, d2	0.2		0.4	0.3	0.2	0.0
Delay (s)	10.0		4.9	5.3	28.4	0.1
Level of Service	B		A	A	C	A
Approach Delay (s)	10.0			5.2	9.6	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



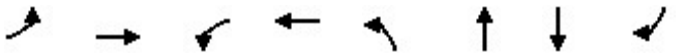
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	431	37	767	35	79	148	105
v/c Ratio	0.10	0.19	0.06	0.33	0.15	0.23	0.64	0.29
Control Delay	5.7	4.5	3.0	3.2	29.2	20.1	44.8	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	4.5	3.0	3.2	29.2	20.1	44.8	24.6
Queue Length 50th (m)	2.2	11.0	1.2	3.7	5.4	7.4	25.3	13.0
Queue Length 95th (m)	4.3	12.1	1.7	0.0	12.7	18.0	42.1	25.2
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	419	2295	607	2294	464	658	465	687
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.19	0.06	0.33	0.08	0.12	0.32	0.15

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	357	66	36	608	144	34	47	30	145	75	27
Future Volume (vph)	42	357	66	36	608	144	34	47	30	145	75	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.97	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1694	3361		1693	3358		1696	1685		1656	1776	
Flt Permitted	0.35	1.00		0.50	1.00		0.69	1.00		0.71	1.00	
Satd. Flow (perm)	616	3361		893	3358		1230	1685		1230	1776	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	43	364	67	37	620	147	35	48	31	148	77	28
RTOR Reduction (vph)	0	11	0	0	14	0	0	25	0	0	19	0
Lane Group Flow (vph)	43	420	0	37	753	0	35	54	0	148	86	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	61.2	61.2		61.2	61.2		17.1	17.1		17.1	17.1	
Effective Green, g (s)	61.2	61.2		61.2	61.2		17.1	17.1		17.1	17.1	
Actuated g/C Ratio	0.68	0.68		0.68	0.68		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	418	2285		607	2283		233	320		233	337	
v/s Ratio Prot		0.13			c0.22			0.03			0.05	
v/s Ratio Perm	0.07			0.04			0.03			c0.12		
v/c Ratio	0.10	0.18		0.06	0.33		0.15	0.17		0.64	0.26	
Uniform Delay, d1	5.0	5.3		4.8	5.9		30.4	30.5		33.6	31.0	
Progression Factor	0.78	0.78		0.44	0.44		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.2		0.2	0.4		0.3	0.3		5.6	0.4	
Delay (s)	4.3	4.3		2.3	3.0		30.7	30.8		39.1	31.4	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		4.3			3.0			30.7			35.9	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

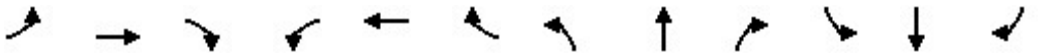
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	203	619	7	724	266	138	119	217
v/c Ratio	0.76	0.40	0.02	0.44	0.82	0.41	0.46	0.72
Control Delay	42.9	15.9	10.0	12.4	55.4	33.4	41.2	29.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	15.9	10.0	12.4	55.4	33.4	41.2	29.3
Queue Length 50th (m)	31.6	36.4	0.3	42.6	45.6	20.5	19.8	13.8
Queue Length 95th (m)	#73.6	50.8	m1.4	58.5	#81.9	37.8	36.6	#43.0
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	268	1565	307	1644	355	369	294	323
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.40	0.02	0.44	0.75	0.37	0.40	0.67

Intersection Summary

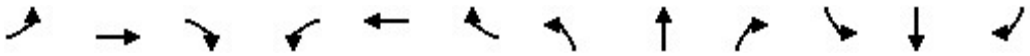
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	440	130	6	658	8	245	111	16	6	103	200
Future Volume (vph)	187	440	130	6	658	8	245	111	16	6	103	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	0.97	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1743	3299		1697	3526		1667	1705			1896	1347
Flt Permitted	0.31	1.00		0.37	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	573	3299		659	3526		1667	1705			1896	1347
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	203	478	141	7	715	9	266	121	17	7	112	217
RTOR Reduction (vph)	0	28	0	0	1	0	0	6	0	0	0	116
Lane Group Flow (vph)	203	591	0	7	723	0	266	132	0	0	119	101
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.9	41.9		41.9	41.9		17.6	17.6			12.4	12.4
Effective Green, g (s)	41.9	41.9		41.9	41.9		17.6	17.6			12.4	12.4
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	266	1535		306	1641		325	333			261	185
v/s Ratio Prot		0.18			0.21		c0.16	0.08			0.06	
v/s Ratio Perm	c0.35			0.01								c0.08
v/c Ratio	0.76	0.38		0.02	0.44		0.82	0.40			0.46	0.55
Uniform Delay, d1	19.9	15.7		13.0	16.2		34.7	31.6			35.7	36.2
Progression Factor	1.00	1.00		0.66	0.68		1.00	1.00			1.00	1.00
Incremental Delay, d2	18.6	0.7		0.1	0.8		14.7	0.8			1.3	3.3
Delay (s)	38.5	16.4		8.7	11.8		49.4	32.4			37.0	39.5
Level of Service	D	B		A	B		D	C			D	D
Approach Delay (s)		21.9			11.8			43.6			38.6	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

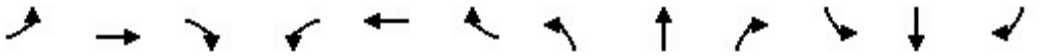
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	125	175	49	23	207	32	72	210	7	25	201	110
Future Volume (vph)	125	175	49	23	207	32	72	210	7	25	201	110
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	134	188	53	25	223	34	77	226	8	27	216	118

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	375	282	311	361
Volume Left (vph)	134	25	77	27
Volume Right (vph)	53	34	8	118
Hadj (s)	0.02	-0.02	0.09	-0.13
Departure Headway (s)	7.5	7.8	7.7	7.4
Degree Utilization, x	0.78	0.61	0.67	0.74
Capacity (veh/h)	457	412	426	458
Control Delay (s)	32.1	22.1	25.0	28.6
Approach Delay (s)	32.1	22.1	25.0	28.6
Approach LOS	D	C	D	D

Intersection Summary				
Delay	27.3			
Level of Service	D			
Intersection Capacity Utilization	78.3%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	16	3	38	4	290	47	13	298	2
Future Volume (Veh/h)	2	0	8	16	3	38	4	290	47	13	298	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	9	19	4	45	5	341	55	15	351	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	864	874	463	854	848	398	409			426		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	864	874	463	854	848	398	409			426		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	92	99	93	99			99		
cM capacity (veh/h)	225	264	527	232	272	635	988			1105		

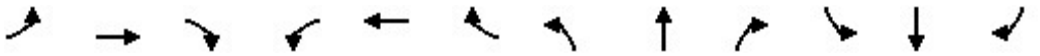
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	68	401	368
Volume Left	2	19	5	15
Volume Right	9	45	55	2
cSH	424	406	988	1105
Volume to Capacity	0.03	0.17	0.01	0.01
Queue Length 95th (m)	0.6	4.8	0.1	0.3
Control Delay (s)	13.7	15.6	0.2	0.5
Lane LOS	B	C	A	A
Approach Delay (s)	13.7	15.6	0.2	0.5
Approach LOS	B	C		

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	42.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	6	373	12	3	345
Future Volume (Veh/h)	15	6	373	12	3	345
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	15	6	385	12	3	356
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	818	421			427	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	818	421			427	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	99			100	
cM capacity (veh/h)	325	586			960	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	397	359
Volume Left	15	0	3
Volume Right	6	12	0
cSH	373	1700	960
Volume to Capacity	0.06	0.23	0.00
Queue Length 95th (m)	1.4	0.0	0.1
Control Delay (s)	15.2	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	15.2	0.0	0.1
Approach LOS	C		

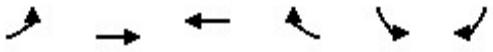
Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		30.5%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	11	1	1	0	6	19	0	1	15	4
Future Volume (Veh/h)	3	1	11	1	1	0	6	19	0	1	15	4
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	12	1	1	0	7	21	0	1	16	4
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	166	167	179	190	169	93	95			58		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	166	167	179	190	169	93	95			58		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	99			100		
cM capacity (veh/h)	673	656	752	630	654	907	1322			1498		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	2	28	21
Volume Left	3	1	7	1
Volume Right	12	0	0	4
cSH	729	642	1322	1498
Volume to Capacity	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.5	0.1	0.1	0.0
Control Delay (s)	10.0	10.6	2.0	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	10.0	10.6	2.0	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	32.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	57	36	20	34	10
Future Volume (Veh/h)	20	57	36	20	34	10
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	24	68	43	24	40	12
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	100				296	166
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	100				296	166
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				93	98
cM capacity (veh/h)	1452				614	799

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	92	67	52
Volume Left	24	0	40
Volume Right	0	24	12
cSH	1452	1700	649
Volume to Capacity	0.02	0.04	0.08
Queue Length 95th (m)	0.4	0.0	2.1
Control Delay (s)	2.1	0.0	11.0
Lane LOS	A		B
Approach Delay (s)	2.1	0.0	11.0
Approach LOS			B

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	7	0	40	2	0	29
Future Volume (Veh/h)	7	0	40	2	0	29
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	0	43	2	0	32
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	156	124			125	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	156	124			125	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	780	865			1364	

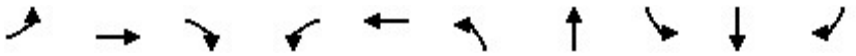
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	8	45	32
Volume Left	8	0	0
Volume Right	0	2	0
cSH	780	1700	1364
Volume to Capacity	0.01	0.03	0.00
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	9.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	494	38	64	765	23	47
Future Volume (Veh/h)	494	38	64	765	23	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	509	39	66	789	24	48
Pedestrians	106			70	74	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	9			6	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.99		0.99	0.99
vC, conflicting volume			622		1235	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			600		1219	394
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			93		81	91
cM capacity (veh/h)			905		128	512

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	339	209	66	394	394	24	48
Volume Left	0	0	66	0	0	24	0
Volume Right	0	39	0	0	0	0	48
cSH	1700	1700	905	1700	1700	128	512
Volume to Capacity	0.20	0.12	0.07	0.23	0.23	0.19	0.09
Queue Length 95th (m)	0.0	0.0	1.9	0.0	0.0	5.3	2.5
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	39.5	12.7
Lane LOS			A			E	B
Approach Delay (s)	0.0		0.7			21.7	
Approach LOS						C	

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		



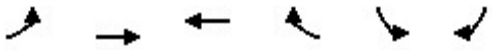
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	153	379	237	161	413	244	370	12	203	229
v/c Ratio	0.68	0.78	0.17	0.67	0.85	0.61	0.53	0.05	0.39	0.16
Control Delay	35.9	43.0	0.3	33.4	48.3	26.1	20.2	26.2	30.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	43.0	0.3	33.4	48.3	26.1	20.2	26.2	30.2	0.2
Queue Length 50th (m)	18.0	65.4	0.0	19.1	72.0	30.3	43.3	1.7	31.4	0.0
Queue Length 95th (m)	#35.3	98.6	0.0	#35.4	#117.9	49.7	73.1	6.2	52.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	225	549	1417	242	546	403	698	251	518	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.69	0.17	0.67	0.76	0.61	0.53	0.05	0.39	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	356	223	151	363	25	229	189	159	11	191	215
Future Volume (vph)	144	356	223	151	363	25	229	189	159	11	191	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.98	1.00		0.93	1.00		0.87	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1747	1853	1417	1662	1780		1679	1549		1568	1837	1477
Flt Permitted	0.25	1.00	1.00	0.27	1.00		0.47	1.00		0.54	1.00	1.00
Satd. Flow (perm)	457	1853	1417	474	1780		826	1549		893	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	153	379	237	161	386	27	244	201	169	12	203	229
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	153	379	237	161	410	0	244	339	0	12	203	229
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.6	24.4	92.2	32.2	25.2		39.9	39.9		26.1	26.1	92.2
Effective Green, g (s)	30.6	24.4	92.2	32.2	25.2		39.9	39.9		26.1	26.1	92.2
Actuated g/C Ratio	0.33	0.26	1.00	0.35	0.27		0.43	0.43		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	238	490	1417	255	486		422	670		252	520	1477
v/s Ratio Prot	0.04	0.20		c0.05	c0.23		0.04	c0.22			0.11	
v/s Ratio Perm	0.17		c0.17	0.17			c0.21			0.01		0.16
v/c Ratio	0.64	0.77	0.17	0.63	0.84		0.58	0.51		0.05	0.39	0.16
Uniform Delay, d1	23.6	31.3	0.0	22.6	31.6		19.2	19.0		24.0	26.6	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.2	7.5	0.3	4.4	12.6		1.6	0.6		0.1	0.5	0.2
Delay (s)	28.8	38.8	0.3	27.0	44.3		20.8	19.6		24.1	27.1	0.2
Level of Service	C	D	A	C	D		C	B		C	C	A
Approach Delay (s)		24.9			39.4			20.1			13.2	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	27.7
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	757	750	109	0	49
Future Volume (Veh/h)	2	757	750	109	0	49
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	797	789	115	0	52
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.90	
vC, conflicting volume	978				1328	526
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	978				1141	526
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	89
cM capacity (veh/h)	658				162	466

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	2	398	398	526	378	52
Volume Left	2	0	0	0	0	0
Volume Right	0	0	0	0	115	52
cSH	658	1700	1700	1700	1700	466
Volume to Capacity	0.00	0.23	0.23	0.31	0.22	0.11
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	3.0
Control Delay (s)	10.5	0.0	0.0	0.0	0.0	13.7
Lane LOS	B					B
Approach Delay (s)	0.0			0.0		13.7
Approach LOS						B

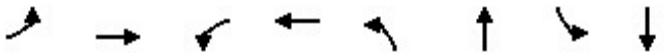
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	763	112	729	33	108
v/c Ratio	0.36	0.30	0.33	0.07	0.09
Control Delay	8.5	10.4	8.4	25.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	10.4	8.4	25.3	0.1
Queue Length 50th (m)	26.9	8.5	29.7	4.5	0.0
Queue Length 95th (m)	34.4	18.5	39.6	11.8	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2135	372	2217	491	1177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.36	0.30	0.33	0.07	0.09

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	656	68	106	693	31	103
Future Volume (vph)	656	68	106	693	31	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3394		1681	3539	1770	1241
Flt Permitted	1.00		0.34	1.00	0.95	1.00
Satd. Flow (perm)	3394		595	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	691	72	112	729	33	108
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	754	0	112	729	33	108
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2126		372	2217	472	1185
v/s Ratio Prot	c0.22			0.21	0.02	
v/s Ratio Perm			0.19			c0.09
v/c Ratio	0.35		0.30	0.33	0.07	0.09
Uniform Delay, d1	8.1		7.7	7.9	24.7	0.1
Progression Factor	1.02		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		2.1	0.4	0.1	0.1
Delay (s)	8.7		9.8	8.3	24.8	0.2
Level of Service	A		A	A	C	A
Approach Delay (s)	8.7			8.5	5.9	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	615	69	686	105	212	161	179
v/c Ratio	0.09	0.29	0.15	0.32	0.44	0.52	0.82	0.43
Control Delay	1.7	1.1	6.3	5.3	33.9	23.4	61.7	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.7	1.1	6.3	5.3	33.9	23.4	61.7	29.2
Queue Length 50th (m)	0.5	3.3	2.7	7.8	15.8	21.5	26.8	24.8
Queue Length 95th (m)	m1.1	4.8	6.0	18.0	28.4	38.5	46.0	39.3
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	392	2150	467	2148	465	744	388	805
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.29	0.15	0.32	0.23	0.28	0.41	0.22

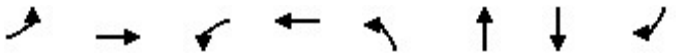
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	471	119	66	544	114	101	105	99	155	145	27
Future Volume (vph)	35	471	119	66	544	114	101	105	99	155	145	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.95	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1530	3319		1675	3323		1688	1584		1598	1793	
Flt Permitted	0.38	1.00		0.41	1.00		0.59	1.00		0.52	1.00	
Satd. Flow (perm)	604	3319		722	3323		1050	1584		881	1793	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	36	491	124	69	567	119	105	109	103	161	151	28
RTOR Reduction (vph)	0	15	0	0	12	0	0	53	0	0	10	0
Lane Group Flow (vph)	36	600	0	69	674	0	105	159	0	161	169	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	58.0	58.0		58.0	58.0		20.3	20.3		20.3	20.3	
Effective Green, g (s)	58.0	58.0		58.0	58.0		20.3	20.3		20.3	20.3	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.23	0.23		0.23	0.23	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	389	2138		465	2141		236	357		198	404	
v/s Ratio Prot		0.18			c0.20			0.10			0.09	
v/s Ratio Perm	0.06			0.10			0.10			c0.18		
v/c Ratio	0.09	0.28		0.15	0.31		0.44	0.45		0.81	0.42	
Uniform Delay, d1	6.0	6.9		6.3	7.1		30.0	30.0		33.1	29.8	
Progression Factor	0.15	0.11		0.65	0.62		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.6	0.4		1.3	0.9		21.9	0.7	
Delay (s)	1.3	1.0		4.7	4.8		31.3	30.9		54.9	30.5	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		1.0			4.8			31.0			42.1	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

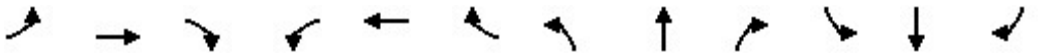
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	163	865	22	692	212	125	131	190
v/c Ratio	0.58	0.55	0.10	0.41	0.72	0.41	0.47	0.58
Control Delay	29.4	17.5	15.9	19.0	48.9	31.7	40.8	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	17.5	15.9	19.0	48.9	31.7	40.8	17.2
Queue Length 50th (m)	21.4	52.9	2.3	48.0	36.3	17.3	21.9	5.4
Queue Length 95th (m)	#53.0	76.1	6.0	43.9	58.6	33.0	39.7	26.4
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	282	1566	212	1680	355	362	297	335
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.55	0.10	0.41	0.60	0.35	0.44	0.57

Intersection Summary

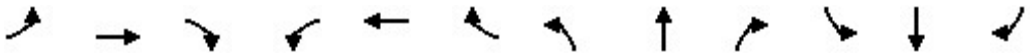
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	578	226	20	638	6	197	87	29	7	114	177
Future Volume (vph)	152	578	226	20	638	6	197	87	29	7	114	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.94		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.94	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1692	3204		1696	3528		1667	1633			1913	1312
Flt Permitted	0.33	1.00		0.25	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	592	3204		446	3528		1667	1633			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	163	622	243	22	686	6	212	94	31	8	123	190
RTOR Reduction (vph)	0	42	0	0	1	0	0	14	0	0	0	133
Lane Group Flow (vph)	163	823	0	22	691	0	212	111	0	0	131	57
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.8	42.8		42.8	42.8		15.9	15.9			13.2	13.2
Effective Green, g (s)	42.8	42.8		42.8	42.8		15.9	15.9			13.2	13.2
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	281	1523		212	1677		294	288			280	192
v/s Ratio Prot		0.26			0.20		c0.13	0.07			c0.07	
v/s Ratio Perm	c0.28			0.05								0.04
v/c Ratio	0.58	0.54		0.10	0.41		0.72	0.39			0.47	0.30
Uniform Delay, d1	17.1	16.7		13.0	15.4		35.0	32.7			35.2	34.3
Progression Factor	1.00	1.00		0.95	1.12		1.00	1.00			1.00	1.00
Incremental Delay, d2	8.5	1.4		1.0	0.7		8.4	0.9			1.2	0.9
Delay (s)	25.6	18.0		13.3	17.9		43.4	33.6			36.4	35.1
Level of Service	C	B		B	B		D	C			D	D
Approach Delay (s)		19.2			17.8			39.8			35.7	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

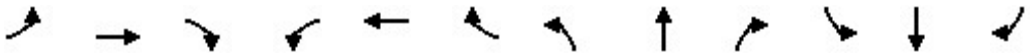
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	70	235	70	24	183	42	49	156	12	35	167	66
Future Volume (vph)	70	235	70	24	183	42	49	156	12	35	167	66
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	77	258	77	26	201	46	54	171	13	38	184	73

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	412	273	238	295
Volume Left (vph)	77	26	54	38
Volume Right (vph)	77	46	13	73
Hadj (s)	-0.04	-0.05	0.05	-0.09
Departure Headway (s)	6.4	6.8	7.1	6.8
Degree Utilization, x	0.74	0.51	0.47	0.56
Capacity (veh/h)	526	476	441	479
Control Delay (s)	25.4	16.7	16.2	18.0
Approach Delay (s)	25.4	16.7	16.2	18.0
Approach LOS	D	C	C	C

Intersection Summary				
Delay	19.8			
Level of Service	C			
Intersection Capacity Utilization	61.4%	ICU Level of Service	B	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	24	5	33	7	213	65	11	243	2
Future Volume (Veh/h)	2	2	3	24	5	33	7	213	65	11	243	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	29	6	40	8	257	78	13	293	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	789	791	441	742	753	368	376			374		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	789	791	441	742	753	368	376			374		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	89	98	94	99			99		
cM capacity (veh/h)	197	286	543	272	299	637	1103			1146		

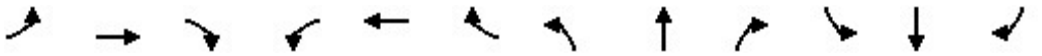
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	75	343	308
Volume Left	2	29	8	13
Volume Right	4	40	78	2
cSH	327	396	1103	1146
Volume to Capacity	0.02	0.19	0.01	0.01
Queue Length 95th (m)	0.6	5.5	0.2	0.3
Control Delay (s)	16.3	16.2	0.3	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	16.3	16.2	0.3	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	37.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	5	239	14	1	247
Future Volume (Veh/h)	11	5	239	14	1	247
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	15	7	337	20	1	348
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	774	411			387	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	411			387	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			100	
cM capacity (veh/h)	342	607			1142	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	22	357	349
Volume Left	15	0	1
Volume Right	7	20	0
cSH	398	1700	1142
Volume to Capacity	0.06	0.21	0.00
Queue Length 95th (m)	1.4	0.0	0.0
Control Delay (s)	14.6	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	14.6	0.0	0.0
Approach LOS	B		

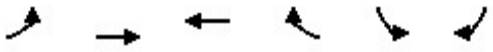
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	1	1	0	0	7	11	1	0	5	5
Future Volume (Veh/h)	3	1	1	1	0	0	7	11	1	0	5	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	1	1	0	0	9	14	1	0	6	6
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	192	192	190	138	194	78	130			47		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	192	192	190	138	194	78	130			47		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	99			100		
cM capacity (veh/h)	608	613	728	690	611	930	1312			1519		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	1	24	12
Volume Left	4	1	9	0
Volume Right	1	0	1	6
cSH	626	690	1312	1519
Volume to Capacity	0.01	0.00	0.01	0.00
Queue Length 95th (m)	0.2	0.0	0.2	0.0
Control Delay (s)	10.8	10.2	2.9	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.8	10.2	2.9	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.4			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	66	49	18	10	11
Future Volume (Veh/h)	15	66	49	18	10	11
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	19	86	64	23	13	14
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	136				332	390
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136				332	390
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	97
cM capacity (veh/h)	1389				584	493

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	105	87	27
Volume Left	19	0	13
Volume Right	0	23	14
cSH	1389	1700	533
Volume to Capacity	0.01	0.05	0.05
Queue Length 95th (m)	0.3	0.0	1.3
Control Delay (s)	1.5	0.0	12.1
Lane LOS	A		B
Approach Delay (s)	1.5	0.0	12.1
Approach LOS			B

Intersection Summary			
Average Delay		2.2	
Intersection Capacity Utilization		31.7%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	0	31	6	0	8
Future Volume (Veh/h)	3	0	31	6	0	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	34	7	0	9
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	176	168			171	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	176	168			171	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	725	782			1254	

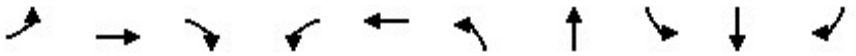
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	41	9
Volume Left	3	0	0
Volume Right	0	7	0
cSH	725	1700	1254
Volume to Capacity	0.00	0.02	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	10.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	10.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		23.2%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	656	68	106	693	31	103
Future Volume (Veh/h)	656	68	106	693	31	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	691	72	112	729	33	108
Pedestrians	166			199	91	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	14			17	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.96		0.96	0.96
vC, conflicting volume			854		1572	672
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			760		1510	570
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		54	69
cM capacity (veh/h)			750		72	343

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	461	302	112	364	364	33	108
Volume Left	0	0	112	0	0	33	0
Volume Right	0	72	0	0	0	0	108
cSH	1700	1700	750	1700	1700	72	343
Volume to Capacity	0.27	0.18	0.15	0.21	0.21	0.46	0.31
Queue Length 95th (m)	0.0	0.0	4.2	0.0	0.0	14.7	10.5
Control Delay (s)	0.0	0.0	10.6	0.0	0.0	91.6	20.2
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.4			36.9	
Approach LOS						E	

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		



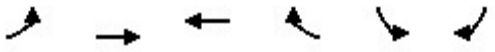
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	289	185	181	484	244	406	51	305	293
v/c Ratio	0.69	0.52	0.13	0.56	0.90	0.77	0.60	0.22	0.63	0.19
Control Delay	44.6	17.7	0.2	27.9	53.6	37.4	21.8	27.3	35.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	17.7	0.2	27.9	53.6	37.4	21.8	27.3	35.0	0.3
Queue Length 50th (m)	12.7	17.3	0.0	21.3	85.6	28.4	47.4	7.0	47.0	0.0
Queue Length 95th (m)	#39.6	27.6	0.0	36.5	#149.4	#55.8	76.7	16.7	73.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	198	561	1415	321	536	317	717	253	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.52	0.13	0.56	0.90	0.77	0.57	0.20	0.56	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	275	176	172	418	42	232	229	157	48	290	278
Future Volume (vph)	130	275	176	172	418	42	232	229	157	48	290	278
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00		0.98	1.00		0.89	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1735	1872	1415	1667	1781		1769	1600		1593	1872	1530
Flt Permitted	0.18	1.00	1.00	0.46	1.00		0.31	1.00		0.52	1.00	1.00
Satd. Flow (perm)	337	1872	1415	809	1781		585	1600		878	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	289	185	181	440	44	244	241	165	51	305	293
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	137	289	185	181	480	0	244	378	0	51	305	293
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.4	27.0	90.0	32.4	27.0		36.7	36.7		23.4	23.4	90.0
Effective Green, g (s)	32.4	27.0	90.0	32.4	27.0		36.7	36.7		23.4	23.4	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	561	1415	342	534		324	652		228	486	1530
v/s Ratio Prot	c0.04	0.15		0.03	c0.27		0.05	c0.24			0.16	
v/s Ratio Perm	0.20		0.13	0.16			c0.25			0.06		0.19
v/c Ratio	0.67	0.52	0.13	0.53	0.90		0.75	0.58		0.22	0.63	0.19
Uniform Delay, d1	21.9	26.1	0.0	22.0	30.2		22.3	20.7		26.2	29.4	0.0
Progression Factor	1.28	0.52	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.1	3.3	0.2	1.1	20.6		9.1	1.3		0.5	2.5	0.3
Delay (s)	35.0	16.9	0.2	23.1	50.8		31.4	21.9		26.7	32.0	0.3
Level of Service	D	B	A	C	D		C	C		C	C	A
Approach Delay (s)		15.9			43.2			25.5			17.3	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	39	592	841	121	0	66
Future Volume (Veh/h)	39	592	841	121	0	66
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	41	617	876	126	0	69
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	1045				1374	544
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1045				1262	544
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				100	85
cM capacity (veh/h)	638				136	466

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	41	308	308	584	418	69
Volume Left	41	0	0	0	0	0
Volume Right	0	0	0	0	126	69
cSH	638	1700	1700	1700	1700	466
Volume to Capacity	0.06	0.18	0.18	0.34	0.25	0.15
Queue Length 95th (m)	1.6	0.0	0.0	0.0	0.0	4.1
Control Delay (s)	11.0	0.0	0.0	0.0	0.0	14.1
Lane LOS	B					B
Approach Delay (s)	0.7			0.0		14.1
Approach LOS						B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

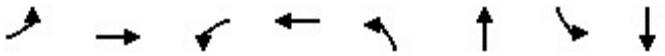
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	641	72	864	27	53
v/c Ratio	0.27	0.14	0.35	0.06	0.04
Control Delay	12.8	6.9	6.4	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.8	6.9	6.4	25.2	0.1
Queue Length 50th (m)	49.2	4.0	27.8	3.7	0.0
Queue Length 95th (m)	56.5	m6.4	m35.3	10.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2371	497	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.14	0.35	0.06	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	580	42	70	838	26	51
Future Volume (vph)	580	42	70	838	26	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3375		1678	3539	1656	1355
Flt Permitted	1.00		0.40	1.00	0.95	1.00
Satd. Flow (perm)	3375		709	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	598	43	72	864	27	53
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	636	0	72	864	27	53
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2295		482	2406	353	1294
v/s Ratio Prot	0.19			c0.24	c0.02	
v/s Ratio Perm			0.10			0.04
v/c Ratio	0.28		0.15	0.36	0.08	0.04
Uniform Delay, d1	5.7		5.1	6.1	28.3	0.1
Progression Factor	1.88		0.88	0.83	1.00	1.00
Incremental Delay, d2	0.3		0.5	0.3	0.2	0.0
Delay (s)	11.0		5.1	5.4	28.5	0.1
Level of Service	B		A	A	C	A
Approach Delay (s)	11.0			5.4	9.7	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	512	40	841	38	85	162	114
v/c Ratio	0.12	0.23	0.07	0.37	0.16	0.23	0.67	0.31
Control Delay	5.8	4.7	2.9	3.3	28.6	19.6	45.9	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	4.7	2.9	3.3	28.6	19.6	45.9	24.7
Queue Length 50th (m)	2.5	13.9	1.3	4.4	5.8	8.0	27.7	14.2
Queue Length 95th (m)	m3.8	12.3	1.4	0.0	13.1	18.6	44.6	26.4
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	378	2275	558	2268	448	642	448	668
Starvation Cap Reductn	0	0	0	240	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.23	0.07	0.41	0.08	0.13	0.36	0.17

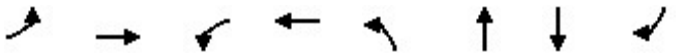
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	430	72	39	666	158	37	51	32	159	82	29
Future Volume (vph)	46	430	72	39	666	158	37	51	32	159	82	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.97	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1701	3372		1701	3358		1697	1688		1657	1778	
Flt Permitted	0.31	1.00		0.46	1.00		0.68	1.00		0.70	1.00	
Satd. Flow (perm)	562	3372		829	3358		1221	1688		1224	1778	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	439	73	40	680	161	38	52	33	162	84	30
RTOR Reduction (vph)	0	10	0	0	15	0	0	26	0	0	18	0
Lane Group Flow (vph)	47	502	0	40	826	0	38	59	0	162	96	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	377	2266		557	2257		241	333		242	351	
v/s Ratio Prot		0.15			c0.25			0.03			0.05	
v/s Ratio Perm	0.08			0.05			0.03			c0.13		
v/c Ratio	0.12	0.22		0.07	0.37		0.16	0.18		0.67	0.27	
Uniform Delay, d1	5.3	5.7		5.1	6.4		29.9	30.0		33.4	30.6	
Progression Factor	0.71	0.72		0.39	0.41		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2		0.2	0.4		0.3	0.3		6.9	0.4	
Delay (s)	4.4	4.3		2.2	3.1		30.2	30.3		40.2	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		4.3			3.0			30.2			36.4	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

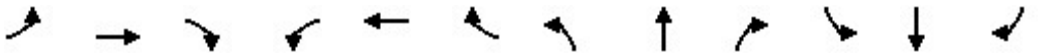
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	187	721	8	793	291	151	131	238
v/c Ratio	0.82	0.47	0.03	0.50	0.86	0.43	0.49	0.83
Control Delay	53.0	17.6	10.3	12.8	59.8	33.7	41.8	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	17.6	10.3	12.8	59.8	33.7	41.8	44.6
Queue Length 50th (m)	29.9	45.1	0.5	49.6	50.7	22.7	21.9	22.2
Queue Length 95th (m)	#71.7	61.4	m1.3	58.0	#93.0	41.1	39.7	#61.0
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	229	1531	254	1602	355	369	294	303
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.47	0.03	0.50	0.82	0.41	0.45	0.79

Intersection Summary

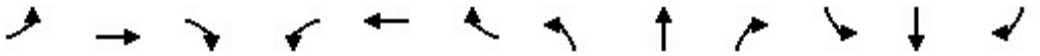
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	521	143	7	720	9	268	122	17	7	113	219
Future Volume (vph)	172	521	143	7	720	9	268	122	17	7	113	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	0.97	1.00		0.97	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1751	3311		1711	3526		1667	1708			1895	1348
Flt Permitted	0.27	1.00		0.31	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	505	3311		558	3526		1667	1708			1895	1348
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	187	566	155	8	783	10	291	133	18	8	123	238
RTOR Reduction (vph)	0	27	0	0	1	0	0	6	0	0	0	95
Lane Group Flow (vph)	187	694	0	8	792	0	291	145	0	0	131	143
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	40.9	40.9		40.9	40.9		18.2	18.2			12.8	12.8
Effective Green, g (s)	40.9	40.9		40.9	40.9		18.2	18.2			12.8	12.8
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	229	1504		253	1602		337	345			269	191
v/s Ratio Prot		0.21			0.22		c0.17	0.09			0.07	
v/s Ratio Perm	c0.37			0.01								c0.11
v/c Ratio	0.82	0.46		0.03	0.49		0.86	0.42			0.49	0.75
Uniform Delay, d1	21.3	16.9		13.6	17.3		34.7	31.3			35.6	37.0
Progression Factor	1.00	1.00		0.66	0.65		1.00	1.00			1.00	1.00
Incremental Delay, d2	26.5	1.0		0.2	1.1		19.8	0.8			1.4	14.7
Delay (s)	47.8	18.0		9.2	12.3		54.5	32.1			37.0	51.8
Level of Service	D	B		A	B		D	C			D	D
Approach Delay (s)		24.1			12.3			46.9			46.5	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

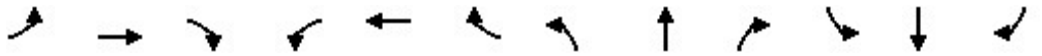
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	138	191	53	26	226	35	79	196	8	28	220	121
Future Volume (vph)	138	191	53	26	226	35	79	196	8	28	220	121
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	148	205	57	28	243	38	85	211	9	30	237	130

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	410	309	305	397
Volume Left (vph)	148	28	85	30
Volume Right (vph)	57	38	9	130
Hadj (s)	0.02	-0.02	0.09	-0.13
Departure Headway (s)	8.3	8.7	8.8	8.2
Degree Utilization, x	0.94	0.74	0.74	0.90
Capacity (veh/h)	430	395	384	397
Control Delay (s)	58.6	32.8	33.3	51.0
Approach Delay (s)	58.6	32.8	33.3	51.0
Approach LOS	F	D	D	F

Intersection Summary				
Delay	45.4			
Level of Service	E			
Intersection Capacity Utilization	83.2%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	9	17	3	42	5	318	20	14	326	2
Future Volume (Veh/h)	2	0	9	17	3	42	5	318	20	14	326	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	11	20	4	49	6	374	24	16	384	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	922	913	496	911	902	416	442			428		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	922	913	496	911	902	416	442			428		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	91	98	92	99			99		
cM capacity (veh/h)	203	250	504	211	252	620	959			1103		

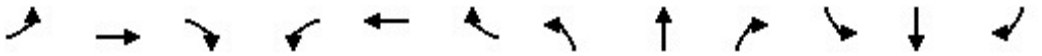
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	73	404	402
Volume Left	2	20	6	16
Volume Right	11	49	24	2
cSH	411	385	959	1103
Volume to Capacity	0.03	0.19	0.01	0.01
Queue Length 95th (m)	0.8	5.5	0.2	0.4
Control Delay (s)	14.1	16.5	0.2	0.5
Lane LOS	B	C	A	A
Approach Delay (s)	14.1	16.5	0.2	0.5
Approach LOS	B	C		

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	43.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	7	408	13	3	377
Future Volume (Veh/h)	16	7	408	13	3	377
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	16	7	421	13	3	389
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	888	458			464	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	888	458			464	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	99			100	
cM capacity (veh/h)	296	558			929	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	23	434	392
Volume Left	16	0	3
Volume Right	7	13	0
cSH	345	1700	929
Volume to Capacity	0.07	0.26	0.00
Queue Length 95th (m)	1.7	0.0	0.1
Control Delay (s)	16.2	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	16.2	0.0	0.1
Approach LOS	C		

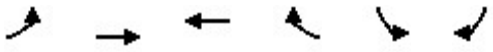
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	32.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	12	1	1	0	7	21	0	1	16	5
Future Volume (Veh/h)	3	1	12	1	1	0	7	21	0	1	16	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	13	1	1	0	8	23	0	1	17	5
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	171	172	180	197	175	95	97			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	171	172	180	197	175	95	97			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	99			100		
cM capacity (veh/h)	667	651	750	623	648	905	1319			1496		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	2	31	23
Volume Left	3	1	8	1
Volume Right	13	0	0	5
cSH	728	635	1319	1496
Volume to Capacity	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.6	0.1	0.1	0.0
Control Delay (s)	10.1	10.7	2.0	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	10.7	2.0	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	32.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	32	65	35	37	7
Future Volume (Veh/h)	12	32	65	35	37	7
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	14	38	77	42	44	8
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	152				289	209
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	152				289	209
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	99
cM capacity (veh/h)	1390				624	756

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	52	119	52
Volume Left	14	0	44
Volume Right	0	42	8
cSH	1390	1700	641
Volume to Capacity	0.01	0.07	0.08
Queue Length 95th (m)	0.2	0.0	2.1
Control Delay (s)	2.1	0.0	11.1
Lane LOS	A		B
Approach Delay (s)	2.1	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	0	44	2	0	31
Future Volume (Veh/h)	8	0	44	2	0	31
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	48	2	0	34
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	163	129			130	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	163	129			130	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	773	859			1358	

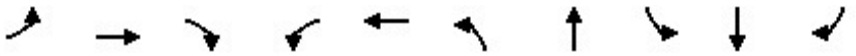
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	50	34
Volume Left	9	0	0
Volume Right	0	2	0
cSH	773	1700	1358
Volume to Capacity	0.01	0.03	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	580	42	70	838	26	51
Future Volume (Veh/h)	580	42	70	838	26	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	598	43	72	864	27	53
Pedestrians	106			70	74	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	9			6	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			715		1376	464
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			652		1331	395
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			92		74	89
cM capacity (veh/h)			850		105	503

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	399	242	72	432	432	27	53
Volume Left	0	0	72	0	0	27	0
Volume Right	0	43	0	0	0	0	53
cSH	1700	1700	850	1700	1700	105	503
Volume to Capacity	0.23	0.14	0.08	0.25	0.25	0.26	0.11
Queue Length 95th (m)	0.0	0.0	2.2	0.0	0.0	7.6	2.8
Control Delay (s)	0.0	0.0	9.6	0.0	0.0	51.0	13.0
Lane LOS			A			F	B
Approach Delay (s)	0.0		0.7			25.8	
Approach LOS						D	

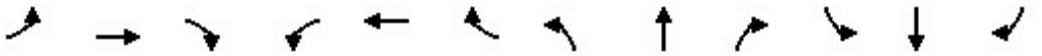
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	168	415	260	176	452	267	404	13	222	250
v/c Ratio	0.84	0.80	0.18	0.79	0.87	0.71	0.59	0.05	0.43	0.17
Control Delay	55.9	43.7	0.3	46.6	49.5	32.3	22.2	26.3	30.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	43.7	0.3	46.6	49.5	32.3	22.2	26.3	30.8	0.2
Queue Length 50th (m)	19.7	71.6	0.0	20.8	79.0	34.6	51.2	1.9	35.2	0.0
Queue Length 95th (m)	#47.4	107.0	0.0	#46.9	#129.1	#60.8	83.6	6.6	57.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	200	581	1417	222	579	378	687	245	519	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.71	0.18	0.79	0.78	0.71	0.59	0.05	0.43	0.17

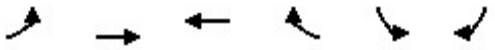
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	390	244	165	397	28	251	206	174	12	209	235
Future Volume (vph)	158	390	244	165	397	28	251	206	174	12	209	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00		0.94	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1755	1853	1417	1669	1780		1691	1549		1579	1837	1477
Flt Permitted	0.22	1.00	1.00	0.24	1.00		0.44	1.00		0.52	1.00	1.00
Satd. Flow (perm)	404	1853	1417	418	1780		789	1549		872	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	168	415	260	176	422	30	267	219	185	13	222	250
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	168	415	260	176	449	0	267	373	0	13	222	250
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.9	25.7	92.0	32.9	26.7		39.2	39.2		26.1	26.1	92.0
Effective Green, g (s)	30.9	25.7	92.0	32.9	26.7		39.2	39.2		26.1	26.1	92.0
Actuated g/C Ratio	0.34	0.28	1.00	0.36	0.29		0.43	0.43		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	517	1417	233	516		397	660		247	521	1477
v/s Ratio Prot	0.04	0.22		c0.05	c0.25		0.05	c0.24			0.12	
v/s Ratio Perm	0.22		c0.18	0.22			c0.24			0.01		0.17
v/c Ratio	0.79	0.80	0.18	0.76	0.87		0.67	0.57		0.05	0.43	0.17
Uniform Delay, d1	26.2	30.8	0.0	23.9	31.0		21.5	20.0		24.0	26.8	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.6	8.8	0.3	12.4	14.8		4.0	1.1		0.1	0.6	0.2
Delay (s)	43.8	39.6	0.3	36.4	45.8		25.5	21.1		24.0	27.4	0.2
Level of Service	D	D	A	D	D		C	C		C	C	A
Approach Delay (s)		28.3			43.2			22.8			13.3	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	92.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	43	828	821	119	0	53
Future Volume (Veh/h)	43	828	821	119	0	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	45	872	864	125	0	56
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.88	
vC, conflicting volume	1063				1532	568
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1063				1331	568
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				100	87
cM capacity (veh/h)	611				111	437

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	45	436	436	576	413	56
Volume Left	45	0	0	0	0	0
Volume Right	0	0	0	0	125	56
cSH	611	1700	1700	1700	1700	437
Volume to Capacity	0.07	0.26	0.26	0.34	0.24	0.13
Queue Length 95th (m)	1.9	0.0	0.0	0.0	0.0	3.5
Control Delay (s)	11.4	0.0	0.0	0.0	0.0	14.5
Lane LOS	B					B
Approach Delay (s)	0.6			0.0		14.5
Approach LOS						B

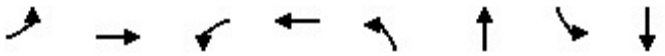
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	877	122	799	36	119
v/c Ratio	0.41	0.38	0.36	0.08	0.10
Control Delay	8.6	12.4	8.7	25.4	0.2
Queue Delay	0.2	0.0	0.0	0.0	0.0
Total Delay	8.8	12.4	8.7	25.4	0.2
Queue Length 50th (m)	29.9	9.8	33.3	4.9	0.0
Queue Length 95th (m)	36.5	22.3	44.0	12.4	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2139	323	2217	491	1177
Starvation Cap Reductn	454	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.52	0.38	0.36	0.07	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	759	74	116	759	34	113
Future Volume (vph)	759	74	116	759	34	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.96	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3400		1697	3539	1770	1241
Flt Permitted	1.00		0.29	1.00	0.95	1.00
Satd. Flow (perm)	3400		517	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	799	78	122	799	36	119
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	869	0	122	799	36	119
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2130		323	2217	472	1185
v/s Ratio Prot	c0.26			0.23	0.02	
v/s Ratio Perm			0.24			c0.10
v/c Ratio	0.41		0.38	0.36	0.08	0.10
Uniform Delay, d1	8.4		8.2	8.1	24.7	0.1
Progression Factor	0.97		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6		3.3	0.5	0.1	0.1
Delay (s)	8.7		11.6	8.6	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	8.7			9.0	5.9	
Approach LOS	A			A	A	

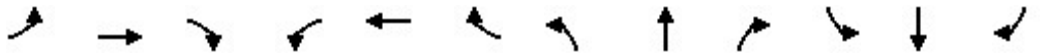
Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	714	75	750	115	233	176	196
v/c Ratio	0.11	0.34	0.19	0.36	0.47	0.53	0.87	0.44
Control Delay	1.9	1.2	7.8	6.3	33.5	24.1	67.4	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.9	1.2	7.8	6.3	33.5	24.1	67.4	28.2
Queue Length 50th (m)	0.5	3.4	2.9	8.9	17.6	25.7	30.2	27.7
Queue Length 95th (m)	m1.0	5.2	9.0	27.6	29.7	41.8	49.7	41.1
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	351	2102	402	2093	425	708	353	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.34	0.19	0.36	0.27	0.33	0.50	0.26

Intersection Summary

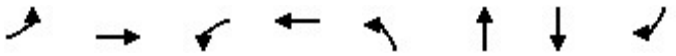
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	556	130	72	595	125	110	115	108	169	159	29
Future Volume (vph)	38	556	130	72	595	125	110	115	108	169	159	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.96	1.00		0.96	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1543	3332		1691	3322		1691	1585		1607	1795	
Flt Permitted	0.34	1.00		0.36	1.00		0.57	1.00		0.50	1.00	
Satd. Flow (perm)	556	3332		639	3322		1010	1585		842	1795	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	579	135	75	620	130	115	120	112	176	166	30
RTOR Reduction (vph)	0	15	0	0	13	0	0	49	0	0	10	0
Lane Group Flow (vph)	40	699	0	75	737	0	115	184	0	176	186	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	56.4	56.4		56.4	56.4		21.9	21.9		21.9	21.9	
Effective Green, g (s)	56.4	56.4		56.4	56.4		21.9	21.9		21.9	21.9	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	348	2088		400	2081		245	385		204	436	
v/s Ratio Prot		0.21			c0.22			0.12			0.10	
v/s Ratio Perm	0.07			0.12			0.11			c0.21		
v/c Ratio	0.11	0.33		0.19	0.35		0.47	0.48		0.86	0.43	
Uniform Delay, d1	6.8	7.9		7.1	8.1		29.1	29.2		32.6	28.8	
Progression Factor	0.14	0.10		0.69	0.65		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		1.0	0.5		1.4	0.9		29.2	0.7	
Delay (s)	1.5	1.1		5.9	5.7		30.5	30.1		61.8	29.4	
Level of Service	A	A		A	A		C	C		E	C	
Approach Delay (s)		1.1			5.7			30.2			44.8	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

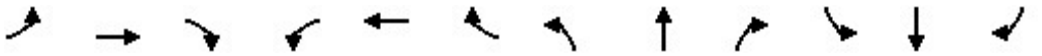
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	134	990	24	759	232	135	143	209
v/c Ratio	0.54	0.64	0.15	0.46	0.76	0.43	0.51	0.68
Control Delay	29.1	20.0	23.5	23.8	50.2	31.7	42.0	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	20.0	23.5	23.8	50.2	31.7	42.0	25.5
Queue Length 50th (m)	17.4	67.1	2.9	56.2	39.8	18.8	24.0	11.9
Queue Length 95th (m)	#41.8	93.6	m10.1	74.2	63.6	35.2	42.7	#36.8
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	249	1542	164	1647	364	371	297	319
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.64	0.15	0.46	0.64	0.36	0.48	0.66

Intersection Summary

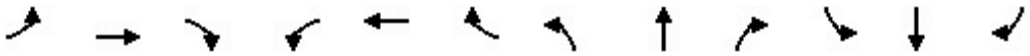
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	673	247	22	698	7	216	95	31	8	125	194
Future Volume (vph)	125	673	247	22	698	7	216	95	31	8	125	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.94		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.95	1.00		0.97	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1707	3219		1715	3525		1667	1636			1913	1312
Flt Permitted	0.30	1.00		0.20	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	532	3219		352	3525		1667	1636			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	134	724	266	24	751	8	232	102	33	9	134	209
RTOR Reduction (vph)	0	38	0	0	1	0	0	14	0	0	0	117
Lane Group Flow (vph)	134	952	0	24	758	0	232	121	0	0	143	92
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.1	42.1		42.1	42.1		16.6	16.6			13.2	13.2
Effective Green, g (s)	42.1	42.1		42.1	42.1		16.6	16.6			13.2	13.2
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	248	1505		164	1648		307	301			280	192
v/s Ratio Prot		c0.30			0.22		c0.14	0.07			c0.07	
v/s Ratio Perm	0.25			0.07								0.07
v/c Ratio	0.54	0.63		0.15	0.46		0.76	0.40			0.51	0.48
Uniform Delay, d1	17.1	18.1		13.7	16.2		34.8	32.3			35.4	35.2
Progression Factor	1.00	1.00		1.29	1.32		1.00	1.00			1.00	1.00
Incremental Delay, d2	8.2	2.0		1.8	0.9		10.1	0.9			1.6	1.9
Delay (s)	25.3	20.1		19.4	22.4		44.9	33.2			37.0	37.1
Level of Service	C	C		B	C		D	C			D	D
Approach Delay (s)		20.7			22.3			40.6			37.1	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

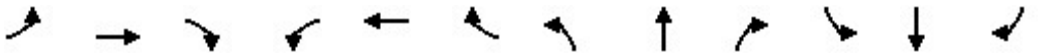
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	77	258	77	27	201	46	53	130	13	38	183	72
Future Volume (vph)	77	258	77	27	201	46	53	130	13	38	183	72
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	85	284	85	30	221	51	58	143	14	42	201	79

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	454	302	215	322
Volume Left (vph)	85	30	58	42
Volume Right (vph)	85	51	14	79
Hadj (s)	-0.04	-0.05	0.05	-0.08
Departure Headway (s)	6.7	7.1	7.6	7.1
Degree Utilization, x	0.85	0.60	0.46	0.64
Capacity (veh/h)	454	459	420	460
Control Delay (s)	36.3	20.0	16.8	21.9
Approach Delay (s)	36.3	20.0	16.8	21.9
Approach LOS	E	C	C	C

Intersection Summary			
Delay	25.7		
Level of Service	D		
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	27	6	36	8	233	30	12	266	2
Future Volume (Veh/h)	2	2	3	27	6	36	8	233	30	12	266	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	33	7	43	10	281	36	14	320	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	828	806	468	778	789	371	403			356		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	828	806	468	778	789	371	403			356		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	87	98	93	99			99		
cM capacity (veh/h)	183	279	525	257	284	635	1078			1164		

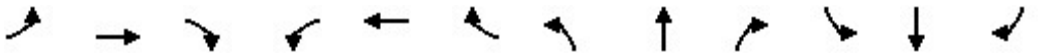
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	83	327	336
Volume Left	2	33	10	14
Volume Right	4	43	36	2
cSH	311	376	1078	1164
Volume to Capacity	0.03	0.22	0.01	0.01
Queue Length 95th (m)	0.6	6.6	0.2	0.3
Control Delay (s)	16.9	17.3	0.3	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	16.9	17.3	0.3	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	38.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	6	261	15	1	270
Future Volume (Veh/h)	12	6	261	15	1	270
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	17	8	368	21	1	380
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	838	442			419	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	838	442			419	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			100	
cM capacity (veh/h)	314	582			1112	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	25	389	381
Volume Left	17	0	1
Volume Right	8	21	0
cSH	368	1700	1112
Volume to Capacity	0.07	0.23	0.00
Queue Length 95th (m)	1.7	0.0	0.0
Control Delay (s)	15.5	0.0	0.0
Lane LOS	C		A
Approach Delay (s)	15.5	0.0	0.0
Approach LOS	C		

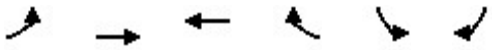
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	1	1	0	0	8	12	1	0	6	6
Future Volume (Veh/h)	3	1	1	1	0	0	8	12	1	0	6	6
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	1	1	0	0	10	16	1	0	8	8
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	198	199	193	145	202	80	134			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	198	199	193	145	202	80	134			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	99			100		
cM capacity (veh/h)	601	607	725	683	604	928	1308			1516		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	1	27	16
Volume Left	4	1	10	0
Volume Right	1	0	1	8
cSH	620	683	1308	1516
Volume to Capacity	0.01	0.00	0.01	0.00
Queue Length 95th (m)	0.2	0.0	0.2	0.0
Control Delay (s)	10.9	10.3	2.9	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.9	10.3	2.9	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	37	84	30	10	12
Future Volume (Veh/h)	10	37	84	30	10	12
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	13	48	109	39	13	16
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	197				334	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	197				334	442
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	97
cM capacity (veh/h)	1320				584	460

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	61	148	29
Volume Left	13	0	13
Volume Right	0	39	16
cSH	1320	1700	508
Volume to Capacity	0.01	0.09	0.06
Queue Length 95th (m)	0.2	0.0	1.4
Control Delay (s)	1.7	0.0	12.5
Lane LOS	A		B
Approach Delay (s)	1.7	0.0	12.5
Approach LOS			B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	0	34	7	0	9
Future Volume (Veh/h)	3	0	34	7	0	9
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	37	8	0	10
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	181	171			175	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	181	171			175	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	721	778			1250	

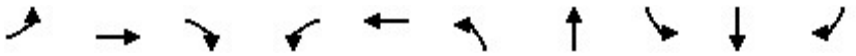
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	45	10
Volume Left	3	0	0
Volume Right	0	8	0
cSH	721	1700	1250
Volume to Capacity	0.00	0.03	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	10.0	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.0	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		23.2%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	759	74	116	759	34	113
Future Volume (Veh/h)	759	74	116	759	34	113
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	799	78	122	799	36	119
Pedestrians	166			199	91	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	14			17	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.93		0.93	0.93
vC, conflicting volume			968		1738	728
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			820		1646	563
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		35	65
cM capacity (veh/h)			693		55	338

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	533	344	122	400	400	36	119
Volume Left	0	0	122	0	0	36	0
Volume Right	0	78	0	0	0	0	119
cSH	1700	1700	693	1700	1700	55	338
Volume to Capacity	0.31	0.20	0.18	0.23	0.23	0.65	0.35
Queue Length 95th (m)	0.0	0.0	5.1	0.0	0.0	21.4	12.4
Control Delay (s)	0.0	0.0	11.3	0.0	0.0	151.3	21.4
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.5			51.5	
Approach LOS						F	

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		



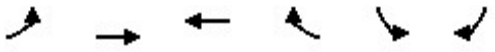
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	289	185	181	484	244	406	51	305	293
v/c Ratio	0.69	0.52	0.13	0.56	0.90	0.77	0.60	0.22	0.63	0.19
Control Delay	44.3	17.3	0.2	27.9	53.6	37.4	21.8	27.3	35.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	17.3	0.2	27.9	53.6	37.4	21.8	27.3	35.0	0.3
Queue Length 50th (m)	12.7	18.0	0.0	21.3	85.6	28.4	47.4	7.0	47.0	0.0
Queue Length 95th (m)	#38.7	28.2	0.0	36.5	#149.4	#55.8	76.7	16.7	73.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	198	561	1415	321	536	317	717	253	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.52	0.13	0.56	0.90	0.77	0.57	0.20	0.56	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	275	176	172	418	42	232	229	157	48	290	278
Future Volume (vph)	130	275	176	172	418	42	232	229	157	48	290	278
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00		0.98	1.00		0.89	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1735	1872	1415	1667	1781		1769	1600		1593	1872	1530
Flt Permitted	0.18	1.00	1.00	0.46	1.00		0.31	1.00		0.52	1.00	1.00
Satd. Flow (perm)	337	1872	1415	809	1781		585	1600		878	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	289	185	181	440	44	244	241	165	51	305	293
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	137	289	185	181	480	0	244	378	0	51	305	293
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.4	27.0	90.0	32.4	27.0		36.7	36.7		23.4	23.4	90.0
Effective Green, g (s)	32.4	27.0	90.0	32.4	27.0		36.7	36.7		23.4	23.4	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	561	1415	342	534		324	652		228	486	1530
v/s Ratio Prot	c0.04	0.15		0.03	c0.27		0.05	c0.24			0.16	
v/s Ratio Perm	0.20		0.13	0.16			c0.25			0.06		0.19
v/c Ratio	0.67	0.52	0.13	0.53	0.90		0.75	0.58		0.22	0.63	0.19
Uniform Delay, d1	21.9	26.1	0.0	22.0	30.2		22.3	20.7		26.2	29.4	0.0
Progression Factor	1.26	0.51	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.1	3.3	0.2	1.1	20.6		9.1	1.3		0.5	2.5	0.3
Delay (s)	34.7	16.6	0.2	23.1	50.8		31.4	21.9		26.7	32.0	0.3
Level of Service	C	B	A	C	D		C	C		C	C	A
Approach Delay (s)		15.7			43.2			25.5			17.3	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	592	841	121	0	66
Future Volume (Veh/h)	0	592	841	121	0	66
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	617	876	126	0	69
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	1045				1292	544
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1045				1179	544
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	85
cM capacity (veh/h)	638				165	466

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	308	308	584	418	69
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	126	69
cSH	1700	1700	1700	1700	1700	466
Volume to Capacity	0.00	0.18	0.18	0.34	0.25	0.15
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	4.1
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.1
Lane LOS						B
Approach Delay (s)	0.0			0.0		14.1
Approach LOS						B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

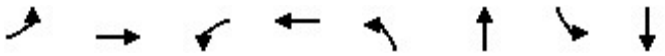
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	601	72	864	27	53
v/c Ratio	0.25	0.14	0.35	0.06	0.04
Control Delay	12.2	6.9	6.4	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.2	6.9	6.4	25.2	0.1
Queue Length 50th (m)	37.7	4.0	27.8	3.7	0.0
Queue Length 95th (m)	52.7	m6.4	m35.3	10.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2367	520	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.14	0.35	0.06	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	541	42	70	838	26	51
Future Volume (vph)	541	42	70	838	26	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.94	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3370		1672	3539	1656	1355
Flt Permitted	1.00		0.42	1.00	0.95	1.00
Satd. Flow (perm)	3370		741	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	558	43	72	864	27	53
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	596	0	72	864	27	53
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2291		503	2406	353	1294
v/s Ratio Prot	0.18			c0.24	c0.02	
v/s Ratio Perm			0.10			0.04
v/c Ratio	0.26		0.14	0.36	0.08	0.04
Uniform Delay, d1	5.6		5.1	6.1	28.3	0.1
Progression Factor	1.82		0.89	0.83	1.00	1.00
Incremental Delay, d2	0.3		0.5	0.3	0.2	0.0
Delay (s)	10.5		5.0	5.4	28.5	0.1
Level of Service	B		A	A	C	A
Approach Delay (s)	10.5			5.4	9.7	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	472	40	841	38	85	162	114
v/c Ratio	0.12	0.21	0.07	0.37	0.16	0.23	0.67	0.31
Control Delay	5.8	4.6	2.9	3.3	28.6	19.6	45.9	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	4.6	2.9	3.3	28.6	19.6	45.9	24.7
Queue Length 50th (m)	2.5	12.4	1.3	4.4	5.8	8.0	27.7	14.2
Queue Length 95th (m)	m4.1	11.4	1.4	0.0	13.1	18.6	44.6	26.4
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	378	2268	579	2268	448	642	448	668
Starvation Cap Reductn	0	0	0	240	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.21	0.07	0.41	0.08	0.13	0.36	0.17

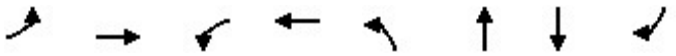
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	391	72	39	666	158	37	51	32	159	82	29
Future Volume (vph)	46	391	72	39	666	158	37	51	32	159	82	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.97	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1701	3362		1697	3358		1697	1688		1657	1778	
Flt Permitted	0.31	1.00		0.48	1.00		0.68	1.00		0.70	1.00	
Satd. Flow (perm)	562	3362		860	3358		1221	1688		1224	1778	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	399	73	40	680	161	38	52	33	162	84	30
RTOR Reduction (vph)	0	11	0	0	15	0	0	26	0	0	18	0
Lane Group Flow (vph)	47	461	0	40	826	0	38	59	0	162	96	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	377	2260		578	2257		241	333		242	351	
v/s Ratio Prot		0.14			c0.25			0.03			0.05	
v/s Ratio Perm	0.08			0.05			0.03			c0.13		
v/c Ratio	0.12	0.20		0.07	0.37		0.16	0.18		0.67	0.27	
Uniform Delay, d1	5.3	5.6		5.1	6.4		29.9	30.0		33.4	30.6	
Progression Factor	0.71	0.73		0.39	0.41		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2		0.2	0.4		0.3	0.3		6.9	0.4	
Delay (s)	4.3	4.3		2.2	3.1		30.2	30.3		40.2	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		4.3			3.0			30.2			36.4	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



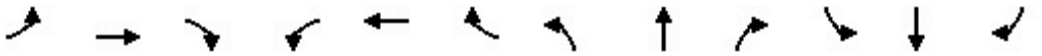
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	223	678	8	793	291	151	131	238
v/c Ratio	0.97	0.44	0.03	0.50	0.86	0.43	0.49	0.83
Control Delay	82.5	17.0	10.3	13.0	59.8	33.7	41.8	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.5	17.0	10.3	13.0	59.8	33.7	41.8	44.6
Queue Length 50th (m)	~43.8	41.2	0.5	49.6	50.7	22.7	21.9	22.2
Queue Length 95th (m)	#88.5	56.6	m1.2	58.0	#93.0	41.1	39.7	#61.0
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	229	1527	271	1602	355	369	294	303
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.44	0.03	0.50	0.82	0.41	0.45	0.79

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

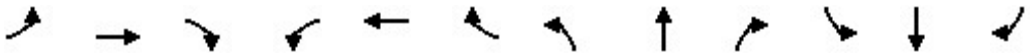
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	481	143	7	720	9	268	122	17	7	113	219
Future Volume (vph)	205	481	143	7	720	9	268	122	17	7	113	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	0.97	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1751	3298		1706	3526		1667	1708			1895	1348
Flt Permitted	0.27	1.00		0.33	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	505	3298		598	3526		1667	1708			1895	1348
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	523	155	8	783	10	291	133	18	8	123	238
RTOR Reduction (vph)	0	29	0	0	1	0	0	6	0	0	0	95
Lane Group Flow (vph)	223	649	0	8	792	0	291	145	0	0	131	143
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	40.9	40.9		40.9	40.9		18.2	18.2			12.8	12.8
Effective Green, g (s)	40.9	40.9		40.9	40.9		18.2	18.2			12.8	12.8
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	229	1498		271	1602		337	345			269	191
v/s Ratio Prot		0.20			0.22		c0.17	0.09			0.07	
v/s Ratio Perm	c0.44			0.01								c0.11
v/c Ratio	0.97	0.43		0.03	0.49		0.86	0.42			0.49	0.75
Uniform Delay, d1	24.0	16.7		13.6	17.3		34.7	31.3			35.6	37.0
Progression Factor	1.00	1.00		0.66	0.66		1.00	1.00			1.00	1.00
Incremental Delay, d2	53.1	0.9		0.2	1.1		19.8	0.8			1.4	14.7
Delay (s)	77.1	17.6		9.2	12.5		54.5	32.1			37.0	51.8
Level of Service	E	B		A	B		D	C			D	D
Approach Delay (s)		32.3			12.5			46.9			46.5	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

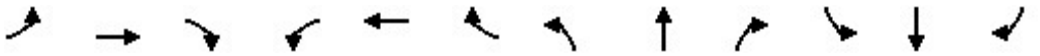
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	136	191	53	26	226	35	79	229	8	28	220	121
Future Volume (vph)	136	191	53	26	226	35	79	229	8	28	220	121
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	146	205	57	28	243	38	85	246	9	30	237	130

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	408	309	340	397
Volume Left (vph)	146	28	85	30
Volume Right (vph)	57	38	9	130
Hadj (s)	0.02	-0.02	0.09	-0.13
Departure Headway (s)	8.8	9.2	9.2	8.7
Degree Utilization, x	1.00	0.79	0.87	0.96
Capacity (veh/h)	410	382	391	397
Control Delay (s)	74.1	39.7	49.2	65.2
Approach Delay (s)	74.1	39.7	49.2	65.2
Approach LOS	F	E	E	F

Intersection Summary				
Delay	58.5			
Level of Service	F			
Intersection Capacity Utilization	84.3%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	9	17	3	42	5	318	51	14	326	2
Future Volume (Veh/h)	2	0	9	17	3	42	5	318	51	14	326	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	11	20	4	49	6	374	60	16	384	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	940	949	496	929	920	434	442			464		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	940	949	496	929	920	434	442			464		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	90	98	92	99			99		
cM capacity (veh/h)	197	238	504	205	246	606	959			1070		

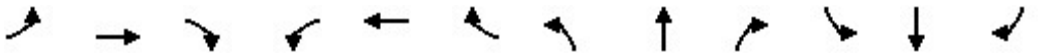
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	73	440	402
Volume Left	2	20	6	16
Volume Right	11	49	60	2
cSH	407	375	959	1070
Volume to Capacity	0.03	0.19	0.01	0.01
Queue Length 95th (m)	0.8	5.7	0.2	0.4
Control Delay (s)	14.1	16.9	0.2	0.5
Lane LOS	B	C	A	A
Approach Delay (s)	14.1	16.9	0.2	0.5
Approach LOS	B	C		

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	44.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	7	408	13	3	377
Future Volume (Veh/h)	16	7	408	13	3	377
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	16	7	421	13	3	389
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	888	458			464	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	888	458			464	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	99			100	
cM capacity (veh/h)	296	558			929	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	23	434	392
Volume Left	16	0	3
Volume Right	7	13	0
cSH	345	1700	929
Volume to Capacity	0.07	0.26	0.00
Queue Length 95th (m)	1.7	0.0	0.1
Control Delay (s)	16.2	0.0	0.1
Lane LOS	C		A
Approach Delay (s)	16.2	0.0	0.1
Approach LOS	C		

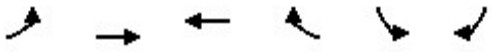
Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		32.3%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	12	1	1	0	7	21	0	1	16	5
Future Volume (Veh/h)	3	1	12	1	1	0	7	21	0	1	16	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	13	1	1	0	8	23	0	1	17	5
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	171	172	180	197	175	95	97			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	171	172	180	197	175	95	97			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	99			100		
cM capacity (veh/h)	667	651	750	623	648	905	1319			1496		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	17	2	31	23
Volume Left	3	1	8	1
Volume Right	13	0	0	5
cSH	728	635	1319	1496
Volume to Capacity	0.02	0.00	0.01	0.00
Queue Length 95th (m)	0.6	0.1	0.1	0.0
Control Delay (s)	10.1	10.7	2.0	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	10.7	2.0	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	32.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	62	40	22	37	10
Future Volume (Veh/h)	22	62	40	22	37	10
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	26	74	48	26	44	12
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	107				312	172
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	107				312	172
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				93	98
cM capacity (veh/h)	1443				600	793

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	100	74	56
Volume Left	26	0	44
Volume Right	0	26	12
cSH	1443	1700	633
Volume to Capacity	0.02	0.04	0.09
Queue Length 95th (m)	0.4	0.0	2.3
Control Delay (s)	2.1	0.0	11.2
Lane LOS	A		B
Approach Delay (s)	2.1	0.0	11.2
Approach LOS			B

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	30.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	0	44	2	0	31
Future Volume (Veh/h)	8	0	44	2	0	31
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	48	2	0	34
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	163	129			130	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	163	129			130	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	773	859			1358	

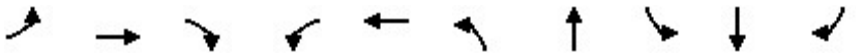
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	50	34
Volume Left	9	0	0
Volume Right	0	2	0
cSH	773	1700	1358
Volume to Capacity	0.01	0.03	0.00
Queue Length 95th (m)	0.3	0.0	0.0
Control Delay (s)	9.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	541	42	70	838	26	51
Future Volume (Veh/h)	541	42	70	838	26	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	558	43	72	864	27	53
Pedestrians	106			70	74	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	9			6	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			675		1336	444
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			632		1305	398
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			92		75	90
cM capacity (veh/h)			872		110	505

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	372	229	72	432	432	27	53
Volume Left	0	0	72	0	0	27	0
Volume Right	0	43	0	0	0	0	53
cSH	1700	1700	872	1700	1700	110	505
Volume to Capacity	0.22	0.13	0.08	0.25	0.25	0.25	0.10
Queue Length 95th (m)	0.0	0.0	2.2	0.0	0.0	7.2	2.8
Control Delay (s)	0.0	0.0	9.5	0.0	0.0	48.0	13.0
Lane LOS			A			E	B
Approach Delay (s)	0.0		0.7			24.8	
Approach LOS						C	

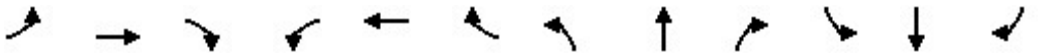
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	168	415	260	176	452	267	404	13	222	250
v/c Ratio	0.88	0.82	0.18	0.82	0.89	0.68	0.58	0.05	0.43	0.17
Control Delay	62.9	45.7	0.3	51.2	52.4	29.7	21.5	26.4	31.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.9	45.7	0.3	51.2	52.4	29.7	21.5	26.4	31.0	0.2
Queue Length 50th (m)	20.0	72.6	0.0	21.2	80.2	34.3	50.5	1.9	35.4	0.0
Queue Length 95th (m)	#50.1	#116.1	0.0	#45.4	#132.6	#55.9	81.9	6.6	57.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	192	559	1417	215	558	392	699	244	516	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.74	0.18	0.82	0.81	0.68	0.58	0.05	0.43	0.17

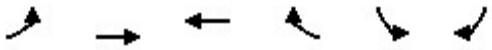
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	390	244	165	397	28	251	206	174	12	209	235
Future Volume (vph)	158	390	244	165	397	28	251	206	174	12	209	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.99	1.00	1.00	0.99	1.00		0.94	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1756	1853	1417	1670	1780		1691	1548		1577	1837	1477
Flt Permitted	0.21	1.00	1.00	0.23	1.00		0.44	1.00		0.52	1.00	1.00
Satd. Flow (perm)	385	1853	1417	401	1780		786	1548		871	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	168	415	260	176	422	30	267	219	185	13	222	250
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	168	415	260	176	449	0	267	373	0	13	222	250
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.5	25.3	92.5	32.5	26.3		40.1	40.1		26.1	26.1	92.5
Effective Green, g (s)	30.5	25.3	92.5	32.5	26.3		40.1	40.1		26.1	26.1	92.5
Actuated g/C Ratio	0.33	0.27	1.00	0.35	0.28		0.43	0.43		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	204	506	1417	225	506		411	671		245	518	1477
v/s Ratio Prot	0.05	0.22		c0.05	c0.25		0.05	c0.24			0.12	
v/s Ratio Perm	0.23		c0.18	0.22			c0.23			0.01		0.17
v/c Ratio	0.82	0.82	0.18	0.78	0.89		0.65	0.56		0.05	0.43	0.17
Uniform Delay, d1	27.0	31.5	0.0	24.7	31.7		20.3	19.6		24.2	27.1	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	22.4	10.3	0.3	15.6	17.0		3.1	1.0		0.1	0.6	0.2
Delay (s)	49.4	41.7	0.3	40.3	48.7		23.4	20.6		24.3	27.7	0.2
Level of Service	D	D	A	D	D		C	C		C	C	A
Approach Delay (s)		30.5			46.3			21.7			13.5	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	92.5	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	828	821	119	0	53
Future Volume (Veh/h)	2	828	821	119	0	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	2	872	864	125	0	56
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.89	
vC, conflicting volume	1063				1446	568
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1063				1245	568
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	87
cM capacity (veh/h)	611				137	437

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	2	436	436	576	413	56
Volume Left	2	0	0	0	0	0
Volume Right	0	0	0	0	125	56
cSH	611	1700	1700	1700	1700	437
Volume to Capacity	0.00	0.26	0.26	0.34	0.24	0.13
Queue Length 95th (m)	0.1	0.0	0.0	0.0	0.0	3.5
Control Delay (s)	10.9	0.0	0.0	0.0	0.0	14.5
Lane LOS	B					B
Approach Delay (s)	0.0			0.0		14.5
Approach LOS						B

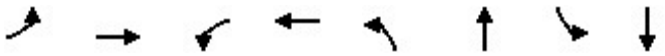
Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	834	122	799	36	119
v/c Ratio	0.39	0.36	0.36	0.08	0.10
Control Delay	8.8	11.8	8.7	25.4	0.2
Queue Delay	0.2	0.0	0.0	0.0	0.0
Total Delay	9.0	11.8	8.7	25.4	0.2
Queue Length 50th (m)	32.0	9.6	33.3	4.9	0.0
Queue Length 95th (m)	36.7	21.5	44.0	12.4	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2135	341	2217	491	1177
Starvation Cap Reductn	471	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.50	0.36	0.36	0.07	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	718	74	116	759	34	113
Future Volume (vph)	718	74	116	759	34	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.96	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3395		1691	3539	1770	1241
Flt Permitted	1.00		0.31	1.00	0.95	1.00
Satd. Flow (perm)	3395		545	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	756	78	122	799	36	119
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	826	0	122	799	36	119
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2127		341	2217	472	1185
v/s Ratio Prot	c0.24			0.23	0.02	
v/s Ratio Perm			0.22			c0.10
v/c Ratio	0.39		0.36	0.36	0.08	0.10
Uniform Delay, d1	8.3		8.1	8.1	24.7	0.1
Progression Factor	1.02		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		2.9	0.5	0.1	0.1
Delay (s)	8.9		11.0	8.6	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	8.9			8.9	5.9	
Approach LOS	A			A	A	

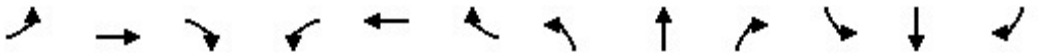
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	671	75	750	115	233	176	196
v/c Ratio	0.11	0.32	0.18	0.36	0.47	0.53	0.87	0.44
Control Delay	1.9	1.1	7.4	6.1	33.5	23.7	68.3	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.9	1.1	7.4	6.1	33.5	23.7	68.3	28.3
Queue Length 50th (m)	0.5	3.0	2.9	14.1	17.6	25.2	30.2	27.7
Queue Length 95th (m)	m1.1	5.4	8.1	25.0	29.6	41.2	49.6	41.1
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	352	2096	423	2094	447	744	371	805
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.32	0.18	0.36	0.26	0.31	0.47	0.24

Intersection Summary

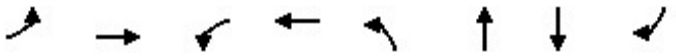
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	515	130	72	595	125	110	115	108	169	159	29
Future Volume (vph)	38	515	130	72	595	125	110	115	108	169	159	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.96	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1543	3320		1684	3322		1692	1585		1607	1795	
Flt Permitted	0.34	1.00		0.38	1.00		0.57	1.00		0.50	1.00	
Satd. Flow (perm)	557	3320		672	3322		1009	1585		841	1795	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	536	135	75	620	130	115	120	112	176	166	30
RTOR Reduction (vph)	0	16	0	0	13	0	0	52	0	0	10	0
Lane Group Flow (vph)	40	655	0	75	737	0	115	181	0	176	186	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	56.5	56.5		56.5	56.5		21.8	21.8		21.8	21.8	
Effective Green, g (s)	56.5	56.5		56.5	56.5		21.8	21.8		21.8	21.8	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	349	2084		421	2085		244	383		203	434	
v/s Ratio Prot		0.20			c0.22			0.11			0.10	
v/s Ratio Perm	0.07			0.11			0.11			c0.21		
v/c Ratio	0.11	0.31		0.18	0.35		0.47	0.47		0.87	0.43	
Uniform Delay, d1	6.7	7.8		7.0	8.0		29.2	29.2		32.7	28.8	
Progression Factor	0.15	0.10		0.67	0.63		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		0.9	0.4		1.4	0.9		29.9	0.7	
Delay (s)	1.5	1.1		5.6	5.5		30.6	30.1		62.6	29.5	
Level of Service	A	A		A	A		C	C		E	C	
Approach Delay (s)		1.1			5.5			30.3			45.2	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

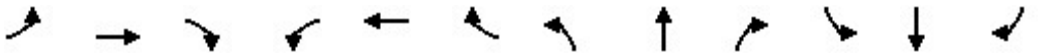
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	178	946	24	759	232	135	143	209
v/c Ratio	0.71	0.61	0.13	0.46	0.76	0.43	0.51	0.68
Control Delay	39.6	19.0	20.0	19.3	51.3	32.4	42.1	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	19.0	20.0	19.3	51.3	32.4	42.1	26.3
Queue Length 50th (m)	25.9	62.0	2.1	35.0	39.8	19.0	24.0	12.4
Queue Length 95th (m)	#65.0	86.2	m9.4	69.4	64.0	35.6	42.7	#38.2
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	251	1546	180	1655	355	361	297	317
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.61	0.13	0.46	0.65	0.37	0.48	0.66

Intersection Summary

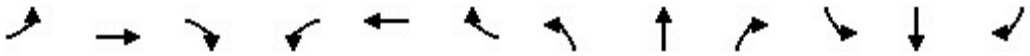
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	166	632	247	22	698	7	216	95	31	8	125	194
Future Volume (vph)	166	632	247	22	698	7	216	95	31	8	125	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.94		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.95	1.00		0.97	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1707	3204		1708	3525		1667	1636			1913	1312
Flt Permitted	0.30	1.00		0.21	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	533	3204		384	3525		1667	1636			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	178	680	266	24	751	8	232	102	33	9	134	209
RTOR Reduction (vph)	0	42	0	0	1	0	0	13	0	0	0	114
Lane Group Flow (vph)	178	904	0	24	758	0	232	122	0	0	143	95
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.3	42.3		42.3	42.3		16.4	16.4			13.2	13.2
Effective Green, g (s)	42.3	42.3		42.3	42.3		16.4	16.4			13.2	13.2
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	250	1505		180	1656		303	298			280	192
v/s Ratio Prot		0.28			0.22		c0.14	0.07			c0.07	
v/s Ratio Perm	c0.33			0.06								0.07
v/c Ratio	0.71	0.60		0.13	0.46		0.77	0.41			0.51	0.49
Uniform Delay, d1	19.0	17.6		13.5	16.1		35.0	32.5			35.4	35.3
Progression Factor	1.00	1.00		1.13	1.08		1.00	1.00			1.00	1.00
Incremental Delay, d2	15.9	1.8		1.5	0.9		11.0	0.9			1.6	2.0
Delay (s)	34.9	19.4		16.7	18.2		45.9	33.4			37.0	37.3
Level of Service	C	B		B	B		D	C			D	D
Approach Delay (s)		21.8			18.2			41.3			37.2	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		

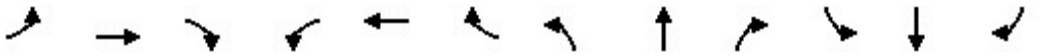
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	77	258	77	27	201	46	53	171	13	38	183	72
Future Volume (vph)	77	258	77	27	201	46	53	171	13	38	183	72
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	85	284	85	30	221	51	58	188	14	42	201	79

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	454	302	260	322
Volume Left (vph)	85	30	58	42
Volume Right (vph)	85	51	14	79
Hadj (s)	-0.04	-0.05	0.05	-0.08
Departure Headway (s)	7.1	7.6	7.9	7.6
Degree Utilization, x	0.90	0.63	0.57	0.68
Capacity (veh/h)	493	442	420	448
Control Delay (s)	45.2	22.7	20.9	24.9
Approach Delay (s)	45.2	22.7	20.9	24.9
Approach LOS	E	C	C	C

Intersection Summary				
Delay	30.5			
Level of Service	D			
Intersection Capacity Utilization	66.3%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	27	6	36	8	233	71	12	266	2
Future Volume (Veh/h)	2	2	3	27	6	36	8	233	71	12	266	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	33	7	43	10	281	86	14	320	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	854	856	468	803	814	396	403			406		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	854	856	468	803	814	396	403			406		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	87	97	93	99			99		
cM capacity (veh/h)	175	261	525	247	275	614	1078			1115		

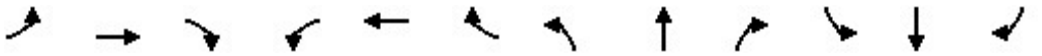
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	83	377	336
Volume Left	2	33	10	14
Volume Right	4	43	86	2
cSH	299	362	1078	1115
Volume to Capacity	0.03	0.23	0.01	0.01
Queue Length 95th (m)	0.7	7.0	0.2	0.3
Control Delay (s)	17.4	17.9	0.3	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	17.4	17.9	0.3	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	39.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	6	261	15	1	270
Future Volume (Veh/h)	12	6	261	15	1	270
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	17	8	368	21	1	380
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	838	442			419	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	838	442			419	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			100	
cM capacity (veh/h)	314	582			1112	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	25	389	381
Volume Left	17	0	1
Volume Right	8	21	0
cSH	368	1700	1112
Volume to Capacity	0.07	0.23	0.00
Queue Length 95th (m)	1.7	0.0	0.0
Control Delay (s)	15.5	0.0	0.0
Lane LOS	C		A
Approach Delay (s)	15.5	0.0	0.0
Approach LOS	C		

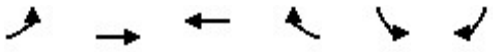
Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	31.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	1	1	0	0	8	12	1	0	6	6
Future Volume (Veh/h)	3	1	1	1	0	0	8	12	1	0	6	6
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	1	1	0	0	10	16	1	0	8	8
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	198	199	193	145	202	80	134			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	198	199	193	145	202	80	134			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	99			100		
cM capacity (veh/h)	601	607	725	683	604	928	1308			1516		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	1	27	16
Volume Left	4	1	10	0
Volume Right	1	0	1	8
cSH	620	683	1308	1516
Volume to Capacity	0.01	0.00	0.01	0.00
Queue Length 95th (m)	0.2	0.0	0.2	0.0
Control Delay (s)	10.9	10.3	2.9	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.9	10.3	2.9	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	72	54	19	10	12
Future Volume (Veh/h)	16	72	54	19	10	12
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	21	94	70	25	13	16
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	144				350	396
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	144				350	396
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	97
cM capacity (veh/h)	1380				569	488

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	115	95	29
Volume Left	21	0	13
Volume Right	0	25	16
cSH	1380	1700	521
Volume to Capacity	0.02	0.06	0.06
Queue Length 95th (m)	0.4	0.0	1.4
Control Delay (s)	1.5	0.0	12.3
Lane LOS	A		B
Approach Delay (s)	1.5	0.0	12.3
Approach LOS			B

Intersection Summary			
Average Delay		2.2	
Intersection Capacity Utilization		31.7%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	3	0	34	7	0	9
Future Volume (Veh/h)	3	0	34	7	0	9
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	37	8	0	10
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	181	171			175	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	181	171			175	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	721	778			1250	

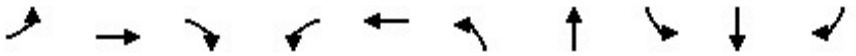
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	45	10
Volume Left	3	0	0
Volume Right	0	8	0
cSH	721	1700	1250
Volume to Capacity	0.00	0.03	0.00
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	10.0	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.0	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	718	74	116	759	34	113
Future Volume (Veh/h)	718	74	116	759	34	113
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	756	78	122	799	36	119
Pedestrians	166			199	91	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	14			17	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			925		1696	707
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			800		1617	568
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		39	65
cM capacity (veh/h)			714		59	339

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	504	330	122	400	400	36	119
Volume Left	0	0	122	0	0	36	0
Volume Right	0	78	0	0	0	0	119
cSH	1700	1700	714	1700	1700	59	339
Volume to Capacity	0.30	0.19	0.17	0.23	0.23	0.61	0.35
Queue Length 95th (m)	0.0	0.0	4.9	0.0	0.0	20.1	12.3
Control Delay (s)	0.0	0.0	11.1	0.0	0.0	135.7	21.3
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.5			47.9	
Approach LOS						E	

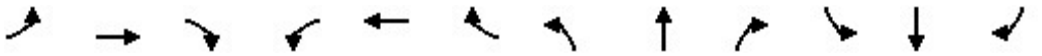
Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	125	264	169	165	441	235	371	45	279	268
v/c Ratio	0.56	0.47	0.12	0.49	0.81	0.70	0.55	0.19	0.58	0.18
Control Delay	29.6	18.5	0.2	24.9	43.6	31.3	20.4	26.6	33.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	18.5	0.2	24.9	43.6	31.3	20.4	26.6	33.5	0.3
Queue Length 50th (m)	12.1	26.1	0.0	19.2	75.3	27.3	41.4	6.1	42.3	0.0
Queue Length 95th (m)	#24.6	20.4	0.0	33.5	#130.2	#47.1	68.1	15.2	67.2	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	225	564	1415	339	542	337	717	260	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.47	0.12	0.49	0.81	0.70	0.52	0.17	0.52	0.18

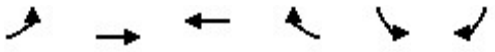
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	251	161	157	381	38	223	209	143	43	265	255
Future Volume (vph)	119	251	161	157	381	38	223	209	143	43	265	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.96	1.00		0.98	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1728	1872	1415	1657	1781		1764	1600		1583	1872	1530
Flt Permitted	0.25	1.00	1.00	0.50	1.00		0.35	1.00		0.54	1.00	1.00
Satd. Flow (perm)	450	1872	1415	868	1781		644	1600		901	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	125	264	169	165	401	40	235	220	151	45	279	268
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	125	264	169	165	437	0	235	343	0	45	279	268
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.3	27.1	90.0	32.5	27.2		36.7	36.7		23.3	23.3	90.0
Effective Green, g (s)	32.3	27.1	90.0	32.5	27.2		36.7	36.7		23.3	23.3	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	563	1415	359	538		344	652		233	484	1530
v/s Ratio Prot	c0.03	0.14		0.03	c0.25		0.05	c0.21			0.15	
v/s Ratio Perm	0.16		0.12	0.14			c0.23			0.05		c0.18
v/c Ratio	0.53	0.47	0.12	0.46	0.81		0.68	0.53		0.19	0.58	0.18
Uniform Delay, d1	21.2	25.6	0.0	21.1	29.0		21.2	20.1		26.0	29.1	0.0
Progression Factor	1.04	0.58	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	2.7	0.2	0.7	12.6		5.1	0.8		0.4	1.7	0.2
Delay (s)	23.8	17.7	0.2	21.8	41.6		26.2	20.9		26.4	30.7	0.2
Level of Service	C	B	A	C	D		C	C		C	C	A
Approach Delay (s)		13.8			36.2			22.9			16.6	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	51	531	762	126	0	95
Future Volume (Veh/h)	51	531	762	126	0	95
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	53	553	794	131	0	99
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	968				1286	506
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	968				1186	506
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				100	80
cM capacity (veh/h)	682				152	493

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	53	276	276	529	396	99
Volume Left	53	0	0	0	0	0
Volume Right	0	0	0	0	131	99
cSH	682	1700	1700	1700	1700	493
Volume to Capacity	0.08	0.16	0.16	0.31	0.23	0.20
Queue Length 95th (m)	2.0	0.0	0.0	0.0	0.0	5.9
Control Delay (s)	10.7	0.0	0.0	0.0	0.0	14.1
Lane LOS	B					B
Approach Delay (s)	0.9			0.0		14.1
Approach LOS						B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

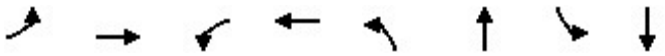
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	591	66	818	24	48
v/c Ratio	0.25	0.13	0.33	0.05	0.04
Control Delay	10.7	7.0	6.5	25.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	7.0	6.5	25.1	0.0
Queue Length 50th (m)	22.6	3.7	26.6	3.3	0.0
Queue Length 95th (m)	50.9	m6.4	36.2	9.5	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2371	526	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.13	0.33	0.05	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	535	38	64	793	23	47
Future Volume (vph)	535	38	64	793	23	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.94	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3376		1671	3539	1656	1355
Flt Permitted	1.00		0.43	1.00	0.95	1.00
Satd. Flow (perm)	3376		749	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	552	39	66	818	24	48
RTOR Reduction (vph)	4	0	0	0	0	0
Lane Group Flow (vph)	587	0	66	818	24	48
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2295		509	2406	353	1294
v/s Ratio Prot	0.17			c0.23	c0.01	
v/s Ratio Perm			0.09			0.04
v/c Ratio	0.26		0.13	0.34	0.07	0.04
Uniform Delay, d1	5.6		5.1	6.0	28.3	0.1
Progression Factor	1.59		0.92	0.86	1.00	1.00
Incremental Delay, d2	0.3		0.5	0.3	0.2	0.0
Delay (s)	9.1		5.1	5.5	28.4	0.1
Level of Service	A		A	A	C	A
Approach Delay (s)	9.1			5.5	9.6	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	473	37	797	35	79	148	105
v/c Ratio	0.11	0.21	0.06	0.35	0.15	0.23	0.64	0.29
Control Delay	5.5	4.3	2.9	3.2	29.2	20.2	44.9	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	4.3	2.9	3.2	29.2	20.2	44.9	24.7
Queue Length 50th (m)	1.9	10.0	1.1	3.7	5.4	7.5	25.4	13.0
Queue Length 95th (m)	m4.2	12.7	1.6	0.0	12.7	18.0	42.1	25.2
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	405	2302	585	2298	451	640	451	667
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.21	0.06	0.35	0.08	0.12	0.33	0.16

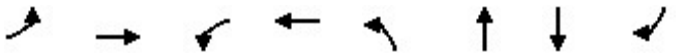
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	398	66	36	637	144	34	47	30	145	75	27
Future Volume (vph)	42	398	66	36	637	144	34	47	30	145	75	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.97	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1697	3373		1697	3364		1696	1685		1656	1776	
Flt Permitted	0.33	1.00		0.48	1.00		0.69	1.00		0.71	1.00	
Satd. Flow (perm)	595	3373		860	3364		1230	1685		1230	1776	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	43	406	67	37	650	147	35	48	31	148	77	28
RTOR Reduction (vph)	0	10	0	0	14	0	0	25	0	0	19	0
Lane Group Flow (vph)	43	463	0	37	783	0	35	54	0	148	86	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	61.2	61.2		61.2	61.2		17.1	17.1		17.1	17.1	
Effective Green, g (s)	61.2	61.2		61.2	61.2		17.1	17.1		17.1	17.1	
Actuated g/C Ratio	0.68	0.68		0.68	0.68		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	404	2293		584	2287		233	320		233	337	
v/s Ratio Prot		0.14			c0.23			0.03			0.05	
v/s Ratio Perm	0.07			0.04			0.03			c0.12		
v/c Ratio	0.11	0.20		0.06	0.34		0.15	0.17		0.64	0.26	
Uniform Delay, d1	5.0	5.3		4.8	6.0		30.4	30.5		33.6	31.0	
Progression Factor	0.74	0.73		0.42	0.43		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.2		0.2	0.4		0.3	0.3		5.6	0.4	
Delay (s)	4.2	4.1		2.2	3.0		30.7	30.8		39.1	31.4	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		4.1			3.0			30.7			35.9	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

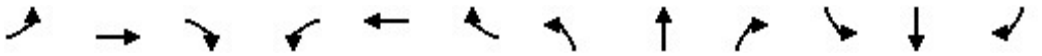
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	163	664	24	737	266	143	136	234
v/c Ratio	0.63	0.42	0.08	0.45	0.81	0.42	0.52	0.79
Control Delay	33.3	16.5	11.5	14.1	54.6	33.6	43.2	36.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	16.5	11.5	14.1	54.6	33.6	43.2	36.1
Queue Length 50th (m)	23.5	41.0	1.9	30.7	45.1	21.1	22.8	17.4
Queue Length 95th (m)	#55.5	55.7	4.0	60.1	#81.9	38.9	41.0	#52.3
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	261	1569	287	1644	358	372	294	320
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.42	0.08	0.45	0.74	0.38	0.46	0.73

Intersection Summary

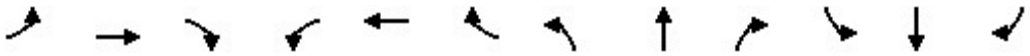
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	481	130	22	670	8	245	116	16	6	119	215
Future Volume (vph)	150	481	130	22	670	8	245	116	16	6	119	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	0.97	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1744	3314		1703	3527		1667	1708			1896	1347
Flt Permitted	0.31	1.00		0.34	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	561	3314		616	3527		1667	1708			1896	1347
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	523	141	24	728	9	266	126	17	7	129	234
RTOR Reduction (vph)	0	26	0	0	1	0	0	6	0	0	0	113
Lane Group Flow (vph)	163	638	0	24	736	0	266	137	0	0	136	121
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.8	41.8		41.8	41.8		17.7	17.7			12.4	12.4
Effective Green, g (s)	41.8	41.8		41.8	41.8		17.7	17.7			12.4	12.4
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	260	1539		286	1638		327	335			261	185
v/s Ratio Prot		0.19			0.21		c0.16	0.08			0.07	
v/s Ratio Perm	c0.29			0.04								c0.09
v/c Ratio	0.63	0.41		0.08	0.45		0.81	0.41			0.52	0.65
Uniform Delay, d1	18.2	16.0		13.4	16.3		34.6	31.6			36.0	36.8
Progression Factor	1.00	1.00		0.70	0.77		1.00	1.00			1.00	1.00
Incremental Delay, d2	10.9	0.8		0.6	0.9		14.3	0.8			1.9	8.1
Delay (s)	29.1	16.8		10.0	13.4		48.8	32.4			37.9	44.8
Level of Service	C	B		A	B		D	C			D	D
Approach Delay (s)		19.2			13.3			43.1			42.3	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

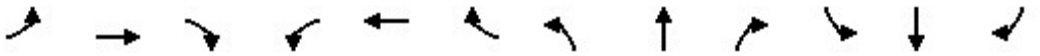
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	134	175	49	23	207	32	72	177	7	25	232	123
Future Volume (vph)	134	175	49	23	207	32	72	177	7	25	232	123
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	144	188	53	25	223	34	77	190	8	27	249	132

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	385	282	275	408
Volume Left (vph)	144	25	77	27
Volume Right (vph)	53	34	8	132
Hadj (s)	0.03	-0.02	0.09	-0.14
Departure Headway (s)	7.6	7.9	8.0	7.4
Degree Utilization, x	0.81	0.62	0.61	0.83
Capacity (veh/h)	453	404	405	408
Control Delay (s)	35.7	22.9	23.0	37.6
Approach Delay (s)	35.7	22.9	23.0	37.6
Approach LOS	E	C	C	E

Intersection Summary				
Delay	31.0			
Level of Service	D			
Intersection Capacity Utilization	79.4%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	60	3	33	4	290	24	13	298	2
Future Volume (Veh/h)	2	0	8	60	3	33	4	290	24	13	298	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	9	71	4	39	5	341	28	15	351	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	844	847	463	841	834	385	409			399		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	844	847	463	841	834	385	409			399		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	70	99	94	99			99		
cM capacity (veh/h)	235	273	527	237	277	646	988			1131		

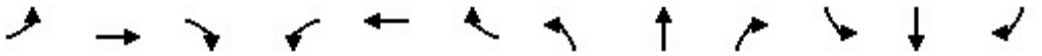
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	114	374	368
Volume Left	2	71	5	15
Volume Right	9	39	28	2
cSH	430	305	988	1131
Volume to Capacity	0.03	0.37	0.01	0.01
Queue Length 95th (m)	0.6	13.4	0.1	0.3
Control Delay (s)	13.6	23.7	0.2	0.5
Lane LOS	B	C	A	A
Approach Delay (s)	13.6	23.7	0.2	0.5
Approach LOS	B	C		

Intersection Summary				
Average Delay	3.6			
Intersection Capacity Utilization	42.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	21	367	12	6	345
Future Volume (Veh/h)	15	21	367	12	6	345
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	15	22	378	12	6	356
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	817	414			420	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	817	414			420	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	96			99	
cM capacity (veh/h)	325	592			966	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	390	362
Volume Left	15	0	6
Volume Right	22	12	0
cSH	444	1700	966
Volume to Capacity	0.08	0.23	0.01
Queue Length 95th (m)	2.2	0.0	0.1
Control Delay (s)	13.9	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	13.9	0.0	0.2
Approach LOS	B		

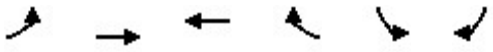
Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		33.0%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	13	1	1	0	21	19	0	1	15	4
Future Volume (Veh/h)	3	1	13	1	1	0	21	19	0	1	15	4
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	14	1	1	0	23	21	0	1	16	4
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	198	199	179	224	201	93	95			58		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	198	199	179	224	201	93	95			58		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	98			100		
cM capacity (veh/h)	635	622	752	591	620	907	1322			1498		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	18	2	44	21
Volume Left	3	1	23	1
Volume Right	14	0	0	4
cSH	721	605	1322	1498
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.6	0.1	0.4	0.0
Control Delay (s)	10.1	11.0	4.1	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	11.0	4.1	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	24	30	58	63	69	46
Future Volume (Veh/h)	24	30	58	63	69	46
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	29	36	69	75	82	55
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	177				326	218
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	177				326	218
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				86	93
cM capacity (veh/h)	1361				588	748

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	65	144	137
Volume Left	29	0	82
Volume Right	0	75	55
cSH	1361	1700	643
Volume to Capacity	0.02	0.08	0.21
Queue Length 95th (m)	0.5	0.0	6.4
Control Delay (s)	3.5	0.0	12.1
Lane LOS	A		B
Approach Delay (s)	3.5	0.0	12.1
Approach LOS			B

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	84	15	39	48	3	27
Future Volume (Veh/h)	84	15	39	48	3	27
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	16	42	52	3	29
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	183	148			174	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	183	148			174	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	98			100	
cM capacity (veh/h)	751	839			1309	

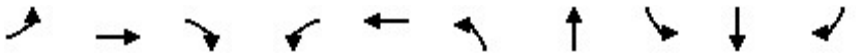
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	107	94	32
Volume Left	91	0	3
Volume Right	16	52	0
cSH	763	1700	1309
Volume to Capacity	0.14	0.06	0.00
Queue Length 95th (m)	3.9	0.0	0.1
Control Delay (s)	10.5	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	535	38	64	793	23	47
Future Volume (Veh/h)	535	38	64	793	23	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	552	39	66	818	24	48
Pedestrians	106			70	74	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	9			6	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			665		1292	440
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			621		1260	391
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			93		80	91
cM capacity (veh/h)			880		119	510

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	368	223	66	409	409	24	48
Volume Left	0	0	66	0	0	24	0
Volume Right	0	39	0	0	0	0	48
cSH	1700	1700	880	1700	1700	119	510
Volume to Capacity	0.22	0.13	0.07	0.24	0.24	0.20	0.09
Queue Length 95th (m)	0.0	0.0	1.9	0.0	0.0	5.7	2.5
Control Delay (s)	0.0	0.0	9.4	0.0	0.0	42.8	12.8
Lane LOS			A			E	B
Approach Delay (s)	0.0		0.7			22.8	
Approach LOS						C	

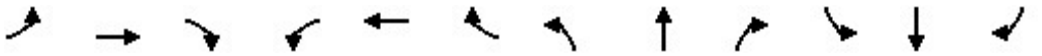
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	153	379	237	161	396	252	370	12	203	221
v/c Ratio	0.66	0.78	0.17	0.68	0.83	0.62	0.53	0.05	0.39	0.15
Control Delay	34.3	43.8	0.3	35.3	47.0	26.1	19.8	26.1	30.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	43.8	0.3	35.3	47.0	26.1	19.8	26.1	30.0	0.2
Queue Length 50th (m)	18.0	65.4	0.0	19.2	68.5	30.5	42.1	1.6	30.9	0.0
Queue Length 95th (m)	#33.8	98.6	0.0	#36.7	#111.0	51.2	72.7	6.2	52.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	231	552	1417	236	544	409	704	252	521	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.69	0.17	0.68	0.73	0.62	0.53	0.05	0.39	0.15

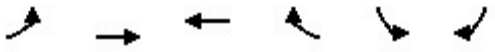
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	356	223	151	347	25	237	189	159	11	191	208
Future Volume (vph)	144	356	223	151	347	25	237	189	159	11	191	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.98	1.00		0.93	1.00		0.87	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1743	1853	1417	1662	1778		1679	1550		1569	1837	1477
Flt Permitted	0.27	1.00	1.00	0.27	1.00		0.47	1.00		0.54	1.00	1.00
Satd. Flow (perm)	487	1853	1417	470	1778		828	1550		894	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	153	379	237	161	369	27	252	201	169	12	203	221
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	153	379	237	161	393	0	252	339	0	12	203	221
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.2	24.0	91.8	31.4	24.6		40.1	40.1		26.1	26.1	91.8
Effective Green, g (s)	30.2	24.0	91.8	31.4	24.6		40.1	40.1		26.1	26.1	91.8
Actuated g/C Ratio	0.33	0.26	1.00	0.34	0.27		0.44	0.44		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	245	484	1417	249	476		428	677		254	522	1477
v/s Ratio Prot	0.04	0.20		c0.05	c0.22		0.05	c0.22			0.11	
v/s Ratio Perm	0.16		c0.17	0.17			c0.21			0.01		0.15
v/c Ratio	0.62	0.78	0.17	0.65	0.83		0.59	0.50		0.05	0.39	0.15
Uniform Delay, d1	23.6	31.5	0.0	23.0	31.6		19.0	18.6		23.8	26.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.2	8.1	0.3	5.0	11.2		1.7	0.6		0.1	0.5	0.2
Delay (s)	27.8	39.6	0.3	28.0	42.8		20.7	19.2		23.9	26.9	0.2
Level of Service	C	D	A	C	D		C	B		C	C	A
Approach Delay (s)		25.1			38.5			19.8			13.3	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	27.7
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	63	723	689	128	0	71
Future Volume (Veh/h)	63	723	689	128	0	71
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	66	761	725	135	0	75
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.90	
vC, conflicting volume	934				1384	504
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	934				1203	504
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				100	84
cM capacity (veh/h)	684				134	481

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	66	380	380	483	377	75
Volume Left	66	0	0	0	0	0
Volume Right	0	0	0	0	135	75
cSH	684	1700	1700	1700	1700	481
Volume to Capacity	0.10	0.22	0.22	0.28	0.22	0.16
Queue Length 95th (m)	2.6	0.0	0.0	0.0	0.0	4.4
Control Delay (s)	10.8	0.0	0.0	0.0	0.0	13.9
Lane LOS	B					B
Approach Delay (s)	0.9			0.0		13.9
Approach LOS						B

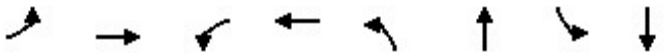
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	791	112	688	33	108
v/c Ratio	0.37	0.31	0.31	0.07	0.09
Control Delay	8.1	10.7	8.2	25.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	10.7	8.2	25.3	0.1
Queue Length 50th (m)	26.8	8.6	27.6	4.5	0.0
Queue Length 95th (m)	33.4	18.8	37.0	11.8	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2137	360	2217	491	1177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.31	0.31	0.07	0.09

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	683	68	106	654	31	103
Future Volume (vph)	683	68	106	654	31	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3398		1685	3539	1770	1241
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	3398		575	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	719	72	112	688	33	108
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	783	0	112	688	33	108
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2129		360	2217	472	1185
v/s Ratio Prot	c0.23			0.19	0.02	
v/s Ratio Perm			0.19			c0.09
v/c Ratio	0.37		0.31	0.31	0.07	0.09
Uniform Delay, d1	8.1		7.8	7.8	24.7	0.1
Progression Factor	0.95		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		2.2	0.4	0.1	0.1
Delay (s)	8.2		10.0	8.2	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	8.2			8.4	5.9	
Approach LOS	A			A	A	

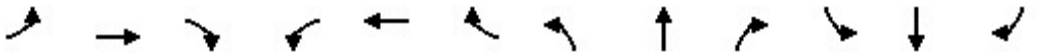
Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	643	69	645	105	212	161	179
v/c Ratio	0.09	0.30	0.15	0.30	0.44	0.52	0.82	0.43
Control Delay	1.7	1.1	6.4	5.2	34.0	23.6	61.7	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.7	1.1	6.4	5.2	34.0	23.6	61.7	29.2
Queue Length 50th (m)	0.5	3.1	2.7	7.2	15.8	21.7	26.8	24.8
Queue Length 95th (m)	m1.0	4.6	6.3	17.7	28.5	38.8	46.0	39.3
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	411	2156	453	2141	454	726	379	785
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.30	0.15	0.30	0.23	0.29	0.42	0.23

Intersection Summary

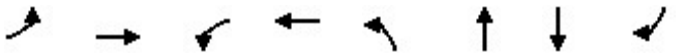
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	498	119	66	505	114	101	105	99	155	145	27
Future Volume (vph)	35	498	119	66	505	114	101	105	99	155	145	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.93	1.00		0.95	1.00		0.95	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1522	3328		1679	3309		1688	1584		1598	1793	
Flt Permitted	0.39	1.00		0.40	1.00		0.59	1.00		0.52	1.00	
Satd. Flow (perm)	632	3328		699	3309		1050	1584		881	1793	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	36	519	124	69	526	119	105	109	103	161	151	28
RTOR Reduction (vph)	0	15	0	0	14	0	0	52	0	0	10	0
Lane Group Flow (vph)	36	628	0	69	631	0	105	160	0	161	169	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	58.0	58.0		58.0	58.0		20.3	20.3		20.3	20.3	
Effective Green, g (s)	58.0	58.0		58.0	58.0		20.3	20.3		20.3	20.3	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.23	0.23		0.23	0.23	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2144		450	2132		236	357		198	404	
v/s Ratio Prot		0.19			c0.19			0.10			0.09	
v/s Ratio Perm	0.06			0.10			0.10			c0.18		
v/c Ratio	0.09	0.29		0.15	0.30		0.44	0.45		0.81	0.42	
Uniform Delay, d1	6.0	7.0		6.3	7.0		30.0	30.0		33.1	29.8	
Progression Factor	0.15	0.10		0.66	0.64		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.7	0.3		1.3	0.9		21.9	0.7	
Delay (s)	1.3	1.0		4.8	4.8		31.3	30.9		54.9	30.5	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		1.0			4.8			31.1			42.1	
Approach LOS		A			A			C			D	

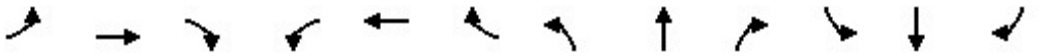
Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	119	894	20	651	212	134	140	199
v/c Ratio	0.40	0.58	0.10	0.39	0.71	0.44	0.49	0.59
Control Delay	22.9	18.5	20.3	22.6	48.0	32.5	41.1	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	18.5	20.3	22.6	48.0	32.5	41.1	16.4
Queue Length 50th (m)	14.0	56.1	2.5	55.4	36.3	19.1	23.5	5.1
Queue Length 95th (m)	32.9	83.7	6.2	46.0	57.8	34.9	41.5	26.1
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	295	1552	198	1664	372	379	318	358
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.58	0.10	0.39	0.57	0.35	0.44	0.56

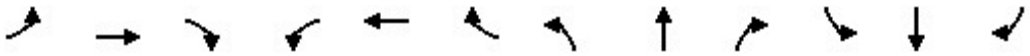
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	605	226	19	600	6	197	96	29	7	123	185
Future Volume (vph)	111	605	226	19	600	6	197	96	29	7	123	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.94		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.94	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1683	3215		1700	3527		1667	1644			1913	1312
Flt Permitted	0.35	1.00		0.24	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	625	3215		421	3527		1667	1644			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	119	651	243	20	645	6	212	103	31	8	132	199
RTOR Reduction (vph)	0	38	0	0	1	0	0	13	0	0	0	142
Lane Group Flow (vph)	119	856	0	20	650	0	212	121	0	0	140	57
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.4	42.4		42.4	42.4		16.1	16.1			13.4	13.4
Effective Green, g (s)	42.4	42.4		42.4	42.4		16.1	16.1			13.4	13.4
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	294	1514		198	1661		298	294			284	195
v/s Ratio Prot		c0.27			0.18		c0.13	0.07			c0.07	
v/s Ratio Perm	0.19			0.05								0.04
v/c Ratio	0.40	0.57		0.10	0.39		0.71	0.41			0.49	0.29
Uniform Delay, d1	15.6	17.2		13.2	15.4		34.8	32.7			35.2	34.1
Progression Factor	1.00	1.00		1.18	1.32		1.00	1.00			1.00	1.00
Incremental Delay, d2	4.1	1.5		1.0	0.7		7.8	0.9			1.3	0.8
Delay (s)	19.7	18.7		16.5	21.1		42.5	33.7			36.5	34.9
Level of Service	B	B		B	C		D	C			D	C
Approach Delay (s)		18.8			21.0			39.1			35.6	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

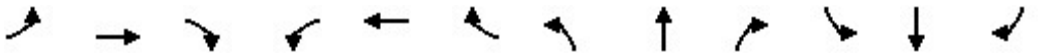
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	86	235	70	24	183	42	49	124	12	35	184	73
Future Volume (vph)	86	235	70	24	183	42	49	124	12	35	184	73
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	95	258	77	26	201	46	54	136	13	38	202	80

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	430	273	203	320
Volume Left (vph)	95	26	54	38
Volume Right (vph)	77	46	13	80
Hadj (s)	-0.03	-0.05	0.05	-0.09
Departure Headway (s)	6.4	6.8	7.2	6.7
Degree Utilization, x	0.77	0.51	0.41	0.60
Capacity (veh/h)	532	477	425	487
Control Delay (s)	27.4	16.7	15.1	19.3
Approach Delay (s)	27.4	16.7	15.1	19.3
Approach LOS	D	C	C	C

Intersection Summary				
Delay		20.9		
Level of Service		C		
Intersection Capacity Utilization		65.4%	ICU Level of Service	C
Analysis Period (min)		15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	48	5	25	7	213	49	11	243	2
Future Volume (Veh/h)	2	2	3	48	5	25	7	213	49	11	243	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	58	6	30	8	257	59	13	293	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	770	772	441	732	744	358	376			355		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	770	772	441	732	744	358	376			355		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	79	98	95	99			99		
cM capacity (veh/h)	207	293	543	277	303	645	1103			1165		

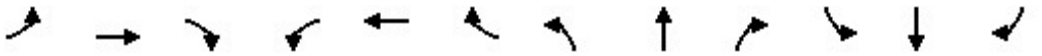
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	94	324	308
Volume Left	2	58	8	13
Volume Right	4	30	59	2
cSH	336	341	1103	1165
Volume to Capacity	0.02	0.28	0.01	0.01
Queue Length 95th (m)	0.6	8.8	0.2	0.3
Control Delay (s)	16.0	19.6	0.3	0.4
Lane LOS	C	C	A	A
Approach Delay (s)	16.0	19.6	0.3	0.4
Approach LOS	C	C		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	37.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	15	231	14	5	247
Future Volume (Veh/h)	11	15	231	14	5	247
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	15	21	325	20	7	348
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	774	399			375	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	399			375	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	97			99	
cM capacity (veh/h)	341	616			1154	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	36	345	355
Volume Left	15	0	7
Volume Right	21	20	0
cSH	461	1700	1154
Volume to Capacity	0.08	0.20	0.01
Queue Length 95th (m)	2.0	0.0	0.1
Control Delay (s)	13.5	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	13.5	0.0	0.2
Approach LOS	B		

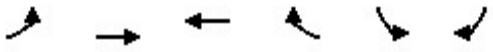
Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		33.8%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	5	1	0	0	17	11	1	0	5	5
Future Volume (Veh/h)	3	1	5	1	0	0	17	11	1	0	5	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	6	1	0	0	22	14	1	0	6	6
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	218	218	190	169	220	78	130			47		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	218	218	190	169	220	78	130			47		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	98			100		
cM capacity (veh/h)	580	587	728	650	585	930	1312			1519		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	1	37	12
Volume Left	4	1	22	0
Volume Right	6	0	1	6
cSH	653	650	1312	1519
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.4	0.0
Control Delay (s)	10.6	10.6	4.7	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	10.6	4.7	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	34	65	79	32	38
Future Volume (Veh/h)	31	34	65	79	32	38
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	40	44	84	103	42	49
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	236				392	450
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	236				392	450
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				92	89
cM capacity (veh/h)	1277				530	456

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	84	187	91
Volume Left	40	0	42
Volume Right	0	103	49
cSH	1277	1700	487
Volume to Capacity	0.03	0.11	0.19
Queue Length 95th (m)	0.8	0.0	5.4
Control Delay (s)	3.9	0.0	14.1
Lane LOS	A		B
Approach Delay (s)	3.9	0.0	14.1
Approach LOS			B

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	9	29	82	4	7
Future Volume (Veh/h)	54	9	29	82	4	7
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	10	32	89	4	8
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	222	206			251	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	206			251	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	99			100	
cM capacity (veh/h)	680	744			1172	

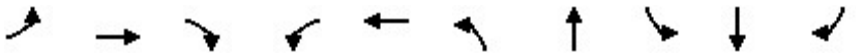
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	121	12
Volume Left	59	0	4
Volume Right	10	89	0
cSH	689	1700	1172
Volume to Capacity	0.10	0.07	0.00
Queue Length 95th (m)	2.7	0.0	0.1
Control Delay (s)	10.8	0.0	2.7
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	2.7
Approach LOS	B		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	683	68	106	654	31	103
Future Volume (Veh/h)	683	68	106	654	31	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	719	72	112	688	33	108
Pedestrians	166			199	91	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	14			17	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			882		1580	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			773		1507	567
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		54	68
cM capacity (veh/h)			736		72	342

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	479	312	112	344	344	33	108
Volume Left	0	0	112	0	0	33	0
Volume Right	0	72	0	0	0	0	108
cSH	1700	1700	736	1700	1700	72	342
Volume to Capacity	0.28	0.18	0.15	0.20	0.20	0.46	0.32
Queue Length 95th (m)	0.0	0.0	4.3	0.0	0.0	14.8	10.6
Control Delay (s)	0.0	0.0	10.8	0.0	0.0	92.5	20.3
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.5			37.2	
Approach LOS						E	

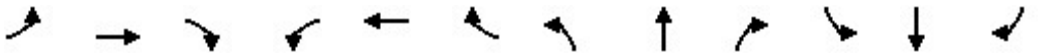
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	125	264	169	165	441	235	371	45	279	268
v/c Ratio	0.56	0.47	0.12	0.49	0.81	0.70	0.55	0.19	0.58	0.18
Control Delay	27.7	15.5	0.2	24.9	43.6	31.3	20.4	26.6	33.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	15.5	0.2	24.9	43.6	31.3	20.4	26.6	33.5	0.3
Queue Length 50th (m)	7.8	17.6	0.0	19.2	75.3	27.3	41.4	6.1	42.3	0.0
Queue Length 95th (m)	#25.3	21.3	0.0	33.5	#130.2	#47.1	68.1	15.2	67.2	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	225	564	1415	339	542	337	717	260	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.47	0.12	0.49	0.81	0.70	0.52	0.17	0.52	0.18

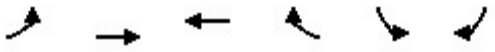
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	251	161	157	381	38	223	209	143	43	265	255
Future Volume (vph)	119	251	161	157	381	38	223	209	143	43	265	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.96	1.00		0.98	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1728	1872	1415	1657	1781		1764	1600		1583	1872	1530
Flt Permitted	0.25	1.00	1.00	0.50	1.00		0.35	1.00		0.54	1.00	1.00
Satd. Flow (perm)	450	1872	1415	868	1781		644	1600		901	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	125	264	169	165	401	40	235	220	151	45	279	268
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	125	264	169	165	437	0	235	343	0	45	279	268
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.3	27.1	90.0	32.5	27.2		36.7	36.7		23.3	23.3	90.0
Effective Green, g (s)	32.3	27.1	90.0	32.5	27.2		36.7	36.7		23.3	23.3	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	235	563	1415	359	538		344	652		233	484	1530
v/s Ratio Prot	c0.03	0.14		0.03	c0.25		0.05	c0.21			0.15	
v/s Ratio Perm	0.16		0.12	0.14			c0.23			0.05		c0.18
v/c Ratio	0.53	0.47	0.12	0.46	0.81		0.68	0.53		0.19	0.58	0.18
Uniform Delay, d1	21.2	25.6	0.0	21.1	29.0		21.2	20.1		26.0	29.1	0.0
Progression Factor	0.94	0.47	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.8	2.8	0.2	0.7	12.6		5.1	0.8		0.4	1.7	0.2
Delay (s)	21.6	14.9	0.2	21.8	41.6		26.2	20.9		26.4	30.7	0.2
Level of Service	C	B	A	C	D		C	C		C	C	A
Approach Delay (s)		11.9			36.2			22.9			16.6	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	531	762	126	0	112
Future Volume (Veh/h)	0	531	762	126	0	112
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	553	794	131	0	117
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.95	
vC, conflicting volume	968				1180	506
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	968				1079	506
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	76
cM capacity (veh/h)	682				194	493

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	276	276	529	396	117
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	131	117
cSH	1700	1700	1700	1700	1700	493
Volume to Capacity	0.00	0.16	0.16	0.31	0.23	0.24
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	7.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.5
Lane LOS						B
Approach Delay (s)	0.0			0.0		14.5
Approach LOS						B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

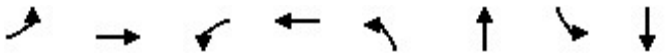
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	538	66	836	24	48
v/c Ratio	0.23	0.12	0.34	0.05	0.04
Control Delay	11.5	7.0	6.5	25.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	7.0	6.5	25.1	0.0
Queue Length 50th (m)	38.7	3.6	27.5	3.3	0.0
Queue Length 95th (m)	46.4	m6.4	37.1	9.5	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2367	555	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.23	0.12	0.34	0.05	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	484	38	64	811	23	47
Future Volume (vph)	484	38	64	811	23	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.94	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3369		1662	3539	1656	1355
Flt Permitted	1.00		0.45	1.00	0.95	1.00
Satd. Flow (perm)	3369		790	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	499	39	66	836	24	48
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	533	0	66	836	24	48
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2290		537	2406	353	1294
v/s Ratio Prot	0.16			c0.24	c0.01	
v/s Ratio Perm			0.08			0.04
v/c Ratio	0.23		0.12	0.35	0.07	0.04
Uniform Delay, d1	5.5		5.0	6.0	28.3	0.1
Progression Factor	1.75		0.92	0.86	1.00	1.00
Incremental Delay, d2	0.2		0.4	0.3	0.2	0.0
Delay (s)	9.8		5.0	5.5	28.4	0.1
Level of Service	A		A	A	C	A
Approach Delay (s)	9.8			5.5	9.6	
Approach LOS	A			A	A	

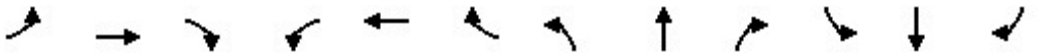
Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	43	422	37	814	35	79	148	105
v/c Ratio	0.11	0.18	0.06	0.35	0.15	0.23	0.64	0.29
Control Delay	5.6	4.4	2.9	3.2	29.2	20.2	44.9	24.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	5.6	4.4	2.9	3.2	29.2	20.2	44.9	24.7
Queue Length 50th (m)	2.2	10.6	1.1	3.7	5.4	7.5	25.4	13.0
Queue Length 95th (m)	m4.1	11.1	1.6	0.0	12.7	18.0	42.1	25.2
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	397	2293	613	2302	451	640	451	667
Starvation Cap Reductn	0	0	0	281	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.18	0.06	0.40	0.08	0.12	0.33	0.16

Intersection Summary

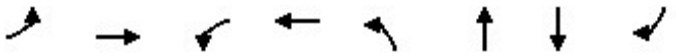
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	348	66	36	654	144	34	47	30	145	75	27
Future Volume (vph)	42	348	66	36	654	144	34	47	30	145	75	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.97	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1698	3359		1692	3368		1696	1685		1656	1776	
Flt Permitted	0.33	1.00		0.51	1.00		0.69	1.00		0.71	1.00	
Satd. Flow (perm)	583	3359		900	3368		1230	1685		1230	1776	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	43	355	67	37	667	147	35	48	31	148	77	28
RTOR Reduction (vph)	0	11	0	0	13	0	0	25	0	0	19	0
Lane Group Flow (vph)	43	411	0	37	801	0	35	54	0	148	86	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	61.2	61.2		61.2	61.2		17.1	17.1		17.1	17.1	
Effective Green, g (s)	61.2	61.2		61.2	61.2		17.1	17.1		17.1	17.1	
Actuated g/C Ratio	0.68	0.68		0.68	0.68		0.19	0.19		0.19	0.19	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	396	2284		612	2290		233	320		233	337	
v/s Ratio Prot		0.12			c0.24			0.03			0.05	
v/s Ratio Perm	0.07			0.04			0.03			c0.12		
v/c Ratio	0.11	0.18		0.06	0.35		0.15	0.17		0.64	0.26	
Uniform Delay, d1	5.0	5.3		4.8	6.0		30.4	30.5		33.6	31.0	
Progression Factor	0.75	0.77		0.43	0.43		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.2		0.2	0.4		0.3	0.3		5.6	0.4	
Delay (s)	4.3	4.2		2.2	3.0		30.7	30.8		39.1	31.4	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		4.2			3.0			30.7			35.9	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

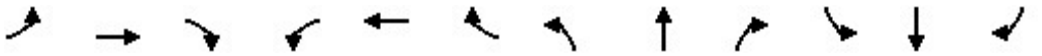
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	217	608	24	757	266	143	136	215
v/c Ratio	0.85	0.39	0.08	0.46	0.82	0.42	0.52	0.73
Control Delay	56.0	15.7	10.2	11.9	55.4	33.8	43.2	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	15.7	10.2	11.9	55.4	33.8	43.2	31.1
Queue Length 50th (m)	36.4	35.4	1.4	45.4	45.6	21.3	22.8	14.7
Queue Length 95th (m)	#82.6	49.7	m3.9	61.6	#81.9	38.9	41.0	#44.6
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	254	1564	312	1644	355	369	294	317
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.39	0.08	0.46	0.75	0.39	0.46	0.68

Intersection Summary

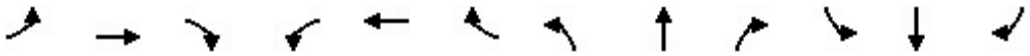
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	430	130	22	688	8	245	116	16	6	119	198
Future Volume (vph)	200	430	130	22	688	8	245	116	16	6	119	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	0.97	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1746	3295		1695	3527		1667	1708			1896	1347
Flt Permitted	0.30	1.00		0.38	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	544	3295		670	3527		1667	1708			1896	1347
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	217	467	141	24	748	9	266	126	17	7	129	215
RTOR Reduction (vph)	0	29	0	0	1	0	0	6	0	0	0	110
Lane Group Flow (vph)	217	579	0	24	756	0	266	137	0	0	136	105
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.9	41.9		41.9	41.9		17.6	17.6			12.4	12.4
Effective Green, g (s)	41.9	41.9		41.9	41.9		17.6	17.6			12.4	12.4
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	253	1534		311	1642		325	334			261	185
v/s Ratio Prot		0.18			0.21		c0.16	0.08			0.07	
v/s Ratio Perm	c0.40			0.04								c0.08
v/c Ratio	0.86	0.38		0.08	0.46		0.82	0.41			0.52	0.57
Uniform Delay, d1	21.4	15.6		13.3	16.4		34.7	31.7			36.0	36.3
Progression Factor	1.00	1.00		0.63	0.64		1.00	1.00			1.00	1.00
Incremental Delay, d2	29.4	0.7		0.5	0.9		14.7	0.8			1.9	4.2
Delay (s)	50.8	16.3		8.8	11.3		49.4	32.5			37.9	40.5
Level of Service	D	B		A	B		D	C			D	D
Approach Delay (s)		25.4			11.3			43.5			39.5	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	134	175	49	23	207	32	72	228	7	25	215	123
Future Volume (vph)	134	175	49	23	207	32	72	228	7	25	215	123
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	144	188	53	25	223	34	77	245	8	27	231	132

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	385	282	330	390
Volume Left (vph)	144	25	77	27
Volume Right (vph)	53	34	8	132
Hadj (s)	0.03	-0.02	0.09	-0.14
Departure Headway (s)	8.0	8.4	8.3	7.8
Degree Utilization, x	0.86	0.66	0.76	0.85
Capacity (veh/h)	433	376	410	442
Control Delay (s)	42.8	26.0	32.7	41.1
Approach Delay (s)	42.8	26.0	32.7	41.1
Approach LOS	E	D	D	E

Intersection Summary				
Delay	36.5			
Level of Service	E			
Intersection Capacity Utilization	80.6%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	8	42	3	33	4	290	74	13	298	2
Future Volume (Veh/h)	2	0	8	42	3	33	4	290	74	13	298	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	9	49	4	39	5	341	87	15	351	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	874	906	463	870	864	414	409			458		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	874	906	463	870	864	414	409			458		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	78	98	94	99			99		
cM capacity (veh/h)	223	252	527	226	266	621	988			1075		

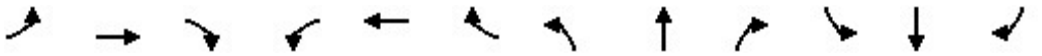
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	92	433	368
Volume Left	2	49	5	15
Volume Right	9	39	87	2
cSH	423	313	988	1075
Volume to Capacity	0.03	0.29	0.01	0.01
Queue Length 95th (m)	0.6	9.6	0.1	0.3
Control Delay (s)	13.7	21.2	0.2	0.5
Lane LOS	B	C	A	A
Approach Delay (s)	13.7	21.2	0.2	0.5
Approach LOS	B	C		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	42.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	15	21	367	12	6	345
Future Volume (Veh/h)	15	21	367	12	6	345
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	15	22	378	12	6	356
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	817	414			420	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	817	414			420	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	96			99	
cM capacity (veh/h)	325	592			966	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	37	390	362
Volume Left	15	0	6
Volume Right	22	12	0
cSH	444	1700	966
Volume to Capacity	0.08	0.23	0.01
Queue Length 95th (m)	2.2	0.0	0.1
Control Delay (s)	13.9	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	13.9	0.0	0.2
Approach LOS	B		

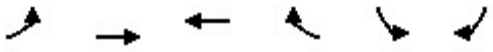
Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		33.0%	ICU Level of Service
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	13	1	1	0	21	19	0	1	15	4
Future Volume (Veh/h)	3	1	13	1	1	0	21	19	0	1	15	4
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	14	1	1	0	23	21	0	1	16	4
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	198	199	179	224	201	93	95			58		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	198	199	179	224	201	93	95			58		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	98			100		
cM capacity (veh/h)	635	622	752	591	620	907	1322			1498		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	18	2	44	21
Volume Left	3	1	23	1
Volume Right	14	0	0	4
cSH	721	605	1322	1498
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.6	0.1	0.4	0.0
Control Delay (s)	10.1	11.0	4.1	0.4
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	11.0	4.1	0.4
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	48	57	35	36	86	29
Future Volume (Veh/h)	48	57	35	36	86	29
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	57	68	42	43	102	35
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	118				370	174
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	118				370	174
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				81	96
cM capacity (veh/h)	1430				543	790

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	125	85	137
Volume Left	57	0	102
Volume Right	0	43	35
cSH	1430	1700	591
Volume to Capacity	0.04	0.05	0.23
Queue Length 95th (m)	1.0	0.0	7.1
Control Delay (s)	3.6	0.0	12.9
Lane LOS	A		B
Approach Delay (s)	3.6	0.0	12.9
Approach LOS			B

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	31.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	84	15	39	48	3	27
Future Volume (Veh/h)	84	15	39	48	3	27
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	16	42	52	3	29
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	183	148			174	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	183	148			174	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	98			100	
cM capacity (veh/h)	751	839			1309	

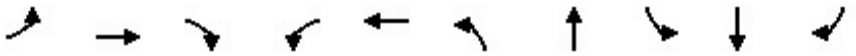
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	107	94	32
Volume Left	91	0	3
Volume Right	16	52	0
cSH	763	1700	1309
Volume to Capacity	0.14	0.06	0.00
Queue Length 95th (m)	3.9	0.0	0.1
Control Delay (s)	10.5	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	484	38	64	811	23	47
Future Volume (Veh/h)	484	38	64	811	23	47
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	499	39	66	836	24	48
Pedestrians	106			70	74	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	9			6	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.99		0.99	0.99
vC, conflicting volume			612		1248	413
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			595		1236	395
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			93		81	91
cM capacity (veh/h)			910		125	513

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	333	205	66	418	418	24	48
Volume Left	0	0	66	0	0	24	0
Volume Right	0	39	0	0	0	0	48
cSH	1700	1700	910	1700	1700	125	513
Volume to Capacity	0.20	0.12	0.07	0.25	0.25	0.19	0.09
Queue Length 95th (m)	0.0	0.0	1.9	0.0	0.0	5.4	2.5
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	40.5	12.7
Lane LOS			A			E	B
Approach Delay (s)	0.0		0.7			22.0	
Approach LOS						C	

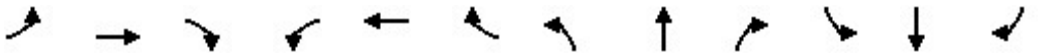
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	153	379	237	161	396	252	370	12	203	221
v/c Ratio	0.66	0.78	0.17	0.68	0.83	0.62	0.53	0.05	0.39	0.15
Control Delay	34.3	43.8	0.3	35.3	47.0	26.1	19.8	26.1	30.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	43.8	0.3	35.3	47.0	26.1	19.8	26.1	30.0	0.2
Queue Length 50th (m)	18.0	65.4	0.0	19.2	68.5	30.5	42.1	1.6	30.9	0.0
Queue Length 95th (m)	#33.8	98.6	0.0	#36.7	#111.0	51.2	72.7	6.2	52.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	231	552	1417	236	544	409	704	252	521	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.69	0.17	0.68	0.73	0.62	0.53	0.05	0.39	0.15

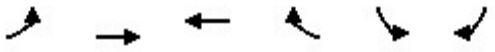
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	144	356	223	151	347	25	237	189	159	11	191	208
Future Volume (vph)	144	356	223	151	347	25	237	189	159	11	191	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.98	1.00		0.93	1.00		0.87	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1743	1853	1417	1662	1778		1679	1550		1569	1837	1477
Flt Permitted	0.27	1.00	1.00	0.27	1.00		0.47	1.00		0.54	1.00	1.00
Satd. Flow (perm)	487	1853	1417	470	1778		828	1550		894	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	153	379	237	161	369	27	252	201	169	12	203	221
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	153	379	237	161	393	0	252	339	0	12	203	221
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.2	24.0	91.8	31.4	24.6		40.1	40.1		26.1	26.1	91.8
Effective Green, g (s)	30.2	24.0	91.8	31.4	24.6		40.1	40.1		26.1	26.1	91.8
Actuated g/C Ratio	0.33	0.26	1.00	0.34	0.27		0.44	0.44		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	245	484	1417	249	476		428	677		254	522	1477
v/s Ratio Prot	0.04	0.20		c0.05	c0.22		0.05	c0.22			0.11	
v/s Ratio Perm	0.16		c0.17	0.17			c0.21			0.01		0.15
v/c Ratio	0.62	0.78	0.17	0.65	0.83		0.59	0.50		0.05	0.39	0.15
Uniform Delay, d1	23.6	31.5	0.0	23.0	31.6		19.0	18.6		23.8	26.4	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	4.2	8.1	0.3	5.0	11.2		1.7	0.6		0.1	0.5	0.2
Delay (s)	27.8	39.6	0.3	28.0	42.8		20.7	19.2		23.9	26.9	0.2
Level of Service	C	D	A	C	D		C	B		C	C	A
Approach Delay (s)		25.1			38.5			19.8			13.3	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	27.7
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	723	689	128	0	82
Future Volume (Veh/h)	0	723	689	128	0	82
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	761	725	135	0	86
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.91	
vC, conflicting volume	934				1252	504
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	934				1072	504
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	82
cM capacity (veh/h)	684				182	481

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	380	380	483	377	86
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	135	86
cSH	1700	1700	1700	1700	1700	481
Volume to Capacity	0.00	0.22	0.22	0.28	0.22	0.18
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	5.2
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.1
Lane LOS						B
Approach Delay (s)	0.0			0.0		14.1
Approach LOS						B

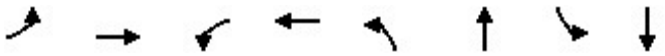
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	725	112	700	33	108
v/c Ratio	0.34	0.29	0.32	0.07	0.09
Control Delay	8.9	10.1	8.3	25.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	10.1	8.3	25.3	0.1
Queue Length 50th (m)	26.7	8.4	28.1	4.5	0.0
Queue Length 95th (m)	35.3	18.1	37.7	11.8	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2132	389	2217	491	1177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.29	0.32	0.07	0.09

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	620	68	106	665	31	103
Future Volume (vph)	620	68	106	665	31	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3388		1675	3539	1770	1241
Flt Permitted	1.00		0.35	1.00	0.95	1.00
Satd. Flow (perm)	3388		623	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	653	72	112	700	33	108
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	716	0	112	700	33	108
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2123		390	2217	472	1185
v/s Ratio Prot	c0.21			0.20	0.02	
v/s Ratio Perm			0.18			c0.09
v/c Ratio	0.34		0.29	0.32	0.07	0.09
Uniform Delay, d1	8.0		7.6	7.8	24.7	0.1
Progression Factor	1.09		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4		1.8	0.4	0.1	0.1
Delay (s)	9.1		9.5	8.2	24.8	0.2
Level of Service	A		A	A	C	A
Approach Delay (s)	9.1			8.4	5.9	
Approach LOS	A			A	A	

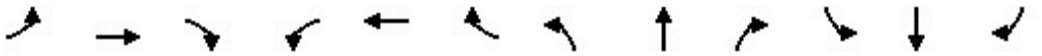
Intersection Summary			
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	577	69	657	105	212	161	179
v/c Ratio	0.09	0.27	0.14	0.31	0.44	0.52	0.82	0.43
Control Delay	1.8	1.1	6.0	5.1	34.0	23.6	61.7	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	1.1	6.0	5.1	34.0	23.6	61.7	29.2
Queue Length 50th (m)	0.6	3.6	2.7	7.4	15.8	21.7	26.8	24.8
Queue Length 95th (m)	m1.2	4.8	5.5	15.4	28.5	38.8	46.0	39.3
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	406	2145	488	2144	454	726	379	785
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.27	0.14	0.31	0.23	0.29	0.42	0.23

Intersection Summary

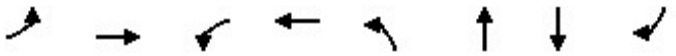
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	435	119	66	516	114	101	105	99	155	145	27
Future Volume (vph)	35	435	119	66	516	114	101	105	99	155	145	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.93	1.00		0.94	1.00		0.95	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1525	3306		1668	3313		1688	1584		1598	1793	
Flt Permitted	0.39	1.00		0.43	1.00		0.59	1.00		0.52	1.00	
Satd. Flow (perm)	624	3306		753	3313		1050	1584		881	1793	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	36	453	124	69	538	119	105	109	103	161	151	28
RTOR Reduction (vph)	0	17	0	0	13	0	0	52	0	0	10	0
Lane Group Flow (vph)	36	560	0	69	644	0	105	160	0	161	169	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	58.0	58.0		58.0	58.0		20.3	20.3		20.3	20.3	
Effective Green, g (s)	58.0	58.0		58.0	58.0		20.3	20.3		20.3	20.3	
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.23	0.23		0.23	0.23	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	402	2130		485	2135		236	357		198	404	
v/s Ratio Prot		0.17			c0.19			0.10			0.09	
v/s Ratio Perm	0.06			0.09			0.10			c0.18		
v/c Ratio	0.09	0.26		0.14	0.30		0.44	0.45		0.81	0.42	
Uniform Delay, d1	6.0	6.8		6.3	7.1		30.0	30.0		33.1	29.8	
Progression Factor	0.17	0.11		0.63	0.61		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.3		0.6	0.4		1.3	0.9		21.9	0.7	
Delay (s)	1.4	1.0		4.5	4.6		31.3	30.9		54.9	30.5	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		1.1			4.6			31.1			42.1	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

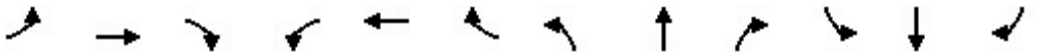
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	187	826	20	663	212	134	140	187
v/c Ratio	0.64	0.53	0.09	0.39	0.72	0.44	0.50	0.57
Control Delay	32.0	16.9	13.1	16.5	48.9	33.2	41.7	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	16.9	13.1	16.5	48.9	33.2	41.7	15.7
Queue Length 50th (m)	25.4	48.8	1.6	33.8	36.3	19.2	23.5	4.1
Queue Length 95th (m)	#62.3	70.8	5.0	38.5	58.6	35.6	42.1	24.4
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	294	1563	226	1680	355	362	297	340
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.53	0.09	0.39	0.60	0.37	0.47	0.55

Intersection Summary

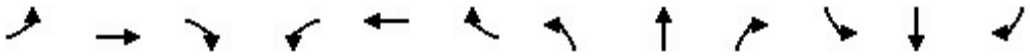
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	542	226	19	611	6	197	96	29	7	123	174
Future Volume (vph)	174	542	226	19	611	6	197	96	29	7	123	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.93		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.94	1.00		0.95	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1685	3188		1689	3527		1667	1644			1913	1312
Flt Permitted	0.35	1.00		0.27	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	617	3188		475	3527		1667	1644			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	187	583	243	20	657	6	212	103	31	8	132	187
RTOR Reduction (vph)	0	47	0	0	1	0	0	12	0	0	0	137
Lane Group Flow (vph)	187	779	0	20	662	0	212	122	0	0	140	50
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.8	42.8		42.8	42.8		15.9	15.9			13.2	13.2
Effective Green, g (s)	42.8	42.8		42.8	42.8		15.9	15.9			13.2	13.2
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	293	1516		225	1677		294	290			280	192
v/s Ratio Prot		0.24			0.19		c0.13	0.07			c0.07	
v/s Ratio Perm	c0.30			0.04								0.04
v/c Ratio	0.64	0.51		0.09	0.40		0.72	0.42			0.50	0.26
Uniform Delay, d1	17.8	16.4		12.9	15.2		35.0	32.9			35.4	34.1
Progression Factor	1.00	1.00		0.79	0.97		1.00	1.00			1.00	1.00
Incremental Delay, d2	10.2	1.2		0.8	0.7		8.4	1.0			1.4	0.7
Delay (s)	28.0	17.6		11.0	15.5		43.4	33.9			36.8	34.8
Level of Service	C	B		B	B		D	C			D	C
Approach Delay (s)		19.5			15.4			39.7			35.6	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

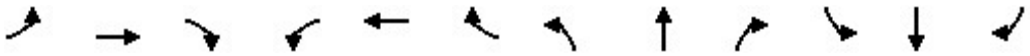
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	86	235	70	24	183	42	49	187	12	35	173	73
Future Volume (vph)	86	235	70	24	183	42	49	187	12	35	173	73
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	95	258	77	26	201	46	54	205	13	38	190	80

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	430	273	272	308
Volume Left (vph)	95	26	54	38
Volume Right (vph)	77	46	13	80
Hadj (s)	-0.03	-0.05	0.05	-0.10
Departure Headway (s)	6.8	7.2	7.4	7.2
Degree Utilization, x	0.81	0.55	0.56	0.61
Capacity (veh/h)	505	441	433	456
Control Delay (s)	33.0	18.6	19.4	20.8
Approach Delay (s)	33.0	18.6	19.4	20.8
Approach LOS	D	C	C	C

Intersection Summary				
Delay	24.1			
Level of Service	C			
Intersection Capacity Utilization	67.5%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	37	5	25	7	213	112	11	243	2
Future Volume (Veh/h)	2	2	3	37	5	25	7	213	112	11	243	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	45	6	30	8	257	135	13	293	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	808	848	441	770	782	396	376			431		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	808	848	441	770	782	396	376			431		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	83	98	95	99			99		
cM capacity (veh/h)	194	265	543	260	288	614	1103			1092		

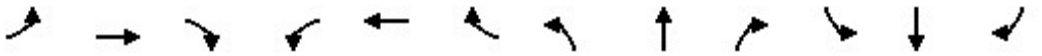
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	81	400	308
Volume Left	2	45	8	13
Volume Right	4	30	135	2
cSH	317	334	1103	1092
Volume to Capacity	0.03	0.24	0.01	0.01
Queue Length 95th (m)	0.6	7.5	0.2	0.3
Control Delay (s)	16.6	19.2	0.2	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	16.6	19.2	0.2	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	40.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	11	15	231	14	5	247
Future Volume (Veh/h)	11	15	231	14	5	247
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	15	21	325	20	7	348
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	774	399			375	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774	399			375	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	97			99	
cM capacity (veh/h)	341	616			1154	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	36	345	355
Volume Left	15	0	7
Volume Right	21	20	0
cSH	461	1700	1154
Volume to Capacity	0.08	0.20	0.01
Queue Length 95th (m)	2.0	0.0	0.1
Control Delay (s)	13.5	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	13.5	0.0	0.2
Approach LOS	B		

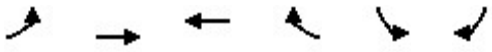
Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		33.8%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	5	1	0	0	17	11	1	0	5	5
Future Volume (Veh/h)	3	1	5	1	0	0	17	11	1	0	5	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	6	1	0	0	22	14	1	0	6	6
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	218	218	190	169	220	78	130			47		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	218	218	190	169	220	78	130			47		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	98			100		
cM capacity (veh/h)	580	587	728	650	585	930	1312			1519		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	1	37	12
Volume Left	4	1	22	0
Volume Right	6	0	1	6
cSH	653	650	1312	1519
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.4	0.0
Control Delay (s)	10.6	10.6	4.7	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	10.6	4.7	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	66	38	44	43	27
Future Volume (Veh/h)	62	66	38	44	43	27
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	81	86	49	57	56	35
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	155				458	392
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	155				458	392
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				88	93
cM capacity (veh/h)	1367				472	491

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	167	106	91
Volume Left	81	0	56
Volume Right	0	57	35
cSH	1367	1700	479
Volume to Capacity	0.06	0.06	0.19
Queue Length 95th (m)	1.5	0.0	5.5
Control Delay (s)	4.0	0.0	14.3
Lane LOS	A		B
Approach Delay (s)	4.0	0.0	14.3
Approach LOS			B

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	9	29	82	4	7
Future Volume (Veh/h)	54	9	29	82	4	7
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	10	32	89	4	8
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	222	206			251	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	206			251	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	99			100	
cM capacity (veh/h)	680	744			1172	

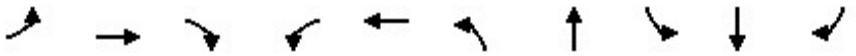
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	121	12
Volume Left	59	0	4
Volume Right	10	89	0
cSH	689	1700	1172
Volume to Capacity	0.10	0.07	0.00
Queue Length 95th (m)	2.7	0.0	0.1
Control Delay (s)	10.8	0.0	2.7
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	2.7
Approach LOS	B		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	620	68	106	665	31	103
Future Volume (Veh/h)	620	68	106	665	31	103
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	653	72	112	700	33	108
Pedestrians	166			199	91	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	14			17	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			816		1520	652
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			743		1471	575
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		57	69
cM capacity (veh/h)			769		78	344

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	435	290	112	350	350	33	108
Volume Left	0	0	112	0	0	33	0
Volume Right	0	72	0	0	0	0	108
cSH	1700	1700	769	1700	1700	78	344
Volume to Capacity	0.26	0.17	0.15	0.21	0.21	0.43	0.31
Queue Length 95th (m)	0.0	0.0	4.1	0.0	0.0	13.6	10.5
Control Delay (s)	0.0	0.0	10.5	0.0	0.0	82.0	20.2
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.4			34.6	
Approach LOS						D	

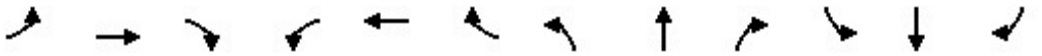
Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	289	185	181	483	256	406	51	305	294
v/c Ratio	0.70	0.52	0.13	0.57	0.90	0.81	0.60	0.22	0.63	0.19
Control Delay	44.8	17.9	0.2	28.0	53.5	40.9	21.8	27.3	35.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	17.9	0.2	28.0	53.5	40.9	21.8	27.3	35.0	0.3
Queue Length 50th (m)	12.8	17.3	0.0	21.3	85.3	30.1	47.4	7.0	47.0	0.0
Queue Length 95th (m)	#39.1	29.4	0.0	36.5	#149.0	#61.2	76.7	16.7	73.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	197	560	1415	320	535	318	717	253	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.52	0.13	0.57	0.90	0.81	0.57	0.20	0.56	0.19

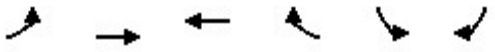
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	275	176	172	417	42	243	229	157	48	290	279
Future Volume (vph)	130	275	176	172	417	42	243	229	157	48	290	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00		0.98	1.00		0.89	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1735	1872	1415	1667	1781		1769	1600		1593	1872	1530
Flt Permitted	0.18	1.00	1.00	0.46	1.00		0.31	1.00		0.52	1.00	1.00
Satd. Flow (perm)	336	1872	1415	807	1781		585	1600		878	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	289	185	181	439	44	256	241	165	51	305	294
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	137	289	185	181	479	0	256	378	0	51	305	294
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.3	26.9	90.0	32.3	26.9		36.8	36.8		23.4	23.4	90.0
Effective Green, g (s)	32.3	26.9	90.0	32.3	26.9		36.8	36.8		23.4	23.4	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	204	559	1415	341	532		326	654		228	486	1530
v/s Ratio Prot	c0.04	0.15		0.03	c0.27		c0.06	0.24			0.16	
v/s Ratio Perm	0.20		0.13	0.16			c0.26			0.06		0.19
v/c Ratio	0.67	0.52	0.13	0.53	0.90		0.79	0.58		0.22	0.63	0.19
Uniform Delay, d1	21.9	26.2	0.0	22.1	30.3		22.8	20.6		26.2	29.4	0.0
Progression Factor	1.28	0.53	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.5	3.3	0.2	1.2	20.8		11.3	1.2		0.5	2.5	0.3
Delay (s)	35.6	17.2	0.2	23.3	51.1		34.1	21.8		26.7	32.0	0.3
Level of Service	D	B	A	C	D		C	C		C	C	A
Approach Delay (s)		16.2			43.5			26.6			17.2	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	54	581	834	137	0	101
Future Volume (Veh/h)	54	581	834	137	0	101
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	56	605	869	143	0	105
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	1055				1399	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055				1291	549
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				100	77
cM capacity (veh/h)	632				127	462

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	56	302	302	579	433	105
Volume Left	56	0	0	0	0	0
Volume Right	0	0	0	0	143	105
cSH	632	1700	1700	1700	1700	462
Volume to Capacity	0.09	0.18	0.18	0.34	0.25	0.23
Queue Length 95th (m)	2.3	0.0	0.0	0.0	0.0	6.9
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	15.1
Lane LOS	B					C
Approach Delay (s)	1.0			0.0		15.1
Approach LOS						C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

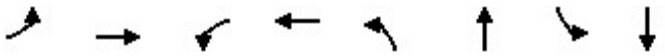
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	645	72	892	27	53
v/c Ratio	0.27	0.15	0.36	0.06	0.04
Control Delay	13.1	7.1	6.6	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	7.1	6.6	25.2	0.1
Queue Length 50th (m)	48.3	4.1	29.9	3.7	0.0
Queue Length 95th (m)	57.0	m6.6	m37.5	10.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2371	496	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.15	0.36	0.06	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	584	42	70	865	26	51
Future Volume (vph)	584	42	70	865	26	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3375		1679	3539	1656	1355
Flt Permitted	1.00		0.40	1.00	0.95	1.00
Satd. Flow (perm)	3375		706	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	602	43	72	892	27	53
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	640	0	72	892	27	53
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2295		480	2406	353	1294
v/s Ratio Prot	0.19			c0.25	c0.02	
v/s Ratio Perm			0.10			0.04
v/c Ratio	0.28		0.15	0.37	0.08	0.04
Uniform Delay, d1	5.7		5.1	6.2	28.3	0.1
Progression Factor	1.92		0.90	0.85	1.00	1.00
Incremental Delay, d2	0.3		0.5	0.4	0.2	0.0
Delay (s)	11.2		5.2	5.6	28.5	0.1
Level of Service	B		A	A	C	A
Approach Delay (s)	11.2			5.5	9.7	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	516	40	868	38	85	162	114
v/c Ratio	0.13	0.23	0.07	0.38	0.16	0.23	0.67	0.31
Control Delay	5.7	4.6	2.7	3.2	28.6	19.6	45.9	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	4.6	2.7	3.3	28.6	19.6	45.9	24.7
Queue Length 50th (m)	2.5	13.6	1.2	3.7	5.8	8.0	27.7	14.2
Queue Length 95th (m)	m3.6	11.8	1.2	0.0	13.1	18.6	44.6	26.4
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	366	2275	556	2271	448	642	448	668
Starvation Cap Reductn	0	0	0	215	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.07	0.42	0.08	0.13	0.36	0.17

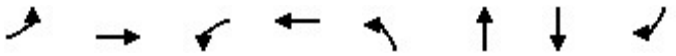
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	434	72	39	693	158	37	51	32	159	82	29
Future Volume (vph)	46	434	72	39	693	158	37	51	32	159	82	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.98	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3373		1702	3363		1697	1688		1657	1778	
Flt Permitted	0.30	1.00		0.46	1.00		0.68	1.00		0.70	1.00	
Satd. Flow (perm)	544	3373		826	3363		1221	1688		1224	1778	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	443	73	40	707	161	38	52	33	162	84	30
RTOR Reduction (vph)	0	10	0	0	14	0	0	26	0	0	18	0
Lane Group Flow (vph)	47	506	0	40	854	0	38	59	0	162	96	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	365	2267		555	2260		241	333		242	351	
v/s Ratio Prot		0.15			c0.25			0.03			0.05	
v/s Ratio Perm	0.09			0.05			0.03			c0.13		
v/c Ratio	0.13	0.22		0.07	0.38		0.16	0.18		0.67	0.27	
Uniform Delay, d1	5.3	5.7		5.1	6.5		29.9	30.0		33.4	30.6	
Progression Factor	0.68	0.71		0.36	0.39		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.2		0.2	0.5		0.3	0.3		6.9	0.4	
Delay (s)	4.3	4.2		2.1	3.0		30.2	30.3		40.2	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		4.2			3.0			30.2			36.4	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

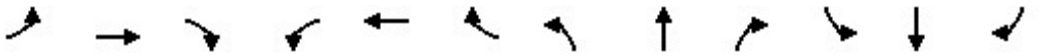
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	178	726	25	806	291	156	147	254
v/c Ratio	0.81	0.48	0.10	0.51	0.86	0.44	0.53	0.87
Control Delay	52.6	17.9	10.9	13.1	59.8	34.0	42.8	51.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	17.9	10.9	13.1	59.8	34.0	42.8	51.0
Queue Length 50th (m)	28.1	45.5	1.5	50.7	50.7	23.5	24.8	25.8
Queue Length 95th (m)	#68.6	62.0	m3.4	53.3	#93.0	42.3	44.0	#68.7
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	221	1516	248	1587	355	370	294	302
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.48	0.10	0.51	0.82	0.42	0.50	0.84

Intersection Summary

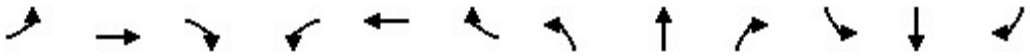
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	525	143	23	732	9	268	127	17	7	128	234
Future Volume (vph)	164	525	143	23	732	9	268	127	17	7	128	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	0.98	1.00		0.97	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1752	3313		1712	3526		1667	1711			1896	1349
Flt Permitted	0.27	1.00		0.31	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	491	3313		551	3526		1667	1711			1896	1349
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	571	155	25	796	10	291	138	18	8	139	254
RTOR Reduction (vph)	0	26	0	0	1	0	0	6	0	0	0	94
Lane Group Flow (vph)	178	700	0	25	805	0	291	150	0	0	147	160
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	40.5	40.5		40.5	40.5		18.2	18.2			13.2	13.2
Effective Green, g (s)	40.5	40.5		40.5	40.5		18.2	18.2			13.2	13.2
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.20	0.20			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	220	1490		247	1586		337	346			278	197
v/s Ratio Prot		0.21			0.23		c0.17	0.09			0.08	
v/s Ratio Perm	c0.36			0.05								c0.12
v/c Ratio	0.81	0.47		0.10	0.51		0.86	0.43			0.53	0.81
Uniform Delay, d1	21.4	17.3		14.3	17.6		34.7	31.4			35.5	37.2
Progression Factor	1.00	1.00		0.63	0.65		1.00	1.00			1.00	1.00
Incremental Delay, d2	26.5	1.1		0.8	1.1		19.8	0.9			1.8	21.9
Delay (s)	47.9	18.3		9.8	12.6		54.5	32.3			37.3	59.1
Level of Service	D	B		A	B		D	C			D	E
Approach Delay (s)		24.1			12.5			46.8			51.1	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

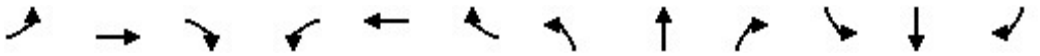
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	146	191	53	26	226	35	79	193	8	28	251	133
Future Volume (vph)	146	191	53	26	226	35	79	193	8	28	251	133
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	157	205	57	28	243	38	85	208	9	30	270	143

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	419	309	302	443
Volume Left (vph)	157	28	85	30
Volume Right (vph)	57	38	9	143
Hadj (s)	0.03	-0.02	0.09	-0.13
Departure Headway (s)	8.5	8.9	9.1	8.5
Degree Utilization, x	0.99	0.77	0.76	1.04
Capacity (veh/h)	419	394	388	423
Control Delay (s)	69.6	35.7	35.7	84.2
Approach Delay (s)	69.6	35.7	35.7	84.2
Approach LOS	F	E	E	F

Intersection Summary			
Delay	59.9		
Level of Service	F		
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	9	61	3	36	5	318	25	14	326	2
Future Volume (Veh/h)	2	0	9	61	3	36	5	318	25	14	326	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	11	72	4	42	6	374	29	16	384	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	918	918	496	914	904	418	442			433		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	918	918	496	914	904	418	442			433		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	66	98	93	99			99		
cM capacity (veh/h)	207	248	504	210	251	618	959			1098		

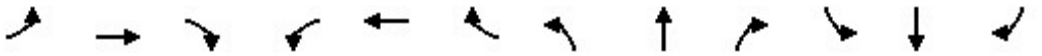
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	118	409	402
Volume Left	2	72	6	16
Volume Right	11	42	29	2
cSH	413	277	959	1098
Volume to Capacity	0.03	0.43	0.01	0.01
Queue Length 95th (m)	0.8	16.2	0.2	0.4
Control Delay (s)	14.0	27.3	0.2	0.5
Lane LOS	B	D	A	A
Approach Delay (s)	14.0	27.3	0.2	0.5
Approach LOS	B	D		

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	44.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	22	402	13	6	377
Future Volume (Veh/h)	16	22	402	13	6	377
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	16	23	414	13	6	389
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	886	450			457	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	886	450			457	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	96			99	
cM capacity (veh/h)	295	564			935	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	427	395
Volume Left	16	0	6
Volume Right	23	13	0
cSH	411	1700	935
Volume to Capacity	0.10	0.25	0.01
Queue Length 95th (m)	2.5	0.0	0.2
Control Delay (s)	14.7	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.7	0.0	0.2
Approach LOS	B		

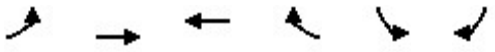
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	14	1	1	0	22	21	0	1	16	5
Future Volume (Veh/h)	3	1	14	1	1	0	22	21	0	1	16	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	15	1	1	0	24	23	0	1	17	5
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	203	204	180	231	207	95	97			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	203	204	180	231	207	95	97			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	98			100		
cM capacity (veh/h)	630	617	750	585	615	905	1319			1496		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	19	2	47	23
Volume Left	3	1	24	1
Volume Right	15	0	0	5
cSH	720	599	1319	1496
Volume to Capacity	0.03	0.00	0.02	0.00
Queue Length 95th (m)	0.6	0.1	0.4	0.0
Control Delay (s)	10.1	11.0	4.0	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	11.0	4.0	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	32	63	66	72	46
Future Volume (Veh/h)	25	32	63	66	72	46
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	30	38	75	79	86	55
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	187				338	226
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	187				338	226
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				85	93
cM capacity (veh/h)	1349				578	740

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	68	154	141
Volume Left	30	0	86
Volume Right	0	79	55
cSH	1349	1700	632
Volume to Capacity	0.02	0.09	0.22
Queue Length 95th (m)	0.5	0.0	6.8
Control Delay (s)	3.5	0.0	12.3
Lane LOS	A		B
Approach Delay (s)	3.5	0.0	12.3
Approach LOS			B

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	84	15	43	48	3	29
Future Volume (Veh/h)	84	15	43	48	3	29
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	16	47	52	3	32
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	191	153			179	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191	153			179	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	98			100	
cM capacity (veh/h)	743	834			1304	

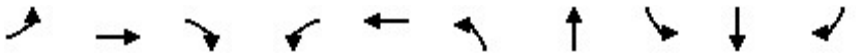
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	107	99	35
Volume Left	91	0	3
Volume Right	16	52	0
cSH	755	1700	1304
Volume to Capacity	0.14	0.06	0.00
Queue Length 95th (m)	3.9	0.0	0.1
Control Delay (s)	10.6	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	584	42	70	865	26	51
Future Volume (Veh/h)	584	42	70	865	26	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	602	43	72	892	27	53
Pedestrians	106			70	74	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	9			6	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			719		1394	466
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			654		1348	395
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			92		73	89
cM capacity (veh/h)			847		102	503

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	401	244	72	446	446	27	53
Volume Left	0	0	72	0	0	27	0
Volume Right	0	43	0	0	0	0	53
cSH	1700	1700	847	1700	1700	102	503
Volume to Capacity	0.24	0.14	0.08	0.26	0.26	0.27	0.11
Queue Length 95th (m)	0.0	0.0	2.2	0.0	0.0	7.8	2.8
Control Delay (s)	0.0	0.0	9.6	0.0	0.0	52.7	13.0
Lane LOS			A			F	B
Approach Delay (s)	0.0		0.7			26.4	
Approach LOS						D	

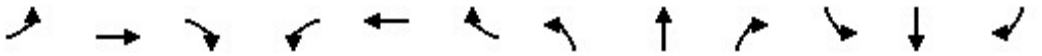
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	168	415	260	176	433	274	404	13	222	241
v/c Ratio	0.83	0.83	0.18	0.83	0.86	0.69	0.58	0.05	0.43	0.16
Control Delay	55.1	46.7	0.3	52.9	49.2	30.4	21.4	26.3	30.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	46.7	0.3	52.9	49.2	30.4	21.4	26.3	30.9	0.2
Queue Length 50th (m)	20.0	72.6	0.0	21.2	75.7	34.9	49.9	1.8	35.1	0.0
Queue Length 95th (m)	#47.5	#116.1	0.0	#46.0	#124.4	#59.6	81.9	6.6	57.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	202	562	1417	212	561	395	702	245	518	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.74	0.18	0.83	0.77	0.69	0.58	0.05	0.43	0.16

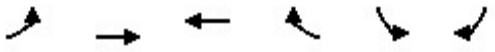
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	390	244	165	379	28	258	206	174	12	209	227
Future Volume (vph)	158	390	244	165	379	28	258	206	174	12	209	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.99	1.00		0.94	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1751	1853	1417	1671	1777		1691	1549		1578	1837	1477
Flt Permitted	0.23	1.00	1.00	0.22	1.00		0.44	1.00		0.52	1.00	1.00
Satd. Flow (perm)	429	1853	1417	394	1777		788	1549		871	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	168	415	260	176	403	30	274	219	185	13	222	241
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	168	415	260	176	430	0	274	373	0	13	222	241
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.1	24.9	92.1	32.1	25.9		40.1	40.1		26.1	26.1	92.1
Effective Green, g (s)	30.1	24.9	92.1	32.1	25.9		40.1	40.1		26.1	26.1	92.1
Actuated g/C Ratio	0.33	0.27	1.00	0.35	0.28		0.44	0.44		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	500	1417	223	499		413	674		246	520	1477
v/s Ratio Prot	0.04	0.22		c0.05	c0.24		0.05	c0.24			0.12	
v/s Ratio Perm	0.21		c0.18	0.22			c0.24			0.01		0.16
v/c Ratio	0.79	0.83	0.18	0.79	0.86		0.66	0.55		0.05	0.43	0.16
Uniform Delay, d1	26.7	31.6	0.0	24.8	31.4		20.3	19.3		24.0	26.9	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.5	10.9	0.3	16.2	14.2		3.6	1.0		0.1	0.6	0.2
Delay (s)	43.2	42.6	0.3	41.0	45.6		23.9	20.3		24.1	27.5	0.2
Level of Service	D	D	A	D	D		C	C		C	C	A
Approach Delay (s)		29.6			44.3			21.8			13.6	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	92.1	Sum of lost time (s)	27.7
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	66	791	754	138	0	75
Future Volume (Veh/h)	66	791	754	138	0	75
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	69	833	794	145	0	79
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.88	
vC, conflicting volume	1013				1500	544
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1013				1305	544
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	83
cM capacity (veh/h)	638				112	454

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	69	416	416	529	410	79
Volume Left	69	0	0	0	0	0
Volume Right	0	0	0	0	145	79
cSH	638	1700	1700	1700	1700	454
Volume to Capacity	0.11	0.24	0.24	0.31	0.24	0.17
Queue Length 95th (m)	2.9	0.0	0.0	0.0	0.0	5.0
Control Delay (s)	11.3	0.0	0.0	0.0	0.0	14.6
Lane LOS	B					B
Approach Delay (s)	0.9			0.0		14.6
Approach LOS						B

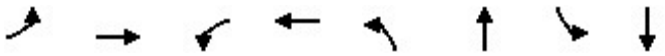
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	862	122	752	36	119
v/c Ratio	0.40	0.37	0.34	0.08	0.10
Control Delay	8.6	12.2	8.5	25.4	0.2
Queue Delay	0.2	0.0	0.0	0.0	0.0
Total Delay	8.8	12.2	8.5	25.4	0.2
Queue Length 50th (m)	29.8	9.8	30.8	4.9	0.0
Queue Length 95th (m)	36.5	22.0	41.0	12.4	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2137	329	2217	491	1177
Starvation Cap Reductn	461	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.37	0.34	0.07	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	745	74	116	714	34	113
Future Volume (vph)	745	74	116	714	34	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.96	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3399		1695	3539	1770	1241
Flt Permitted	1.00		0.30	1.00	0.95	1.00
Satd. Flow (perm)	3399		527	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	784	78	122	752	36	119
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	854	0	122	752	36	119
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2130		330	2217	472	1185
v/s Ratio Prot	c0.25			0.21	0.02	
v/s Ratio Perm			0.23			c0.10
v/c Ratio	0.40		0.37	0.34	0.08	0.10
Uniform Delay, d1	8.4		8.2	8.0	24.7	0.1
Progression Factor	0.97		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		3.2	0.4	0.1	0.1
Delay (s)	8.7		11.3	8.4	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	8.7			8.8	5.9	
Approach LOS	A			A	A	

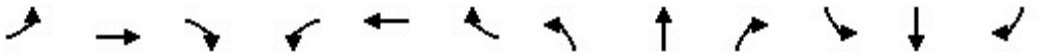
Intersection Summary			
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	700	75	703	115	233	176	196
v/c Ratio	0.11	0.33	0.18	0.34	0.47	0.53	0.87	0.44
Control Delay	1.9	1.2	7.8	6.2	33.5	24.1	67.4	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.9	1.2	7.8	6.2	33.5	24.1	67.4	28.2
Queue Length 50th (m)	0.5	3.5	3.0	8.1	17.6	25.7	30.2	27.7
Queue Length 95th (m)	m1.0	5.3	8.8	25.5	29.7	41.8	49.7	41.1
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	370	2098	408	2085	425	708	353	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.33	0.18	0.34	0.27	0.33	0.50	0.26

Intersection Summary

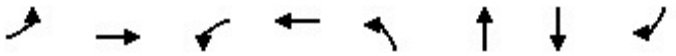
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	542	130	72	550	125	110	115	108	169	159	29
Future Volume (vph)	38	542	130	72	550	125	110	115	108	169	159	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.96	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1534	3328		1689	3308		1691	1585		1607	1795	
Flt Permitted	0.36	1.00		0.37	1.00		0.57	1.00		0.50	1.00	
Satd. Flow (perm)	588	3328		649	3308		1010	1585		842	1795	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	565	135	75	573	130	115	120	112	176	166	30
RTOR Reduction (vph)	0	16	0	0	15	0	0	49	0	0	10	0
Lane Group Flow (vph)	40	684	0	75	688	0	115	184	0	176	186	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	56.4	56.4		56.4	56.4		21.9	21.9		21.9	21.9	
Effective Green, g (s)	56.4	56.4		56.4	56.4		21.9	21.9		21.9	21.9	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	368	2085		406	2073		245	385		204	436	
v/s Ratio Prot		0.21			c0.21			0.12			0.10	
v/s Ratio Perm	0.07			0.12			0.11			c0.21		
v/c Ratio	0.11	0.33		0.18	0.33		0.47	0.48		0.86	0.43	
Uniform Delay, d1	6.7	7.9		7.1	7.9		29.1	29.2		32.6	28.8	
Progression Factor	0.15	0.10		0.69	0.66		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		1.0	0.4		1.4	0.9		29.2	0.7	
Delay (s)	1.5	1.1		5.8	5.6		30.5	30.1		61.8	29.4	
Level of Service	A	A		A	A		C	C		E	C	
Approach Delay (s)		1.2			5.7			30.2			44.8	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

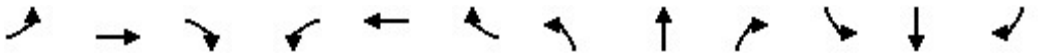
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	131	975	22	713	232	145	153	216
v/c Ratio	0.50	0.64	0.13	0.44	0.75	0.46	0.54	0.68
Control Delay	26.8	20.0	24.2	24.2	49.7	33.1	42.9	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	20.0	24.2	24.2	49.7	33.1	42.9	25.2
Queue Length 50th (m)	16.5	65.2	2.6	53.6	39.8	20.8	25.9	11.9
Queue Length 95th (m)	37.9	91.4	9.3	69.8	63.6	38.0	45.6	#38.3
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	265	1541	168	1647	366	374	300	327
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.63	0.13	0.43	0.63	0.39	0.51	0.66

Intersection Summary

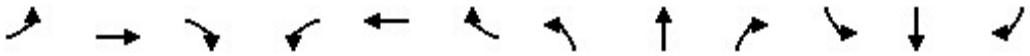
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	659	247	20	656	7	216	104	31	8	134	201
Future Volume (vph)	122	659	247	20	656	7	216	104	31	8	134	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.94		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.95	1.00		0.97	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1697	3214		1713	3525		1667	1647			1913	1312
Flt Permitted	0.32	1.00		0.20	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	569	3214		361	3525		1667	1647			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	131	709	266	22	705	8	232	112	33	9	144	216
RTOR Reduction (vph)	0	40	0	0	1	0	0	12	0	0	0	123
Lane Group Flow (vph)	131	935	0	22	712	0	232	133	0	0	153	93
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.9	41.9		41.9	41.9		16.7	16.7			13.3	13.3
Effective Green, g (s)	41.9	41.9		41.9	41.9		16.7	16.7			13.3	13.3
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.19	0.19			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	264	1496		168	1641		309	305			282	193
v/s Ratio Prot		c0.29			0.20		c0.14	0.08			c0.08	
v/s Ratio Perm	0.23			0.06								0.07
v/c Ratio	0.50	0.62		0.13	0.43		0.75	0.44			0.54	0.48
Uniform Delay, d1	16.7	18.1		13.7	16.1		34.7	32.5			35.5	35.2
Progression Factor	1.00	1.00		1.34	1.36		1.00	1.00			1.00	1.00
Incremental Delay, d2	6.5	2.0		1.6	0.8		9.8	1.0			2.1	1.9
Delay (s)	23.2	20.1		19.9	22.7		44.5	33.5			37.7	37.1
Level of Service	C	C		B	C		D	C			D	D
Approach Delay (s)		20.5			22.7			40.3			37.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		

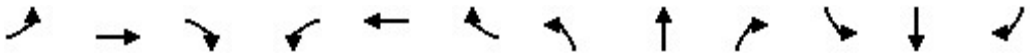
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	93	258	77	27	201	46	53	135	13	38	199	79
Future Volume (vph)	93	258	77	27	201	46	53	135	13	38	199	79
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	102	284	85	30	221	51	58	148	14	42	219	87

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	471	302	220	348
Volume Left (vph)	102	30	58	42
Volume Right (vph)	85	51	14	87
Hadj (s)	-0.03	-0.05	0.05	-0.09
Departure Headway (s)	7.0	7.5	8.0	7.4
Degree Utilization, x	0.92	0.63	0.49	0.72
Capacity (veh/h)	501	450	411	464
Control Delay (s)	48.9	22.4	18.5	27.1
Approach Delay (s)	48.9	22.4	18.5	27.1
Approach LOS	E	C	C	D

Intersection Summary				
Delay	32.3			
Level of Service	D			
Intersection Capacity Utilization	70.3%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	50	6	28	8	233	51	12	266	2
Future Volume (Veh/h)	2	2	3	50	6	28	8	233	51	12	266	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	60	7	34	10	281	61	14	320	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	832	831	468	790	802	384	403			381		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	832	831	468	790	802	384	403			381		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	76	97	95	99			99		
cM capacity (veh/h)	184	270	525	252	280	624	1078			1139		

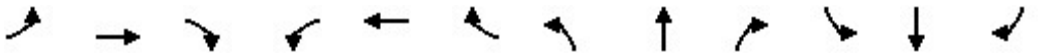
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	101	352	336
Volume Left	2	60	10	14
Volume Right	4	34	61	2
cSH	309	318	1078	1139
Volume to Capacity	0.03	0.32	0.01	0.01
Queue Length 95th (m)	0.6	10.6	0.2	0.3
Control Delay (s)	17.0	21.5	0.3	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	17.0	21.5	0.3	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	15	253	15	5	270
Future Volume (Veh/h)	12	15	253	15	5	270
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	17	21	356	21	7	380
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	838	430			407	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	838	430			407	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	96			99	
cM capacity (veh/h)	312	591			1123	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	377	387
Volume Left	17	0	7
Volume Right	21	21	0
cSH	423	1700	1123
Volume to Capacity	0.09	0.22	0.01
Queue Length 95th (m)	2.4	0.0	0.2
Control Delay (s)	14.4	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.4	0.0	0.2
Approach LOS	B		

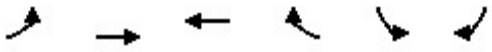
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	5	1	0	0	18	12	1	0	6	6
Future Volume (Veh/h)	3	1	5	1	0	0	18	12	1	0	6	6
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	6	1	0	0	23	16	1	0	8	8
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	224	225	193	176	228	80	134			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	224	225	193	176	228	80	134			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	98			100		
cM capacity (veh/h)	574	581	725	642	579	928	1308			1516		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	1	40	16
Volume Left	4	1	23	0
Volume Right	6	0	1	8
cSH	648	642	1308	1516
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.4	0.0
Control Delay (s)	10.6	10.6	4.5	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	10.6	4.5	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	37	71	81	32	38
Future Volume (Veh/h)	32	37	71	81	32	38
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	42	48	92	105	42	49
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	246				408	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	246				408	458
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				92	89
cM capacity (veh/h)	1266				517	450

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	90	197	91
Volume Left	42	0	42
Volume Right	0	105	49
cSH	1266	1700	479
Volume to Capacity	0.03	0.12	0.19
Queue Length 95th (m)	0.8	0.0	5.5
Control Delay (s)	3.9	0.0	14.3
Lane LOS	A		B
Approach Delay (s)	3.9	0.0	14.3
Approach LOS			B

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	9	31	82	4	8
Future Volume (Veh/h)	54	9	31	82	4	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	10	34	89	4	9
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	226	208			253	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	226	208			253	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	99			100	
cM capacity (veh/h)	678	742			1170	

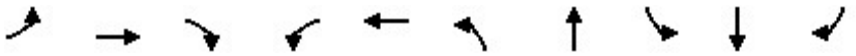
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	123	13
Volume Left	59	0	4
Volume Right	10	89	0
cSH	686	1700	1170
Volume to Capacity	0.10	0.07	0.00
Queue Length 95th (m)	2.7	0.0	0.1
Control Delay (s)	10.8	0.0	2.5
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	2.5
Approach LOS	B		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	745	74	116	714	34	113
Future Volume (Veh/h)	745	74	116	714	34	113
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	784	78	122	752	36	119
Pedestrians	166			199	91	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	14			17	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			953		1700	721
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			812		1610	564
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		39	65
cM capacity (veh/h)			701		59	338

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	523	339	122	376	376	36	119
Volume Left	0	0	122	0	0	36	0
Volume Right	0	78	0	0	0	0	119
cSH	1700	1700	701	1700	1700	59	338
Volume to Capacity	0.31	0.20	0.17	0.22	0.22	0.61	0.35
Queue Length 95th (m)	0.0	0.0	5.0	0.0	0.0	20.2	12.3
Control Delay (s)	0.0	0.0	11.2	0.0	0.0	136.2	21.3
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.6			48.0	
Approach LOS						E	

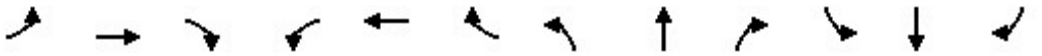
Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	289	185	181	483	256	406	51	305	294
v/c Ratio	0.70	0.52	0.13	0.57	0.90	0.81	0.60	0.22	0.63	0.19
Control Delay	44.5	17.9	0.2	28.0	53.5	40.9	21.8	27.3	35.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.5	17.9	0.2	28.0	53.5	40.9	21.8	27.3	35.0	0.3
Queue Length 50th (m)	12.7	18.1	0.0	21.3	85.3	30.1	47.4	7.0	47.0	0.0
Queue Length 95th (m)	#39.0	29.8	0.0	36.5	#149.0	#61.2	76.7	16.7	73.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	197	560	1415	320	535	318	717	253	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.52	0.13	0.57	0.90	0.81	0.57	0.20	0.56	0.19

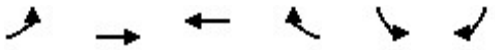
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	275	176	172	417	42	243	229	157	48	290	279
Future Volume (vph)	130	275	176	172	417	42	243	229	157	48	290	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00		0.98	1.00		0.89	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1735	1872	1415	1667	1781		1769	1600		1593	1872	1530
Flt Permitted	0.18	1.00	1.00	0.46	1.00		0.31	1.00		0.52	1.00	1.00
Satd. Flow (perm)	336	1872	1415	807	1781		585	1600		878	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	289	185	181	439	44	256	241	165	51	305	294
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	137	289	185	181	479	0	256	378	0	51	305	294
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.3	26.9	90.0	32.3	26.9		36.8	36.8		23.4	23.4	90.0
Effective Green, g (s)	32.3	26.9	90.0	32.3	26.9		36.8	36.8		23.4	23.4	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	204	559	1415	341	532		326	654		228	486	1530
v/s Ratio Prot	c0.04	0.15		0.03	c0.27		c0.06	0.24			0.16	
v/s Ratio Perm	0.20		0.13	0.16			c0.26			0.06		0.19
v/c Ratio	0.67	0.52	0.13	0.53	0.90		0.79	0.58		0.22	0.63	0.19
Uniform Delay, d1	21.9	26.2	0.0	22.1	30.3		22.8	20.6		26.2	29.4	0.0
Progression Factor	1.27	0.53	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.5	3.3	0.2	1.2	20.8		11.3	1.2		0.5	2.5	0.3
Delay (s)	35.3	17.2	0.2	23.3	51.1		34.1	21.8		26.7	32.0	0.3
Level of Service	D	B	A	C	D		C	C		C	C	A
Approach Delay (s)		16.1			43.5			26.6			17.2	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	581	834	137	0	118
Future Volume (Veh/h)	0	581	834	137	0	118
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	605	869	143	0	123
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	1055				1287	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055				1178	549
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	73
cM capacity (veh/h)	632				166	462

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	302	302	579	433	123
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	143	123
cSH	1700	1700	1700	1700	1700	462
Volume to Capacity	0.00	0.18	0.18	0.34	0.25	0.27
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	8.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.6
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.6
Approach LOS						C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

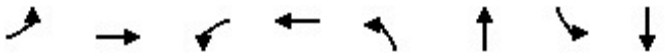
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	589	72	909	27	53
v/c Ratio	0.25	0.14	0.37	0.06	0.04
Control Delay	11.8	7.0	6.6	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	7.0	6.6	25.2	0.1
Queue Length 50th (m)	34.6	4.1	30.7	3.7	0.0
Queue Length 95th (m)	50.5	m6.4	m38.5	10.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2367	527	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.14	0.37	0.06	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	530	42	70	882	26	51
Future Volume (vph)	530	42	70	882	26	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.94	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3369		1670	3539	1656	1355
Flt Permitted	1.00		0.43	1.00	0.95	1.00
Satd. Flow (perm)	3369		751	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	546	43	72	909	27	53
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	584	0	72	909	27	53
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2290		510	2406	353	1294
v/s Ratio Prot	0.17			c0.26	c0.02	
v/s Ratio Perm			0.10			0.04
v/c Ratio	0.25		0.14	0.38	0.08	0.04
Uniform Delay, d1	5.6		5.1	6.2	28.3	0.1
Progression Factor	1.77		0.91	0.84	1.00	1.00
Incremental Delay, d2	0.3		0.5	0.4	0.2	0.0
Delay (s)	10.1		5.1	5.6	28.5	0.1
Level of Service	B		A	A	C	A
Approach Delay (s)	10.1			5.6	9.7	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	461	40	887	38	85	162	114
v/c Ratio	0.13	0.20	0.07	0.39	0.16	0.23	0.67	0.31
Control Delay	5.7	4.4	2.5	3.1	28.6	19.6	45.9	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	4.4	2.5	3.1	28.6	19.6	45.9	25.0
Queue Length 50th (m)	2.4	11.2	1.0	2.1	5.8	8.0	27.7	14.4
Queue Length 95th (m)	m3.8	10.3	1.0	0.0	13.1	18.6	44.6	26.6
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	358	2266	584	2275	420	605	421	628
Starvation Cap Reductn	0	0	0	199	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.20	0.07	0.43	0.09	0.14	0.38	0.18

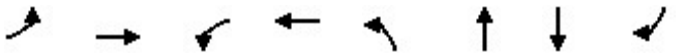
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	380	72	39	711	158	37	51	32	159	82	29
Future Volume (vph)	46	380	72	39	711	158	37	51	32	159	82	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.98	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1704	3359		1696	3367		1697	1688		1657	1778	
Flt Permitted	0.30	1.00		0.49	1.00		0.68	1.00		0.70	1.00	
Satd. Flow (perm)	531	3359		869	3367		1221	1688		1224	1778	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	388	73	40	726	161	38	52	33	162	84	30
RTOR Reduction (vph)	0	12	0	0	14	0	0	26	0	0	18	0
Lane Group Flow (vph)	47	449	0	40	873	0	38	59	0	162	96	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	356	2257		584	2263		241	333		242	351	
v/s Ratio Prot		0.13			c0.26			0.03			0.05	
v/s Ratio Perm	0.09			0.05			0.03			c0.13		
v/c Ratio	0.13	0.20		0.07	0.39		0.16	0.18		0.67	0.27	
Uniform Delay, d1	5.3	5.6		5.1	6.5		29.9	30.0		33.4	30.6	
Progression Factor	0.68	0.70		0.33	0.37		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		0.2	0.5		0.3	0.3		6.9	0.4	
Delay (s)	4.3	4.1		1.9	2.9		30.2	30.3		40.2	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		4.1			2.8			30.2			36.4	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



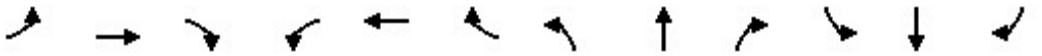
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	237	667	25	824	291	156	147	236
v/c Ratio	1.09	0.44	0.09	0.51	0.86	0.44	0.55	0.83
Control Delay	115.8	16.8	10.7	13.1	59.8	34.0	43.8	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	115.8	16.8	10.7	13.1	59.8	34.0	43.8	44.3
Queue Length 50th (m)	~51.2	40.2	1.5	52.1	50.7	23.5	24.8	22.0
Queue Length 95th (m)	#97.1	55.5	m3.4	52.9	#93.0	42.3	44.0	#60.1
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	218	1526	276	1603	355	370	294	302
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.44	0.09	0.51	0.82	0.42	0.50	0.78

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

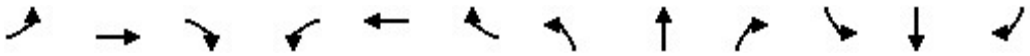
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	471	143	23	749	9	268	127	17	7	128	217
Future Volume (vph)	218	471	143	23	749	9	268	127	17	7	128	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	0.98	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1754	3295		1704	3527		1667	1711			1896	1348
Flt Permitted	0.26	1.00		0.34	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	479	3295		608	3527		1667	1711			1896	1348
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	237	512	155	25	814	10	291	138	18	8	139	236
RTOR Reduction (vph)	0	30	0	0	1	0	0	6	0	0	0	94
Lane Group Flow (vph)	237	637	0	25	823	0	291	150	0	0	147	142
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	40.9	40.9		40.9	40.9		18.2	18.2			12.8	12.8
Effective Green, g (s)	40.9	40.9		40.9	40.9		18.2	18.2			12.8	12.8
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	217	1497		276	1602		337	346			269	191
v/s Ratio Prot		0.19			0.23		c0.17	0.09			0.08	
v/s Ratio Perm	c0.49			0.04								c0.11
v/c Ratio	1.09	0.43		0.09	0.51		0.86	0.43			0.55	0.74
Uniform Delay, d1	24.6	16.6		14.0	17.5		34.7	31.4			35.9	37.0
Progression Factor	1.00	1.00		0.64	0.66		1.00	1.00			1.00	1.00
Incremental Delay, d2	87.9	0.9		0.6	1.1		19.8	0.9			2.3	14.3
Delay (s)	112.4	17.5		9.5	12.6		54.5	32.3			38.2	51.4
Level of Service	F	B		A	B		D	C			D	D
Approach Delay (s)		42.4			12.5			46.8			46.3	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

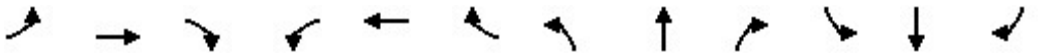
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	146	191	53	26	226	35	79	247	8	28	234	133
Future Volume (vph)	146	191	53	26	226	35	79	247	8	28	234	133
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	157	205	57	28	243	38	85	266	9	30	252	143

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	419	309	360	425
Volume Left (vph)	157	28	85	30
Volume Right (vph)	57	38	9	143
Hadj (s)	0.03	-0.02	0.09	-0.14
Departure Headway (s)	8.9	9.3	9.1	8.7
Degree Utilization, x	1.03	0.80	0.91	1.03
Capacity (veh/h)	402	378	386	409
Control Delay (s)	84.2	40.6	56.9	81.9
Approach Delay (s)	84.2	40.6	56.9	81.9
Approach LOS	F	E	F	F

Intersection Summary				
Delay	68.2			
Level of Service	F			
Intersection Capacity Utilization	86.7%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	9	43	3	36	5	318	78	14	326	2
Future Volume (Veh/h)	2	0	9	43	3	36	5	318	78	14	326	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	11	51	4	42	6	374	92	16	384	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	949	981	496	945	936	450	442			496		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	949	981	496	945	936	450	442			496		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	74	98	93	99			98		
cM capacity (veh/h)	196	228	504	200	240	593	959			1041		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	97	472	402
Volume Left	2	51	6	16
Volume Right	11	42	92	2
cSH	406	283	959	1041
Volume to Capacity	0.03	0.34	0.01	0.02
Queue Length 95th (m)	0.8	11.8	0.2	0.4
Control Delay (s)	14.2	24.2	0.2	0.5
Lane LOS	B	C	A	A
Approach Delay (s)	14.2	24.2	0.2	0.5
Approach LOS	B	C		

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	44.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	22	402	13	6	377
Future Volume (Veh/h)	16	22	402	13	6	377
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	16	23	414	13	6	389
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	886	450			457	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	886	450			457	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	96			99	
cM capacity (veh/h)	295	564			935	

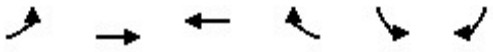
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	427	395
Volume Left	16	0	6
Volume Right	23	13	0
cSH	411	1700	935
Volume to Capacity	0.10	0.25	0.01
Queue Length 95th (m)	2.5	0.0	0.2
Control Delay (s)	14.7	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.7	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	14	1	1	0	22	21	0	1	16	5
Future Volume (Veh/h)	3	1	14	1	1	0	22	21	0	1	16	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	15	1	1	0	24	23	0	1	17	5
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	203	204	180	231	207	95	97			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	203	204	180	231	207	95	97			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	98			100		
cM capacity (veh/h)	630	617	750	585	615	905	1319			1496		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	19	2	47	23
Volume Left	3	1	24	1
Volume Right	15	0	0	5
cSH	720	599	1319	1496
Volume to Capacity	0.03	0.00	0.02	0.00
Queue Length 95th (m)	0.6	0.1	0.4	0.0
Control Delay (s)	10.1	11.0	4.0	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	11.0	4.0	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	62	38	38	89	29
Future Volume (Veh/h)	49	62	38	38	89	29
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	58	74	45	45	106	35
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	123				382	178
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	123				382	178
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				80	96
cM capacity (veh/h)	1424				534	786

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	132	90	141
Volume Left	58	0	106
Volume Right	0	45	35
cSH	1424	1700	581
Volume to Capacity	0.04	0.05	0.24
Queue Length 95th (m)	1.0	0.0	7.6
Control Delay (s)	3.5	0.0	13.2
Lane LOS	A		B
Approach Delay (s)	3.5	0.0	13.2
Approach LOS			B

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	32.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	84	15	43	48	3	29
Future Volume (Veh/h)	84	15	43	48	3	29
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	16	47	52	3	32
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	191	153			179	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191	153			179	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	98			100	
cM capacity (veh/h)	743	834			1304	

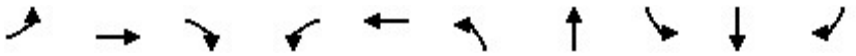
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	107	99	35
Volume Left	91	0	3
Volume Right	16	52	0
cSH	755	1700	1304
Volume to Capacity	0.14	0.06	0.00
Queue Length 95th (m)	3.9	0.0	0.1
Control Delay (s)	10.6	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	530	42	70	882	26	51
Future Volume (Veh/h)	530	42	70	882	26	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	546	43	72	909	27	53
Pedestrians	106			70	74	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	9			6	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			663		1346	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			626		1320	398
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			92		75	90
cM capacity (veh/h)			879		108	506

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	364	225	72	454	454	27	53
Volume Left	0	0	72	0	0	27	0
Volume Right	0	43	0	0	0	0	53
cSH	1700	1700	879	1700	1700	108	506
Volume to Capacity	0.21	0.13	0.08	0.27	0.27	0.25	0.10
Queue Length 95th (m)	0.0	0.0	2.1	0.0	0.0	7.3	2.8
Control Delay (s)	0.0	0.0	9.5	0.0	0.0	49.2	12.9
Lane LOS			A			E	B
Approach Delay (s)	0.0		0.7			25.2	
Approach LOS						D	

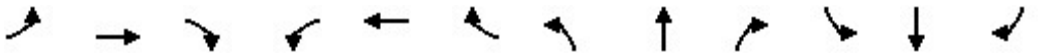
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	168	415	260	176	433	274	404	13	222	241
v/c Ratio	0.83	0.83	0.18	0.83	0.86	0.69	0.58	0.05	0.43	0.16
Control Delay	55.1	46.7	0.3	52.9	49.2	30.4	21.4	26.3	30.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	46.7	0.3	52.9	49.2	30.4	21.4	26.3	30.9	0.2
Queue Length 50th (m)	20.0	72.6	0.0	21.2	75.7	34.9	49.9	1.8	35.1	0.0
Queue Length 95th (m)	#47.5	#116.1	0.0	#46.0	#124.4	#59.6	81.9	6.6	57.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	202	562	1417	212	561	395	702	245	518	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.74	0.18	0.83	0.77	0.69	0.58	0.05	0.43	0.16

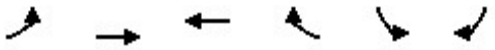
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	390	244	165	379	28	258	206	174	12	209	227
Future Volume (vph)	158	390	244	165	379	28	258	206	174	12	209	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.99	1.00		0.94	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1751	1853	1417	1671	1777		1691	1549		1578	1837	1477
Flt Permitted	0.23	1.00	1.00	0.22	1.00		0.44	1.00		0.52	1.00	1.00
Satd. Flow (perm)	429	1853	1417	394	1777		788	1549		871	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	168	415	260	176	403	30	274	219	185	13	222	241
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	168	415	260	176	430	0	274	373	0	13	222	241
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.1	24.9	92.1	32.1	25.9		40.1	40.1		26.1	26.1	92.1
Effective Green, g (s)	30.1	24.9	92.1	32.1	25.9		40.1	40.1		26.1	26.1	92.1
Actuated g/C Ratio	0.33	0.27	1.00	0.35	0.28		0.44	0.44		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	500	1417	223	499		413	674		246	520	1477
v/s Ratio Prot	0.04	0.22		c0.05	c0.24		0.05	c0.24			0.12	
v/s Ratio Perm	0.21		c0.18	0.22			c0.24			0.01		0.16
v/c Ratio	0.79	0.83	0.18	0.79	0.86		0.66	0.55		0.05	0.43	0.16
Uniform Delay, d1	26.7	31.6	0.0	24.8	31.4		20.3	19.3		24.0	26.9	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.5	10.9	0.3	16.2	14.2		3.6	1.0		0.1	0.6	0.2
Delay (s)	43.2	42.6	0.3	41.0	45.6		23.9	20.3		24.1	27.5	0.2
Level of Service	D	D	A	D	D		C	C		C	C	A
Approach Delay (s)		29.6			44.3			21.8			13.6	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	92.1	Sum of lost time (s)	27.7
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	791	754	138	0	86
Future Volume (Veh/h)	0	791	754	138	0	86
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	833	794	145	0	91
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.89	
vC, conflicting volume	1013				1362	544
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1013				1168	544
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	80
cM capacity (veh/h)	638				156	454

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	416	416	529	410	91
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	145	91
cSH	1700	1700	1700	1700	1700	454
Volume to Capacity	0.00	0.24	0.24	0.31	0.24	0.20
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	5.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.9
Lane LOS						B
Approach Delay (s)	0.0			0.0		14.9
Approach LOS						B

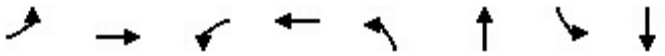
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	793	122	763	36	119
v/c Ratio	0.37	0.34	0.34	0.08	0.10
Control Delay	9.0	11.2	8.5	25.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	11.2	8.5	25.4	0.2
Queue Length 50th (m)	31.8	9.5	31.4	4.9	0.0
Queue Length 95th (m)	36.4	20.8	41.6	12.4	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2132	359	2217	491	1177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.34	0.34	0.07	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	679	74	116	725	34	113
Future Volume (vph)	679	74	116	725	34	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3389		1685	3539	1770	1241
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	3389		574	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	715	78	122	763	36	119
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	784	0	122	763	36	119
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2123		359	2217	472	1185
v/s Ratio Prot	c0.23			0.22	0.02	
v/s Ratio Perm			0.21			c0.10
v/c Ratio	0.37		0.34	0.34	0.08	0.10
Uniform Delay, d1	8.2		8.0	8.0	24.7	0.1
Progression Factor	1.07		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		2.6	0.4	0.1	0.1
Delay (s)	9.2		10.5	8.4	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	9.2			8.7	5.9	
Approach LOS	A			A	A	

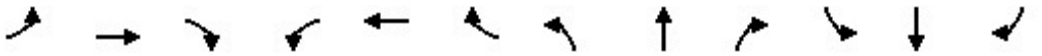
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	631	75	714	115	233	176	196
v/c Ratio	0.11	0.30	0.17	0.34	0.47	0.54	0.87	0.44
Control Delay	2.2	1.4	7.0	5.8	33.5	24.0	68.2	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	1.4	7.0	5.8	33.5	24.0	68.2	28.3
Queue Length 50th (m)	0.5	2.7	3.0	8.2	17.6	25.5	30.2	27.7
Queue Length 95th (m)	m1.2	5.3	7.2	20.7	29.7	41.7	49.7	41.1
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	367	2090	444	2090	436	726	361	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.30	0.17	0.34	0.26	0.32	0.49	0.25

Intersection Summary

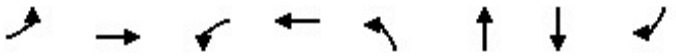
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	476	130	72	561	125	110	115	108	169	159	29
Future Volume (vph)	38	476	130	72	561	125	110	115	108	169	159	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.96	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1536	3307		1678	3312		1692	1585		1607	1795	
Flt Permitted	0.36	1.00		0.40	1.00		0.57	1.00		0.50	1.00	
Satd. Flow (perm)	581	3307		704	3312		1009	1585		841	1795	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	496	135	75	584	130	115	120	112	176	166	30
RTOR Reduction (vph)	0	18	0	0	14	0	0	50	0	0	10	0
Lane Group Flow (vph)	40	613	0	75	700	0	115	183	0	176	186	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	56.5	56.5		56.5	56.5		21.8	21.8		21.8	21.8	
Effective Green, g (s)	56.5	56.5		56.5	56.5		21.8	21.8		21.8	21.8	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	364	2076		441	2079		244	383		203	434	
v/s Ratio Prot		0.19			c0.21			0.12			0.10	
v/s Ratio Perm	0.07			0.11			0.11			c0.21		
v/c Ratio	0.11	0.30		0.17	0.34		0.47	0.48		0.87	0.43	
Uniform Delay, d1	6.7	7.7		7.0	7.9		29.2	29.2		32.7	28.8	
Progression Factor	0.18	0.13		0.64	0.62		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		0.8	0.4		1.4	0.9		29.9	0.7	
Delay (s)	1.7	1.3		5.3	5.3		30.6	30.2		62.6	29.5	
Level of Service	A	A		A	A		C	C		E	C	
Approach Delay (s)		1.3			5.3			30.3			45.2	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

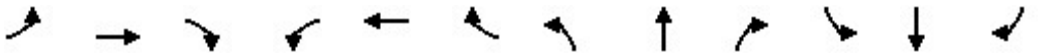
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	202	904	22	725	232	145	153	204
v/c Ratio	0.77	0.59	0.11	0.44	0.76	0.46	0.55	0.66
Control Delay	43.7	18.3	17.1	16.9	51.3	33.6	43.2	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.7	18.3	17.1	16.9	51.3	33.6	43.2	23.8
Queue Length 50th (m)	30.7	57.3	2.0	33.8	39.8	20.8	25.9	10.7
Queue Length 95th (m)	#74.2	80.2	7.7	57.7	64.0	38.3	45.6	34.3
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	264	1543	194	1655	355	363	297	321
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.59	0.11	0.44	0.65	0.40	0.52	0.64

Intersection Summary

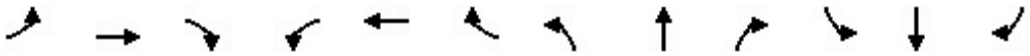
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	188	593	247	20	667	7	216	104	31	8	134	190
Future Volume (vph)	188	593	247	20	667	7	216	104	31	8	134	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.93		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.95	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1700	3188		1702	3525		1667	1647			1913	1312
Flt Permitted	0.31	1.00		0.23	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	561	3188		413	3525		1667	1647			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	202	638	266	22	717	8	232	112	33	9	144	204
RTOR Reduction (vph)	0	47	0	0	1	0	0	12	0	0	0	119
Lane Group Flow (vph)	202	857	0	22	724	0	232	133	0	0	153	85
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.3	42.3		42.3	42.3		16.4	16.4			13.2	13.2
Effective Green, g (s)	42.3	42.3		42.3	42.3		16.4	16.4			13.2	13.2
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	263	1498		194	1656		303	300			280	192
v/s Ratio Prot		0.27			0.21		c0.14	0.08			c0.08	
v/s Ratio Perm	c0.36			0.05								0.07
v/c Ratio	0.77	0.57		0.11	0.44		0.77	0.44			0.55	0.44
Uniform Delay, d1	19.8	17.3		13.4	15.9		35.0	32.7			35.6	35.1
Progression Factor	1.00	1.00		0.99	0.95		1.00	1.00			1.00	1.00
Incremental Delay, d2	19.2	1.6		1.1	0.8		11.0	1.0			2.2	1.6
Delay (s)	38.9	18.9		14.3	15.9		45.9	33.8			37.8	36.7
Level of Service	D	B		B	B		D	C			D	D
Approach Delay (s)		22.5			15.9			41.3			37.2	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

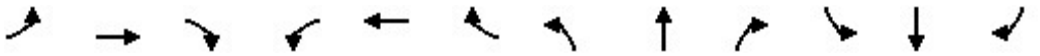
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	93	258	77	27	201	46	53	201	13	38	188	79
Future Volume (vph)	93	258	77	27	201	46	53	201	13	38	188	79
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	102	284	85	30	221	51	58	221	14	42	207	87

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	471	302	293	336
Volume Left (vph)	102	30	58	42
Volume Right (vph)	85	51	14	87
Hadj (s)	-0.03	-0.05	0.04	-0.09
Departure Headway (s)	7.7	8.3	8.5	8.2
Degree Utilization, x	1.00	0.69	0.69	0.76
Capacity (veh/h)	471	424	415	432
Control Delay (s)	70.4	27.9	28.1	32.7
Approach Delay (s)	70.4	27.9	28.1	32.7
Approach LOS	F	D	D	D

Intersection Summary				
Delay	43.4			
Level of Service	E			
Intersection Capacity Utilization	72.6%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	39	6	28	8	233	118	12	266	2
Future Volume (Veh/h)	2	2	3	39	6	28	8	233	118	12	266	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	47	7	34	10	281	142	14	320	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	872	912	468	831	842	424	403			462		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	872	912	468	831	842	424	403			462		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	80	97	94	99			99		
cM capacity (veh/h)	172	242	525	236	265	592	1078			1063		

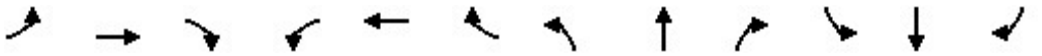
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	88	433	336
Volume Left	2	47	10	14
Volume Right	4	34	142	2
cSH	291	311	1078	1063
Volume to Capacity	0.03	0.28	0.01	0.01
Queue Length 95th (m)	0.7	9.1	0.2	0.3
Control Delay (s)	17.7	21.1	0.3	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	17.7	21.1	0.3	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	42.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	15	253	15	5	270
Future Volume (Veh/h)	12	15	253	15	5	270
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	17	21	356	21	7	380
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	838	430			407	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	838	430			407	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	96			99	
cM capacity (veh/h)	312	591			1123	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	377	387
Volume Left	17	0	7
Volume Right	21	21	0
cSH	423	1700	1123
Volume to Capacity	0.09	0.22	0.01
Queue Length 95th (m)	2.4	0.0	0.2
Control Delay (s)	14.4	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.4	0.0	0.2
Approach LOS	B		

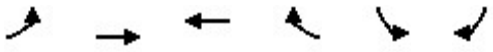
Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		35.0%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	5	1	0	0	18	12	1	0	6	6
Future Volume (Veh/h)	3	1	5	1	0	0	18	12	1	0	6	6
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	6	1	0	0	23	16	1	0	8	8
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	224	225	193	176	228	80	134			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	224	225	193	176	228	80	134			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	98			100		
cM capacity (veh/h)	574	581	725	642	579	928	1308			1516		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	1	40	16
Volume Left	4	1	23	0
Volume Right	6	0	1	8
cSH	648	642	1308	1516
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.4	0.0
Control Delay (s)	10.6	10.6	4.5	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	10.6	4.5	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	63	72	42	45	44	27
Future Volume (Veh/h)	63	72	42	45	44	27
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	82	94	55	58	57	35
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	162				474	398
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	162				474	398
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				88	93
cM capacity (veh/h)	1359				461	487

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	176	113	92
Volume Left	82	0	57
Volume Right	0	58	35
cSH	1359	1700	471
Volume to Capacity	0.06	0.07	0.20
Queue Length 95th (m)	1.5	0.0	5.7
Control Delay (s)	3.9	0.0	14.5
Lane LOS	A		B
Approach Delay (s)	3.9	0.0	14.5
Approach LOS			B

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	9	31	82	4	8
Future Volume (Veh/h)	54	9	31	82	4	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	10	34	89	4	9
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	226	208			253	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	226	208			253	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	99			100	
cM capacity (veh/h)	678	742			1170	

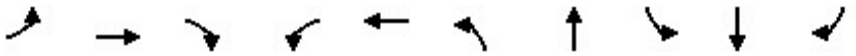
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	123	13
Volume Left	59	0	4
Volume Right	10	89	0
cSH	686	1700	1170
Volume to Capacity	0.10	0.07	0.00
Queue Length 95th (m)	2.7	0.0	0.1
Control Delay (s)	10.8	0.0	2.5
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	2.5
Approach LOS	B		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	679	74	116	725	34	113
Future Volume (Veh/h)	679	74	116	725	34	113
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	715	78	122	763	36	119
Pedestrians	166			199	91	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	14			17	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			884		1636	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			780		1570	573
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		44	65
cM capacity (veh/h)			734		64	340

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	477	316	122	382	382	36	119
Volume Left	0	0	122	0	0	36	0
Volume Right	0	78	0	0	0	0	119
cSH	1700	1700	734	1700	1700	64	340
Volume to Capacity	0.28	0.19	0.17	0.22	0.22	0.56	0.35
Queue Length 95th (m)	0.0	0.0	4.7	0.0	0.0	18.5	12.3
Control Delay (s)	0.0	0.0	10.9	0.0	0.0	117.0	21.2
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.5			43.4	
Approach LOS						E	

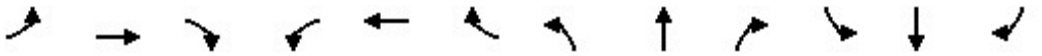
Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	289	185	181	483	256	406	51	305	294
v/c Ratio	0.70	0.52	0.13	0.57	0.90	0.81	0.60	0.22	0.63	0.19
Control Delay	45.8	35.9	0.2	28.0	53.5	40.9	21.8	27.3	35.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	35.9	0.2	28.0	53.5	40.9	21.8	27.3	35.0	0.3
Queue Length 50th (m)	17.3	37.7	0.0	21.3	85.3	30.1	47.4	7.0	47.0	0.0
Queue Length 95th (m)	#39.1	80.6	0.0	36.5	#149.0	#61.2	76.7	16.7	73.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	197	560	1415	320	535	318	717	253	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.52	0.13	0.57	0.90	0.81	0.57	0.20	0.56	0.19

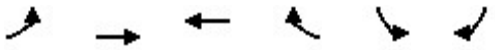
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	275	176	172	417	42	243	229	157	48	290	279
Future Volume (vph)	130	275	176	172	417	42	243	229	157	48	290	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00		0.98	1.00		0.89	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1735	1872	1415	1667	1781		1769	1600		1593	1872	1530
Flt Permitted	0.18	1.00	1.00	0.46	1.00		0.31	1.00		0.52	1.00	1.00
Satd. Flow (perm)	336	1872	1415	807	1781		585	1600		878	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	289	185	181	439	44	256	241	165	51	305	294
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	137	289	185	181	479	0	256	378	0	51	305	294
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.3	26.9	90.0	32.3	26.9		36.8	36.8		23.4	23.4	90.0
Effective Green, g (s)	32.3	26.9	90.0	32.3	26.9		36.8	36.8		23.4	23.4	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	204	559	1415	341	532		326	654		228	486	1530
v/s Ratio Prot	c0.04	0.15		0.03	c0.27		c0.06	0.24			0.16	
v/s Ratio Perm	0.20		0.13	0.16			c0.26			0.06		0.19
v/c Ratio	0.67	0.52	0.13	0.53	0.90		0.79	0.58		0.22	0.63	0.19
Uniform Delay, d1	21.9	26.2	0.0	22.1	30.3		22.8	20.6		26.2	29.4	0.0
Progression Factor	1.34	1.19	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.5	3.3	0.2	1.2	20.8		11.3	1.2		0.5	2.5	0.3
Delay (s)	36.9	34.4	0.2	23.3	51.1		34.1	21.8		26.7	32.0	0.3
Level of Service	D	C	A	C	D		C	C		C	C	A
Approach Delay (s)		24.6			43.5			26.6			17.2	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	54	581	834	137	0	101
Future Volume (Veh/h)	54	581	834	137	0	101
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	56	605	869	143	0	105
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	1055				1399	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055				1291	549
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				100	77
cM capacity (veh/h)	632				127	462

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	56	302	302	579	433	105
Volume Left	56	0	0	0	0	0
Volume Right	0	0	0	0	143	105
cSH	632	1700	1700	1700	1700	462
Volume to Capacity	0.09	0.18	0.18	0.34	0.25	0.23
Queue Length 95th (m)	2.3	0.0	0.0	0.0	0.0	6.9
Control Delay (s)	11.2	0.0	0.0	0.0	0.0	15.1
Lane LOS	B					C
Approach Delay (s)	1.0			0.0		15.1
Approach LOS						C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

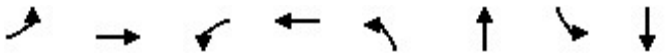
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	645	72	892	27	53
v/c Ratio	0.27	0.15	0.36	0.06	0.04
Control Delay	4.2	7.1	6.6	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	7.1	6.6	25.2	0.1
Queue Length 50th (m)	21.5	4.1	29.9	3.7	0.0
Queue Length 95th (m)	15.8	m6.6	m37.5	10.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2371	496	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.15	0.36	0.06	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	584	42	70	865	26	51
Future Volume (vph)	584	42	70	865	26	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3375		1679	3539	1656	1355
Flt Permitted	1.00		0.40	1.00	0.95	1.00
Satd. Flow (perm)	3375		706	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	602	43	72	892	27	53
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	640	0	72	892	27	53
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2295		480	2406	353	1294
v/s Ratio Prot	0.19			c0.25	c0.02	
v/s Ratio Perm			0.10			0.04
v/c Ratio	0.28		0.15	0.37	0.08	0.04
Uniform Delay, d1	5.7		5.1	6.2	28.3	0.1
Progression Factor	0.59		0.90	0.85	1.00	1.00
Incremental Delay, d2	0.3		0.5	0.4	0.2	0.0
Delay (s)	3.6		5.2	5.6	28.5	0.1
Level of Service	A		A	A	C	A
Approach Delay (s)	3.6			5.5	9.7	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	516	40	868	38	85	162	114
v/c Ratio	0.13	0.23	0.07	0.38	0.16	0.23	0.67	0.31
Control Delay	1.6	0.8	2.7	3.2	28.6	19.6	45.9	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.6	0.8	2.7	3.2	28.6	19.6	45.9	25.0
Queue Length 50th (m)	0.0	0.0	1.2	3.5	5.8	8.0	27.7	14.4
Queue Length 95th (m)	m1.0	2.4	1.2	0.0	13.1	18.6	44.6	26.6
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	366	2275	555	2272	420	605	421	628
Starvation Cap Reductn	0	0	0	215	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.23	0.07	0.42	0.09	0.14	0.38	0.18

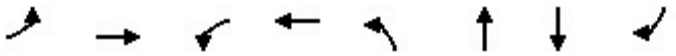
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	434	72	39	693	158	37	51	32	159	82	29
Future Volume (vph)	46	434	72	39	693	158	37	51	32	159	82	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.98	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	3373		1702	3363		1697	1688		1657	1778	
Flt Permitted	0.30	1.00		0.46	1.00		0.68	1.00		0.70	1.00	
Satd. Flow (perm)	544	3373		826	3363		1221	1688		1224	1778	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	443	73	40	707	161	38	52	33	162	84	30
RTOR Reduction (vph)	0	10	0	0	15	0	0	26	0	0	18	0
Lane Group Flow (vph)	47	506	0	40	853	0	38	59	0	162	96	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	365	2267		555	2260		241	333		242	351	
v/s Ratio Prot		0.15			c0.25			0.03			0.05	
v/s Ratio Perm	0.09			0.05			0.03			c0.13		
v/c Ratio	0.13	0.22		0.07	0.38		0.16	0.18		0.67	0.27	
Uniform Delay, d1	5.3	5.7		5.1	6.5		29.9	30.0		33.4	30.6	
Progression Factor	0.13	0.09		0.36	0.39		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		0.2	0.5		0.3	0.3		6.9	0.4	
Delay (s)	1.3	0.7		2.1	3.0		30.2	30.3		40.2	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		0.8			2.9			30.2			36.4	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

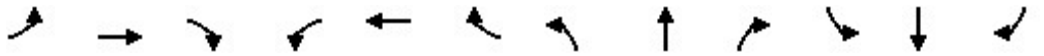
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	178	726	25	806	291	156	147	254
v/c Ratio	0.62	0.47	0.11	0.70	0.85	0.44	0.56	0.66
Control Delay	25.7	17.7	25.0	29.8	57.6	33.6	44.6	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	17.7	25.0	29.8	57.6	33.6	44.6	16.3
Queue Length 50th (m)	19.6	47.1	2.8	58.2	49.6	23.0	24.8	4.3
Queue Length 95th (m)	#35.6	62.2	m8.5	70.0	#92.7	42.2	44.0	28.5
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	285	1540	222	1166	362	377	294	401
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.47	0.11	0.69	0.80	0.41	0.50	0.63

Intersection Summary

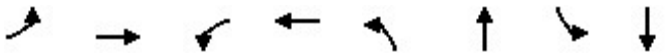
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	525	143	23	732	9	268	127	17	7	128	234
Future Volume (vph)	164	525	143	23	732	9	268	127	17	7	128	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	1.00	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1792	3313		1698	3526		1667	1711			1896	1347
Flt Permitted	0.18	1.00		0.38	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	330	3313		672	3526		1667	1711			1896	1347
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	571	155	25	796	10	291	138	18	8	139	254
RTOR Reduction (vph)	0	26	0	0	1	0	0	6	0	0	0	195
Lane Group Flow (vph)	178	700	0	25	805	0	291	150	0	0	147	59
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	40.9	40.9		29.5	29.5		18.5	18.5			12.5	12.5
Effective Green, g (s)	40.9	40.9		29.5	29.5		18.5	18.5			12.5	12.5
Actuated g/C Ratio	0.45	0.45		0.33	0.33		0.21	0.21			0.14	0.14
Clearance Time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	278	1505		220	1155		342	351			263	187
v/s Ratio Prot	c0.06	0.21			c0.23		c0.17	0.09			c0.08	
v/s Ratio Perm	0.23			0.04								0.04
v/c Ratio	0.64	0.46		0.11	0.70		0.85	0.43			0.56	0.31
Uniform Delay, d1	16.9	17.0		21.1	26.4		34.4	31.1			36.2	34.9
Progression Factor	1.00	1.00		1.03	0.97		1.00	1.00			1.00	1.00
Incremental Delay, d2	5.0	1.0		1.0	3.4		18.0	0.8			2.6	1.0
Delay (s)	21.9	18.0		22.7	28.8		52.4	32.0			38.7	35.8
Level of Service	C	B		C	C		D	C			D	D
Approach Delay (s)		18.8			28.6			45.3			36.9	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



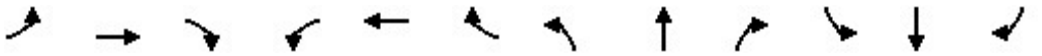
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	157	262	28	281	85	217	30	413
v/c Ratio	0.43	0.42	0.08	0.47	0.28	0.30	0.08	0.60
Control Delay	14.6	11.6	10.0	12.7	11.3	9.6	8.6	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	11.6	10.0	12.7	11.3	9.6	8.6	12.6
Queue Length 50th (m)	6.8	10.4	1.1	11.9	3.2	8.1	1.0	15.9
Queue Length 95th (m)	24.3	32.2	5.9	36.1	13.5	25.5	5.6	48.5
Internal Link Dist (m)		457.4		138.8		129.7		79.8
Turn Bay Length (m)	30.0		30.0		30.0		30.0	
Base Capacity (vph)	965	1634	920	1575	757	1743	970	1638
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.16	0.03	0.18	0.11	0.12	0.03	0.25

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	191	53	26	226	35	79	193	8	28	251	133
Future Volume (vph)	146	191	53	26	226	35	79	193	8	28	251	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			9%			0%			-3%	
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	0.97	1.00		0.97	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1751	1798		1645	1725		1710	1820		1597	1746	
Flt Permitted	0.59	1.00		0.60	1.00		0.45	1.00		0.62	1.00	
Satd. Flow (perm)	1082	1798		1034	1725		808	1820		1046	1746	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	157	205	57	28	243	38	85	208	9	30	270	143
RTOR Reduction (vph)	0	12	0	0	7	0	0	2	0	0	25	0
Lane Group Flow (vph)	157	250	0	28	274	0	85	215	0	30	388	0
Confl. Peds. (#/hr)	37		38	38		37	45		32	32		45
Confl. Bikes (#/hr)			21			20			11			12
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	14%	12%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.8	12.8		12.8	12.8		14.5	14.5		14.5	14.5	
Effective Green, g (s)	12.8	12.8		12.8	12.8		14.5	14.5		14.5	14.5	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.40	0.40		0.40	0.40	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	381	634		364	608		322	726		417	697	
v/s Ratio Prot		0.14			c0.16			0.12			c0.22	
v/s Ratio Perm	0.15			0.03			0.11			0.03		
v/c Ratio	0.41	0.39		0.08	0.45		0.26	0.30		0.07	0.56	
Uniform Delay, d1	8.9	8.8		7.8	9.0		7.3	7.4		6.7	8.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.4		0.1	0.5		0.4	0.2		0.1	1.0	
Delay (s)	9.6	9.2		7.9	9.6		7.8	7.7		6.8	9.4	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		9.4			9.4			7.7			9.2	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	36.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	9	61	3	36	5	318	25	14	326	2
Future Volume (Veh/h)	2	0	9	61	3	36	5	318	25	14	326	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	11	72	4	42	6	374	29	16	384	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								104				
pX, platoon unblocked	0.96	0.96		0.96	0.96	0.96				0.96		
vC, conflicting volume	918	918	496	914	904	418	442			433		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	892	893	496	888	879	372	442			387		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	66	98	93	99			99		
cM capacity (veh/h)	207	246	504	210	249	630	959			1095		

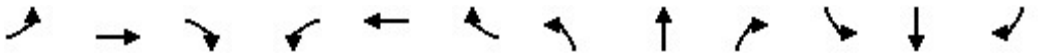
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	118	409	402
Volume Left	2	72	6	16
Volume Right	11	42	29	2
cSH	413	277	959	1095
Volume to Capacity	0.03	0.43	0.01	0.01
Queue Length 95th (m)	0.8	16.2	0.2	0.4
Control Delay (s)	14.0	27.3	0.2	0.5
Lane LOS	B	D	A	A
Approach Delay (s)	14.0	27.3	0.2	0.5
Approach LOS	B	D		

Intersection Summary				
Average Delay	3.9			
Intersection Capacity Utilization	44.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	22	402	13	6	377
Future Volume (Veh/h)	16	22	402	13	6	377
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	16	23	414	13	6	389
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			305			
pX, platoon unblocked						
vC, conflicting volume	886	450			457	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	886	450			457	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	96			99	
cM capacity (veh/h)	295	564			935	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	427	395
Volume Left	16	0	6
Volume Right	23	13	0
cSH	411	1700	935
Volume to Capacity	0.10	0.25	0.01
Queue Length 95th (m)	2.5	0.0	0.2
Control Delay (s)	14.7	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.7	0.0	0.2
Approach LOS	B		

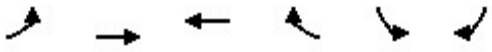
Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		34.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	14	1	1	0	22	21	0	1	16	5
Future Volume (Veh/h)	3	1	14	1	1	0	22	21	0	1	16	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	15	1	1	0	24	23	0	1	17	5
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	203	204	180	231	207	95	97			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	203	204	180	231	207	95	97			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	98			100		
cM capacity (veh/h)	630	617	750	585	615	905	1319			1496		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	19	2	47	23
Volume Left	3	1	24	1
Volume Right	15	0	0	5
cSH	720	599	1319	1496
Volume to Capacity	0.03	0.00	0.02	0.00
Queue Length 95th (m)	0.6	0.1	0.4	0.0
Control Delay (s)	10.1	11.0	4.0	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	11.0	4.0	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	32	63	66	72	46
Future Volume (Veh/h)	25	32	63	66	72	46
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	30	38	75	79	86	55
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	187				338	226
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	187				338	226
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				85	93
cM capacity (veh/h)	1349				578	740

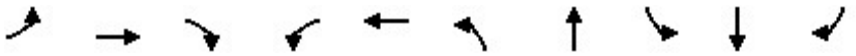
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	68	154	141
Volume Left	30	0	86
Volume Right	0	79	55
cSH	1349	1700	632
Volume to Capacity	0.02	0.09	0.22
Queue Length 95th (m)	0.5	0.0	6.8
Control Delay (s)	3.5	0.0	12.3
Lane LOS	A		B
Approach Delay (s)	3.5	0.0	12.3
Approach LOS			B

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	84	15	43	48	3	29
Future Volume (Veh/h)	84	15	43	48	3	29
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	16	47	52	3	32
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	191	153			179	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191	153			179	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	98			100	
cM capacity (veh/h)	743	834			1304	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	107	99	35
Volume Left	91	0	3
Volume Right	16	52	0
cSH	755	1700	1304
Volume to Capacity	0.14	0.06	0.00
Queue Length 95th (m)	3.9	0.0	0.1
Control Delay (s)	10.6	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	0.7
Approach LOS	B		

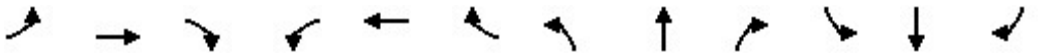
Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	168	415	260	176	433	274	404	13	222	241
v/c Ratio	0.83	0.83	0.18	0.83	0.86	0.69	0.58	0.05	0.43	0.16
Control Delay	55.1	46.7	0.3	52.9	49.2	30.4	21.4	26.3	30.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	46.7	0.3	52.9	49.2	30.4	21.4	26.3	30.9	0.2
Queue Length 50th (m)	20.0	72.6	0.0	21.2	75.7	34.9	49.9	1.8	35.1	0.0
Queue Length 95th (m)	#47.5	#116.1	0.0	#46.0	#124.4	#59.6	81.9	6.6	57.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	202	562	1417	212	561	395	702	245	518	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.74	0.18	0.83	0.77	0.69	0.58	0.05	0.43	0.16

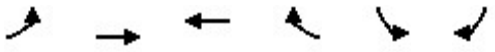
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	390	244	165	379	28	258	206	174	12	209	227
Future Volume (vph)	158	390	244	165	379	28	258	206	174	12	209	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.99	1.00		0.94	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1751	1853	1417	1671	1777		1691	1549		1578	1837	1477
Flt Permitted	0.23	1.00	1.00	0.22	1.00		0.44	1.00		0.52	1.00	1.00
Satd. Flow (perm)	429	1853	1417	394	1777		788	1549		871	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	168	415	260	176	403	30	274	219	185	13	222	241
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	168	415	260	176	430	0	274	373	0	13	222	241
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.1	24.9	92.1	32.1	25.9		40.1	40.1		26.1	26.1	92.1
Effective Green, g (s)	30.1	24.9	92.1	32.1	25.9		40.1	40.1		26.1	26.1	92.1
Actuated g/C Ratio	0.33	0.27	1.00	0.35	0.28		0.44	0.44		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	500	1417	223	499		413	674		246	520	1477
v/s Ratio Prot	0.04	0.22		c0.05	c0.24		0.05	c0.24			0.12	
v/s Ratio Perm	0.21		c0.18	0.22			c0.24			0.01		0.16
v/c Ratio	0.79	0.83	0.18	0.79	0.86		0.66	0.55		0.05	0.43	0.16
Uniform Delay, d1	26.7	31.6	0.0	24.8	31.4		20.3	19.3		24.0	26.9	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.5	10.9	0.3	16.2	14.2		3.6	1.0		0.1	0.6	0.2
Delay (s)	43.2	42.6	0.3	41.0	45.6		23.9	20.3		24.1	27.5	0.2
Level of Service	D	D	A	D	D		C	C		C	C	A
Approach Delay (s)		29.6			44.3			21.8			13.6	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	92.1	Sum of lost time (s)	27.7
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	66	791	754	138	0	75
Future Volume (Veh/h)	66	791	754	138	0	75
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	69	833	794	145	0	79
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.88	
vC, conflicting volume	1013				1500	544
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1013				1305	544
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				100	83
cM capacity (veh/h)	638				112	454

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	69	416	416	529	410	79
Volume Left	69	0	0	0	0	0
Volume Right	0	0	0	0	145	79
cSH	638	1700	1700	1700	1700	454
Volume to Capacity	0.11	0.24	0.24	0.31	0.24	0.17
Queue Length 95th (m)	2.9	0.0	0.0	0.0	0.0	5.0
Control Delay (s)	11.3	0.0	0.0	0.0	0.0	14.6
Lane LOS	B					B
Approach Delay (s)	0.9			0.0		14.6
Approach LOS						B

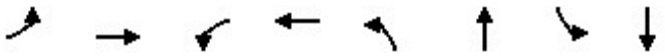
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	862	122	752	36	119
v/c Ratio	0.40	0.37	0.34	0.08	0.10
Control Delay	9.0	12.2	8.5	25.4	0.2
Queue Delay	0.2	0.0	0.0	0.0	0.0
Total Delay	9.2	12.2	8.5	25.4	0.2
Queue Length 50th (m)	32.1	9.8	30.8	4.9	0.0
Queue Length 95th (m)	36.4	22.0	41.0	12.4	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2137	329	2217	491	1177
Starvation Cap Reductn	462	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.37	0.34	0.07	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	745	74	116	714	34	113
Future Volume (vph)	745	74	116	714	34	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.96	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3399		1695	3539	1770	1241
Flt Permitted	1.00		0.30	1.00	0.95	1.00
Satd. Flow (perm)	3399		527	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	784	78	122	752	36	119
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	854	0	122	752	36	119
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2130		330	2217	472	1185
v/s Ratio Prot	c0.25			0.21	0.02	
v/s Ratio Perm			0.23			c0.10
v/c Ratio	0.40		0.37	0.34	0.08	0.10
Uniform Delay, d1	8.4		8.2	8.0	24.7	0.1
Progression Factor	1.03		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		3.2	0.4	0.1	0.1
Delay (s)	9.2		11.3	8.4	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	9.2			8.8	5.9	
Approach LOS	A			A	A	

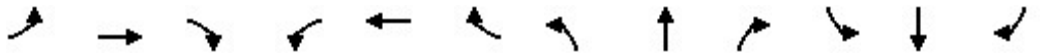
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	700	75	703	115	233	176	196
v/c Ratio	0.11	0.33	0.18	0.34	0.47	0.54	0.87	0.44
Control Delay	3.5	3.0	7.8	6.2	33.5	24.0	68.2	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.5	3.0	7.8	6.2	33.5	24.0	68.2	28.3
Queue Length 50th (m)	0.6	4.4	3.0	8.1	17.6	25.5	30.2	27.7
Queue Length 95th (m)	m1.5	9.1	8.8	25.6	29.7	41.7	49.7	41.1
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	372	2100	410	2086	436	726	361	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.33	0.18	0.34	0.26	0.32	0.49	0.25

Intersection Summary

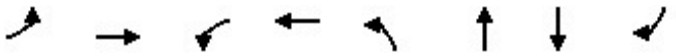
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	542	130	72	550	125	110	115	108	169	159	29
Future Volume (vph)	38	542	130	72	550	125	110	115	108	169	159	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.96	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1534	3328		1689	3308		1692	1585		1607	1795	
Flt Permitted	0.36	1.00		0.37	1.00		0.57	1.00		0.50	1.00	
Satd. Flow (perm)	588	3328		650	3308		1009	1585		841	1795	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	565	135	75	573	130	115	120	112	176	166	30
RTOR Reduction (vph)	0	15	0	0	14	0	0	50	0	0	10	0
Lane Group Flow (vph)	40	685	0	75	689	0	115	183	0	176	186	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	56.5	56.5		56.5	56.5		21.8	21.8		21.8	21.8	
Effective Green, g (s)	56.5	56.5		56.5	56.5		21.8	21.8		21.8	21.8	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	369	2089		408	2076		244	383		203	434	
v/s Ratio Prot		0.21			c0.21			0.12			0.10	
v/s Ratio Perm	0.07			0.12			0.11			c0.21		
v/c Ratio	0.11	0.33		0.18	0.33		0.47	0.48		0.87	0.43	
Uniform Delay, d1	6.7	7.9		7.0	7.9		29.2	29.2		32.7	28.8	
Progression Factor	0.32	0.31		0.69	0.66		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		1.0	0.4		1.4	0.9		29.9	0.7	
Delay (s)	2.6	2.7		5.8	5.6		30.6	30.2		62.6	29.5	
Level of Service	A	A		A	A		C	C		E	C	
Approach Delay (s)		2.7			5.6			30.3			45.2	
Approach LOS		A			A			C			D	

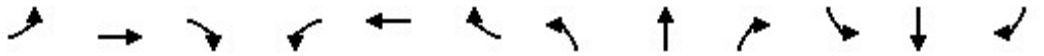
Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	131	975	22	713	232	145	153	216
v/c Ratio	0.40	0.63	0.13	0.59	0.75	0.46	0.54	0.57
Control Delay	17.7	19.8	21.4	22.5	50.1	33.2	43.1	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	19.8	21.4	22.5	50.1	33.2	43.1	11.7
Queue Length 50th (m)	13.0	65.2	1.9	42.9	39.8	20.8	25.9	0.0
Queue Length 95th (m)	24.7	90.6	6.4	60.4	63.9	38.2	45.6	20.3
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	328	1546	168	1216	360	368	298	387
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.63	0.13	0.59	0.64	0.39	0.51	0.56

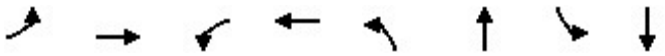
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	659	247	20	656	7	216	104	31	8	134	201
Future Volume (vph)	122	659	247	20	656	7	216	104	31	8	134	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.94		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.99	1.00		0.95	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1782	3214		1689	3524		1667	1647			1913	1312
Flt Permitted	0.23	1.00		0.27	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	436	3214		485	3524		1667	1647			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	131	709	266	22	705	8	232	112	33	9	144	216
RTOR Reduction (vph)	0	40	0	0	1	0	0	12	0	0	0	184
Lane Group Flow (vph)	131	935	0	22	712	0	232	133	0	0	153	32
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.9	41.9		30.7	30.7		16.7	16.7			13.3	13.3
Effective Green, g (s)	41.9	41.9		30.7	30.7		16.7	16.7			13.3	13.3
Actuated g/C Ratio	0.47	0.47		0.34	0.34		0.19	0.19			0.15	0.15
Clearance Time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	318	1496		165	1202		309	305			282	193
v/s Ratio Prot	0.04	c0.29			0.20		c0.14	0.08			c0.08	
v/s Ratio Perm	0.16			0.05								0.02
v/c Ratio	0.41	0.62		0.13	0.59		0.75	0.44			0.54	0.17
Uniform Delay, d1	15.1	18.1		20.5	24.5		34.7	32.5			35.5	33.5
Progression Factor	1.00	1.00		0.82	0.79		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.9	2.0		1.6	2.1		9.8	1.0			2.1	0.4
Delay (s)	16.0	20.1		18.4	21.5		44.5	33.5			37.7	33.9
Level of Service	B	C		B	C		D	C			D	C
Approach Delay (s)		19.6			21.4			40.3			35.5	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



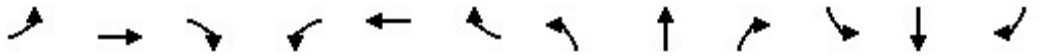
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	102	369	30	272	58	162	42	306
v/c Ratio	0.27	0.54	0.09	0.42	0.17	0.26	0.11	0.50
Control Delay	10.1	11.5	8.4	10.1	10.2	9.7	9.5	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.1	11.5	8.4	10.1	10.2	9.7	9.5	12.0
Queue Length 50th (m)	3.6	13.7	1.0	9.5	2.1	5.8	1.5	11.3
Queue Length 95th (m)	13.3	38.5	5.1	28.2	9.3	19.0	7.2	34.3
Internal Link Dist (m)		457.4		138.8		129.7		79.8
Turn Bay Length (m)	30.0		30.0		30.0		30.0	
Base Capacity (vph)	977	1728	837	1627	944	1745	1060	1653
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.21	0.04	0.17	0.06	0.09	0.04	0.19

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	258	77	27	201	46	53	135	13	38	199	79
Future Volume (vph)	93	258	77	27	201	46	53	135	13	38	199	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			9%			0%			-3%	
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.99		1.00	0.97	
Flpb, ped/bikes	0.95	1.00		0.98	1.00		0.96	1.00		0.96	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1715	1792		1649	1695		1705	1826		1711	1764	
Flt Permitted	0.59	1.00		0.51	1.00		0.57	1.00		0.65	1.00	
Satd. Flow (perm)	1068	1792		879	1695		1030	1826		1179	1764	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	102	284	85	30	221	51	58	148	14	42	219	87
RTOR Reduction (vph)	0	14	0	0	10	0	0	5	0	0	18	0
Lane Group Flow (vph)	102	355	0	30	262	0	58	157	0	42	288	0
Confl. Peds. (#/hr)	71		44	44		71	60		51	51		60
Confl. Bikes (#/hr)			20			22			12			15
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.9	12.9		12.9	12.9		11.7	11.7		11.7	11.7	
Effective Green, g (s)	12.9	12.9		12.9	12.9		11.7	11.7		11.7	11.7	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.35	0.35		0.35	0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	410	688		337	650		358	635		410	614	
v/s Ratio Prot		c0.20			0.15			0.09			c0.16	
v/s Ratio Perm	0.10			0.03			0.06			0.04		
v/c Ratio	0.25	0.52		0.09	0.40		0.16	0.25		0.10	0.47	
Uniform Delay, d1	7.0	8.0		6.6	7.5		7.6	7.8		7.4	8.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.7		0.1	0.4		0.2	0.2		0.1	0.6	
Delay (s)	7.4	8.6		6.7	8.0		7.8	8.0		7.5	9.1	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		8.3			7.8			8.0			8.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	33.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	50	6	28	8	233	51	12	266	2
Future Volume (Veh/h)	2	2	3	50	6	28	8	233	51	12	266	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	60	7	34	10	281	61	14	320	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								104				
pX, platoon unblocked												
vC, conflicting volume	832	831	468	790	802	384	403			381		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	832	831	468	790	802	384	403			381		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	76	97	95	99			99		
cM capacity (veh/h)	184	270	525	252	280	624	1078			1139		

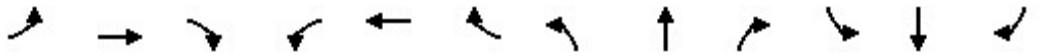
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	101	352	336
Volume Left	2	60	10	14
Volume Right	4	34	61	2
cSH	309	318	1078	1139
Volume to Capacity	0.03	0.32	0.01	0.01
Queue Length 95th (m)	0.6	10.6	0.2	0.3
Control Delay (s)	17.0	21.5	0.3	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	17.0	21.5	0.3	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	38.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	15	253	15	5	270
Future Volume (Veh/h)	12	15	253	15	5	270
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	17	21	356	21	7	380
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			305			
pX, platoon unblocked						
vC, conflicting volume	838	430			407	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	838	430			407	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	96			99	
cM capacity (veh/h)	312	591			1123	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	377	387
Volume Left	17	0	7
Volume Right	21	21	0
cSH	423	1700	1123
Volume to Capacity	0.09	0.22	0.01
Queue Length 95th (m)	2.4	0.0	0.2
Control Delay (s)	14.4	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.4	0.0	0.2
Approach LOS	B		

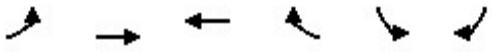
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	5	1	0	0	18	12	1	0	6	6
Future Volume (Veh/h)	3	1	5	1	0	0	18	12	1	0	6	6
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	6	1	0	0	23	16	1	0	8	8
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	224	225	193	176	228	80	134			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	224	225	193	176	228	80	134			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	98			100		
cM capacity (veh/h)	574	581	725	642	579	928	1308			1516		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	1	40	16
Volume Left	4	1	23	0
Volume Right	6	0	1	8
cSH	648	642	1308	1516
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.4	0.0
Control Delay (s)	10.6	10.6	4.5	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	10.6	4.5	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	37	71	81	32	38
Future Volume (Veh/h)	32	37	71	81	32	38
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	42	48	92	105	42	49
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	246				408	458
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	246				408	458
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				92	89
cM capacity (veh/h)	1266				517	450

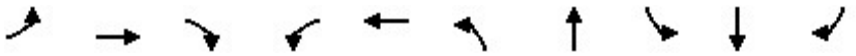
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	90	197	91
Volume Left	42	0	42
Volume Right	0	105	49
cSH	1266	1700	479
Volume to Capacity	0.03	0.12	0.19
Queue Length 95th (m)	0.8	0.0	5.5
Control Delay (s)	3.9	0.0	14.3
Lane LOS	A		B
Approach Delay (s)	3.9	0.0	14.3
Approach LOS			B

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	9	31	82	4	8
Future Volume (Veh/h)	54	9	31	82	4	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	10	34	89	4	9
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	226	208			253	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	226	208			253	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	99			100	
cM capacity (veh/h)	678	742			1170	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	123	13
Volume Left	59	0	4
Volume Right	10	89	0
cSH	686	1700	1170
Volume to Capacity	0.10	0.07	0.00
Queue Length 95th (m)	2.7	0.0	0.1
Control Delay (s)	10.8	0.0	2.5
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	2.5
Approach LOS	B		

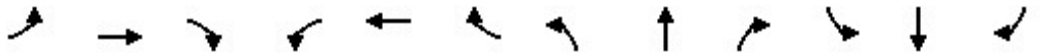
Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	289	185	181	483	256	406	51	305	294
v/c Ratio	0.70	0.52	0.13	0.57	0.90	0.81	0.60	0.22	0.63	0.19
Control Delay	44.8	34.4	0.2	28.0	53.5	40.9	21.8	27.3	35.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	34.4	0.2	28.0	53.5	40.9	21.8	27.3	35.0	0.3
Queue Length 50th (m)	16.4	35.7	0.0	21.3	85.3	30.1	47.4	7.0	47.0	0.0
Queue Length 95th (m)	#39.0	80.4	0.0	36.5	#149.0	#61.2	76.7	16.7	73.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	197	560	1415	320	535	318	717	253	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.52	0.13	0.57	0.90	0.81	0.57	0.20	0.56	0.19

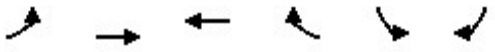
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	275	176	172	417	42	243	229	157	48	290	279
Future Volume (vph)	130	275	176	172	417	42	243	229	157	48	290	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00		0.98	1.00		0.89	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1735	1872	1415	1667	1781		1769	1600		1593	1872	1530
Flt Permitted	0.18	1.00	1.00	0.46	1.00		0.31	1.00		0.52	1.00	1.00
Satd. Flow (perm)	336	1872	1415	807	1781		585	1600		878	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	289	185	181	439	44	256	241	165	51	305	294
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	137	289	185	181	479	0	256	378	0	51	305	294
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.3	26.9	90.0	32.3	26.9		36.8	36.8		23.4	23.4	90.0
Effective Green, g (s)	32.3	26.9	90.0	32.3	26.9		36.8	36.8		23.4	23.4	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	204	559	1415	341	532		326	654		228	486	1530
v/s Ratio Prot	c0.04	0.15		0.03	c0.27		c0.06	0.24			0.16	
v/s Ratio Perm	0.20		0.13	0.16			c0.26			0.06		0.19
v/c Ratio	0.67	0.52	0.13	0.53	0.90		0.79	0.58		0.22	0.63	0.19
Uniform Delay, d1	21.9	26.2	0.0	22.1	30.3		22.8	20.6		26.2	29.4	0.0
Progression Factor	1.28	1.13	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.5	3.3	0.2	1.2	20.8		11.3	1.2		0.5	2.5	0.3
Delay (s)	35.6	32.9	0.2	23.3	51.1		34.1	21.8		26.7	32.0	0.3
Level of Service	D	C	A	C	D		C	C		C	C	A
Approach Delay (s)		23.6			43.5			26.6			17.2	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	581	834	137	0	118
Future Volume (Veh/h)	0	581	834	137	0	118
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	605	869	143	0	123
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	1055				1287	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1055				1178	549
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	73
cM capacity (veh/h)	632				166	462

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	302	302	579	433	123
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	143	123
cSH	1700	1700	1700	1700	1700	462
Volume to Capacity	0.00	0.18	0.18	0.34	0.25	0.27
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	8.5
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.6
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.6
Approach LOS						C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

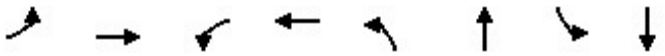
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	589	72	909	27	53
v/c Ratio	0.25	0.14	0.37	0.06	0.04
Control Delay	4.4	7.0	6.6	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.4	7.0	6.6	25.2	0.1
Queue Length 50th (m)	21.6	4.1	30.7	3.7	0.0
Queue Length 95th (m)	14.9	m6.4	m38.5	10.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2367	527	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.14	0.37	0.06	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	530	42	70	882	26	51
Future Volume (vph)	530	42	70	882	26	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.94	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3369		1670	3539	1656	1355
Flt Permitted	1.00		0.43	1.00	0.95	1.00
Satd. Flow (perm)	3369		751	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	546	43	72	909	27	53
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	584	0	72	909	27	53
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2290		510	2406	353	1294
v/s Ratio Prot	0.17			c0.26	c0.02	
v/s Ratio Perm			0.10			0.04
v/c Ratio	0.25		0.14	0.38	0.08	0.04
Uniform Delay, d1	5.6		5.1	6.2	28.3	0.1
Progression Factor	0.63		0.91	0.84	1.00	1.00
Incremental Delay, d2	0.3		0.5	0.4	0.2	0.0
Delay (s)	3.8		5.1	5.6	28.5	0.1
Level of Service	A		A	A	C	A
Approach Delay (s)	3.8			5.6	9.7	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	461	40	887	38	85	162	114
v/c Ratio	0.13	0.20	0.07	0.39	0.16	0.23	0.67	0.31
Control Delay	1.8	0.8	2.5	3.1	28.6	19.6	45.9	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.8	0.8	2.5	3.1	28.6	19.6	45.9	25.0
Queue Length 50th (m)	0.5	1.5	1.0	2.1	5.8	8.0	27.7	14.4
Queue Length 95th (m)	m1.2	2.4	1.0	0.0	13.1	18.6	44.6	26.6
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	358	2266	584	2275	420	605	421	628
Starvation Cap Reductn	0	0	0	199	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.20	0.07	0.43	0.09	0.14	0.38	0.18

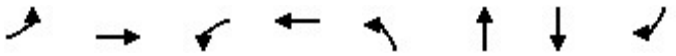
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	380	72	39	711	158	37	51	32	159	82	29
Future Volume (vph)	46	380	72	39	711	158	37	51	32	159	82	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.98	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1704	3359		1696	3367		1697	1688		1657	1778	
Flt Permitted	0.30	1.00		0.49	1.00		0.68	1.00		0.70	1.00	
Satd. Flow (perm)	531	3359		869	3367		1221	1688		1224	1778	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	388	73	40	726	161	38	52	33	162	84	30
RTOR Reduction (vph)	0	12	0	0	14	0	0	26	0	0	18	0
Lane Group Flow (vph)	47	449	0	40	873	0	38	59	0	162	96	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	356	2257		584	2263		241	333		242	351	
v/s Ratio Prot		0.13			c0.26			0.03			0.05	
v/s Ratio Perm	0.09			0.05			0.03			c0.13		
v/c Ratio	0.13	0.20		0.07	0.39		0.16	0.18		0.67	0.27	
Uniform Delay, d1	5.3	5.6		5.1	6.5		29.9	30.0		33.4	30.6	
Progression Factor	0.15	0.10		0.33	0.37		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		0.2	0.5		0.3	0.3		6.9	0.4	
Delay (s)	1.5	0.8		1.9	2.9		30.2	30.3		40.2	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		0.8			2.8			30.2			36.4	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

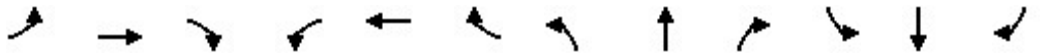
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	237	667	25	824	291	156	147	236
v/c Ratio	0.80	0.44	0.11	0.76	0.85	0.44	0.56	0.62
Control Delay	39.5	16.8	25.7	32.6	58.1	33.7	44.6	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	16.8	25.7	32.6	58.1	33.7	44.6	13.6
Queue Length 50th (m)	26.8	41.2	2.9	59.2	49.9	23.1	24.8	1.6
Queue Length 95th (m)	#67.4	55.7	m8.5	73.5	#92.7	42.2	44.0	23.4
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	298	1535	224	1119	361	376	294	400
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.43	0.11	0.74	0.81	0.41	0.50	0.59

Intersection Summary

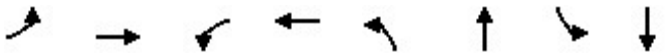
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	218	471	143	23	749	9	268	127	17	7	128	217
Future Volume (vph)	218	471	143	23	749	9	268	127	17	7	128	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	1.00	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1796	3295		1692	3526		1667	1711			1896	1347
Flt Permitted	0.15	1.00		0.40	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	286	3295		709	3526		1667	1711			1896	1347
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	237	512	155	25	814	10	291	138	18	8	139	236
RTOR Reduction (vph)	0	30	0	0	1	0	0	6	0	0	0	195
Lane Group Flow (vph)	237	637	0	25	823	0	291	150	0	0	147	41
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	40.9	40.9		27.8	27.8		18.5	18.5			12.5	12.5
Effective Green, g (s)	40.9	40.9		27.8	27.8		18.5	18.5			12.5	12.5
Actuated g/C Ratio	0.45	0.45		0.31	0.31		0.21	0.21			0.14	0.14
Clearance Time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	291	1497		219	1089		342	351			263	187
v/s Ratio Prot	c0.09	0.19			0.23		c0.17	0.09			c0.08	
v/s Ratio Perm	c0.28			0.04								0.03
v/c Ratio	0.81	0.43		0.11	0.76		0.85	0.43			0.56	0.22
Uniform Delay, d1	18.1	16.6		22.3	28.0		34.4	31.1			36.2	34.4
Progression Factor	1.00	1.00		1.05	0.97		1.00	1.00			1.00	1.00
Incremental Delay, d2	15.9	0.9		1.0	4.7		18.0	0.8			2.6	0.6
Delay (s)	34.0	17.5		24.4	32.0		52.4	32.0			38.7	35.0
Level of Service	C	B		C	C		D	C			D	D
Approach Delay (s)		21.8			31.8			45.3			36.5	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



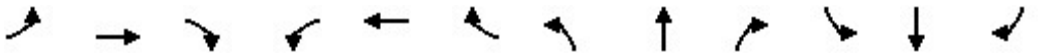
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	157	262	28	281	85	275	30	395
v/c Ratio	0.43	0.41	0.08	0.46	0.27	0.39	0.08	0.58
Control Delay	14.2	11.2	9.7	12.3	11.1	10.4	8.7	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	11.2	9.7	12.3	11.1	10.4	8.7	12.3
Queue Length 50th (m)	6.6	10.1	1.0	11.5	3.1	10.5	1.0	14.7
Queue Length 95th (m)	23.4	31.0	5.7	34.7	13.1	31.8	5.6	45.2
Internal Link Dist (m)		457.4		138.8		129.7		79.8
Turn Bay Length (m)	30.0		30.0		30.0		30.0	
Base Capacity (vph)	984	1667	937	1607	791	1752	929	1634
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.16	0.03	0.17	0.11	0.16	0.03	0.24

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	191	53	26	226	35	79	247	8	28	234	133
Future Volume (vph)	146	191	53	26	226	35	79	247	8	28	234	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			9%			0%			-3%	
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	0.98	1.00		0.97	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1798		1646	1725		1709	1826		1601	1740	
Flt Permitted	0.59	1.00		0.60	1.00		0.47	1.00		0.59	1.00	
Satd. Flow (perm)	1083	1798		1035	1725		844	1826		995	1740	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	157	205	57	28	243	38	85	266	9	30	252	143
RTOR Reduction (vph)	0	12	0	0	7	0	0	2	0	0	26	0
Lane Group Flow (vph)	157	250	0	28	274	0	85	273	0	30	369	0
Confl. Peds. (#/hr)	37		38	38		37	45		32	32		45
Confl. Bikes (#/hr)			21			20			11			12
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	14%	12%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.6	12.6		12.6	12.6		13.9	13.9		13.9	13.9	
Effective Green, g (s)	12.6	12.6		12.6	12.6		13.9	13.9		13.9	13.9	
Actuated g/C Ratio	0.35	0.35		0.35	0.35		0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	384	638		367	612		330	714		389	681	
v/s Ratio Prot		0.14			c0.16			0.15			c0.21	
v/s Ratio Perm	0.15			0.03			0.10			0.03		
v/c Ratio	0.41	0.39		0.08	0.45		0.26	0.38		0.08	0.54	
Uniform Delay, d1	8.6	8.6		7.6	8.8		7.3	7.7		6.8	8.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.4		0.1	0.5		0.4	0.3		0.1	0.9	
Delay (s)	9.4	9.0		7.7	9.3		7.7	8.1		6.9	9.2	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		9.1			9.2			8.0			9.1	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	35.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	9	43	3	36	5	318	78	14	326	2
Future Volume (Veh/h)	2	0	9	43	3	36	5	318	78	14	326	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	11	51	4	42	6	374	92	16	384	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								104				
pX, platoon unblocked	0.92	0.92		0.92	0.92	0.92				0.92		
vC, conflicting volume	949	981	496	945	936	450	442			496		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	901	936	496	897	887	359	442			409		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	74	98	93	99			98		
cM capacity (veh/h)	195	223	504	198	236	614	959			1032		

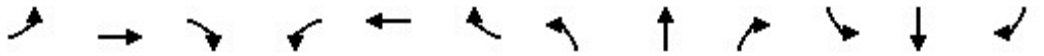
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	97	472	402
Volume Left	2	51	6	16
Volume Right	11	42	92	2
cSH	406	283	959	1032
Volume to Capacity	0.03	0.34	0.01	0.02
Queue Length 95th (m)	0.8	11.7	0.2	0.4
Control Delay (s)	14.2	24.2	0.2	0.5
Lane LOS	B	C	A	A
Approach Delay (s)	14.2	24.2	0.2	0.5
Approach LOS	B	C		

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	44.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	22	402	13	6	377
Future Volume (Veh/h)	16	22	402	13	6	377
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	16	23	414	13	6	389
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			305			
pX, platoon unblocked						
vC, conflicting volume	886	450			457	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	886	450			457	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	96			99	
cM capacity (veh/h)	295	564			935	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	427	395
Volume Left	16	0	6
Volume Right	23	13	0
cSH	411	1700	935
Volume to Capacity	0.10	0.25	0.01
Queue Length 95th (m)	2.5	0.0	0.2
Control Delay (s)	14.7	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.7	0.0	0.2
Approach LOS	B		

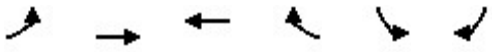
Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		34.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	14	1	1	0	22	21	0	1	16	5
Future Volume (Veh/h)	3	1	14	1	1	0	22	21	0	1	16	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	15	1	1	0	24	23	0	1	17	5
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	203	204	180	231	207	95	97			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	203	204	180	231	207	95	97			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	98			100		
cM capacity (veh/h)	630	617	750	585	615	905	1319			1496		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	19	2	47	23
Volume Left	3	1	24	1
Volume Right	15	0	0	5
cSH	720	599	1319	1496
Volume to Capacity	0.03	0.00	0.02	0.00
Queue Length 95th (m)	0.6	0.1	0.4	0.0
Control Delay (s)	10.1	11.0	4.0	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	11.0	4.0	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.5			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	49	62	38	38	89	29
Future Volume (Veh/h)	49	62	38	38	89	29
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	58	74	45	45	106	35
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	123				382	178
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	123				382	178
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				80	96
cM capacity (veh/h)	1424				534	786

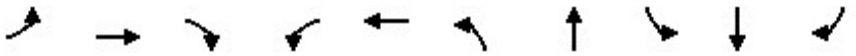
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	132	90	141
Volume Left	58	0	106
Volume Right	0	45	35
cSH	1424	1700	581
Volume to Capacity	0.04	0.05	0.24
Queue Length 95th (m)	1.0	0.0	7.6
Control Delay (s)	3.5	0.0	13.2
Lane LOS	A		B
Approach Delay (s)	3.5	0.0	13.2
Approach LOS			B

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	32.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	84	15	43	48	3	29
Future Volume (Veh/h)	84	15	43	48	3	29
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	91	16	47	52	3	32
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	191	153			179	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191	153			179	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	98			100	
cM capacity (veh/h)	743	834			1304	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	107	99	35
Volume Left	91	0	3
Volume Right	16	52	0
cSH	755	1700	1304
Volume to Capacity	0.14	0.06	0.00
Queue Length 95th (m)	3.9	0.0	0.1
Control Delay (s)	10.6	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.6	0.0	0.7
Approach LOS	B		

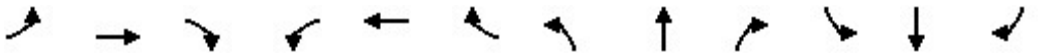
Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	168	415	260	176	433	274	404	13	222	241
v/c Ratio	0.83	0.83	0.18	0.83	0.86	0.69	0.58	0.05	0.43	0.16
Control Delay	55.1	46.7	0.3	52.9	49.2	30.4	21.4	26.3	30.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.1	46.7	0.3	52.9	49.2	30.4	21.4	26.3	30.9	0.2
Queue Length 50th (m)	20.0	72.6	0.0	21.2	75.7	34.9	49.9	1.8	35.1	0.0
Queue Length 95th (m)	#47.5	#116.1	0.0	#46.0	#124.4	#59.6	81.9	6.6	57.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	202	562	1417	212	561	395	702	245	518	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.74	0.18	0.83	0.77	0.69	0.58	0.05	0.43	0.16

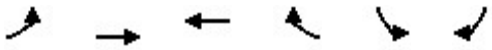
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	390	244	165	379	28	258	206	174	12	209	227
Future Volume (vph)	158	390	244	165	379	28	258	206	174	12	209	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.99	1.00		0.94	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1751	1853	1417	1671	1777		1691	1549		1578	1837	1477
Flt Permitted	0.23	1.00	1.00	0.22	1.00		0.44	1.00		0.52	1.00	1.00
Satd. Flow (perm)	429	1853	1417	394	1777		788	1549		871	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	168	415	260	176	403	30	274	219	185	13	222	241
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	168	415	260	176	430	0	274	373	0	13	222	241
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.1	24.9	92.1	32.1	25.9		40.1	40.1		26.1	26.1	92.1
Effective Green, g (s)	30.1	24.9	92.1	32.1	25.9		40.1	40.1		26.1	26.1	92.1
Actuated g/C Ratio	0.33	0.27	1.00	0.35	0.28		0.44	0.44		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	500	1417	223	499		413	674		246	520	1477
v/s Ratio Prot	0.04	0.22		c0.05	c0.24		0.05	c0.24			0.12	
v/s Ratio Perm	0.21		c0.18	0.22			c0.24			0.01		0.16
v/c Ratio	0.79	0.83	0.18	0.79	0.86		0.66	0.55		0.05	0.43	0.16
Uniform Delay, d1	26.7	31.6	0.0	24.8	31.4		20.3	19.3		24.0	26.9	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.5	10.9	0.3	16.2	14.2		3.6	1.0		0.1	0.6	0.2
Delay (s)	43.2	42.6	0.3	41.0	45.6		23.9	20.3		24.1	27.5	0.2
Level of Service	D	D	A	D	D		C	C		C	C	A
Approach Delay (s)		29.6			44.3			21.8			13.6	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	92.1	Sum of lost time (s)	27.7
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	791	754	138	0	86
Future Volume (Veh/h)	0	791	754	138	0	86
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	833	794	145	0	91
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.89	
vC, conflicting volume	1013				1362	544
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1013				1168	544
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	80
cM capacity (veh/h)	638				156	454

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	416	416	529	410	91
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	145	91
cSH	1700	1700	1700	1700	1700	454
Volume to Capacity	0.00	0.24	0.24	0.31	0.24	0.20
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	5.9
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	14.9
Lane LOS						B
Approach Delay (s)	0.0			0.0		14.9
Approach LOS						B

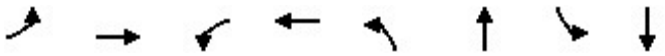
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	793	122	763	36	119
v/c Ratio	0.37	0.34	0.34	0.08	0.10
Control Delay	9.1	11.2	8.5	25.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	11.2	8.5	25.4	0.2
Queue Length 50th (m)	31.8	9.5	31.4	4.9	0.0
Queue Length 95th (m)	37.1	20.8	41.6	12.4	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2132	359	2217	491	1177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.34	0.34	0.07	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	679	74	116	725	34	113
Future Volume (vph)	679	74	116	725	34	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3389		1685	3539	1770	1241
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	3389		574	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	715	78	122	763	36	119
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	784	0	122	763	36	119
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2123		359	2217	472	1185
v/s Ratio Prot	c0.23			0.22	0.02	
v/s Ratio Perm			0.21			c0.10
v/c Ratio	0.37		0.34	0.34	0.08	0.10
Uniform Delay, d1	8.2		8.0	8.0	24.7	0.1
Progression Factor	1.08		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		2.6	0.4	0.1	0.1
Delay (s)	9.2		10.5	8.4	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	9.2			8.7	5.9	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	631	75	714	115	233	176	196
v/c Ratio	0.11	0.30	0.17	0.34	0.47	0.54	0.87	0.44
Control Delay	3.7	2.9	7.0	5.8	33.5	24.0	68.2	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.7	2.9	7.0	5.8	33.5	24.0	68.2	28.3
Queue Length 50th (m)	0.7	4.0	3.0	8.2	17.6	25.5	30.2	27.7
Queue Length 95th (m)	m1.7	8.4	7.2	20.7	29.7	41.7	49.7	41.1
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	367	2090	444	2090	436	726	361	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.30	0.17	0.34	0.26	0.32	0.49	0.25

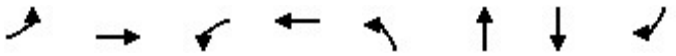
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	476	130	72	561	125	110	115	108	169	159	29
Future Volume (vph)	38	476	130	72	561	125	110	115	108	169	159	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.96	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1536	3307		1678	3312		1692	1585		1607	1795	
Flt Permitted	0.36	1.00		0.40	1.00		0.57	1.00		0.50	1.00	
Satd. Flow (perm)	581	3307		704	3312		1009	1585		841	1795	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	496	135	75	584	130	115	120	112	176	166	30
RTOR Reduction (vph)	0	18	0	0	14	0	0	50	0	0	10	0
Lane Group Flow (vph)	40	613	0	75	700	0	115	183	0	176	186	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	56.5	56.5		56.5	56.5		21.8	21.8		21.8	21.8	
Effective Green, g (s)	56.5	56.5		56.5	56.5		21.8	21.8		21.8	21.8	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	364	2076		441	2079		244	383		203	434	
v/s Ratio Prot		0.19			c0.21			0.12			0.10	
v/s Ratio Perm	0.07			0.11			0.11			c0.21		
v/c Ratio	0.11	0.30		0.17	0.34		0.47	0.48		0.87	0.43	
Uniform Delay, d1	6.7	7.7		7.0	7.9		29.2	29.2		32.7	28.8	
Progression Factor	0.34	0.32		0.64	0.62		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		0.8	0.4		1.4	0.9		29.9	0.7	
Delay (s)	2.8	2.7		5.3	5.3		30.6	30.2		62.6	29.5	
Level of Service	A	A		A	A		C	C		E	C	
Approach Delay (s)		2.7			5.3			30.3			45.2	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

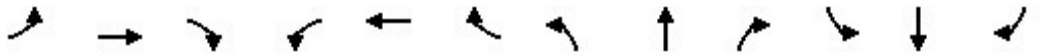
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	202	904	22	725	232	145	153	204
v/c Ratio	0.61	0.59	0.12	0.63	0.75	0.46	0.54	0.56
Control Delay	24.0	18.5	18.5	22.0	50.1	33.2	43.1	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	18.5	18.5	22.0	50.1	33.2	43.1	11.6
Queue Length 50th (m)	20.9	57.3	2.3	43.5	39.8	20.8	25.9	0.0
Queue Length 95th (m)	#40.8	80.5	5.5	40.4	63.9	38.2	45.6	19.9
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	333	1541	187	1186	360	368	298	377
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.59	0.12	0.61	0.64	0.39	0.51	0.54

Intersection Summary

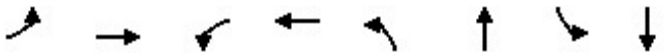
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	188	593	247	20	667	7	216	104	31	8	134	190
Future Volume (vph)	188	593	247	20	667	7	216	104	31	8	134	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.93		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.99	1.00		0.95	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1784	3188		1675	3524		1667	1647			1913	1312
Flt Permitted	0.22	1.00		0.32	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	406	3188		556	3524		1667	1647			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	202	638	266	22	717	8	232	112	33	9	144	204
RTOR Reduction (vph)	0	48	0	0	1	0	0	12	0	0	0	174
Lane Group Flow (vph)	202	856	0	22	724	0	232	133	0	0	153	30
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.9	41.9		29.4	29.4		16.7	16.7			13.3	13.3
Effective Green, g (s)	41.9	41.9		29.4	29.4		16.7	16.7			13.3	13.3
Actuated g/C Ratio	0.47	0.47		0.33	0.33		0.19	0.19			0.15	0.15
Clearance Time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	326	1484		181	1151		309	305			282	193
v/s Ratio Prot	0.06	c0.27			0.21		c0.14	0.08			c0.08	
v/s Ratio Perm	c0.23			0.04								0.02
v/c Ratio	0.62	0.58		0.12	0.63		0.75	0.44			0.54	0.16
Uniform Delay, d1	16.0	17.6		21.2	25.7		34.7	32.5			35.5	33.5
Progression Factor	1.00	1.00		0.72	0.73		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.5	1.6		1.3	2.5		9.8	1.0			2.1	0.4
Delay (s)	19.5	19.2		16.5	21.2		44.5	33.5			37.7	33.8
Level of Service	B	B		B	C		D	C			D	C
Approach Delay (s)		19.3			21.0			40.3			35.5	
Approach LOS		B			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



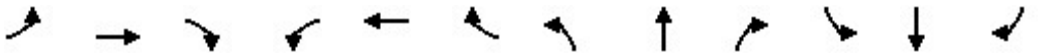
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	102	369	30	272	58	235	42	294
v/c Ratio	0.27	0.54	0.09	0.42	0.17	0.38	0.12	0.49
Control Delay	9.9	11.3	8.2	10.0	10.2	11.0	9.6	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	11.3	8.2	10.0	10.2	11.0	9.6	11.7
Queue Length 50th (m)	3.5	13.3	1.0	9.3	2.1	8.9	1.5	10.5
Queue Length 95th (m)	13.1	37.4	5.0	27.5	9.2	27.0	7.1	32.6
Internal Link Dist (m)		457.4		138.8		129.7		79.8
Turn Bay Length (m)	30.0		30.0		30.0		30.0	
Base Capacity (vph)	980	1734	844	1632	954	1765	1013	1653
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.21	0.04	0.17	0.06	0.13	0.04	0.18

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	258	77	27	201	46	53	201	13	38	188	79
Future Volume (vph)	93	258	77	27	201	46	53	201	13	38	188	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			9%			0%			-3%	
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	0.96	1.00		0.98	1.00		0.96	1.00		0.97	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1716	1792		1650	1695		1705	1837		1718	1759	
Flt Permitted	0.59	1.00		0.51	1.00		0.58	1.00		0.61	1.00	
Satd. Flow (perm)	1069	1792		885	1695		1041	1837		1108	1759	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	102	284	85	30	221	51	58	221	14	42	207	87
RTOR Reduction (vph)	0	14	0	0	10	0	0	3	0	0	19	0
Lane Group Flow (vph)	102	355	0	30	262	0	58	232	0	42	275	0
Confl. Peds. (#/hr)	71		44	44		71	60		51	51		60
Confl. Bikes (#/hr)			20			22			12			15
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.8	12.8		12.8	12.8		11.4	11.4		11.4	11.4	
Effective Green, g (s)	12.8	12.8		12.8	12.8		11.4	11.4		11.4	11.4	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.34	0.34		0.34	0.34	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	412	690		341	653		357	630		380	603	
v/s Ratio Prot		c0.20			0.15			0.13			c0.16	
v/s Ratio Perm	0.10			0.03			0.06			0.04		
v/c Ratio	0.25	0.51		0.09	0.40		0.16	0.37		0.11	0.46	
Uniform Delay, d1	6.9	7.8		6.5	7.4		7.6	8.2		7.4	8.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.6		0.1	0.4		0.2	0.4		0.1	0.5	
Delay (s)	7.2	8.5		6.6	7.8		7.8	8.6		7.6	9.0	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		8.2			7.7			8.4			8.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	33.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	39	6	28	8	233	118	12	266	2
Future Volume (Veh/h)	2	2	3	39	6	28	8	233	118	12	266	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	47	7	34	10	281	142	14	320	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								104				
pX, platoon unblocked	0.95	0.95		0.95	0.95	0.95				0.95		
vC, conflicting volume	872	912	468	831	842	424	403			462		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	841	883	468	797	809	370	403			410		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	80	97	94	99			99		
cM capacity (veh/h)	172	240	525	237	263	605	1078			1058		

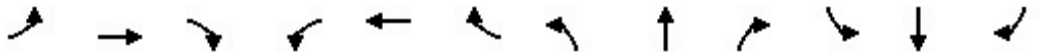
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	88	433	336
Volume Left	2	47	10	14
Volume Right	4	34	142	2
cSH	290	313	1078	1058
Volume to Capacity	0.03	0.28	0.01	0.01
Queue Length 95th (m)	0.7	9.0	0.2	0.3
Control Delay (s)	17.8	20.9	0.3	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	17.8	20.9	0.3	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	42.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	15	253	15	5	270
Future Volume (Veh/h)	12	15	253	15	5	270
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	17	21	356	21	7	380
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			305			
pX, platoon unblocked						
vC, conflicting volume	838	430			407	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	838	430			407	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	96			99	
cM capacity (veh/h)	312	591			1123	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	38	377	387
Volume Left	17	0	7
Volume Right	21	21	0
cSH	423	1700	1123
Volume to Capacity	0.09	0.22	0.01
Queue Length 95th (m)	2.4	0.0	0.2
Control Delay (s)	14.4	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.4	0.0	0.2
Approach LOS	B		

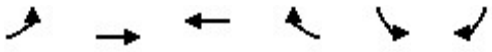
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	5	1	0	0	18	12	1	0	6	6
Future Volume (Veh/h)	3	1	5	1	0	0	18	12	1	0	6	6
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	6	1	0	0	23	16	1	0	8	8
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	224	225	193	176	228	80	134			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	224	225	193	176	228	80	134			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	98			100		
cM capacity (veh/h)	574	581	725	642	579	928	1308			1516		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	11	1	40	16
Volume Left	4	1	23	0
Volume Right	6	0	1	8
cSH	648	642	1308	1516
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.4	0.0	0.4	0.0
Control Delay (s)	10.6	10.6	4.5	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	10.6	4.5	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	63	72	42	45	44	27
Future Volume (Veh/h)	63	72	42	45	44	27
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	82	94	55	58	57	35
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	162				474	398
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	162				474	398
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				88	93
cM capacity (veh/h)	1359				461	487

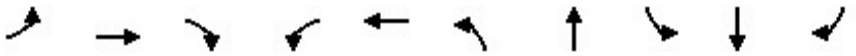
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	176	113	92
Volume Left	82	0	57
Volume Right	0	58	35
cSH	1359	1700	471
Volume to Capacity	0.06	0.07	0.20
Queue Length 95th (m)	1.5	0.0	5.7
Control Delay (s)	3.9	0.0	14.5
Lane LOS	A		B
Approach Delay (s)	3.9	0.0	14.5
Approach LOS			B

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	9	31	82	4	8
Future Volume (Veh/h)	54	9	31	82	4	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	10	34	89	4	9
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	226	208			253	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	226	208			253	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	99			100	
cM capacity (veh/h)	678	742			1170	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	123	13
Volume Left	59	0	4
Volume Right	10	89	0
cSH	686	1700	1170
Volume to Capacity	0.10	0.07	0.00
Queue Length 95th (m)	2.7	0.0	0.1
Control Delay (s)	10.8	0.0	2.5
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	2.5
Approach LOS	B		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		



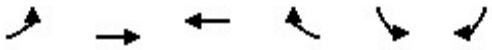
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	289	185	181	484	260	406	51	305	295
v/c Ratio	0.69	0.52	0.13	0.56	0.90	0.82	0.60	0.22	0.63	0.19
Control Delay	44.2	17.9	0.2	27.9	53.6	42.5	21.8	27.3	35.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.2	17.9	0.2	27.9	53.6	42.5	21.8	27.3	35.0	0.3
Queue Length 50th (m)	12.6	18.1	0.0	21.3	85.6	30.6	47.4	7.0	47.0	0.0
Queue Length 95th (m)	#38.7	29.9	0.0	36.5	#149.4	#63.2	76.7	16.7	73.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	198	561	1415	321	536	317	717	253	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.52	0.13	0.56	0.90	0.82	0.57	0.20	0.56	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	275	176	172	418	42	247	229	157	48	290	280
Future Volume (vph)	130	275	176	172	418	42	247	229	157	48	290	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00		0.98	1.00		0.89	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1735	1872	1415	1667	1781		1769	1600		1593	1872	1530
Flt Permitted	0.18	1.00	1.00	0.46	1.00		0.31	1.00		0.52	1.00	1.00
Satd. Flow (perm)	337	1872	1415	809	1781		585	1600		878	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	289	185	181	440	44	260	241	165	51	305	295
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	137	289	185	181	480	0	260	378	0	51	305	295
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.4	27.0	90.0	32.4	27.0		36.7	36.7		23.4	23.4	90.0
Effective Green, g (s)	32.4	27.0	90.0	32.4	27.0		36.7	36.7		23.4	23.4	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	561	1415	342	534		324	652		228	486	1530
v/s Ratio Prot	c0.04	0.15		0.03	c0.27		c0.06	0.24			0.16	
v/s Ratio Perm	0.20		0.13	0.16			c0.27			0.06		0.19
v/c Ratio	0.67	0.52	0.13	0.53	0.90		0.80	0.58		0.22	0.63	0.19
Uniform Delay, d1	21.9	26.1	0.0	22.0	30.2		23.2	20.7		26.2	29.4	0.0
Progression Factor	1.26	0.53	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.1	3.3	0.2	1.1	20.6		13.0	1.3		0.5	2.5	0.3
Delay (s)	34.6	17.1	0.2	23.1	50.8		36.2	21.9		26.7	32.0	0.3
Level of Service	C	B	A	C	D		D	C		C	C	A
Approach Delay (s)		15.9			43.2			27.5			17.2	
Approach LOS		B			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	581	834	142	0	126
Future Volume (Veh/h)	0	581	834	142	0	126
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	605	869	148	0	131
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	1060				1290	552
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1060				1181	552
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	72
cM capacity (veh/h)	629				165	460

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	302	302	579	438	131
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	148	131
cSH	1700	1700	1700	1700	1700	460
Volume to Capacity	0.00	0.18	0.18	0.34	0.26	0.28
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	9.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.9
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.9
Approach LOS						C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

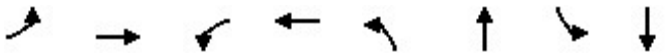
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	589	72	918	27	53
v/c Ratio	0.25	0.14	0.37	0.06	0.04
Control Delay	11.8	7.1	6.7	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	7.1	6.7	25.2	0.1
Queue Length 50th (m)	34.6	4.1	31.4	3.7	0.0
Queue Length 95th (m)	50.2	m6.5	m38.9	10.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2367	527	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.14	0.37	0.06	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	530	42	70	890	26	51
Future Volume (vph)	530	42	70	890	26	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.94	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3369		1670	3539	1656	1355
Flt Permitted	1.00		0.43	1.00	0.95	1.00
Satd. Flow (perm)	3369		751	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	546	43	72	918	27	53
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	584	0	72	918	27	53
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2290		510	2406	353	1294
v/s Ratio Prot	0.17			c0.26	c0.02	
v/s Ratio Perm			0.10			0.04
v/c Ratio	0.25		0.14	0.38	0.08	0.04
Uniform Delay, d1	5.6		5.1	6.2	28.3	0.1
Progression Factor	1.77		0.91	0.85	1.00	1.00
Incremental Delay, d2	0.3		0.5	0.4	0.2	0.0
Delay (s)	10.1		5.1	5.7	28.5	0.1
Level of Service	B		A	A	C	A
Approach Delay (s)	10.1			5.6	9.7	
Approach LOS	B			A	A	

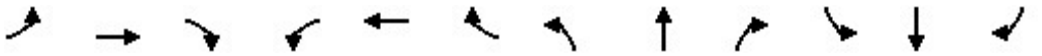
Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	461	40	895	38	85	162	114
v/c Ratio	0.13	0.20	0.07	0.39	0.16	0.23	0.67	0.31
Control Delay	5.7	4.4	2.5	3.1	28.6	19.6	45.9	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	4.4	2.5	3.1	28.6	19.6	45.9	25.0
Queue Length 50th (m)	2.4	11.2	1.0	2.1	5.8	8.0	27.7	14.4
Queue Length 95th (m)	m3.8	10.2	1.0	0.0	13.1	18.6	44.6	26.6
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	353	2266	584	2275	420	605	421	628
Starvation Cap Reductn	0	0	0	190	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.20	0.07	0.43	0.09	0.14	0.38	0.18

Intersection Summary

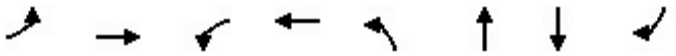
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	380	72	39	719	158	37	51	32	159	82	29
Future Volume (vph)	46	380	72	39	719	158	37	51	32	159	82	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.98	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1705	3359		1696	3369		1697	1688		1657	1778	
Flt Permitted	0.29	1.00		0.49	1.00		0.68	1.00		0.70	1.00	
Satd. Flow (perm)	526	3359		869	3369		1221	1688		1224	1778	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	388	73	40	734	161	38	52	33	162	84	30
RTOR Reduction (vph)	0	12	0	0	14	0	0	26	0	0	18	0
Lane Group Flow (vph)	47	449	0	40	881	0	38	59	0	162	96	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	353	2257		584	2264		241	333		242	351	
v/s Ratio Prot		0.13			c0.26			0.03			0.05	
v/s Ratio Perm	0.09			0.05			0.03			c0.13		
v/c Ratio	0.13	0.20		0.07	0.39		0.16	0.18		0.67	0.27	
Uniform Delay, d1	5.3	5.6		5.1	6.5		29.9	30.0		33.4	30.6	
Progression Factor	0.67	0.70		0.33	0.37		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		0.2	0.5		0.3	0.3		6.9	0.4	
Delay (s)	4.3	4.1		1.9	2.9		30.2	30.3		40.2	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		4.1			2.8			30.2			36.4	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



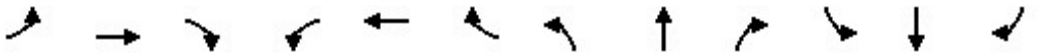
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	249	667	27	831	291	157	150	236
v/c Ratio	1.16	0.44	0.10	0.52	0.86	0.45	0.56	0.83
Control Delay	139.7	16.8	10.8	13.1	59.8	34.1	44.2	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.7	16.8	10.8	13.1	59.8	34.1	44.2	44.3
Queue Length 50th (m)	~56.3	40.2	1.6	53.0	50.7	23.7	25.4	22.0
Queue Length 95th (m)	#103.4	55.5	m3.8	51.9	#93.0	42.5	44.6	#60.1
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	215	1526	276	1603	355	370	294	302
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.44	0.10	0.52	0.82	0.42	0.51	0.78

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

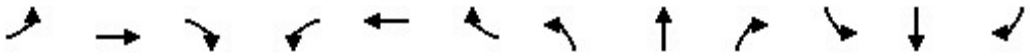
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	471	143	25	755	9	268	128	17	7	131	217
Future Volume (vph)	229	471	143	25	755	9	268	128	17	7	131	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	0.98	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1755	3295		1704	3527		1667	1711			1896	1348
Flt Permitted	0.26	1.00		0.34	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	473	3295		608	3527		1667	1711			1896	1348
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	249	512	155	27	821	10	291	139	18	8	142	236
RTOR Reduction (vph)	0	30	0	0	1	0	0	6	0	0	0	94
Lane Group Flow (vph)	249	637	0	27	830	0	291	151	0	0	150	142
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	40.9	40.9		40.9	40.9		18.2	18.2			12.8	12.8
Effective Green, g (s)	40.9	40.9		40.9	40.9		18.2	18.2			12.8	12.8
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.20	0.20			0.14	0.14
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	214	1497		276	1602		337	346			269	191
v/s Ratio Prot		0.19			0.24		c0.17	0.09			0.08	
v/s Ratio Perm	c0.53			0.04								c0.11
v/c Ratio	1.16	0.43		0.10	0.52		0.86	0.44			0.56	0.74
Uniform Delay, d1	24.6	16.6		14.0	17.5		34.7	31.4			36.0	37.0
Progression Factor	1.00	1.00		0.64	0.66		1.00	1.00			1.00	1.00
Incremental Delay, d2	112.7	0.9		0.7	1.1		19.8	0.9			2.5	14.3
Delay (s)	137.2	17.5		9.6	12.6		54.5	32.3			38.5	51.4
Level of Service	F	B		A	B		D	C			D	D
Approach Delay (s)		50.0			12.6			46.7			46.3	
Approach LOS		D			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	36.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		

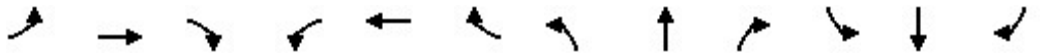
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	151	191	53	26	226	35	79	260	8	28	236	136
Future Volume (vph)	151	191	53	26	226	35	79	260	8	28	236	136
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	162	205	57	28	243	38	85	280	9	30	254	146

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	424	309	374	430
Volume Left (vph)	162	28	85	30
Volume Right (vph)	57	38	9	146
Hadj (s)	0.03	-0.02	0.09	-0.14
Departure Headway (s)	9.0	9.4	9.2	8.9
Degree Utilization, x	1.06	0.81	0.95	1.06
Capacity (veh/h)	400	375	388	410
Control Delay (s)	94.0	42.3	65.2	91.4
Approach Delay (s)	94.0	42.3	65.2	91.4
Approach LOS	F	E	F	F

Intersection Summary				
Delay	75.9			
Level of Service	F			
Intersection Capacity Utilization	87.7%	ICU Level of Service	E	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	9	48	3	36	5	318	96	14	326	2
Future Volume (Veh/h)	2	0	9	48	3	36	5	318	96	14	326	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	11	56	4	42	6	374	113	16	384	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	960	1002	496	956	946	460	442			517		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	960	1002	496	956	946	460	442			517		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	72	98	93	99			98		
cM capacity (veh/h)	193	221	504	197	237	585	959			1023		

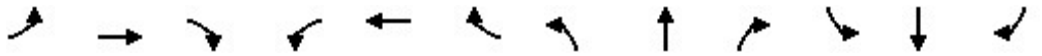
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	102	493	402
Volume Left	2	56	6	16
Volume Right	11	42	113	2
cSH	404	273	959	1023
Volume to Capacity	0.03	0.37	0.01	0.02
Queue Length 95th (m)	0.8	13.3	0.2	0.4
Control Delay (s)	14.2	25.8	0.2	0.5
Lane LOS	B	D	A	A
Approach Delay (s)	14.2	25.8	0.2	0.5
Approach LOS	B	D		

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	44.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	24	402	13	7	377
Future Volume (Veh/h)	16	24	402	13	7	377
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	16	25	414	13	7	389
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	888	450			457	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	888	450			457	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	96			99	
cM capacity (veh/h)	294	564			935	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	41	427	396
Volume Left	16	0	7
Volume Right	25	13	0
cSH	415	1700	935
Volume to Capacity	0.10	0.25	0.01
Queue Length 95th (m)	2.6	0.0	0.2
Control Delay (s)	14.6	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.6	0.0	0.2
Approach LOS	B		

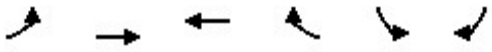
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	15	1	1	0	24	21	0	1	16	5
Future Volume (Veh/h)	3	1	15	1	1	0	24	21	0	1	16	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	16	1	1	0	26	23	0	1	17	5
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	207	208	180	236	211	95	97			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	207	208	180	236	211	95	97			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	98			100		
cM capacity (veh/h)	625	613	750	579	611	905	1319			1496		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	2	49	23
Volume Left	3	1	26	1
Volume Right	16	0	0	5
cSH	721	594	1319	1496
Volume to Capacity	0.03	0.00	0.02	0.00
Queue Length 95th (m)	0.7	0.1	0.5	0.0
Control Delay (s)	10.1	11.1	4.2	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	11.1	4.2	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	62	38	43	97	37
Future Volume (Veh/h)	58	62	38	43	97	37
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	69	74	45	51	115	44
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	129				408	182
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	129				408	182
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				78	94
cM capacity (veh/h)	1417				513	783

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	143	96	159
Volume Left	69	0	115
Volume Right	0	51	44
cSH	1417	1700	567
Volume to Capacity	0.05	0.06	0.28
Queue Length 95th (m)	1.2	0.0	9.2
Control Delay (s)	3.9	0.0	13.8
Lane LOS	A		B
Approach Delay (s)	3.9	0.0	13.8
Approach LOS			B

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	97	17	43	63	3	29
Future Volume (Veh/h)	97	17	43	63	3	29
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	105	18	47	68	3	32
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	199	161			195	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	199	161			195	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	98			100	
cM capacity (veh/h)	735	825			1286	

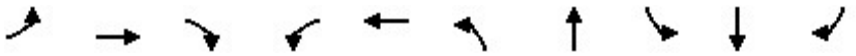
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	123	115	35
Volume Left	105	0	3
Volume Right	18	68	0
cSH	747	1700	1286
Volume to Capacity	0.16	0.07	0.00
Queue Length 95th (m)	4.7	0.0	0.1
Control Delay (s)	10.8	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	0.7
Approach LOS	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	530	42	70	890	26	51
Future Volume (Veh/h)	530	42	70	890	26	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	546	43	72	918	27	53
Pedestrians	106			70	74	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	9			6	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			663		1350	438
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			626		1325	398
tC, single (s)			4.1		7.0	7.1
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			92		75	90
cM capacity (veh/h)			879		107	506

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	364	225	72	459	459	27	53
Volume Left	0	0	72	0	0	27	0
Volume Right	0	43	0	0	0	0	53
cSH	1700	1700	879	1700	1700	107	506
Volume to Capacity	0.21	0.13	0.08	0.27	0.27	0.25	0.10
Queue Length 95th (m)	0.0	0.0	2.1	0.0	0.0	7.4	2.8
Control Delay (s)	0.0	0.0	9.5	0.0	0.0	49.6	12.9
Lane LOS			A			E	B
Approach Delay (s)	0.0		0.7			25.3	
Approach LOS						D	

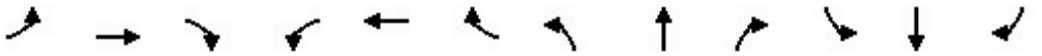
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	168	415	260	176	434	282	404	13	222	244
v/c Ratio	0.83	0.83	0.18	0.83	0.86	0.72	0.58	0.05	0.43	0.17
Control Delay	55.0	46.6	0.3	52.7	49.2	31.6	21.4	26.3	30.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	46.6	0.3	52.7	49.2	31.6	21.4	26.3	30.9	0.2
Queue Length 50th (m)	20.0	72.6	0.0	21.2	76.0	36.1	49.9	1.9	35.1	0.0
Queue Length 95th (m)	#47.5	#116.1	0.0	#45.9	#124.9	#63.4	81.9	6.6	57.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	202	561	1417	212	560	394	701	245	518	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.74	0.18	0.83	0.78	0.72	0.58	0.05	0.43	0.17

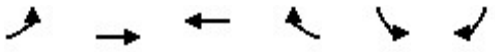
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	390	244	165	380	28	265	206	174	12	209	229
Future Volume (vph)	158	390	244	165	380	28	265	206	174	12	209	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.99	1.00		0.94	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1853	1417	1671	1778		1691	1549		1578	1837	1477
Flt Permitted	0.23	1.00	1.00	0.22	1.00		0.44	1.00		0.52	1.00	1.00
Satd. Flow (perm)	428	1853	1417	396	1778		788	1549		871	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	168	415	260	176	404	30	282	219	185	13	222	244
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	168	415	260	176	431	0	282	373	0	13	222	244
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.2	25.0	92.2	32.2	26.0		40.1	40.1		26.1	26.1	92.2
Effective Green, g (s)	30.2	25.0	92.2	32.2	26.0		40.1	40.1		26.1	26.1	92.2
Actuated g/C Ratio	0.33	0.27	1.00	0.35	0.28		0.43	0.43		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	502	1417	224	501		413	673		246	520	1477
v/s Ratio Prot	0.04	0.22		c0.05	c0.24		0.05	c0.24			0.12	
v/s Ratio Perm	0.21		c0.18	0.22			c0.24			0.01		0.17
v/c Ratio	0.79	0.83	0.18	0.79	0.86		0.68	0.55		0.05	0.43	0.17
Uniform Delay, d1	26.7	31.6	0.0	24.8	31.4		20.7	19.4		24.1	27.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.5	10.7	0.3	15.9	14.1		4.2	1.0		0.1	0.6	0.2
Delay (s)	43.2	42.3	0.3	40.7	45.4		25.0	20.4		24.1	27.5	0.2
Level of Service	D	D	A	D	D		C	C		C	C	A
Approach Delay (s)		29.5			44.1			22.3			13.5	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	791	754	148	0	102
Future Volume (Veh/h)	0	791	754	148	0	102
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	833	794	156	0	107
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.89	
vC, conflicting volume	1024				1368	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1024				1174	549
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	76
cM capacity (veh/h)	632				154	450

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	416	416	529	421	107
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	156	107
cSH	1700	1700	1700	1700	1700	450
Volume to Capacity	0.00	0.24	0.24	0.31	0.25	0.24
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	7.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.5
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.5
Approach LOS						C

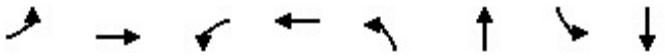
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	793	122	779	36	119
v/c Ratio	0.37	0.34	0.35	0.08	0.10
Control Delay	8.8	11.2	8.6	25.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	11.2	8.6	25.4	0.2
Queue Length 50th (m)	32.0	9.5	32.2	4.9	0.0
Queue Length 95th (m)	36.6	20.8	42.6	12.4	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2132	359	2217	491	1177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.34	0.35	0.07	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	679	74	116	740	34	113
Future Volume (vph)	679	74	116	740	34	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3389		1685	3539	1770	1241
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	3389		574	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	715	78	122	779	36	119
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	784	0	122	779	36	119
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2123		359	2217	472	1185
v/s Ratio Prot	c0.23			0.22	0.02	
v/s Ratio Perm			0.21			c0.10
v/c Ratio	0.37		0.34	0.35	0.08	0.10
Uniform Delay, d1	8.2		8.0	8.0	24.7	0.1
Progression Factor	1.04		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		2.6	0.4	0.1	0.1
Delay (s)	9.0		10.5	8.5	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	9.0			8.8	5.9	
Approach LOS	A			A	A	

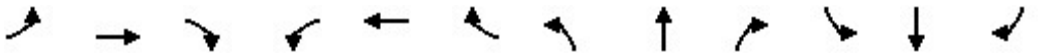
Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	631	75	731	115	233	176	196
v/c Ratio	0.11	0.30	0.17	0.35	0.47	0.53	0.87	0.44
Control Delay	2.2	1.4	7.1	5.9	33.5	24.1	67.4	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.2	1.4	7.1	5.9	33.5	24.1	67.4	28.2
Queue Length 50th (m)	0.5	2.6	3.0	8.5	17.6	25.7	30.2	27.7
Queue Length 95th (m)	m1.3	5.3	7.3	21.5	29.7	41.8	49.7	41.1
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	359	2089	443	2089	425	708	353	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.30	0.17	0.35	0.27	0.33	0.50	0.26

Intersection Summary

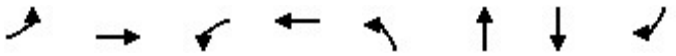
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	476	130	72	577	125	110	115	108	169	159	29
Future Volume (vph)	38	476	130	72	577	125	110	115	108	169	159	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.96	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1539	3307		1678	3317		1691	1585		1607	1795	
Flt Permitted	0.35	1.00		0.40	1.00		0.57	1.00		0.50	1.00	
Satd. Flow (perm)	569	3307		704	3317		1010	1585		842	1795	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	496	135	75	601	130	115	120	112	176	166	30
RTOR Reduction (vph)	0	19	0	0	14	0	0	49	0	0	10	0
Lane Group Flow (vph)	40	612	0	75	717	0	115	184	0	176	186	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	56.4	56.4		56.4	56.4		21.9	21.9		21.9	21.9	
Effective Green, g (s)	56.4	56.4		56.4	56.4		21.9	21.9		21.9	21.9	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	356	2072		441	2078		245	385		204	436	
v/s Ratio Prot		0.19			c0.22			0.12			0.10	
v/s Ratio Perm	0.07			0.11			0.11			c0.21		
v/c Ratio	0.11	0.30		0.17	0.35		0.47	0.48		0.86	0.43	
Uniform Delay, d1	6.7	7.7		7.0	8.0		29.1	29.2		32.6	28.8	
Progression Factor	0.18	0.13		0.64	0.61		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		0.8	0.4		1.4	0.9		29.2	0.7	
Delay (s)	1.7	1.3		5.3	5.3		30.5	30.1		61.8	29.4	
Level of Service	A	A		A	A		C	C		E	C	
Approach Delay (s)		1.3			5.3			30.2			44.8	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

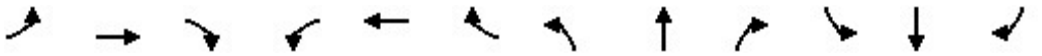
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	212	904	27	736	232	148	158	204
v/c Ratio	0.82	0.59	0.14	0.44	0.76	0.47	0.56	0.66
Control Delay	50.3	18.3	17.9	16.8	51.3	33.9	43.9	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	18.3	17.9	16.8	51.3	33.9	43.9	24.3
Queue Length 50th (m)	33.4	57.3	2.3	34.2	39.8	21.4	26.8	11.0
Queue Length 95th (m)	#79.6	80.2	9.3	61.3	64.0	39.3	46.8	34.8
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	259	1543	194	1655	355	364	297	319
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.59	0.14	0.44	0.65	0.41	0.53	0.64

Intersection Summary

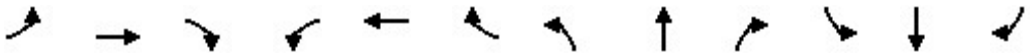
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	593	247	25	677	7	216	107	31	8	139	190
Future Volume (vph)	197	593	247	25	677	7	216	107	31	8	139	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.93		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.95	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1702	3188		1702	3525		1667	1650			1913	1312
Flt Permitted	0.31	1.00		0.23	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	552	3188		413	3525		1667	1650			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	212	638	266	27	728	8	232	115	33	9	149	204
RTOR Reduction (vph)	0	47	0	0	1	0	0	12	0	0	0	117
Lane Group Flow (vph)	212	857	0	27	735	0	232	136	0	0	158	87
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases		6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.3	42.3		42.3	42.3		16.4	16.4			13.2	13.2
Effective Green, g (s)	42.3	42.3		42.3	42.3		16.4	16.4			13.2	13.2
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.18	0.18			0.15	0.15
Clearance Time (s)	5.8	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	259	1498		194	1656		303	300			280	192
v/s Ratio Prot		0.27			0.21		c0.14	0.08			c0.08	
v/s Ratio Perm	c0.38			0.07								0.07
v/c Ratio	0.82	0.57		0.14	0.44		0.77	0.45			0.56	0.45
Uniform Delay, d1	20.5	17.3		13.5	16.0		35.0	32.8			35.7	35.1
Progression Factor	1.00	1.00		1.01	0.94		1.00	1.00			1.00	1.00
Incremental Delay, d2	24.2	1.6		1.4	0.8		11.0	1.1			2.6	1.7
Delay (s)	44.7	18.9		15.1	15.9		45.9	33.9			38.3	36.8
Level of Service	D	B		B	B		D	C			D	D
Approach Delay (s)		23.8			15.8			41.2			37.5	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.1
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

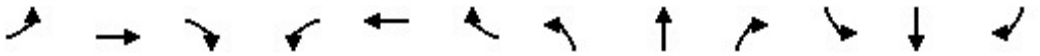
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	98	258	77	27	201	46	53	213	13	38	193	83
Future Volume (vph)	98	258	77	27	201	46	53	213	13	38	193	83
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	108	284	85	30	221	51	58	234	14	42	212	91

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	477	302	306	345
Volume Left (vph)	108	30	58	42
Volume Right (vph)	85	51	14	91
Hadj (s)	-0.03	-0.05	0.04	-0.10
Departure Headway (s)	7.8	8.2	8.3	8.0
Degree Utilization, x	1.03	0.69	0.71	0.77
Capacity (veh/h)	459	416	414	429
Control Delay (s)	77.7	27.6	29.1	33.3
Approach Delay (s)	77.7	27.6	29.1	33.3
Approach LOS	F	D	D	D

Intersection Summary				
Delay	46.0			
Level of Service	E			
Intersection Capacity Utilization	73.6%	ICU Level of Service	D	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	48	6	28	8	233	135	12	266	2
Future Volume (Veh/h)	2	2	3	48	6	28	8	233	135	12	266	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	58	7	34	10	281	163	14	320	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	883	933	468	842	852	434	403			483		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	883	933	468	842	852	434	403			483		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	75	97	94	99			99		
cM capacity (veh/h)	168	235	525	232	261	584	1078			1045		

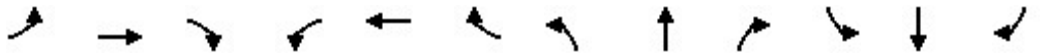
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	99	454	336
Volume Left	2	58	10	14
Volume Right	4	34	163	2
cSH	286	296	1078	1045
Volume to Capacity	0.03	0.33	0.01	0.01
Queue Length 95th (m)	0.7	11.4	0.2	0.3
Control Delay (s)	18.0	23.2	0.3	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	18.0	23.2	0.3	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	43.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	20	253	15	7	270
Future Volume (Veh/h)	12	20	253	15	7	270
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	17	28	356	21	10	380
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	844	430			407	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	844	430			407	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	95			99	
cM capacity (veh/h)	309	591			1123	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	45	377	390
Volume Left	17	0	10
Volume Right	28	21	0
cSH	440	1700	1123
Volume to Capacity	0.10	0.22	0.01
Queue Length 95th (m)	2.7	0.0	0.2
Control Delay (s)	14.1	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	14.1	0.0	0.3
Approach LOS	B		

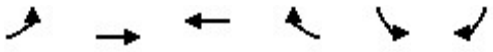
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	7	1	0	0	22	12	1	0	6	6
Future Volume (Veh/h)	3	1	7	1	0	0	22	12	1	0	6	6
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	9	1	0	0	29	16	1	0	8	8
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	236	237	193	191	240	80	134			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	236	237	193	191	240	80	134			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	98			100		
cM capacity (veh/h)	562	570	725	623	567	928	1308			1516		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	1	46	16
Volume Left	4	1	29	0
Volume Right	9	0	1	8
cSH	658	623	1308	1516
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.5	0.0	0.5	0.0
Control Delay (s)	10.6	10.8	5.0	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	10.8	5.0	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.0			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	72	42	55	59	37
Future Volume (Veh/h)	80	72	42	55	59	37
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	104	94	55	71	77	48
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	175				524	404
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	175				524	404
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				82	90
cM capacity (veh/h)	1344				423	483

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	198	126	125
Volume Left	104	0	77
Volume Right	0	71	48
cSH	1344	1700	444
Volume to Capacity	0.08	0.07	0.28
Queue Length 95th (m)	2.0	0.0	9.1
Control Delay (s)	4.5	0.0	16.2
Lane LOS	A		C
Approach Delay (s)	4.5	0.0	16.2
Approach LOS			C

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	78	14	31	109	6	8
Future Volume (Veh/h)	78	14	31	109	6	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	85	15	34	118	7	9
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	246	223			282	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	246	223			282	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	98			99	
cM capacity (veh/h)	658	728			1142	

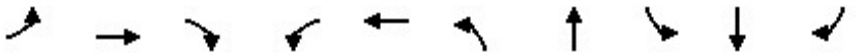
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	100	152	16
Volume Left	85	0	7
Volume Right	15	118	0
cSH	668	1700	1142
Volume to Capacity	0.15	0.09	0.01
Queue Length 95th (m)	4.2	0.0	0.1
Control Delay (s)	11.3	0.0	3.6
Lane LOS	B		A
Approach Delay (s)	11.3	0.0	3.6
Approach LOS	B		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	679	74	116	740	34	113
Future Volume (Veh/h)	679	74	116	740	34	113
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	715	78	122	779	36	119
Pedestrians	166			199	91	
Lane Width (m)	3.6			3.6	3.6	
Walking Speed (m/s)	1.2			1.2	1.2	
Percent Blockage	14			17	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (m)	137			181		
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			884		1644	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			780		1578	572
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		43	65
cM capacity (veh/h)			734		63	340

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	477	316	122	390	390	36	119
Volume Left	0	0	122	0	0	36	0
Volume Right	0	78	0	0	0	0	119
cSH	1700	1700	734	1700	1700	63	340
Volume to Capacity	0.28	0.19	0.17	0.23	0.23	0.57	0.35
Queue Length 95th (m)	0.0	0.0	4.7	0.0	0.0	18.7	12.2
Control Delay (s)	0.0	0.0	10.9	0.0	0.0	119.4	21.2
Lane LOS			B			F	C
Approach Delay (s)	0.0		1.5			44.0	
Approach LOS						E	

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		



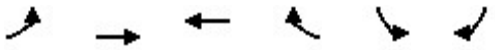
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	289	185	181	484	260	406	51	305	295
v/c Ratio	0.69	0.52	0.13	0.56	0.90	0.82	0.60	0.22	0.63	0.19
Control Delay	45.6	34.3	0.2	27.9	53.6	42.5	21.8	27.3	35.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.6	34.3	0.2	27.9	53.6	42.5	21.8	27.3	35.0	0.3
Queue Length 50th (m)	16.5	33.9	0.0	21.3	85.6	30.6	47.4	7.0	47.0	0.0
Queue Length 95th (m)	#38.8	80.3	0.0	36.5	#149.4	#63.2	76.7	16.7	73.7	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	198	561	1415	321	536	317	717	253	540	1530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.52	0.13	0.56	0.90	0.82	0.57	0.20	0.56	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	275	176	172	418	42	247	229	157	48	290	280
Future Volume (vph)	130	275	176	172	418	42	247	229	157	48	290	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.95	1.00	0.99		1.00	0.91		1.00	1.00	0.95
Flpb, ped/bikes	0.99	1.00	1.00	0.97	1.00		0.98	1.00		0.89	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1735	1872	1415	1667	1781		1769	1600		1593	1872	1530
Flt Permitted	0.18	1.00	1.00	0.46	1.00		0.31	1.00		0.52	1.00	1.00
Satd. Flow (perm)	337	1872	1415	809	1781		585	1600		878	1872	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	137	289	185	181	440	44	260	241	165	51	305	295
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	137	289	185	181	480	0	260	378	0	51	305	295
Confl. Peds. (#/hr)	61		124	124		61	108		115	115		108
Confl. Bikes (#/hr)			21			25			21			20
Heavy Vehicles (%)	5%	3%	8%	3%	2%	3%	2%	3%	2%	2%	3%	2%
Bus Blockages (#/hr)	0	0	4	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	32.4	27.0	90.0	32.4	27.0		36.7	36.7		23.4	23.4	90.0
Effective Green, g (s)	32.4	27.0	90.0	32.4	27.0		36.7	36.7		23.4	23.4	90.0
Actuated g/C Ratio	0.36	0.30	1.00	0.36	0.30		0.41	0.41		0.26	0.26	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	205	561	1415	342	534		324	652		228	486	1530
v/s Ratio Prot	c0.04	0.15		0.03	c0.27		c0.06	0.24			0.16	
v/s Ratio Perm	0.20		0.13	0.16			c0.27			0.06		0.19
v/c Ratio	0.67	0.52	0.13	0.53	0.90		0.80	0.58		0.22	0.63	0.19
Uniform Delay, d1	21.9	26.1	0.0	22.0	30.2		23.2	20.7		26.2	29.4	0.0
Progression Factor	1.33	1.13	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.1	3.3	0.2	1.1	20.6		13.0	1.3		0.5	2.5	0.3
Delay (s)	36.2	32.8	0.2	23.1	50.8		36.2	21.9		26.7	32.0	0.3
Level of Service	D	C	A	C	D		D	C		C	C	A
Approach Delay (s)		23.7			43.2			27.5			17.2	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	581	834	142	0	126
Future Volume (Veh/h)	0	581	834	142	0	126
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	605	869	148	0	131
Pedestrians			1		43	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.94	
vC, conflicting volume	1060				1290	552
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1060				1181	552
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	72
cM capacity (veh/h)	629				165	460

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	302	302	579	438	131
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	148	131
cSH	1700	1700	1700	1700	1700	460
Volume to Capacity	0.00	0.18	0.18	0.34	0.26	0.28
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	9.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.9
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.9
Approach LOS						C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

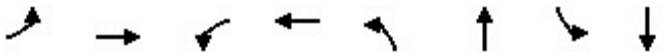
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	589	72	918	27	53
v/c Ratio	0.25	0.14	0.37	0.06	0.04
Control Delay	4.1	7.1	6.7	25.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	7.1	6.7	25.2	0.1
Queue Length 50th (m)	21.3	4.1	31.4	3.7	0.0
Queue Length 95th (m)	13.3	m6.5	m38.9	10.2	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2367	527	2481	478	1311
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.14	0.37	0.06	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	530	42	70	890	26	51
Future Volume (vph)	530	42	70	890	26	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	0.91
Flpb, ped/bikes	1.00		0.94	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3369		1670	3539	1656	1355
Flt Permitted	1.00		0.43	1.00	0.95	1.00
Satd. Flow (perm)	3369		751	3539	1656	1355
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	546	43	72	918	27	53
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	584	0	72	918	27	53
Confl. Peds. (#/hr)		74	74		106	70
Confl. Bikes (#/hr)		20				11
Heavy Vehicles (%)	5%	2%	2%	2%	9%	9%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	61.2		61.2	61.2	19.2	90.0
Effective Green, g (s)	61.2		61.2	61.2	19.2	86.0
Actuated g/C Ratio	0.68		0.68	0.68	0.21	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2290		510	2406	353	1294
v/s Ratio Prot	0.17			c0.26	c0.02	
v/s Ratio Perm			0.10			0.04
v/c Ratio	0.25		0.14	0.38	0.08	0.04
Uniform Delay, d1	5.6		5.1	6.2	28.3	0.1
Progression Factor	0.58		0.91	0.85	1.00	1.00
Incremental Delay, d2	0.3		0.5	0.4	0.2	0.0
Delay (s)	3.5		5.1	5.7	28.5	0.1
Level of Service	A		A	A	C	A
Approach Delay (s)	3.5			5.6	9.7	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	461	40	895	38	85	162	114
v/c Ratio	0.13	0.20	0.07	0.39	0.16	0.23	0.67	0.31
Control Delay	2.0	0.9	2.5	3.1	28.6	19.6	45.9	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	0.9	2.5	3.1	28.6	19.6	45.9	25.0
Queue Length 50th (m)	0.5	1.5	1.0	2.1	5.8	8.0	27.7	14.4
Queue Length 95th (m)	m1.2	2.2	1.0	0.0	13.1	18.6	44.6	26.6
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	353	2266	584	2275	420	605	421	628
Starvation Cap Reductn	0	0	0	190	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.20	0.07	0.43	0.09	0.14	0.38	0.18

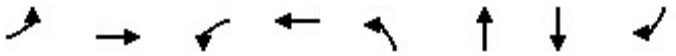
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	380	72	39	719	158	37	51	32	159	82	29
Future Volume (vph)	46	380	72	39	719	158	37	51	32	159	82	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	0.96		1.00	0.98	
Flpb, ped/bikes	0.98	1.00		0.96	1.00		0.96	1.00		0.94	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1705	3359		1696	3369		1697	1688		1657	1778	
Flt Permitted	0.29	1.00		0.49	1.00		0.68	1.00		0.70	1.00	
Satd. Flow (perm)	526	3359		869	3369		1221	1688		1224	1778	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	388	73	40	734	161	38	52	33	162	84	30
RTOR Reduction (vph)	0	12	0	0	14	0	0	26	0	0	18	0
Lane Group Flow (vph)	47	449	0	40	881	0	38	59	0	162	96	0
Confl. Peds. (#/hr)	40		35	35		40	41		57	57		41
Confl. Bikes (#/hr)			20			26			20			20
Heavy Vehicles (%)	5%	5%	3%	2%	2%	2%	2%	2%	2%	4%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Effective Green, g (s)	60.5	60.5		60.5	60.5		17.8	17.8		17.8	17.8	
Actuated g/C Ratio	0.67	0.67		0.67	0.67		0.20	0.20		0.20	0.20	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	353	2257		584	2264		241	333		242	351	
v/s Ratio Prot		0.13			c0.26			0.03			0.05	
v/s Ratio Perm	0.09			0.05			0.03			c0.13		
v/c Ratio	0.13	0.20		0.07	0.39		0.16	0.18		0.67	0.27	
Uniform Delay, d1	5.3	5.6		5.1	6.5		29.9	30.0		33.4	30.6	
Progression Factor	0.17	0.12		0.33	0.37		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2		0.2	0.5		0.3	0.3		6.9	0.4	
Delay (s)	1.6	0.8		1.9	2.9		30.2	30.3		40.2	31.0	
Level of Service	A	A		A	A		C	C		D	C	
Approach Delay (s)		0.9			2.8			30.2			36.4	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

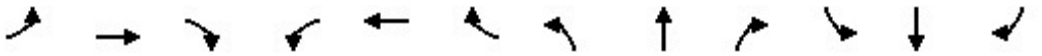
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	249	667	27	831	291	157	150	236
v/c Ratio	0.81	0.43	0.13	0.78	0.86	0.45	0.57	0.61
Control Delay	39.7	16.7	28.2	35.1	59.6	34.1	44.9	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	16.7	28.2	35.1	59.6	34.1	44.9	12.1
Queue Length 50th (m)	27.7	40.2	3.1	59.8	50.7	23.7	25.4	0.0
Queue Length 95th (m)	#70.7	55.7	m10.3	#82.7	#92.7	42.4	44.6	21.1
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	307	1534	213	1061	357	372	294	409
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.43	0.13	0.78	0.82	0.42	0.51	0.58

Intersection Summary

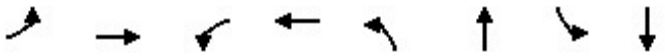
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	229	471	143	25	755	9	268	128	17	7	131	217
Future Volume (vph)	229	471	143	25	755	9	268	128	17	7	131	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97		1.00	1.00		1.00	1.00			1.00	0.83
Flpb, ped/bikes	1.00	1.00		0.96	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.97		1.00	1.00		1.00	0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1796	3295		1692	3526		1667	1711			1896	1347
Flt Permitted	0.14	1.00		0.40	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	264	3295		709	3526		1667	1711			1896	1347
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	249	512	155	27	821	10	291	139	18	8	142	236
RTOR Reduction (vph)	0	30	0	0	1	0	0	6	0	0	0	203
Lane Group Flow (vph)	249	637	0	27	830	0	291	151	0	0	150	33
Confl. Peds. (#/hr)	39		49	49		39	78					78
Confl. Bikes (#/hr)			21			27			10			12
Heavy Vehicles (%)	2%	4%	3%	2%	2%	2%	5%	2%	33%	2%	3%	2%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	41.1	41.1		27.0	27.0		18.3	18.3			12.5	12.5
Effective Green, g (s)	41.1	41.1		27.0	27.0		18.3	18.3			12.5	12.5
Actuated g/C Ratio	0.46	0.46		0.30	0.30		0.20	0.20			0.14	0.14
Clearance Time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	300	1504		212	1057		338	347			263	187
v/s Ratio Prot	c0.10	0.19			0.24		c0.17	0.09			c0.08	
v/s Ratio Perm	c0.28			0.04								0.02
v/c Ratio	0.83	0.42		0.13	0.79		0.86	0.44			0.57	0.18
Uniform Delay, d1	18.3	16.5		22.9	28.8		34.6	31.3			36.2	34.2
Progression Factor	1.00	1.00		1.09	0.99		1.00	1.00			1.00	1.00
Incremental Delay, d2	17.1	0.9		1.2	5.6		19.5	0.9			3.0	0.4
Delay (s)	35.4	17.3		26.1	34.2		54.1	32.2			39.2	34.7
Level of Service	D	B		C	C		D	C			D	C
Approach Delay (s)		22.3			33.9			46.5			36.4	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



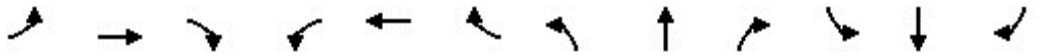
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	162	262	28	281	85	289	30	400
v/c Ratio	0.44	0.41	0.08	0.46	0.27	0.41	0.08	0.59
Control Delay	14.4	11.2	9.7	12.3	11.4	10.8	8.9	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	11.2	9.7	12.3	11.4	10.8	8.9	12.6
Queue Length 50th (m)	6.9	10.2	1.0	11.7	3.2	11.4	1.0	15.2
Queue Length 95th (m)	24.6	31.4	5.7	35.2	13.5	34.3	5.7	46.8
Internal Link Dist (m)		457.4		138.8		129.7		79.8
Turn Bay Length (m)	30.0		30.0		30.0		30.0	
Base Capacity (vph)	977	1655	930	1596	774	1745	916	1625
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.16	0.03	0.18	0.11	0.17	0.03	0.25

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	191	53	26	226	35	79	260	8	28	236	136
Future Volume (vph)	151	191	53	26	226	35	79	260	8	28	236	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			9%			0%			-3%	
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.99		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	0.97	1.00		0.97	1.00		0.98	1.00		0.98	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1751	1798		1645	1725		1709	1826		1601	1738	
Flt Permitted	0.59	1.00		0.60	1.00		0.46	1.00		0.58	1.00	
Satd. Flow (perm)	1082	1798		1035	1725		829	1826		982	1738	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	162	205	57	28	243	38	85	280	9	30	254	146
RTOR Reduction (vph)	0	12	0	0	7	0	0	1	0	0	27	0
Lane Group Flow (vph)	162	250	0	28	274	0	85	288	0	30	373	0
Confl. Peds. (#/hr)	37		38	38		37	45		32	32		45
Confl. Bikes (#/hr)			21			20			11			12
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	14%	12%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.9	12.9		12.9	12.9		14.1	14.1		14.1	14.1	
Effective Green, g (s)	12.9	12.9		12.9	12.9		14.1	14.1		14.1	14.1	
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	387	644		370	618		324	715		384	680	
v/s Ratio Prot		0.14			c0.16			0.16			c0.21	
v/s Ratio Perm	0.15			0.03			0.10			0.03		
v/c Ratio	0.42	0.39		0.08	0.44		0.26	0.40		0.08	0.55	
Uniform Delay, d1	8.7	8.6		7.6	8.8		7.4	7.9		6.9	8.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.4		0.1	0.5		0.4	0.4		0.1	0.9	
Delay (s)	9.5	9.0		7.7	9.3		7.9	8.3		7.0	9.4	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		9.2			9.2			8.2			9.2	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	36.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	9	48	3	36	5	318	96	14	326	2
Future Volume (Veh/h)	2	0	9	48	3	36	5	318	96	14	326	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	0	11	56	4	42	6	374	113	16	384	2
Pedestrians		56			30			55				
Lane Width (m)		3.6			3.6			3.6				
Walking Speed (m/s)		1.2			1.2			1.2				
Percent Blockage		5			3			5				
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								104				
pX, platoon unblocked	0.91	0.91		0.91	0.91	0.91				0.91		
vC, conflicting volume	960	1002	496	956	946	460	442			517		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	903	950	496	898	888	351	442			414		
tC, single (s)	7.1	6.5	6.3	7.2	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.6	4.0	3.3	2.4			2.2		
p0 queue free %	99	100	98	71	98	93	99			98		
cM capacity (veh/h)	191	215	504	195	232	610	959			1010		

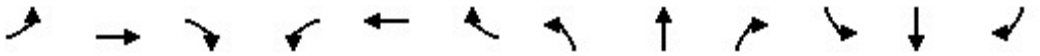
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	102	493	402
Volume Left	2	56	6	16
Volume Right	11	42	113	2
cSH	403	273	959	1010
Volume to Capacity	0.03	0.37	0.01	0.02
Queue Length 95th (m)	0.8	13.3	0.2	0.4
Control Delay (s)	14.2	25.8	0.2	0.5
Lane LOS	B	D	A	A
Approach Delay (s)	14.2	25.8	0.2	0.5
Approach LOS	B	D		

Intersection Summary				
Average Delay	3.1			
Intersection Capacity Utilization	44.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	16	24	402	13	7	377
Future Volume (Veh/h)	16	24	402	13	7	377
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	16	25	414	13	7	389
Pedestrians	30		35			
Lane Width (m)	3.6		3.6			
Walking Speed (m/s)	1.2		1.2			
Percent Blockage	3		3			
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			305			
pX, platoon unblocked						
vC, conflicting volume	888	450			457	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	888	450			457	
tC, single (s)	6.4	6.4			4.4	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.5	
p0 queue free %	95	96			99	
cM capacity (veh/h)	294	564			935	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	41	427	396
Volume Left	16	0	7
Volume Right	25	13	0
cSH	415	1700	935
Volume to Capacity	0.10	0.25	0.01
Queue Length 95th (m)	2.6	0.0	0.2
Control Delay (s)	14.6	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.6	0.0	0.2
Approach LOS	B		

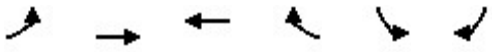
Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		35.4%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	15	1	1	0	24	21	0	1	16	5
Future Volume (Veh/h)	3	1	15	1	1	0	24	21	0	1	16	5
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	16	1	1	0	26	23	0	1	17	5
Pedestrians		75			37			86			35	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		6			3			7			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	207	208	180	236	211	95	97			60		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	207	208	180	236	211	95	97			60		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.3			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.4			2.2		
p0 queue free %	100	100	98	100	100	100	98			100		
cM capacity (veh/h)	625	613	750	579	611	905	1319			1496		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	2	49	23
Volume Left	3	1	26	1
Volume Right	16	0	0	5
cSH	721	594	1319	1496
Volume to Capacity	0.03	0.00	0.02	0.00
Queue Length 95th (m)	0.7	0.1	0.5	0.0
Control Delay (s)	10.1	11.1	4.2	0.3
Lane LOS	B	B	A	A
Approach Delay (s)	10.1	11.1	4.2	0.3
Approach LOS	B	B		

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	32.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	58	62	38	43	97	37
Future Volume (Veh/h)	58	62	38	43	97	37
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	69	74	45	51	115	44
Pedestrians		78	92		33	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		7	8		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	129				408	182
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	129				408	182
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				78	94
cM capacity (veh/h)	1417				513	783

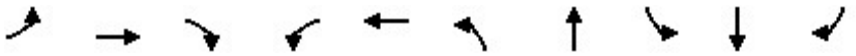
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	143	96	159
Volume Left	69	0	115
Volume Right	0	51	44
cSH	1417	1700	567
Volume to Capacity	0.05	0.06	0.28
Queue Length 95th (m)	1.2	0.0	9.2
Control Delay (s)	3.9	0.0	13.8
Lane LOS	A		B
Approach Delay (s)	3.9	0.0	13.8
Approach LOS			B

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	97	17	43	63	3	29
Future Volume (Veh/h)	97	17	43	63	3	29
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	105	18	47	68	3	32
Pedestrians	80					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	7					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	199	161			195	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	199	161			195	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	98			100	
cM capacity (veh/h)	735	825			1286	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	123	115	35
Volume Left	105	0	3
Volume Right	18	68	0
cSH	747	1700	1286
Volume to Capacity	0.16	0.07	0.00
Queue Length 95th (m)	4.7	0.0	0.1
Control Delay (s)	10.8	0.0	0.7
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	0.7
Approach LOS	B		

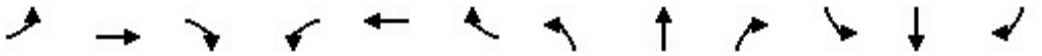
Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	168	415	260	176	434	282	404	13	222	244
v/c Ratio	0.83	0.83	0.18	0.83	0.86	0.72	0.58	0.05	0.43	0.17
Control Delay	55.0	46.6	0.3	52.7	49.2	31.6	21.4	26.3	30.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	46.6	0.3	52.7	49.2	31.6	21.4	26.3	30.9	0.2
Queue Length 50th (m)	20.0	72.6	0.0	21.2	76.0	36.1	49.9	1.9	35.1	0.0
Queue Length 95th (m)	#47.5	#116.1	0.0	#45.9	#124.9	#63.4	81.9	6.6	57.6	0.0
Internal Link Dist (m)		51.5			506.1		102.2		479.0	
Turn Bay Length (m)				70.0				5.0		40.0
Base Capacity (vph)	202	561	1417	212	560	394	701	245	518	1477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.74	0.18	0.83	0.78	0.72	0.58	0.05	0.43	0.17

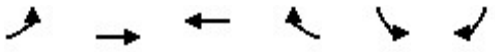
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	390	244	165	380	28	265	206	174	12	209	229
Future Volume (vph)	158	390	244	165	380	28	265	206	174	12	209	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			3%			-3%			-3%	
Total Lost time (s)	7.8	6.4	4.0	7.8	6.4		6.8	6.7		6.7	6.7	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.93	1.00	0.98		1.00	0.89		1.00	1.00	0.92
Flpb, ped/bikes	0.98	1.00	1.00	0.99	1.00		0.94	1.00		0.88	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1752	1853	1417	1671	1778		1691	1549		1578	1837	1477
Flt Permitted	0.23	1.00	1.00	0.22	1.00		0.44	1.00		0.52	1.00	1.00
Satd. Flow (perm)	428	1853	1417	396	1778		788	1549		871	1837	1477
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	168	415	260	176	404	30	282	219	185	13	222	244
RTOR Reduction (vph)	0	0	0	0	3	0	0	31	0	0	0	0
Lane Group Flow (vph)	168	415	260	176	431	0	282	373	0	13	222	244
Confl. Peds. (#/hr)	103		163	163		103	222		120	120		222
Confl. Bikes (#/hr)			25			24			21			20
Heavy Vehicles (%)	3%	2%	6%	5%	2%	8%	2%	4%	2%	2%	5%	2%
Bus Blockages (#/hr)	0	5	5	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		Perm	NA	Free
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		Free	6			8			4		Free
Actuated Green, G (s)	30.2	25.0	92.2	32.2	26.0		40.1	40.1		26.1	26.1	92.2
Effective Green, g (s)	30.2	25.0	92.2	32.2	26.0		40.1	40.1		26.1	26.1	92.2
Actuated g/C Ratio	0.33	0.27	1.00	0.35	0.28		0.43	0.43		0.28	0.28	1.00
Clearance Time (s)	7.8	6.4		7.8	6.4		6.8	6.7		6.7	6.7	
Vehicle Extension (s)	2.5	3.0		2.5	3.0		2.5	3.0		3.0	3.0	
Lane Grp Cap (vph)	214	502	1417	224	501		413	673		246	520	1477
v/s Ratio Prot	0.04	0.22		c0.05	c0.24		0.05	c0.24			0.12	
v/s Ratio Perm	0.21		c0.18	0.22			c0.24			0.01		0.17
v/c Ratio	0.79	0.83	0.18	0.79	0.86		0.68	0.55		0.05	0.43	0.17
Uniform Delay, d1	26.7	31.6	0.0	24.8	31.4		20.7	19.4		24.1	27.0	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.5	10.7	0.3	15.9	14.1		4.2	1.0		0.1	0.6	0.2
Delay (s)	43.2	42.3	0.3	40.7	45.4		25.0	20.4		24.1	27.5	0.2
Level of Service	D	D	A	D	D		C	C		C	C	A
Approach Delay (s)		29.5			44.1			22.3			13.5	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	92.2	Sum of lost time (s)	27.7
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	791	754	148	0	102
Future Volume (Veh/h)	0	791	754	148	0	102
Sign Control		Free	Free		Stop	
Grade		0%	0%		3%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	833	794	156	0	107
Pedestrians			5		74	
Lane Width (m)			3.6		3.6	
Walking Speed (m/s)			1.2		1.2	
Percent Blockage			0		6	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)		58	123			
pX, platoon unblocked					0.89	
vC, conflicting volume	1024				1368	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1024				1174	549
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	76
cM capacity (veh/h)	632				154	450

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	SB 1
Volume Total	0	416	416	529	421	107
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	156	107
cSH	1700	1700	1700	1700	1700	450
Volume to Capacity	0.00	0.24	0.24	0.31	0.25	0.24
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	7.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	15.5
Lane LOS						C
Approach Delay (s)	0.0			0.0		15.5
Approach LOS						C

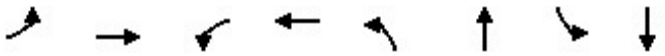
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	39.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	793	122	779	36	119
v/c Ratio	0.37	0.34	0.35	0.08	0.10
Control Delay	9.0	11.2	8.6	25.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	11.2	8.6	25.4	0.2
Queue Length 50th (m)	32.0	9.5	32.2	4.9	0.0
Queue Length 95th (m)	37.1	20.8	42.6	12.4	0.0
Internal Link Dist (m)	112.8		34.1	17.8	
Turn Bay Length (m)		7.0			
Base Capacity (vph)	2132	359	2217	491	1177
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.37	0.34	0.35	0.07	0.10

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	679	74	116	740	34	113
Future Volume (vph)	679	74	116	740	34	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6		5.6	5.6	4.0	5.6
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frpb, ped/bikes	0.98		1.00	1.00	1.00	0.78
Flpb, ped/bikes	1.00		0.95	1.00	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3389		1685	3539	1770	1241
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	3389		574	3539	1770	1241
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	715	78	122	779	36	119
RTOR Reduction (vph)	9	0	0	0	0	0
Lane Group Flow (vph)	784	0	122	779	36	119
Confl. Peds. (#/hr)		91	91		166	199
Confl. Bikes (#/hr)		27				10
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			2	4	
Permitted Phases			2			2 4
Actuated Green, G (s)	56.4		56.4	56.4	24.0	90.0
Effective Green, g (s)	56.4		56.4	56.4	24.0	86.0
Actuated g/C Ratio	0.63		0.63	0.63	0.27	0.96
Clearance Time (s)	5.6		5.6	5.6	4.0	
Vehicle Extension (s)	3.0		3.0	3.0	5.0	
Lane Grp Cap (vph)	2123		359	2217	472	1185
v/s Ratio Prot	c0.23			0.22	0.02	
v/s Ratio Perm			0.21			c0.10
v/c Ratio	0.37		0.34	0.35	0.08	0.10
Uniform Delay, d1	8.2		8.0	8.0	24.7	0.1
Progression Factor	1.07		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5		2.6	0.4	0.1	0.1
Delay (s)	9.2		10.5	8.5	24.8	0.2
Level of Service	A		B	A	C	A
Approach Delay (s)	9.2			8.8	5.9	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.6
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	631	75	731	115	233	176	196
v/c Ratio	0.11	0.30	0.17	0.35	0.47	0.53	0.87	0.44
Control Delay	3.2	2.5	7.1	5.9	33.5	24.1	67.4	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.2	2.5	7.1	5.9	33.5	24.1	67.4	28.2
Queue Length 50th (m)	0.7	4.0	3.0	8.5	17.6	25.7	30.2	27.7
Queue Length 95th (m)	m1.4	6.6	7.3	21.5	29.7	41.8	49.7	41.1
Internal Link Dist (m)		174.4		112.8		35.3		138.8
Turn Bay Length (m)	15.0		40.0				35.0	
Base Capacity (vph)	359	2089	443	2089	425	708	353	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.30	0.17	0.35	0.27	0.33	0.50	0.26

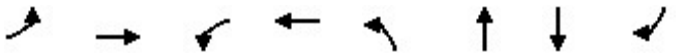
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	476	130	72	577	125	110	115	108	169	159	29
Future Volume (vph)	38	476	130	72	577	125	110	115	108	169	159	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			0%			-3%	
Total Lost time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.96		1.00	0.92		1.00	0.99	
Flpb, ped/bikes	0.94	1.00		0.95	1.00		0.96	1.00		0.90	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.93		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1539	3307		1678	3317		1691	1585		1607	1795	
Flt Permitted	0.35	1.00		0.40	1.00		0.57	1.00		0.50	1.00	
Satd. Flow (perm)	569	3307		704	3317		1010	1585		842	1795	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	496	135	75	601	130	115	120	112	176	166	30
RTOR Reduction (vph)	0	19	0	0	14	0	0	49	0	0	10	0
Lane Group Flow (vph)	40	612	0	75	717	0	115	184	0	176	186	0
Confl. Peds. (#/hr)	79		58	58		79	52		125	125		52
Confl. Bikes (#/hr)			24			30			20			21
Heavy Vehicles (%)	12%	4%	2%	2%	2%	2%	2%	2%	2%	3%	2%	12%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)	56.4	56.4		56.4	56.4		21.9	21.9		21.9	21.9	
Effective Green, g (s)	56.4	56.4		56.4	56.4		21.9	21.9		21.9	21.9	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.24	0.24		0.24	0.24	
Clearance Time (s)	5.7	5.7		5.7	5.7		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	356	2072		441	2078		245	385		204	436	
v/s Ratio Prot		0.19			c0.22			0.12			0.10	
v/s Ratio Perm	0.07			0.11			0.11			c0.21		
v/c Ratio	0.11	0.30		0.17	0.35		0.47	0.48		0.86	0.43	
Uniform Delay, d1	6.7	7.7		7.0	8.0		29.1	29.2		32.6	28.8	
Progression Factor	0.28	0.27		0.64	0.61		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.3		0.8	0.4		1.4	0.9		29.2	0.7	
Delay (s)	2.4	2.4		5.3	5.3		30.5	30.1		61.8	29.4	
Level of Service	A	A		A	A		C	C		E	C	
Approach Delay (s)		2.4			5.3			30.2			44.8	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

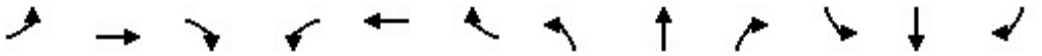
c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	212	904	27	736	232	148	158	204
v/c Ratio	0.62	0.59	0.15	0.65	0.76	0.47	0.56	0.56
Control Delay	23.0	18.3	21.6	24.1	51.0	33.9	43.9	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	18.3	21.6	24.1	51.0	33.9	43.9	11.6
Queue Length 50th (m)	22.1	57.3	2.9	43.8	39.8	21.4	26.8	0.0
Queue Length 95th (m)	#38.6	80.5	7.4	52.3	63.9	39.2	46.8	19.9
Internal Link Dist (m)		330.2		174.4		209.9	129.7	
Turn Bay Length (m)	75.0		20.0		25.0			25.0
Base Capacity (vph)	348	1541	177	1128	357	365	297	376
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.59	0.15	0.65	0.65	0.41	0.53	0.54

Intersection Summary

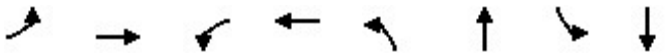
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	593	247	25	677	7	216	107	31	8	139	190
Future Volume (vph)	197	593	247	25	677	7	216	107	31	8	139	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			0%			6%			-6%	
Total Lost time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.93		1.00	1.00		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.99	1.00		0.95	1.00		1.00	1.00			1.00	1.00
Frt	1.00	0.96		1.00	1.00		1.00	0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1785	3188		1675	3525		1667	1650			1913	1312
Flt Permitted	0.20	1.00		0.32	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	384	3188		556	3525		1667	1650			1913	1312
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	212	638	266	27	728	8	232	115	33	9	149	204
RTOR Reduction (vph)	0	47	0	0	1	0	0	12	0	0	0	174
Lane Group Flow (vph)	212	857	0	27	735	0	232	136	0	0	158	30
Confl. Peds. (#/hr)	70		83	83		70	91					91
Confl. Bikes (#/hr)			29			29			11			11
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	5%	2%	26%	2%	2%	2%
Turn Type	pm+pt	NA		Perm	NA		Split	NA		Split	NA	Perm
Protected Phases	1	6			2		4	4		8	8	
Permitted Phases	6			2								8
Actuated Green, G (s)	42.2	42.2		28.7	28.7		16.5	16.5			13.2	13.2
Effective Green, g (s)	42.2	42.2		28.7	28.7		16.5	16.5			13.2	13.2
Actuated g/C Ratio	0.47	0.47		0.32	0.32		0.18	0.18			0.15	0.15
Clearance Time (s)	3.5	5.8		5.8	5.8		6.3	6.3			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	335	1494		177	1124		305	302			280	192
v/s Ratio Prot	c0.07	0.27			0.21		c0.14	0.08			c0.08	
v/s Ratio Perm	c0.23			0.05								0.02
v/c Ratio	0.63	0.57		0.15	0.65		0.76	0.45			0.56	0.16
Uniform Delay, d1	16.1	17.4		21.9	26.4		34.9	32.7			35.7	33.5
Progression Factor	1.00	1.00		0.78	0.76		1.00	1.00			1.00	1.00
Incremental Delay, d2	3.9	1.6		1.8	2.9		10.7	1.1			2.6	0.4
Delay (s)	20.0	19.0		18.8	23.0		45.5	33.8			38.3	33.9
Level of Service	B	B		B	C		D	C			D	C
Approach Delay (s)		19.2			22.8			40.9			35.8	
Approach LOS		B			C			D			D	

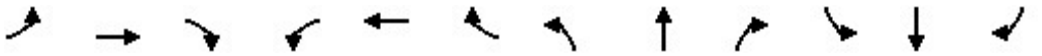
Intersection Summary			
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	369	30	272	58	248	42	303
v/c Ratio	0.29	0.54	0.09	0.43	0.17	0.39	0.12	0.50
Control Delay	10.4	11.6	8.4	10.2	10.2	11.1	9.6	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.4	11.6	8.4	10.2	10.2	11.1	9.6	11.8
Queue Length 50th (m)	3.8	13.7	1.0	9.5	2.1	9.5	1.5	11.0
Queue Length 95th (m)	14.1	38.6	5.1	28.2	9.2	28.7	7.2	33.7
Internal Link Dist (m)		457.4		138.8		129.7		79.8
Turn Bay Length (m)	30.0		30.0		30.0		30.0	
Base Capacity (vph)	974	1721	834	1620	949	1770	1006	1652
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.21	0.04	0.17	0.06	0.14	0.04	0.18

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	258	77	27	201	46	53	213	13	38	193	83
Future Volume (vph)	98	258	77	27	201	46	53	213	13	38	193	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			9%			0%			-3%	
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98		1.00	1.00		1.00	0.97	
Flpb, ped/bikes	0.95	1.00		0.98	1.00		0.96	1.00		0.97	1.00	
Frt	1.00	0.97		1.00	0.97		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1715	1792		1649	1695		1705	1839		1719	1757	
Flt Permitted	0.59	1.00		0.51	1.00		0.58	1.00		0.61	1.00	
Satd. Flow (perm)	1068	1792		879	1695		1033	1839		1095	1757	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	108	284	85	30	221	51	58	234	14	42	212	91
RTOR Reduction (vph)	0	14	0	0	10	0	0	3	0	0	20	0
Lane Group Flow (vph)	108	355	0	30	262	0	58	245	0	42	283	0
Confl. Peds. (#/hr)	71		44	44		71	60		51	51		60
Confl. Bikes (#/hr)			20			22			12			15
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.9	12.9		12.9	12.9		11.7	11.7		11.7	11.7	
Effective Green, g (s)	12.9	12.9		12.9	12.9		11.7	11.7		11.7	11.7	
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.35	0.35		0.35	0.35	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	410	688		337	650		359	640		381	611	
v/s Ratio Prot		c0.20			0.15			0.13			c0.16	
v/s Ratio Perm	0.10			0.03			0.06			0.04		
v/c Ratio	0.26	0.52		0.09	0.40		0.16	0.38		0.11	0.46	
Uniform Delay, d1	7.1	8.0		6.6	7.5		7.6	8.2		7.4	8.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.7		0.1	0.4		0.2	0.4		0.1	0.6	
Delay (s)	7.4	8.6		6.7	8.0		7.8	8.6		7.6	9.1	
Level of Service	A	A		A	A		A	A		A	A	
Approach Delay (s)		8.3			7.8			8.5			8.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	33.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	2	3	48	6	28	8	233	135	12	266	2
Future Volume (Veh/h)	2	2	3	48	6	28	8	233	135	12	266	2
Sign Control		Stop			Stop			Free			Free	
Grade		-6%			6%			3%			-3%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	2	2	4	58	7	34	10	281	163	14	320	2
Pedestrians		81			39			66			33	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		7			3			6			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)								104				
pX, platoon unblocked	0.94	0.94		0.94	0.94	0.94				0.94		
vC, conflicting volume	883	933	468	842	852	434	403			483		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	845	898	468	801	813	369	403			421		
tC, single (s)	7.6	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	4.0	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	75	97	94	99			99		
cM capacity (veh/h)	169	232	525	233	259	599	1078			1038		

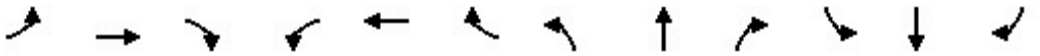
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	99	454	336
Volume Left	2	58	10	14
Volume Right	4	34	163	2
cSH	285	298	1078	1038
Volume to Capacity	0.03	0.33	0.01	0.01
Queue Length 95th (m)	0.7	11.3	0.2	0.3
Control Delay (s)	18.0	23.0	0.3	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	18.0	23.0	0.3	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	43.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	20	253	15	7	270
Future Volume (Veh/h)	12	20	253	15	7	270
Sign Control	Stop		Free			Free
Grade	6%		3%			-6%
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71
Hourly flow rate (vph)	17	28	356	21	10	380
Pedestrians	30		47			34
Lane Width (m)	3.6		3.6			3.6
Walking Speed (m/s)	1.2		1.2			1.2
Percent Blockage	3		4			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			305			
pX, platoon unblocked						
vC, conflicting volume	844	430			407	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	844	430			407	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	95			99	
cM capacity (veh/h)	309	591			1123	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	45	377	390
Volume Left	17	0	10
Volume Right	28	21	0
cSH	440	1700	1123
Volume to Capacity	0.10	0.22	0.01
Queue Length 95th (m)	2.7	0.0	0.2
Control Delay (s)	14.1	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	14.1	0.0	0.3
Approach LOS	B		

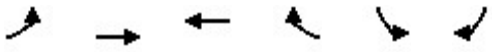
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	7	1	0	0	22	12	1	0	6	6
Future Volume (Veh/h)	3	1	7	1	0	0	22	12	1	0	6	6
Sign Control		Stop			Stop			Free			Free	
Grade		-3%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	4	1	9	1	0	0	29	16	1	0	8	8
Pedestrians		118			32			63			32	
Lane Width (m)		3.6			3.6			3.6			3.6	
Walking Speed (m/s)		1.2			1.2			1.2			1.2	
Percent Blockage		10			3			5			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	236	237	193	191	240	80	134			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	236	237	193	191	240	80	134			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	98			100		
cM capacity (veh/h)	562	570	725	623	567	928	1308			1516		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	14	1	46	16
Volume Left	4	1	29	0
Volume Right	9	0	1	8
cSH	658	623	1308	1516
Volume to Capacity	0.02	0.00	0.02	0.00
Queue Length 95th (m)	0.5	0.0	0.5	0.0
Control Delay (s)	10.6	10.8	5.0	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.6	10.8	5.0	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay	5.0			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	80	72	42	55	59	37
Future Volume (Veh/h)	80	72	42	55	59	37
Sign Control		Free	Free		Stop	
Grade		0%	-3%		-3%	
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77
Hourly flow rate (vph)	104	94	55	71	77	48
Pedestrians		265	83		49	
Lane Width (m)		3.6	3.6		3.6	
Walking Speed (m/s)		1.2	1.2		1.2	
Percent Blockage		22	7		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	175				524	404
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	175				524	404
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				82	90
cM capacity (veh/h)	1344				423	483

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	198	126	125
Volume Left	104	0	77
Volume Right	0	71	48
cSH	1344	1700	444
Volume to Capacity	0.08	0.07	0.28
Queue Length 95th (m)	2.0	0.0	9.1
Control Delay (s)	4.5	0.0	16.2
Lane LOS	A		C
Approach Delay (s)	4.5	0.0	16.2
Approach LOS			C

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	78	14	31	109	6	8
Future Volume (Veh/h)	78	14	31	109	6	8
Sign Control	Stop		Free			Free
Grade	0%		3%			-3%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	85	15	34	118	7	9
Pedestrians	130					
Lane Width (m)	3.6					
Walking Speed (m/s)	1.2					
Percent Blockage	11					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	246	223			282	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	246	223			282	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	98			99	
cM capacity (veh/h)	658	728			1142	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	100	152	16
Volume Left	85	0	7
Volume Right	15	118	0
cSH	668	1700	1142
Volume to Capacity	0.15	0.09	0.01
Queue Length 95th (m)	4.2	0.0	0.1
Control Delay (s)	11.3	0.0	3.6
Lane LOS	B		A
Approach Delay (s)	11.3	0.0	3.6
Approach LOS	B		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	25.4%	ICU Level of Service	A
Analysis Period (min)	15		

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.0	1.9	0.6	0.5	0.0	0.0	0.0	2.1	0.8	2.2
Total Del/Veh (s)	35.8	27.9	2.0	30.4	32.3	27.1	31.5	20.2	13.6	38.6	30.5	5.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	23.9

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.5	1.1	1.3	0.6	0.8	6.5	1.6

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.5	4.1	10.5	4.4	21.5	1.9	5.9

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.5	0.0	0.0
Total Del/Veh (s)	17.2	6.2	4.3	11.4	6.1	4.9	27.8	31.4	7.9	38.7	29.4	13.4

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	11.5

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.3	0.2	0.0	0.0	0.1	3.6	0.8	0.9	0.1	0.0	0.5
Total Del/Veh (s)	83.0	16.5	12.0	33.1	15.5	18.0	36.4	34.5	22.5	42.5	35.0	12.6

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	25.0

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.2	13.8	9.4	11.4	12.7	10.7	12.3	11.3	7.7	12.5	11.9	9.5

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	11.9

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		4.5	8.6	2.9	3.5	4.2	2.3	1.8	2.7	0.9	0.5	2.0

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0		0.3	0.1
Total Del/Veh (s)	9.7	3.3	0.4	0.5		0.7	0.8

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)			0.0		0.1	0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)			2.9		4.9	1.8	0.0		0.1	0.0	1.2

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	2.3	0.3	0.4	0.4	4.4	3.6	1.4

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.3	0.1	0.0	0.8	0.9

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	274.6

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	37.4	58.0	52.2	90.6	53.7	60.6	9.2	79.3	44.0
Average Queue (m)	18.9	38.4	24.1	57.1	27.6	36.3	4.6	41.1	15.7
95th Queue (m)	37.5	62.4	59.8	102.2	51.3	62.4	10.2	82.7	49.5
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	1	6			0				
Queuing Penalty (veh)	1	11			0				
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	4			24	45	0
Queuing Penalty (veh)			0	7			123	133	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	TR	R
Maximum Queue (m)	11.8	15.7	19.2	22.5	12.8
Average Queue (m)	5.8	2.2	3.4	7.2	6.1
95th Queue (m)	13.9	13.7	17.6	24.1	13.4
Link Distance (m)		22.9	36.7	36.7	50.7
Upstream Blk Time (%)	0	1	0	0	
Queuing Penalty (veh)	0	2	0	0	
Storage Bay Dist (m)	10.0				
Storage Blk Time (%)	8	0			
Queuing Penalty (veh)	20	0			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	43.3	28.9	10.2	24.4	28.2	8.6	12.1
Average Queue (m)	23.4	15.7	5.8	16.1	19.5	2.9	3.5
95th Queue (m)	46.4	31.5	13.4	27.6	32.9	9.9	11.5
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)			0	3	7		
Queuing Penalty (veh)			0	11	28		
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			10	18			
Queuing Penalty (veh)			37	11			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.6	29.1	22.4	10.3	25.0	33.8	16.0	27.5	37.7	31.1
Average Queue (m)	7.1	10.9	8.8	4.2	13.3	18.5	6.2	14.0	24.0	12.8
95th Queue (m)	17.0	29.1	22.9	11.5	26.4	34.4	16.7	30.3	40.3	30.3
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	6							5	0
Queuing Penalty (veh)	6	3							5	0

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	60.7	62.0	58.4	4.3	39.0	43.1	32.2	81.1	25.6	24.2
Average Queue (m)	41.7	36.6	35.0	0.8	24.4	28.3	28.8	42.0	12.9	10.3
95th Queue (m)	75.2	72.0	65.2	6.4	39.9	47.2	37.0	90.2	27.8	25.8
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	5	0			15		29	6	1	1
Queuing Penalty (veh)	13	0			1		38	14	2	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	42.5	34.9	30.2	45.4
Average Queue (m)	24.6	19.9	20.7	26.0
95th Queue (m)	39.9	34.1	31.6	46.0
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.2	12.2	8.6	10.0
Average Queue (m)	2.5	8.7	1.7	2.2
95th Queue (m)	9.6	14.0	7.9	9.6
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	11.6	1.8
Average Queue (m)	5.6	0.1
95th Queue (m)	13.8	2.0
Link Distance (m)	197.4	378.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.8	6.9	0.9
Average Queue (m)	2.9	1.2	0.1
95th Queue (m)	9.6	6.1	1.9
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	1.9	3.9	15.9
Average Queue (m)	0.3	0.6	8.0
95th Queue (m)	2.8	4.5	16.7
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	8.8
Average Queue (m)	2.8
95th Queue (m)	9.4
Link Distance (m)	58.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 469

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	2.4	0.6	0.6	0.0	0.0	0.0	2.0	0.5	2.1
Total Del/Veh (s)	28.3	23.2	2.1	28.7	37.8	35.1	29.6	22.0	14.8	50.6	29.5	4.0

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	23.3

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.9	1.3	4.0	2.3	0.6	6.7	2.9

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	6.7	3.8	23.1	7.5	22.8	3.3	7.9

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.3	0.4	0.0	0.0
Total Del/Veh (s)	18.3	7.9	6.4	19.8	9.7	7.0	27.2	26.5	16.8	39.6	24.7	15.6

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	14.9

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.3	0.3	0.1	0.0	0.0	3.7	0.6	0.7	0.0	0.0	0.4
Total Del/Veh (s)	37.0	18.3	15.9	43.0	23.2	19.4	36.0	32.2	19.4	32.7	30.9	11.2

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	22.9

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	20.1	18.6	15.5	11.6	12.9	8.1	11.4	10.7	7.1	11.0	11.4	9.1

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	13.8

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Del/Veh (s)	4.4		5.1	10.4	1.3	3.1	5.9	2.3	1.7	4.0	0.7	0.3

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	1.8

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.2	0.2
Total Del/Veh (s)	7.7	3.0	0.5	0.3	0.6	0.7

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0			0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	6.2	0.4			1.8	0.0		0.2	0.0	1.0

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	4.4	0.9	0.8	0.3	5.6	3.3	1.3

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.0	0.1	0.2	0.6	0.5

Total Zone Performance

Denied Del/Veh (s)	0.8
Total Del/Veh (s)	285.5

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	38.1	65.7	57.1	99.5	50.0	58.3	5.6	44.9	26.9
Average Queue (m)	19.4	46.5	26.4	63.7	30.4	36.7	1.9	24.9	7.1
95th Queue (m)	39.3	73.7	66.0	114.5	53.0	61.3	6.7	47.9	28.6
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	0	11							
Queuing Penalty (veh)	0	26							
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	9			11	39	0
Queuing Penalty (veh)			0	14			45	88	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	R
Maximum Queue (m)	11.0	17.0	3.4	37.6	37.2	12.7
Average Queue (m)	5.6	3.1	0.5	17.0	17.5	6.2
95th Queue (m)	13.6	16.2	4.4	40.7	41.1	12.6
Link Distance (m)		22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		1		1	1	
Queuing Penalty (veh)		2		6	3	
Storage Bay Dist (m)	10.0					
Storage Blk Time (%)	9	1				
Queuing Penalty (veh)	36	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	48.3	33.2	10.9	29.6	31.8	13.3	19.0
Average Queue (m)	24.2	14.0	8.9	24.0	23.1	5.5	8.2
95th Queue (m)	46.8	33.0	12.2	31.6	33.7	14.7	19.8
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				18	12		0
Queuing Penalty (veh)				72	46		0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			32	33			
Queuing Penalty (veh)			110	35			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	18.1	43.1	47.0	21.9	32.5	38.8	33.2	43.4	39.8	49.8
Average Queue (m)	7.9	17.5	19.0	9.9	15.8	20.9	18.8	27.4	25.2	25.1
95th Queue (m)	19.5	45.7	47.4	22.3	34.4	42.1	35.9	44.9	41.8	48.3
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							0	1		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	5	6		0	1				3	3
Queuing Penalty (veh)	13	2		0	0				5	4

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	32.9	59.0	73.0	16.7	61.7	67.4	32.3	68.4	34.7	22.0
Average Queue (m)	18.9	38.7	47.6	3.5	36.3	40.3	26.5	36.0	13.5	8.0
95th Queue (m)	35.2	60.3	78.8	14.0	61.7	68.6	37.3	73.8	33.4	23.0
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		0			25		21	6	2	0
Queuing Penalty (veh)		0			5		24	13	4	0

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	54.6	31.7	29.7	35.2
Average Queue (m)	32.5	20.5	17.9	20.6
95th Queue (m)	63.8	35.0	30.0	34.4
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.1	13.3	8.5	7.8
Average Queue (m)	2.8	8.6	2.4	1.9
95th Queue (m)	11.2	14.8	9.7	10.2
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB
Directions Served	LR	TR
Maximum Queue (m)	9.2	0.8
Average Queue (m)	4.7	0.1
95th Queue (m)	11.9	1.8
Link Distance (m)	197.4	183.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.8	4.2	2.7
Average Queue (m)	2.2	0.6	0.4
95th Queue (m)	8.4	4.2	3.4
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	6.1	5.9	10.6
Average Queue (m)	1.2	0.8	6.0
95th Queue (m)	6.3	5.6	13.2
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	6.2
Average Queue (m)	1.0
95th Queue (m)	5.7
Link Distance (m)	58.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 555

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.2	0.0	1.9	0.7	0.6	0.0	0.0	0.0	2.3	0.7	2.2
Total Del/Veh (s)	34.3	25.9	1.9	31.7	39.1	38.5	32.7	20.4	14.2	35.5	31.0	5.1

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	25.7

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.0	1.2	0.5	0.6	5.9	1.3

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	6.9	5.7	11.4	4.7	26.5	1.4	6.1

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.4	0.1	0.1
Total Del/Veh (s)	19.0	5.4	3.5	11.6	6.0	4.4	37.8	27.5	11.0	38.1	32.1	18.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	12.0

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.3	0.3	0.4	0.0	0.1	3.6	0.8	0.7	0.0	0.0	0.5
Total Del/Veh (s)	82.0	17.6	12.1	45.8	16.1	13.2	37.1	32.0	18.5	48.4	34.5	14.1

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	26.1

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.7	14.5	11.9	10.6	12.9	10.2	13.0	11.9	8.0	13.3	12.6	9.6

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	12.4

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.6	3.9	8.1	9.2	3.7	5.1	2.6	2.4	3.6	1.0	0.1	2.2

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1		0.3	0.1
Total Del/Veh (s)	9.2	4.3	0.5	0.3		0.8	0.8

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)			0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)			3.5		1.5	0.1		0.0	0.1	1.0

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.1	0.5	0.2	0.1	4.6	3.0	1.4

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.3	0.2	0.0	0.6	0.8

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	272.8

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	35.6	57.0	68.9	124.1	54.4	62.6	9.0	71.8	41.0
Average Queue (m)	18.4	35.4	31.3	70.7	34.2	36.9	4.4	37.5	14.2
95th Queue (m)	36.1	62.0	76.9	134.7	59.7	63.5	10.3	71.7	46.8
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	0	7							
Queuing Penalty (veh)	0	12							
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	11			24	44	0
Queuing Penalty (veh)			0	18			124	132	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	WB	WB	SB
Directions Served	T	TR	R
Maximum Queue (m)	14.4	16.4	12.3
Average Queue (m)	3.1	5.2	6.4
95th Queue (m)	13.0	16.7	13.0
Link Distance (m)	36.7	36.7	50.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	41.5	30.8	9.7	26.0	34.4	12.6	11.4
Average Queue (m)	22.0	15.7	6.4	17.5	20.7	5.2	3.2
95th Queue (m)	44.6	32.4	13.2	29.1	36.8	14.4	12.6
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				3	9		0
Queuing Penalty (veh)				14	36		0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			11	17			
Queuing Penalty (veh)			41	11			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.2	23.6	17.4	14.1	25.7	36.0	16.2	23.4	38.6	34.5
Average Queue (m)	8.2	8.6	5.4	5.5	13.3	19.2	8.5	11.4	24.7	16.4
95th Queue (m)	18.0	23.4	16.9	14.2	28.4	37.6	17.5	23.5	40.7	37.0
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	5	3			0				4	0
Queuing Penalty (veh)	8	1			0				4	1

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	74.2	68.8	59.4	2.1	44.4	49.0	32.2	79.5	26.1	23.6
Average Queue (m)	44.2	37.0	35.4	0.3	26.2	29.7	28.7	44.4	12.8	10.1
95th Queue (m)	80.5	79.7	65.7	1.7	47.1	52.5	37.1	84.2	28.3	25.4
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	9	0			17		30	6	2	1
Queuing Penalty (veh)	19	0			1		39	15	5	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	46.5	34.1	33.7	40.2
Average Queue (m)	27.4	19.8	22.7	25.4
95th Queue (m)	48.8	33.1	35.7	41.0
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	12.3	14.4	9.8	13.8
Average Queue (m)	4.5	8.3	1.4	2.5
95th Queue (m)	13.5	15.9	8.3	11.2
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	11.5	3.8
Average Queue (m)	4.7	0.5
95th Queue (m)	13.0	5.2
Link Distance (m)	197.4	378.7
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.9	0.9	3.3
Average Queue (m)	3.0	0.1	0.3
95th Queue (m)	9.7	1.8	2.7
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	3.6	0.7	14.8
Average Queue (m)	0.9	0.1	8.4
95th Queue (m)	5.4	1.4	16.1
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	8.7
Average Queue (m)	2.4
95th Queue (m)	8.8
Link Distance (m)	58.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 484

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.3	0.0	2.1	0.6	0.4	0.0	0.0	0.0	2.1	0.6	2.2
Total Del/Veh (s)	29.4	26.0	2.2	29.7	39.1	32.9	31.9	22.1	14.9	31.2	28.0	4.0

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	24.1

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		1.2	4.9	2.5	0.4	6.9	3.1

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.4	3.3	25.9	7.5	22.2	2.7	8.4

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.3	0.1	0.0
Total Del/Veh (s)	23.3	7.4	6.5	22.2	9.3	9.1	29.1	26.4	17.5	37.1	23.1	13.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	14.7

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.4	0.3	0.1	0.0	0.0	3.7	0.9	0.8	0.0	0.1	0.4
Total Del/Veh (s)	39.1	17.7	16.2	41.9	21.4	22.6	36.0	34.7	16.7	25.0	32.2	12.0

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	22.6

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	16.2	15.7	12.1	12.2	13.0	9.8	12.6	11.8	8.1	11.3	10.9	9.9

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	12.8

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.4		2.7	8.2	5.8	3.7	4.9	2.4	1.9	3.5	0.7	0.2

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	2.0

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1	0.3	0.2
Total Del/Veh (s)	8.3	2.6	0.6	0.6	0.7	0.9

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0			0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.8	0.7			2.9	0.1	0.1	0.1	1.0

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	3.5	0.6	0.5	0.2	4.4	4.0	1.0

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)		0.0	0.0	0.0	0.0
Total Del/Veh (s)		0.2	0.6	0.5	0.4

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	289.0

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	43.9	66.4	58.3	100.0	52.1	48.4	7.4	41.2	32.9
Average Queue (m)	22.6	45.9	32.4	64.0	35.0	33.1	1.7	22.2	7.8
95th Queue (m)	46.8	77.9	74.7	113.1	55.6	51.2	6.8	42.6	31.1
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	1	14							
Queuing Penalty (veh)	3	34							
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	9			6	40	0
Queuing Penalty (veh)			0	14			23	91	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	R
Maximum Queue (m)	3.7	5.9	4.3	36.8	41.0	10.6
Average Queue (m)	0.4	0.7	0.4	17.9	20.0	5.9
95th Queue (m)	3.5	5.4	3.4	41.4	45.1	11.6
Link Distance (m)		22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)				2	1	
Queuing Penalty (veh)				7	5	
Storage Bay Dist (m)	10.0					
Storage Blk Time (%)	1	0				
Queuing Penalty (veh)	2	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	46.2	32.5	10.2	29.0	31.6	15.6	14.4
Average Queue (m)	26.0	15.5	8.8	24.0	23.5	5.9	6.8
95th Queue (m)	49.3	32.9	12.2	31.0	34.2	15.9	15.7
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)			0	21	13		0
Queuing Penalty (veh)			0	82	51		0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			37	36			
Queuing Penalty (veh)			126	38			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.2	46.8	46.1	25.0	33.9	43.5	31.6	44.2	37.8	44.7
Average Queue (m)	7.3	15.7	17.8	10.8	16.9	24.4	19.5	27.2	24.9	23.0
95th Queue (m)	17.2	47.3	47.7	25.8	35.1	43.9	33.4	47.4	42.3	45.7
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							0	1		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	5	5		0	0				5	2
Queuing Penalty (veh)	11	2		1	0				9	3

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	44.6	63.4	73.5	18.9	55.3	56.7	32.2	75.5	25.2	19.9
Average Queue (m)	25.3	38.0	48.6	3.9	37.3	39.7	26.7	39.0	12.4	7.6
95th Queue (m)	46.9	64.9	77.6	17.6	58.5	60.6	36.5	81.5	27.3	19.5
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		0		0	25		19	5	1	0
Queuing Penalty (veh)		1		0	5		22	9	2	0

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	48.1	33.2	32.6	36.2
Average Queue (m)	30.1	20.2	20.5	22.5
95th Queue (m)	51.3	33.6	34.8	38.0
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.0	14.1	9.4	7.9
Average Queue (m)	3.3	8.8	1.6	1.9
95th Queue (m)	12.6	16.0	8.2	8.3
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB
Directions Served	LR	TR
Maximum Queue (m)	10.3	3.7
Average Queue (m)	4.7	0.5
95th Queue (m)	13.0	4.0
Link Distance (m)	197.4	183.1
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	5.3	0.9	3.6	0.7
Average Queue (m)	1.1	0.1	0.4	0.1
95th Queue (m)	6.0	1.8	3.3	1.4
Link Distance (m)	197.4	61.4	38.2	84.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	7.2	4.6	9.0
Average Queue (m)	1.7	0.8	4.1
95th Queue (m)	7.4	5.0	11.4
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB
Directions Served	LR	TR
Maximum Queue (m)	3.5	0.9
Average Queue (m)	0.4	0.1
95th Queue (m)	3.3	1.9
Link Distance (m)	58.3	28.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 540

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.2	0.0	1.8	0.7	0.8	0.0	0.0	0.0	2.1	0.8	2.2
Total Del/Veh (s)	39.2	28.1	2.0	54.1	62.8	58.1	36.0	20.9	13.7	47.5	34.3	8.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	33.5

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	12.6	1.2	1.6	0.9	0.7	7.6	1.8

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.6	5.9	11.8	4.5	22.0	1.8	6.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.0	0.0
Total Del/Veh (s)	22.2	6.8	4.9	14.0	6.8	5.3	35.5	28.4	13.1	36.6	27.1	12.3

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	12.1

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.3	0.3	0.8	0.0	0.0	3.6	0.9	0.7	0.1	0.0	0.6
Total Del/Veh (s)	106.2	17.6	13.7	11.7	13.8	13.9	45.6	45.3	31.0	30.6	35.6	17.0

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	28.6

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.4	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	25.3	23.9	17.0	23.1	22.3	21.1	17.1	14.0	17.0	25.9	25.8	23.4

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	21.8

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Del/Veh (s)	4.1	14.3	22.0	2.7	6.6	8.6	2.4	2.4	6.0	2.5		3.4

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0		0.3	0.1
Total Del/Veh (s)	8.4	3.4	0.5	0.1		0.8	0.8

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)			0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	3.0		3.7		2.3	0.0		0.2	0.0	1.0

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.9	0.5	0.5	0.4	4.9	3.5	1.5

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0		0.0	0.0
Total Del/Veh (s)	5.5	0.1		0.5	0.8

Total Zone Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	320.9

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	43.6	57.6	67.6	171.9	55.1	65.7	11.4	90.4	45.5
Average Queue (m)	23.6	40.5	44.9	108.9	31.6	37.1	5.5	53.5	21.4
95th Queue (m)	44.2	62.7	92.8	235.5	57.6	62.7	12.6	107.2	55.7
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	2	8							
Queuing Penalty (veh)	3	15							
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	25			30	49	0
Queuing Penalty (veh)			0	41			166	152	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	TR	R
Maximum Queue (m)	10.1	11.0	12.4	23.8	12.8
Average Queue (m)	5.6	2.5	3.4	6.6	6.5
95th Queue (m)	13.1	14.9	14.8	21.9	12.9
Link Distance (m)		22.9	36.7	36.7	50.7
Upstream Blk Time (%)		1	0	0	
Queuing Penalty (veh)		2	0	0	
Storage Bay Dist (m)	10.0				
Storage Blk Time (%)	7	0			
Queuing Penalty (veh)	21	0			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	46.2	28.2	10.2	24.5	30.4	14.2	10.6
Average Queue (m)	24.8	15.6	6.8	16.4	20.2	5.0	3.1
95th Queue (m)	49.2	32.2	13.4	28.6	32.4	14.7	10.7
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)			0	4	7		
Queuing Penalty (veh)			0	17	31		
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			12	18			
Queuing Penalty (veh)			46	12			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	18.8	28.0	20.5	11.1	27.1	35.8	17.9	27.9	37.9	33.9
Average Queue (m)	8.2	11.2	9.3	5.2	15.5	20.1	7.3	14.1	25.1	14.3
95th Queue (m)	19.7	28.0	22.5	12.4	31.1	38.8	19.6	30.8	41.0	35.2
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	6	7							4	0
Queuing Penalty (veh)	11	3							4	0

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	68.4	71.2	58.9	1.9	42.6	40.8	32.3	99.3	29.7	25.0
Average Queue (m)	47.3	38.1	37.3	0.3	24.2	26.0	30.4	63.3	14.8	12.1
95th Queue (m)	79.1	70.9	68.7	1.7	44.9	45.1	35.7	115.6	34.5	30.0
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	6				13		39	14	2	3
Queuing Penalty (veh)	15				1		53	37	4	3

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	59.9	52.3	36.9	63.6
Average Queue (m)	36.9	29.6	24.6	39.2
95th Queue (m)	69.5	59.6	38.5	73.1
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				2
Queuing Penalty (veh)				7
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.3	15.2	8.8	18.3
Average Queue (m)	3.5	8.9	1.6	5.6
95th Queue (m)	11.0	17.7	8.2	28.4
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	11.7	3.2	1.8
Average Queue (m)	5.4	0.6	0.3
95th Queue (m)	14.1	4.7	2.8
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.0	2.6	4.7
Average Queue (m)	3.3	0.5	0.7
95th Queue (m)	10.3	3.7	5.4
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	5.5	3.1	12.7
Average Queue (m)	1.0	0.4	6.9
95th Queue (m)	5.6	3.4	14.0
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	7.0
Average Queue (m)	1.7
95th Queue (m)	7.4
Link Distance (m)	58.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 643

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.5	0.6	0.0	2.3	0.7	0.5	0.0	0.0	0.0	2.3	0.6	2.3
Total Del/Veh (s)	36.7	26.9	2.1	36.8	44.4	46.0	35.5	22.6	16.9	38.6	31.0	4.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	27.5

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.0	1.4	6.0	2.8	0.4	8.0	4.0

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	8.0	4.9	27.3	7.9	22.2	2.6	8.9

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.3	0.4	0.0	0.0
Total Del/Veh (s)	16.8	7.0	5.8	27.1	9.6	8.9	28.0	22.7	14.4	37.4	25.1	17.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	14.2

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.3	0.4	0.1	0.0	0.0	3.5	0.8	0.9	0.0	0.0	0.4
Total Del/Veh (s)	34.9	18.9	18.0	47.4	23.1	19.3	38.0	38.7	24.3	31.9	32.8	15.2

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	24.2

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	23.6	27.1	23.1	19.1	20.3	19.6	16.9	14.1	13.4	16.5	16.2	14.6

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	20.1

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)		0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)		4.2	3.1	12.7	1.3	6.3	6.9	2.5	2.0	3.8	0.9	0.7

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	2.3

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.1		0.3	0.2
Total Del/Veh (s)	9.0	3.5	0.8	0.7		0.9	1.0

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	6.0	0.7		1.7	0.1		0.0	0.0	0.9

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	3.7	0.4	0.8	0.5	5.3	4.5	1.3

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.4	0.2	0.3	0.4	0.6

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	314.8

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	37.9	66.9	66.7	112.1	56.7	65.0	8.4	47.5	36.1
Average Queue (m)	23.7	49.6	32.3	76.9	36.6	38.6	2.4	27.7	10.5
95th Queue (m)	44.9	77.5	77.3	152.5	67.0	70.4	7.8	54.9	35.4
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	2	17				0			
Queuing Penalty (veh)	4	42				0			
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	13			12	39	0
Queuing Penalty (veh)			1	20			50	93	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	R
Maximum Queue (m)	10.9	17.6	8.0	38.6	40.0	11.8
Average Queue (m)	6.9	4.5	1.2	21.0	22.1	6.5
95th Queue (m)	14.2	18.6	8.0	43.2	48.2	13.2
Link Distance (m)		22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		0		3	2	
Queuing Penalty (veh)		1		14	11	
Storage Bay Dist (m)	10.0					
Storage Blk Time (%)	9	1				
Queuing Penalty (veh)	37	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	52.0	29.8	10.3	30.0	32.8	14.8	15.0
Average Queue (m)	27.6	16.1	9.1	25.0	25.5	6.2	7.7
95th Queue (m)	60.6	32.8	10.9	32.3	35.7	15.3	17.1
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)	0			26	14		0
Queuing Penalty (veh)	1			109	61		0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			40	40			
Queuing Penalty (veh)			144	45			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	19.9	53.1	43.6	27.5	30.6	40.5	33.2	43.5	37.4	43.0
Average Queue (m)	7.1	17.9	16.2	11.4	17.0	24.7	17.5	26.0	23.3	20.2
95th Queue (m)	19.5	51.6	44.1	26.1	33.4	44.0	34.7	44.6	39.1	40.4
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							0	1		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	5		0	0				3	2
Queuing Penalty (veh)	9	2		0	0				5	3

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	35.9	65.1	75.5	15.1	57.3	57.8	32.3	79.6	34.4	24.8
Average Queue (m)	20.7	40.7	49.8	3.6	38.7	40.5	26.9	37.7	15.7	9.6
95th Queue (m)	38.3	67.6	76.1	14.5	61.4	62.9	37.8	80.0	38.0	26.2
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		0		0	29		23	9	3	1
Queuing Penalty (veh)		0		0	6		29	19	6	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	71.9	46.9	33.9	41.4
Average Queue (m)	41.6	26.3	21.7	25.4
95th Queue (m)	78.6	51.0	35.1	42.7
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.0	16.0	10.5	10.0
Average Queue (m)	2.2	9.2	2.4	1.8
95th Queue (m)	8.9	17.6	10.7	9.8
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	9.8	5.2	5.2
Average Queue (m)	4.9	0.7	1.0
95th Queue (m)	12.5	5.3	6.1
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	6.2	1.7	0.9
Average Queue (m)	1.8	0.1	0.1
95th Queue (m)	7.5	1.8	1.9
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	7.4	7.9	11.4
Average Queue (m)	1.3	1.5	4.9
95th Queue (m)	6.6	7.3	13.1
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB
Directions Served	LR	TR
Maximum Queue (m)	6.1	0.8
Average Queue (m)	1.1	0.1
95th Queue (m)	5.9	1.8
Link Distance (m)	58.3	28.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 715

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	2.0	0.7	0.7	0.0	0.0	0.0	2.5	0.8	2.2
Total Del/Veh (s)	46.6	27.3	2.0	37.1	47.9	43.6	35.5	22.4	14.8	54.6	45.4	16.9

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	32.4

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.0	1.4	0.7	0.6	7.1	1.4

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.4	5.6	11.8	4.5	24.1	2.0	6.1

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.5	0.0	0.0
Total Del/Veh (s)	18.4	7.4	4.6	12.3	6.7	5.4	29.4	24.8	11.3	36.9	30.9	17.5

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	12.4

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.7	0.4	0.3	0.4	0.0	0.1	3.5	0.9	0.6	0.0	0.3	0.6
Total Del/Veh (s)	133.0	22.2	13.5	27.9	14.1	11.8	42.0	39.6	20.6	36.3	38.6	17.9

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	33.1

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	23.8	25.8	22.6	19.7	18.3	12.8	17.9	16.4	11.5	30.0	21.6	18.7

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	20.5

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Del/Veh (s)		11.2	12.1	10.1	4.4	3.7	2.7	2.6	3.6	1.6		2.7

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0		0.3	0.1
Total Del/Veh (s)	10.4	5.0	0.6	1.0		0.8	0.9

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0		0.0	0.1	0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	2.8		2.3	3.7	2.6	0.1		0.3	0.0	1.0

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	2.7	0.5	0.2	0.4	5.1	3.3	1.5

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.5	0.2	0.2	0.6	0.8

Total Zone Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	293.1

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	45.7	58.7	64.6	139.2	58.5	66.1	9.2	120.8	47.3
Average Queue (m)	22.4	40.4	36.3	82.7	36.9	37.9	4.4	70.6	24.8
95th Queue (m)	47.7	63.7	80.2	153.9	60.3	69.1	9.7	156.3	61.3
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	2	8							
Queuing Penalty (veh)	4	15							
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)				20			28	52	0
Queuing Penalty (veh)				34			153	163	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	WB	WB	SB
Directions Served	T	T	TR	R
Maximum Queue (m)	0.9	14.3	18.2	11.6
Average Queue (m)	0.1	4.3	7.4	6.2
95th Queue (m)	1.9	15.0	20.0	12.0
Link Distance (m)	22.9	36.7	36.7	50.7
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	48.2	32.3	9.2	26.4	28.7	14.0	12.4
Average Queue (m)	23.4	16.5	6.8	17.5	20.9	4.7	4.2
95th Queue (m)	47.1	33.2	12.8	30.7	33.0	15.9	13.6
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				4	8	0	
Queuing Penalty (veh)				19	36	0	
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			13	18			
Queuing Penalty (veh)			52	12			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	14.4	29.0	23.8	10.9	31.9	34.8	13.7	26.9	39.6	47.8
Average Queue (m)	6.3	11.7	7.9	4.3	14.4	21.0	6.1	11.9	26.2	18.5
95th Queue (m)	15.4	27.5	22.1	11.9	32.0	38.6	14.7	27.1	43.3	47.4
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	10			0				7	0
Queuing Penalty (veh)	5	4			0				7	0

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	78.6	127.0	112.7	2.9	42.0	43.8	32.3	84.7	39.3	28.3
Average Queue (m)	57.8	56.8	55.5	0.7	23.1	28.0	29.6	52.6	18.7	11.6
95th Queue (m)	96.9	156.1	141.4	3.3	44.2	47.4	36.6	108.7	46.0	29.1
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	27	1			12		37	6	6	3
Queuing Penalty (veh)	64	1			1		51	17	12	3

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	62.2	43.4	43.6	52.1
Average Queue (m)	38.8	24.6	26.3	34.1
95th Queue (m)	71.5	45.0	46.2	64.8
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				1
Queuing Penalty (veh)				5
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.9	14.9	12.0	12.8
Average Queue (m)	2.7	9.4	2.8	3.7
95th Queue (m)	10.2	16.1	11.2	15.7
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	13.0	5.4	2.8
Average Queue (m)	5.8	0.9	0.4
95th Queue (m)	14.5	6.6	3.5
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.0	4.3	2.6	0.9
Average Queue (m)	3.2	0.7	0.3	0.1
95th Queue (m)	10.1	4.6	2.9	1.9
Link Distance (m)	197.4	61.4	38.2	84.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	5.3	3.3	14.1
Average Queue (m)	0.9	0.6	8.3
95th Queue (m)	5.8	4.7	15.7
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	7.9
Average Queue (m)	2.2
95th Queue (m)	8.5
Link Distance (m)	58.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 656

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.6	0.4	0.0	2.1	0.8	0.6	0.0	0.0	0.0	2.1	0.6	2.3
Total Del/Veh (s)	43.8	29.4	2.2	36.8	50.0	46.3	32.4	23.3	17.2	53.4	28.2	4.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	28.7

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)		0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.6	1.4	4.8	2.3	0.5	7.5	3.0

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.3	0.2	0.0
Total Del/Veh (s)	6.8	4.2	23.8	8.1	19.9	4.1	8.3

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.5	0.0	0.1
Total Del/Veh (s)	19.9	7.1	6.2	24.2	11.3	9.9	27.0	20.8	14.4	38.7	24.0	18.0

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.1

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.3	0.4	0.4	0.2	0.0	0.0	3.6	0.9	0.8	0.0	0.0	0.5
Total Del/Veh (s)	48.9	18.1	17.7	47.5	21.8	17.9	38.9	37.6	24.7	36.7	33.8	14.1

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	24.9

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.4	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	33.0	38.4	33.0	23.8	21.4	15.6	21.3	22.0	15.9	19.7	17.8	17.9

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	25.4

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)			0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Del/Veh (s)			5.3	12.7	6.1	5.0	4.9	2.8	2.3	4.4	1.1	

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	2.6

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0		0.3	0.2
Total Del/Veh (s)	8.2	4.7	0.9	0.5		0.9	1.1

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0			0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	6.4	0.6			3.4	0.2		0.1	0.1	1.2

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.7	0.9	0.6	0.3	5.3	3.4	1.2

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.3	0.3	0.4	0.4	0.5

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	302.8

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	45.3	66.7	70.2	142.4	54.0	68.9	4.8	42.2	23.8
Average Queue (m)	26.5	51.3	41.3	87.1	31.9	42.1	1.2	23.9	7.4
95th Queue (m)	49.0	79.9	86.4	174.4	58.3	74.9	5.0	47.6	27.5
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	4	20							
Queuing Penalty (veh)	10	52							
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	19			9	36	0
Queuing Penalty (veh)			0	30			41	87	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	R
Maximum Queue (m)	3.3	11.2	7.8	35.1	36.2	10.9
Average Queue (m)	0.5	2.5	1.5	18.6	17.1	6.3
95th Queue (m)	3.7	14.3	9.8	40.3	41.5	11.8
Link Distance (m)		22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		1	0	2	1	
Queuing Penalty (veh)		2	0	7	5	
Storage Bay Dist (m)	10.0					
Storage Blk Time (%)	0	1				
Queuing Penalty (veh)	1	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	49.4	31.3	10.4	31.2	31.6	16.4	21.9
Average Queue (m)	26.7	15.8	8.7	24.5	24.0	5.9	10.5
95th Queue (m)	49.5	33.2	11.2	33.4	33.1	17.2	23.1
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				23	13	1	0
Queuing Penalty (veh)				95	56	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			35	36			
Queuing Penalty (veh)			127	40			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	15.8	42.5	42.0	21.6	32.7	39.2	35.8	44.6	40.5	46.5
Average Queue (m)	6.6	15.9	17.5	11.0	17.9	24.3	19.0	25.8	27.9	24.0
95th Queue (m)	16.4	43.6	42.1	21.9	34.3	40.1	38.8	44.1	44.6	51.7
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							1	1		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	5			0				6	2
Queuing Penalty (veh)	8	2			0				11	4

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	55.9	90.3	82.7	17.3	55.6	55.9	32.3	80.4	28.0	23.9
Average Queue (m)	32.8	44.7	53.2	3.9	34.5	37.5	28.3	41.1	14.0	10.4
95th Queue (m)	63.9	109.3	84.2	15.1	59.2	60.4	36.4	88.2	30.2	26.7
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)		0								
Queuing Penalty (veh)		0								
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	0			0	25		25	9	2	0
Queuing Penalty (veh)	1			0	6		31	18	4	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	94.3	41.9	53.6	45.7
Average Queue (m)	53.2	26.3	29.4	29.8
95th Queue (m)	102.3	45.0	56.1	50.5
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.6	16.7	11.9	8.2
Average Queue (m)	1.8	10.3	3.3	2.9
95th Queue (m)	7.8	18.8	11.6	11.4
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	9.8	9.5	5.7
Average Queue (m)	4.4	1.5	0.8
95th Queue (m)	11.9	7.6	6.1
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	7.8	3.5	4.5
Average Queue (m)	1.7	0.4	1.0
95th Queue (m)	7.9	3.2	5.5
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	9.5	6.5	12.2
Average Queue (m)	2.9	0.8	4.9
95th Queue (m)	10.4	7.1	13.5
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB
Directions Served	LR	TR
Maximum Queue (m)	4.4	0.9
Average Queue (m)	0.6	0.1
95th Queue (m)	4.4	1.9
Link Distance (m)	58.3	28.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 638

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.3	0.0	1.9	0.8	0.8	0.0	0.0	0.0	2.1	0.9	2.2
Total Del/Veh (s)	47.1	32.3	2.0	63.6	82.7	82.0	51.1	21.8	15.2	61.6	45.2	14.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	42.7

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	16.7	1.2	1.7	1.2	0.8	8.0	2.1

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	8.1	5.8	14.4	4.7	26.9	1.8	6.8

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.6	0.0	0.1
Total Del/Veh (s)	23.3	6.7	4.7	14.7	7.0	5.4	33.9	25.1	11.9	33.9	27.8	15.6

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	11.7

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.4	0.3	0.0	0.0	0.1	3.5	1.0	1.3	0.1	0.1	0.7
Total Del/Veh (s)	119.1	21.2	15.8	31.2	14.6	18.6	50.8	51.4	41.1	57.8	37.4	17.7

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	32.7

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.2	0.1	0.8	0.0	0.0	0.0	0.1	0.6	0.7
Total Del/Veh (s)	36.4	37.6	34.8	18.0	22.7	16.7	22.5	20.0	18.2	30.4	31.7	30.3

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	28.7

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Del/Veh (s)	9.7	7.7	15.2	4.9	4.5	7.3	2.7	2.1	4.9	3.0		3.4

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0		0.3	0.2
Total Del/Veh (s)	7.5	1.8	0.6	0.1		1.0	1.0

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0		0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	3.2		1.9		3.4	0.0		0.1	0.0	1.1

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.7	0.5	0.6	0.4	4.4	3.3	1.3

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0		0.0	0.0
Total Del/Veh (s)	4.9	0.1		0.6	0.7

Total Zone Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	323.4

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	49.8	66.2	77.4	205.3	71.9	67.3	5.0	9.5	125.3	47.5
Average Queue (m)	25.1	48.1	52.4	138.9	44.4	40.9	0.6	5.8	71.0	29.1
95th Queue (m)	48.9	75.2	97.2	285.0	87.5	68.6	8.4	10.4	143.8	64.0
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	3	13			3	0				
Queuing Penalty (veh)	6	27			0	0				
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	41				38	55	0
Queuing Penalty (veh)			0	74				227	189	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	R
Maximum Queue (m)	10.6	18.3	1.5	21.1	27.5	12.9
Average Queue (m)	6.7	4.6	0.2	5.7	8.5	7.5
95th Queue (m)	13.9	20.4	3.1	21.9	28.0	14.9
Link Distance (m)		22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		1		0	0	
Queuing Penalty (veh)		2		1	2	
Storage Bay Dist (m)	10.0					
Storage Blk Time (%)	13	1				
Queuing Penalty (veh)	39	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	48.3	34.9	10.7	25.1	31.3	16.0	13.8
Average Queue (m)	25.5	17.3	8.3	18.9	22.7	6.2	4.5
95th Queue (m)	49.3	38.3	12.8	29.2	34.1	16.7	14.3
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				7	9	0	0
Queuing Penalty (veh)				31	42	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			18	21			
Queuing Penalty (veh)			78	15			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.8	26.0	25.7	10.7	36.4	40.6	15.2	22.8	38.8	39.4
Average Queue (m)	6.5	10.8	10.5	5.2	18.3	23.5	7.6	12.8	25.0	15.6
95th Queue (m)	16.9	26.3	26.2	12.4	37.3	43.8	17.4	23.7	41.8	37.5
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	8			1				4	0
Queuing Penalty (veh)	7	4			0				5	0

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	76.9	116.8	109.6	7.5	43.2	49.4	32.3	122.5	31.0	28.5
Average Queue (m)	55.2	56.1	50.1	1.2	26.7	28.7	30.3	75.1	14.8	14.6
95th Queue (m)	89.1	130.8	111.5	8.7	44.3	49.2	36.4	146.6	32.5	32.2
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	18	0			17		41	12	4	2
Queuing Penalty (veh)	51	0			1		62	35	9	2

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	81.2	46.8	46.3	72.8
Average Queue (m)	49.2	27.5	29.2	44.2
95th Queue (m)	94.1	51.7	49.8	81.9
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				3
Queuing Penalty (veh)				12
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	11.0	16.1	11.0	22.3
Average Queue (m)	4.3	8.9	3.5	6.2
95th Queue (m)	12.6	16.8	12.0	24.1
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	10.3	7.5	5.2
Average Queue (m)	4.7	1.2	0.9
95th Queue (m)	12.7	7.7	5.8
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.0	1.7	5.9
Average Queue (m)	3.1	0.4	1.0
95th Queue (m)	9.9	3.1	6.0
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	6.4	0.9	10.4
Average Queue (m)	1.4	0.1	7.3
95th Queue (m)	6.8	1.9	14.0
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	8.0
Average Queue (m)	2.4
95th Queue (m)	8.8
Link Distance (m)	58.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 925

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.6	0.0	0.0	2.1	0.7	0.8	0.0	0.0	0.0	2.7	0.7	2.2
Total Del/Veh (s)	50.7	26.9	2.2	52.1	65.7	65.0	56.4	25.1	19.0	62.2	34.4	6.5

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	36.1

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	20.1	2.0	11.5	4.3	1.2	11.5	7.1

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	12.0	6.6	32.4	8.9	20.4	5.3	11.6

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.7	0.4	0.0	0.0
Total Del/Veh (s)	25.7	9.2	7.3	29.2	11.1	10.1	33.7	25.2	17.3	39.7	24.8	21.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	16.4

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.4	0.4	0.1	0.0	0.0	3.7	0.8	0.8	0.1	0.1	0.5
Total Del/Veh (s)	43.8	19.8	19.1	57.7	24.2	18.9	37.2	38.7	22.3	34.3	34.5	14.9

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	25.3

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	50.9	52.3	49.3	24.4	24.6	18.3	19.3	16.4	16.6	30.3	21.6	23.5

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	31.9

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)			0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	
Total Del/Veh (s)			2.7	8.9	1.3	5.1	4.3	2.6	2.5	4.5	1.2	

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	2.4

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1		0.3	0.2
Total Del/Veh (s)	12.2	3.0	0.9	0.6		1.0	1.1

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0			0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	3.3	0.5			2.3	0.0	0.0	0.1	1.0

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	5.0	1.1	0.7	0.6	6.0	4.5	1.5

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.3	0.2	0.2	0.5	0.5

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	330.4

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	47.0	68.2	70.4	200.6	82.0	72.2	5.3	7.6	59.8	40.8
Average Queue (m)	27.4	51.1	42.9	119.5	51.5	47.0	0.8	2.5	30.6	12.7
95th Queue (m)	55.8	80.3	90.7	260.7	94.0	77.8	11.1	8.0	58.2	39.0
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	9	19			2					
Queuing Penalty (veh)	24	53			0					
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	29				16	47	0
Queuing Penalty (veh)			0	51				76	123	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	R
Maximum Queue (m)	11.5	30.0	8.4	50.6	49.7	14.1
Average Queue (m)	7.0	9.6	1.5	30.9	29.5	7.5
95th Queue (m)	14.5	32.8	10.8	57.9	58.9	15.7
Link Distance (m)		22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		3	0	13	8	
Queuing Penalty (veh)		13	2	66	38	
Storage Bay Dist (m)	10.0					
Storage Blk Time (%)	16	3				
Queuing Penalty (veh)	69	2				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	75.3	57.1	11.5	32.8	36.6	13.4	22.1
Average Queue (m)	36.8	22.4	9.4	26.7	27.0	6.5	10.0
95th Queue (m)	87.4	65.6	12.2	33.5	37.1	16.1	23.6
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)	2	0		39	17	0	0
Queuing Penalty (veh)	7	1		177	78	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			47	49			
Queuing Penalty (veh)			187	60			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.1	56.3	46.0	28.0	33.8	40.3	32.0	48.4	41.1	56.7
Average Queue (m)	8.2	27.2	21.8	16.0	21.3	26.1	20.8	28.9	28.2	28.6
95th Queue (m)	19.9	60.9	48.3	30.0	38.4	41.6	35.3	48.9	45.1	54.1
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							0	4		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	5	9			0				6	3
Queuing Penalty (veh)	15	3			0				11	6

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	48.4	68.9	84.3	21.9	63.3	64.5	32.3	76.0	30.7	25.7
Average Queue (m)	26.1	45.7	56.1	5.4	43.6	46.7	28.8	44.2	15.3	10.1
95th Queue (m)	49.3	70.7	87.8	19.7	69.6	70.6	37.4	83.3	35.3	25.7
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		0		0	30		28	8	4	0
Queuing Penalty (veh)		0		0	7		38	19	7	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	109.2	50.7	39.3	57.6
Average Queue (m)	69.5	28.7	24.7	32.6
95th Queue (m)	131.8	55.9	39.5	62.0
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				1
Queuing Penalty (veh)				2
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.6	17.0	14.4	17.0
Average Queue (m)	1.9	10.8	3.4	3.8
95th Queue (m)	8.1	18.1	14.0	13.6
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	9.7	7.5	7.3
Average Queue (m)	4.0	1.2	1.7
95th Queue (m)	11.5	6.7	9.0
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	7.1	1.7	4.5
Average Queue (m)	1.4	0.2	0.5
95th Queue (m)	6.6	2.6	3.9
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	8.5	5.6	12.0
Average Queue (m)	2.1	0.9	5.7
95th Queue (m)	9.0	5.5	14.0
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	5.1
Average Queue (m)	0.9
95th Queue (m)	5.2
Link Distance (m)	58.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 1138

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	4.1	1.3	0.7	2.0	0.7	0.6	0.0	0.0	0.0	2.1	0.8	2.2
Total Del/Veh (s)	59.6	27.9	2.0	72.6	85.7	82.1	70.2	22.3	15.6	76.6	59.3	27.4

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.1
Total Del/Veh (s)	49.8

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.1	1.5	0.7	0.6	7.7	1.5

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	7.2	5.8	13.7	4.7	22.7	2.0	6.3

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.0	0.0
Total Del/Veh (s)	18.9	7.1	6.2	13.7	5.9	5.5	31.8	26.3	10.4	39.3	26.5	15.5

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	12.0

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.7	1.3	1.3	0.0	0.0	0.0	3.5	1.1	1.1	0.2	0.0	0.5
Total Del/Veh (s)	225.1	44.6	22.8	40.3	15.0	20.2	44.8	43.2	33.4	30.7	37.4	18.9

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.2
Total Del/Veh (s)	48.8

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.4	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	41.9	40.1	38.0	25.0	25.2	20.1	19.5	17.3	11.8	40.1	38.1	36.1

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	31.6

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Del/Veh (s)	6.5	65.4	38.5	20.0	24.8	5.3	2.7	2.0	4.7	5.0		6.6

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0		0.3	0.1
Total Del/Veh (s)	9.2	4.1	0.6	0.3		0.8	0.9

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)		0.0	0.0			0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)		3.1	2.5			2.1	0.1	0.1	0.0	1.1

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.2	0.4	0.2	0.5	4.7	2.9	1.4

12: Baird Rd & Site Access Performance by movement

Movement	WBL	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.1	0.0		0.0	0.0
Total Del/Veh (s)	3.7	0.1		0.6	0.7

Total Zone Performance

Denied Del/Veh (s)	1.5
Total Del/Veh (s)	359.1

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	47.1	66.4	77.4	237.1	87.5	68.5	5.0	9.8	157.8	47.5
Average Queue (m)	27.8	42.1	64.2	155.6	59.4	43.1	0.7	5.6	89.3	27.3
95th Queue (m)	55.4	70.2	104.8	266.8	106.9	70.5	9.0	11.3	219.7	61.5
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	8	9			5					
Queuing Penalty (veh)	17	19			0					
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	53				37	54	0
Queuing Penalty (veh)			0	96				223	187	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	5.6	1.4	14.8	22.4	10.8
Average Queue (m)	1.1	0.2	4.7	8.8	5.9
95th Queue (m)	9.9	3.0	16.4	22.9	11.1
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)	0				
Queuing Penalty (veh)	0				
Storage Bay Dist (m)					
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	43.9	30.8	9.6	25.2	31.4	15.1	14.2
Average Queue (m)	23.4	15.6	6.9	18.5	22.1	6.2	3.6
95th Queue (m)	46.3	33.5	13.0	30.1	34.9	16.2	13.7
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				7	9	0	0
Queuing Penalty (veh)				31	41	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			16	21			
Queuing Penalty (veh)			67	15			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	15.4	34.5	29.4	13.3	24.9	36.9	16.5	23.0	38.6	47.7
Average Queue (m)	6.6	10.6	10.2	6.4	13.0	20.1	7.6	12.2	26.7	18.4
95th Queue (m)	16.2	32.7	27.9	14.6	26.7	37.5	17.7	24.3	41.2	42.0
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	2	6							5	1
Queuing Penalty (veh)	4	3							6	1

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	81.7	230.5	223.1	8.8	43.1	45.6	32.3	112.3	32.9	28.5
Average Queue (m)	72.6	133.7	121.3	1.4	27.4	29.6	30.6	65.8	14.9	12.8
95th Queue (m)	101.3	297.2	277.5	10.5	46.8	48.1	35.7	117.5	34.3	29.4
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)		4	1							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	61	1			20		44	10	5	3
Queuing Penalty (veh)	158	2			2		66	28	11	3

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	91.1	48.8	40.9	76.8
Average Queue (m)	55.4	29.9	27.5	51.1
95th Queue (m)	113.9	52.6	44.3	91.9
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				5
Queuing Penalty (veh)				23
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	12.2	26.2	9.2	32.1
Average Queue (m)	3.8	12.1	2.0	9.1
95th Queue (m)	13.5	29.1	9.4	34.2
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	10.2	1.9	3.7
Average Queue (m)	4.3	0.3	0.6
95th Queue (m)	12.2	2.8	4.2
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.0	2.5	3.9
Average Queue (m)	4.6	0.5	0.7
95th Queue (m)	11.7	3.7	5.6
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	4.2	6.1	12.0
Average Queue (m)	1.0	1.0	8.3
95th Queue (m)	5.8	6.0	13.8
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB
Directions Served	LR
Maximum Queue (m)	7.1
Average Queue (m)	2.0
95th Queue (m)	8.1
Link Distance (m)	58.3
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 1005

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.4	0.1	2.1	0.6	0.8	0.0	0.0	0.0	3.0	0.7	2.5
Total Del/Veh (s)	49.8	26.7	2.2	34.4	50.2	42.6	46.9	23.1	17.4	52.0	32.3	6.0

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	29.9

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.4	5.6	2.6	0.5	6.9	3.4

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	6.1	4.6	24.7	8.1	21.9	3.3	8.3

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.8	0.6	0.4	0.1	0.0
Total Del/Veh (s)	22.4	8.5	8.1	25.3	10.5	8.3	25.9	23.3	16.3	37.4	23.3	12.7

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.7

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.4	0.4	0.0	0.0	0.0	3.5	0.8	0.6	0.0	0.0	0.5
Total Del/Veh (s)	43.4	18.4	19.4	54.8	22.7	30.1	39.0	38.4	21.9	27.9	31.4	14.8

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	25.2

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.5	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	58.4	56.7	58.2	24.4	25.1	20.8	21.5	20.3	17.6	22.4	19.2	16.9

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	33.4

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)		0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	
Total Del/Veh (s)		11.0	5.2	13.5	10.6	6.0	9.8	3.3	2.5	4.2	1.1	

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	2.8

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.3	0.2
Total Del/Veh (s)	8.7	4.5	0.9	0.5	0.9	1.0

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0			0.0	0.0	0.2	0.1	0.0
Total Del/Veh (s)	5.6	0.4			1.8	0.1	0.3	0.0	0.8

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	6.1	0.7	0.3	0.2	5.3	5.2	1.2

12: Baird Rd & Site Access Performance by movement

Movement	NBT	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.3	0.6	0.3

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	294.5

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	45.6	68.4	67.3	129.0	67.5	69.8	6.3	64.7	44.2
Average Queue (m)	29.6	51.3	39.5	83.0	43.1	44.2	2.4	35.5	13.7
95th Queue (m)	53.4	80.0	85.6	140.4	75.8	72.8	7.4	70.1	44.0
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	6	17			1				
Queuing Penalty (veh)	16	48			0				
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	20			15	43	0
Queuing Penalty (veh)			1	35			70	108	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	12.7	7.7	38.1	37.5	13.2
Average Queue (m)	3.2	1.2	19.2	21.3	6.5
95th Queue (m)	16.0	8.5	43.2	44.8	13.0
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)	1	0	2	1	
Queuing Penalty (veh)	4	0	10	6	
Storage Bay Dist (m)					
Storage Blk Time (%)	2				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	40.8	32.1	11.6	31.3	32.2	17.8	18.3
Average Queue (m)	23.0	15.8	9.4	24.6	24.6	6.3	8.8
95th Queue (m)	45.8	33.8	12.2	32.9	35.2	18.0	19.9
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)			0	25	14	0	0
Queuing Penalty (veh)			0	107	59	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			42	38			
Queuing Penalty (veh)			153	46			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	18.9	48.6	49.8	21.2	30.9	41.5	33.0	47.3	39.6	50.2
Average Queue (m)	8.9	19.4	22.1	11.8	16.6	23.0	18.8	29.4	29.4	24.9
95th Queue (m)	21.8	52.3	51.8	24.1	34.7	42.5	32.7	49.2	47.2	50.7
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							0	2		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	6	6			0				8	1
Queuing Penalty (veh)	15	2			0				16	1

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	54.0	64.6	76.9	9.8	54.9	57.9	32.2	84.0	34.2	26.6
Average Queue (m)	33.5	39.2	54.9	1.8	35.1	39.2	29.0	47.2	16.1	9.4
95th Queue (m)	58.4	68.9	84.9	11.2	56.4	60.9	37.6	94.9	38.8	26.3
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	0	0			27		32	8	3	0
Queuing Penalty (veh)	0	0			3		43	19	5	0

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	117.6	54.1	45.0	49.6
Average Queue (m)	74.8	32.4	29.2	28.6
95th Queue (m)	141.2	56.3	46.3	51.5
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.6	17.1	21.1	15.6
Average Queue (m)	2.0	9.7	5.7	4.2
95th Queue (m)	8.0	18.7	23.2	15.8
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	9.8	9.6	9.9
Average Queue (m)	4.3	2.4	2.3
95th Queue (m)	11.9	9.6	10.8
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.0	1.7	1.8
Average Queue (m)	2.1	0.1	0.3
95th Queue (m)	8.3	1.8	2.8
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	8.0	1.5	9.8
Average Queue (m)	1.9	0.3	5.1
95th Queue (m)	8.6	3.8	12.6
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement
Directions Served
Maximum Queue (m)
Average Queue (m)
95th Queue (m)
Link Distance (m)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (m)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 771

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.2	0.0	1.9	0.6	0.7	0.0	0.0	0.0	2.1	0.8	2.2
Total Del/Veh (s)	36.3	28.1	1.9	44.9	60.1	55.6	41.1	22.5	15.9	75.4	56.3	22.9

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	37.2

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	17.3	1.3	1.9	1.1	1.0	7.7	2.4

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	8.0	4.4	13.8	5.1	31.3	2.0	6.7

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.6	0.0	0.0
Total Del/Veh (s)	18.0	6.2	4.5	13.4	6.7	5.6	32.4	23.6	12.9	38.1	26.2	15.9

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	11.5

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.8	0.3	0.3	0.3	0.0	0.0	3.5	1.0	1.1	0.0	0.1	0.5
Total Del/Veh (s)	99.6	16.7	12.8	30.1	15.3	14.9	39.7	42.9	28.5	26.5	35.5	16.8

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	27.6

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Del/Veh (s)	30.0	31.2	26.9	17.5	18.6	13.8	20.9	19.0	14.2	28.5	28.4	28.4

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	25.0

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	7.5	6.3	15.5	3.5	9.3	5.4	2.7	2.3	4.6	1.6	0.1	3.9

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.1
Total Del/Veh (s)	5.7	3.8	0.7	0.5	2.6	0.7	0.9

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0		0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	3.9		2.6		2.5	0.1		0.2	0.0	1.3

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.5	0.9	0.7	0.6	5.7	3.8	2.5

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.0	4.1	0.2	0.2	1.2	0.6	2.5

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	321.2

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	43.0	63.1	73.1	155.1	66.1	63.8	8.1	131.4	47.4
Average Queue (m)	21.5	41.4	39.2	97.2	40.2	38.8	4.1	71.0	24.4
95th Queue (m)	42.4	65.2	88.7	191.2	70.3	70.2	9.5	215.8	59.7
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	1	9				0			
Queuing Penalty (veh)	2	16				0			
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	26			28	50	0
Queuing Penalty (veh)			0	43			155	157	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	TR	R
Maximum Queue (m)	12.1	21.1	23.9	28.7	14.6
Average Queue (m)	7.3	4.8	5.3	9.6	8.3
95th Queue (m)	14.8	20.6	22.6	29.9	14.6
Link Distance (m)		22.9	36.7	36.7	50.7
Upstream Blk Time (%)		2	0	1	
Queuing Penalty (veh)		5	1	3	
Storage Bay Dist (m)	10.0				
Storage Blk Time (%)	16	1			
Queuing Penalty (veh)	43	0			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	51.5	31.8	10.8	24.9	33.0	11.4	12.8
Average Queue (m)	26.9	14.7	6.9	18.2	23.6	4.3	4.2
95th Queue (m)	53.7	32.3	13.8	30.6	37.3	12.3	13.3
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)			0	6	10		
Queuing Penalty (veh)			0	25	45		
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			16	18			
Queuing Penalty (veh)			66	12			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	15.2	24.0	23.6	12.6	31.0	38.2	19.6	22.3	39.1	29.3
Average Queue (m)	7.3	9.3	9.4	5.0	14.6	20.6	8.2	12.0	24.3	14.3
95th Queue (m)	16.5	25.2	25.1	12.6	31.7	39.3	20.3	22.9	40.9	30.7
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	6			0				4	0
Queuing Penalty (veh)	5	3			0				4	1

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	71.6	64.1	56.3	12.8	46.2	45.9	32.3	87.3	32.1	29.1
Average Queue (m)	47.0	38.7	36.6	3.0	27.1	27.7	30.1	59.1	14.7	13.2
95th Queue (m)	79.1	75.4	65.8	13.9	49.7	49.8	37.8	100.8	29.6	28.9
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	7				16		34	14	2	1
Queuing Penalty (veh)	18				4		48	36	5	2

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	69.8	42.7	45.6	68.6
Average Queue (m)	42.5	24.2	27.8	46.6
95th Queue (m)	78.2	43.0	47.5	80.0
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				1
Queuing Penalty (veh)				3
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	11.6	27.4	9.9	17.4
Average Queue (m)	3.9	15.6	1.9	4.5
95th Queue (m)	12.5	31.8	9.3	17.4
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	13.8	7.3	5.3
Average Queue (m)	7.4	1.5	1.0
95th Queue (m)	15.8	8.7	6.6
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.1	2.5	5.4
Average Queue (m)	3.2	0.7	1.0
95th Queue (m)	10.1	4.3	5.7
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	9.4	7.2	19.5
Average Queue (m)	2.4	1.4	12.0
95th Queue (m)	9.5	6.7	19.4
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB
Directions Served	LR	TR
Maximum Queue (m)	17.2	1.8
Average Queue (m)	10.9	0.3
95th Queue (m)	17.3	2.8
Link Distance (m)	58.3	28.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 703

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	0.0	2.2	0.7	0.6	0.0	0.0	0.0	2.2	0.6	2.3
Total Del/Veh (s)	29.8	24.1	2.0	35.6	43.1	44.3	38.2	22.6	18.6	52.5	30.4	5.7

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	26.4

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	11.9	1.5	6.0	2.5	0.8	8.9	4.2

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	8.4	5.2	25.1	8.6	18.5	4.4	9.4

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.4	0.0	0.0
Total Del/Veh (s)	18.3	7.6	5.5	21.2	11.2	9.2	26.1	24.3	16.5	39.9	23.6	17.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.1

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.3	0.3	0.0	0.0	0.0	3.6	0.8	0.9	0.0	0.0	0.4
Total Del/Veh (s)	40.5	21.3	20.2	50.5	23.2	15.7	34.8	35.6	24.6	27.6	34.6	15.6

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	25.3

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	38.6	39.0	35.0	17.9	22.6	21.8	18.7	15.3	14.0	23.1	23.0	22.0

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	26.9

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)				0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	
Total Del/Veh (s)				11.3	2.4	4.8	6.1	2.6	2.1	3.2	1.2	

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	2.7

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.4	0.3	0.2
Total Del/Veh (s)	9.7	3.7	0.8	0.6	2.9	0.9	1.1

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	5.0	0.1	5.5		2.2	0.4		0.0	0.0	1.5

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Total Del/Veh (s)	6.3	1.2	1.2	0.7	6.7	5.0	2.8

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.1	2.9	0.3	0.4	2.9	0.8	2.0

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	323.0

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	35.6	65.2	66.4	111.0	60.8	66.3	7.1	61.2	41.7
Average Queue (m)	19.2	49.0	32.2	73.1	39.0	42.1	1.9	34.2	12.2
95th Queue (m)	37.7	75.6	73.3	140.8	69.6	69.1	6.7	67.8	40.1
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	1	14			0				
Queuing Penalty (veh)	2	36			0				
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	14			12	41	0
Queuing Penalty (veh)			1	23			50	96	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	R
Maximum Queue (m)	12.0	27.2	4.5	39.4	41.2	14.5
Average Queue (m)	7.3	7.5	0.6	20.8	20.1	8.0
95th Queue (m)	14.9	26.8	5.7	42.6	43.7	14.8
Link Distance (m)		22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		2		3	2	
Queuing Penalty (veh)		7		12	8	
Storage Bay Dist (m)	10.0					
Storage Blk Time (%)	12	1				
Queuing Penalty (veh)	47	1				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	60.6	31.6	11.3	31.7	36.4	12.1	19.8
Average Queue (m)	30.2	16.0	9.0	25.4	25.4	4.7	8.1
95th Queue (m)	67.4	33.0	12.5	32.9	36.3	14.0	20.1
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)	0		0	26	15		0
Queuing Penalty (veh)	1		0	102	59		0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			40	38			
Queuing Penalty (veh)			137	42			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	17.4	50.9	39.9	18.5	34.8	42.3	33.8	45.9	39.4	41.2
Average Queue (m)	7.8	19.0	16.0	8.8	19.9	26.5	18.2	27.8	25.4	22.3
95th Queue (m)	20.2	51.9	41.2	18.6	39.0	45.5	35.7	47.8	41.4	42.0
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							0	2		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	5			1				4	2
Queuing Penalty (veh)	8	2			0				7	3

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	31.8	73.1	94.1	15.5	60.1	63.8	32.2	75.4	41.3	28.9
Average Queue (m)	19.6	47.4	58.4	3.6	36.5	40.3	28.8	43.2	19.1	12.3
95th Queue (m)	35.9	78.3	95.7	16.0	62.9	66.5	36.3	83.6	44.6	31.0
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		1		0	26		26	9	5	1
Queuing Penalty (veh)		1		0	5		35	18	10	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	88.9	50.1	35.7	61.9
Average Queue (m)	57.4	28.3	21.5	35.0
95th Queue (m)	103.6	51.8	37.0	64.6
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				0
Queuing Penalty (veh)				1
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	7.4	18.0	13.1	12.6
Average Queue (m)	1.6	11.1	3.8	3.8
95th Queue (m)	7.9	18.5	12.9	12.6
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	10.4	7.0	7.2
Average Queue (m)	6.7	1.4	1.3
95th Queue (m)	13.6	7.0	6.5
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.0	2.6	5.1
Average Queue (m)	2.1	0.4	0.9
95th Queue (m)	8.2	3.2	5.6
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	12.4	7.4	19.6
Average Queue (m)	5.1	2.2	11.2
95th Queue (m)	14.1	9.2	18.6
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.6	6.2	1.8
Average Queue (m)	8.8	1.3	0.4
95th Queue (m)	14.1	7.0	3.5
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 717

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.0	0.0	1.8	0.7	0.7	0.0	0.0	0.0	2.4	0.7	2.2
Total Del/Veh (s)	47.3	27.3	1.9	62.9	82.3	78.6	36.1	21.5	14.2	50.3	36.9	9.9

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	39.6

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.0	1.4	0.6	0.9	7.4	1.6

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.0	4.6	11.8	4.8	31.4	1.2	6.1

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.6	0.1	0.1
Total Del/Veh (s)	21.2	7.2	5.8	12.5	6.2	5.4	33.0	28.3	10.4	34.8	24.3	14.5

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	11.7

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.7	0.3	0.3	0.4	0.0	0.0	3.5	0.9	1.2	0.0	0.1	0.5
Total Del/Veh (s)	191.3	36.1	18.7	21.4	14.3	15.7	45.5	44.6	44.8	34.5	36.8	17.7

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	43.1

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	35.9	37.7	29.8	16.7	20.7	15.7	17.8	17.3	11.7	30.3	26.4	23.8

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	26.0

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Del/Veh (s)	5.6	6.6	12.1	9.5	5.7	4.8	2.8	2.4	5.3	2.6		3.5

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.2	0.3	0.1
Total Del/Veh (s)	9.5	3.8	0.6	0.6	3.3	0.8	0.9

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.0	0.0			0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)		2.9	2.8			2.4	0.1		0.1	0.0	1.2

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	2.7	0.6	0.3	0.6	5.9	3.8	2.6

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.4	3.2	0.3	0.2	1.6	0.7	2.6

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	342.8

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	41.3	56.2	77.4	206.3	58.7	55.0	8.0	90.6	44.0
Average Queue (m)	23.1	35.7	53.3	134.1	37.0	36.9	3.8	51.5	20.8
95th Queue (m)	45.8	58.8	103.2	247.5	63.9	60.1	9.2	110.3	55.1
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	2	6							
Queuing Penalty (veh)	3	11							
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	43			22	50	0
Queuing Penalty (veh)			0	72			120	157	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	WB	WB	SB
Directions Served	T	TR	R
Maximum Queue (m)	16.5	18.9	17.0
Average Queue (m)	4.5	7.1	9.2
95th Queue (m)	16.3	20.3	17.0
Link Distance (m)	36.7	36.7	50.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	38.0	26.0	9.7	24.3	36.2	13.3	10.3
Average Queue (m)	21.4	14.5	7.0	17.0	24.1	4.7	2.6
95th Queue (m)	41.9	28.8	13.3	28.9	38.0	13.8	10.4
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				4	11		
Queuing Penalty (veh)				19	49		
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			13	18			
Queuing Penalty (veh)			55	12			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	12.7	28.3	26.9	10.8	29.4	30.8	18.0	25.5	38.1	37.0
Average Queue (m)	5.8	8.8	10.1	4.8	14.8	18.2	7.2	12.7	24.9	13.9
95th Queue (m)	14.5	27.3	27.5	12.8	31.5	33.2	18.4	25.2	40.3	33.2
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	4			0				4	0
Queuing Penalty (veh)	5	2			0				4	0

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	78.7	203.5	181.0	11.7	41.1	44.0	32.3	100.9	44.6	30.2
Average Queue (m)	68.5	106.1	90.7	2.9	26.1	28.6	29.9	63.8	18.2	13.7
95th Queue (m)	99.9	231.3	201.4	13.3	43.9	46.6	38.3	115.5	41.1	31.6
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	56	1			16		39	12	5	1
Queuing Penalty (veh)	129	1			4		55	32	12	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	81.2	44.3	35.7	63.2
Average Queue (m)	49.6	25.6	25.6	40.7
95th Queue (m)	98.0	45.4	39.1	72.9
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				1
Queuing Penalty (veh)				5
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.2	21.4	11.5	18.1
Average Queue (m)	2.4	11.3	1.8	4.8
95th Queue (m)	8.7	20.7	8.4	22.2
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	13.7	3.8	5.9
Average Queue (m)	7.2	0.5	1.1
95th Queue (m)	16.4	4.6	7.3
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.9	2.5	5.4
Average Queue (m)	3.6	0.4	0.9
95th Queue (m)	10.4	3.1	5.3
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	7.4	7.3	19.6
Average Queue (m)	1.9	0.9	12.2
95th Queue (m)	8.0	5.9	19.9
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	16.6	1.8
Average Queue (m)	10.3	0.3
95th Queue (m)	16.8	2.8
Link Distance (m)	58.3	83.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 749

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.4	0.0	2.2	0.6	0.6	0.0	0.0	0.0	2.7	0.7	2.3
Total Del/Veh (s)	28.9	24.5	2.2	29.2	34.5	28.9	32.8	22.5	16.8	60.6	32.9	5.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	23.8

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.2	4.0	1.7	0.6	7.2	2.7

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	6.7	3.9	19.4	8.3	27.1	2.5	8.3

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.6	0.4	0.0	0.1
Total Del/Veh (s)	16.9	7.4	6.2	21.6	10.3	8.4	29.4	25.1	15.8	38.0	24.0	18.5

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.3

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.5	0.4	0.3	0.0	0.0	0.0	3.7	1.0	0.9	0.0	0.0	0.4
Total Del/Veh (s)	46.9	18.0	16.2	35.3	22.4	17.2	36.7	36.6	24.8	32.4	37.5	15.6

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	25.1

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	38.8	42.4	42.4	22.3	26.8	21.8	19.3	18.4	26.0	23.0	22.2	21.8

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	28.4

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	
Total Del/Veh (s)	6.6	7.0	4.4	11.2	7.5	4.8	5.4	3.1	2.6	6.7	1.3	0.4

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	2.9

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.1	0.2	0.1
Total Del/Veh (s)	8.6	3.1	0.9	0.9	3.8	1.0	1.2

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0	0.2	0.1	0.0
Total Del/Veh (s)	5.8	0.6	2.4		1.9	0.0	0.0	0.0	1.2

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.6	1.0	0.7	0.6	6.1	5.3	2.6

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0		0.0	0.0
Total Del/Veh (s)	5.2	2.9	0.4	0.4		0.5	1.8

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	289.3

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	35.8	66.1	63.1	102.0	63.5	61.5	6.0	61.7	34.6
Average Queue (m)	21.9	47.1	27.5	59.6	37.3	40.4	1.9	31.8	12.2
95th Queue (m)	38.9	78.5	67.9	103.1	62.4	66.8	6.5	72.2	40.4
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	0	13							
Queuing Penalty (veh)	1	33							
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	7			10	43	0
Queuing Penalty (veh)			0	11			43	100	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	7.4	7.7	32.0	37.4	13.3
Average Queue (m)	1.7	1.1	16.4	15.4	7.0
95th Queue (m)	10.9	7.3	35.8	38.7	12.8
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)	0	0	1	1	
Queuing Penalty (veh)	1	0	2	4	
Storage Bay Dist (m)					
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	43.2	30.9	13.6	31.8	33.8	13.9	18.1
Average Queue (m)	23.3	15.9	8.9	24.9	26.2	6.0	7.9
95th Queue (m)	43.3	32.1	14.0	33.1	35.6	15.3	18.3
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)			0	21	13		0
Queuing Penalty (veh)			0	84	54		0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			36	35			
Queuing Penalty (veh)			127	39			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	18.0	45.6	40.2	22.1	26.6	33.0	31.9	45.8	40.6	42.1
Average Queue (m)	7.5	14.5	16.3	11.5	17.0	23.3	18.7	29.7	26.9	21.5
95th Queue (m)	17.7	44.6	45.9	21.8	31.5	38.6	33.0	50.9	43.6	41.1
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)								3		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	5			0				4	2
Queuing Penalty (veh)	7	2			0				7	3

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	54.1	61.8	74.2	15.0	50.4	54.2	32.2	78.1	38.1	27.7
Average Queue (m)	34.7	36.3	49.1	3.8	32.8	35.6	27.9	44.3	18.5	12.2
95th Queue (m)	57.9	61.9	77.3	15.0	53.5	56.3	37.4	87.9	43.2	30.2
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	0	0			26		23	10	5	1
Queuing Penalty (veh)	0	0			5		30	22	9	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	90.0	49.4	41.3	53.3
Average Queue (m)	57.5	29.8	29.2	32.7
95th Queue (m)	119.4	58.8	43.4	58.8
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.2	15.3	13.6	18.2
Average Queue (m)	3.5	9.7	4.4	4.9
95th Queue (m)	12.5	14.9	14.1	17.4
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	9.9	7.0	10.9
Average Queue (m)	6.0	1.1	2.1
95th Queue (m)	12.8	6.3	9.9
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.6	0.9	4.5
Average Queue (m)	2.8	0.1	0.8
95th Queue (m)	9.4	1.8	5.0
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	17.4	8.4	15.7
Average Queue (m)	6.3	1.7	10.4
95th Queue (m)	17.9	8.6	17.4
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB
Directions Served	LR	TR
Maximum Queue (m)	13.0	3.6
Average Queue (m)	8.5	0.6
95th Queue (m)	13.4	4.5
Link Distance (m)	58.3	28.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 586

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.3	0.0	2.0	0.8	0.8	0.0	0.0	0.0	2.3	0.9	2.2
Total Del/Veh (s)	39.5	31.8	2.0	69.7	78.4	79.7	42.0	23.3	17.2	86.7	66.4	35.2

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	47.5

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	14.4	1.3	1.9	0.8	0.7	8.2	2.3

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.2	4.9	13.4	4.5	27.0	1.9	6.1

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.5	0.0	0.0
Total Del/Veh (s)	20.3	6.3	4.9	14.3	6.2	5.1	32.7	25.7	8.9	37.9	27.6	17.7

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	11.6

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.4	0.3	0.1	0.0	0.0	3.5	1.1	1.0	0.1	0.0	0.5
Total Del/Veh (s)	163.6	29.4	18.2	43.8	16.1	14.9	45.9	45.7	33.2	20.9	34.4	21.0

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	37.0

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.2	0.0	0.7	0.0	0.0	0.0	0.0	1.1	0.3	0.0
Total Del/Veh (s)	58.3	55.9	57.9	28.8	28.8	23.7	20.0	18.5	19.0	46.4	51.6	48.5

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	41.8

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Del/Veh (s)		49.8	48.6	8.3	29.3	4.4	2.6	2.2	47.6	23.7		18.0

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.4	0.3	0.2
Total Del/Veh (s)	9.9	4.5	0.6	0.7	3.7	1.2	1.2

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)		0.0	0.0			0.1	0.0	0.1	0.1	0.1
Total Del/Veh (s)		4.5	3.5			2.1	0.0	0.1	0.4	1.5

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	4.1	0.7	0.7	0.5	5.4	4.3	2.4

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0		0.0	0.1
Total Del/Veh (s)	6.0	3.4	0.3	0.2		0.7	2.7

Total Zone Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	361.0

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	36.7	66.0	77.4	224.6	65.6	75.4	8.7	195.9	47.5
Average Queue (m)	21.0	48.1	58.3	137.4	41.0	43.8	5.7	108.6	31.6
95th Queue (m)	36.7	73.1	103.0	245.7	75.1	76.3	10.4	272.2	66.4
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	0	15			0	0			
Queuing Penalty (veh)	0	30			0	0			
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	45			44	53	1
Queuing Penalty (veh)			0	81			263	184	2

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	TR	R
Maximum Queue (m)	13.9	23.2	19.2	22.9	17.8
Average Queue (m)	8.0	5.7	6.4	8.4	8.9
95th Queue (m)	16.0	21.9	23.3	26.4	17.6
Link Distance (m)		22.9	36.7	36.7	50.7
Upstream Blk Time (%)	0	1	0	0	
Queuing Penalty (veh)	0	2	1	1	
Storage Bay Dist (m)	10.0				
Storage Blk Time (%)	16	1			
Queuing Penalty (veh)	49	0			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	47.0	28.2	9.1	29.9	33.7	11.9	11.8
Average Queue (m)	26.0	13.0	7.1	19.6	22.9	4.7	4.2
95th Queue (m)	49.6	28.3	13.0	33.5	35.7	13.3	13.1
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				6	8		
Queuing Penalty (veh)				31	37		
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			15	18			
Queuing Penalty (veh)			68	13			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	17.6	25.3	22.0	11.8	28.1	35.0	17.5	24.5	40.2	37.5
Average Queue (m)	9.1	9.7	9.1	5.2	14.4	19.7	9.0	11.9	25.8	16.8
95th Queue (m)	19.9	27.8	22.3	13.5	30.4	36.9	20.2	24.7	43.1	39.4
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	5	7			0				4	2
Queuing Penalty (veh)	11	3			0				5	3

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	76.5	151.2	144.9	16.4	47.2	50.8	32.3	109.4	35.9	28.4
Average Queue (m)	58.0	79.6	77.3	4.4	29.6	31.6	30.6	69.0	14.4	15.5
95th Queue (m)	94.8	192.8	178.6	16.3	49.9	52.8	36.3	121.8	34.4	31.3
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	32	1		1	19		42	11	2	4
Queuing Penalty (veh)	92	2		3	5		66	32	6	6

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	110.0	53.8	43.2	81.9
Average Queue (m)	70.7	31.9	28.3	62.8
95th Queue (m)	146.3	64.1	45.0	103.5
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				12
Queuing Penalty (veh)				58
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	16.5	40.5	8.8	70.4
Average Queue (m)	4.9	19.6	2.1	30.6
95th Queue (m)	18.6	43.7	9.6	104.1
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				0
Queuing Penalty (veh)				1
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	15.4	7.9	12.3
Average Queue (m)	7.0	1.2	2.0
95th Queue (m)	16.9	6.9	11.9
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.7	1.7	6.0	0.7
Average Queue (m)	3.8	0.4	1.1	0.1
95th Queue (m)	11.2	3.3	6.4	1.4
Link Distance (m)	197.4	61.4	38.2	84.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	9.4	5.3	20.4
Average Queue (m)	1.9	1.1	12.1
95th Queue (m)	8.7	5.7	20.6
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB
Directions Served	LR	TR
Maximum Queue (m)	19.4	1.8
Average Queue (m)	11.4	0.5
95th Queue (m)	20.1	4.0
Link Distance (m)	58.3	28.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1057

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.2	0.2	2.2	0.7	0.6	0.0	0.0	0.0	2.3	0.6	2.2
Total Del/Veh (s)	38.5	26.8	2.2	51.5	61.4	43.9	48.3	30.1	21.4	89.9	41.2	13.8

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	35.4

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	21.4	1.9	15.1	4.9	4.8	14.2	8.8

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.2	0.0	0.2	0.0	2.1	4.0	0.4
Total Del/Veh (s)	13.2	5.4	33.9	9.4	25.5	11.1	12.7

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	1.3	3.1	4.2	0.3	0.0	0.1
Total Del/Veh (s)	32.6	14.1	9.3	27.7	11.4	8.2	28.5	24.1	20.1	44.1	24.8	17.8

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	18.4

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.4	0.4	0.1	0.0	0.0	3.6	0.8	0.9	0.0	0.1	0.5
Total Del/Veh (s)	42.1	21.3	20.5	88.1	23.9	12.1	39.4	35.9	27.2	36.8	35.2	17.3

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	26.5

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	37.0	42.4	41.0	24.6	19.5	19.1	15.8	14.1	9.9	22.4	20.8	20.4

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	26.4

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)			0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Del/Veh (s)			8.5	11.9	2.6	6.6	6.8	2.8	2.2	5.1	1.3	

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	2.9

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.2	0.3	0.3	0.2
Total Del/Veh (s)	13.1	4.7	1.0	0.8	2.1	1.2	1.4

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)		0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	3.5	0.3	2.9		2.2	0.1		0.0	0.0	1.2

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	4.5	2.1	1.4	0.9	5.6	4.8	2.7

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.4	3.1	0.4	0.3	3.3	0.6	2.0

Total Zone Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	308.7

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	40.5	69.9	67.7	175.2	71.8	78.2	16.4	7.1	91.1	37.6
Average Queue (m)	24.2	53.9	37.8	103.1	46.0	47.9	2.3	1.9	42.6	13.2
95th Queue (m)	45.6	80.6	83.1	236.1	81.3	82.3	28.5	6.8	102.4	43.6
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	1	19			1	2	1			
Queuing Penalty (veh)	2	52			0	0	0			
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			1	22				16	46	3
Queuing Penalty (veh)			3	39				74	117	7

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	R
Maximum Queue (m)	11.9	31.6	5.6	53.8	50.9	19.0
Average Queue (m)	7.9	11.1	0.8	30.9	29.2	8.9
95th Queue (m)	15.0	32.4	7.1	63.0	59.5	19.5
Link Distance (m)		22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		8	0	17	9	1
Queuing Penalty (veh)		35	0	81	44	0
Storage Bay Dist (m)	10.0					
Storage Blk Time (%)	22	7				
Queuing Penalty (veh)	91	5				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	62.4	43.5	11.6	33.3	36.4	18.4	23.8
Average Queue (m)	33.8	20.5	9.0	26.2	26.8	6.7	10.9
95th Queue (m)	78.5	54.3	13.6	36.6	38.6	18.0	25.5
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)	5	3	0	38	17	0	4
Queuing Penalty (veh)	19	13	0	165	72	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			46	48			
Queuing Penalty (veh)			173	58			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	18.4	70.1	60.1	29.8	39.6	44.1	34.1	45.9	41.5	69.2
Average Queue (m)	7.5	27.3	25.1	13.7	19.2	25.1	22.1	30.3	28.8	27.6
95th Queue (m)	19.7	74.8	68.4	29.6	40.4	47.5	39.6	51.0	46.8	63.6
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)		0	1				1	5		0
Queuing Penalty (veh)		1	3				0	0		1
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	5	11		1	1				11	3
Queuing Penalty (veh)	14	4		2	0				21	5

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	39.3	77.3	87.6	20.1	62.4	63.5	32.3	85.0	44.1	31.3
Average Queue (m)	23.1	50.0	60.9	5.5	40.9	43.2	29.7	47.4	22.1	14.1
95th Queue (m)	40.6	81.2	88.7	19.9	65.4	68.2	35.2	90.9	47.8	34.1
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		0		0	29		31	8	6	1
Queuing Penalty (veh)		0		2	6		45	18	14	2

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	100.8	44.3	34.5	56.8
Average Queue (m)	60.2	26.6	22.3	33.3
95th Queue (m)	111.3	47.1	34.9	58.9
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				0
Queuing Penalty (veh)				1
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.2	19.0	16.8	16.4
Average Queue (m)	2.5	11.6	5.6	4.3
95th Queue (m)	9.1	18.4	16.3	16.5
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.9	10.5	13.8
Average Queue (m)	6.9	2.1	3.2
95th Queue (m)	14.7	9.9	13.0
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.0	2.6	7.2
Average Queue (m)	2.6	0.6	1.5
95th Queue (m)	9.0	4.2	7.1
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	14.4	10.7	15.3
Average Queue (m)	5.3	2.4	10.4
95th Queue (m)	14.7	10.6	15.6
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.9	6.3	2.7
Average Queue (m)	9.2	0.9	0.4
95th Queue (m)	15.1	5.4	3.4
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 1190

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.2	0.1	2.1	0.8	0.6	0.0	0.0	0.0	2.1	0.8	2.2
Total Del/Veh (s)	41.8	26.5	1.9	64.5	71.3	77.1	40.1	24.9	19.7	92.9	66.6	31.8

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	45.1

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	1.7	0.9	0.9	8.1	1.8

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	6.9	5.2	13.3	5.1	26.8	1.7	6.3

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.4	0.0	0.1
Total Del/Veh (s)	22.9	6.6	4.7	11.9	6.0	6.2	33.1	23.0	12.6	38.8	28.3	15.7

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	11.8

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	6.4	3.7	3.4	0.1	0.0	0.0	3.5	1.0	1.1	0.0	0.1	0.5
Total Del/Veh (s)	228.2	52.3	32.3	27.3	15.0	10.6	55.1	57.7	43.0	37.7	37.4	18.0

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	2.1
Total Del/Veh (s)	53.9

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	35.1	36.1	32.7	22.2	22.6	20.5	21.1	20.4	14.0	43.7	40.6	37.8

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	30.9

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0		0.1
Total Del/Veh (s)		61.8	54.0	10.9	35.5	7.2	2.9	2.0	5.5	5.1		8.9

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.6	0.3	0.2
Total Del/Veh (s)	9.6	3.9	0.6	0.4	5.1	1.0	1.1

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBT	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0		0.0		0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.8		4.0		2.4	0.1	0.2	0.0	1.2

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.8	0.7	0.5	0.4	5.8	3.6	2.6

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0		0.0	0.1
Total Del/Veh (s)	4.9	3.7	0.3	0.1		0.7	2.5

Total Zone Performance

Denied Del/Veh (s)	1.8
Total Del/Veh (s)	351.6

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	L	T	R
Maximum Queue (m)	40.0	62.3	77.4	207.1	60.8	74.0	9.1	190.9	47.5
Average Queue (m)	20.7	38.1	52.7	130.3	39.4	46.9	5.3	99.4	32.7
95th Queue (m)	40.9	63.6	100.3	287.4	66.2	80.7	10.7	228.2	65.9
Link Distance (m)	46.7	46.7		508.2	100.3	100.3		482.2	
Upstream Blk Time (%)	1	8		1		0			
Queuing Penalty (veh)	3	17		0		0			
Storage Bay Dist (m)			70.0				5.0		40.0
Storage Blk Time (%)			0	36			43	56	0
Queuing Penalty (veh)			0	66			260	193	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	WB	WB	SB
Directions Served	T	T	TR	R
Maximum Queue (m)	1.3	17.0	22.8	16.0
Average Queue (m)	0.2	5.6	8.3	9.7
95th Queue (m)	2.8	19.7	24.3	16.2
Link Distance (m)	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		0	1	
Storage Bay Dist (m)				
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	38.2	31.5	9.1	26.4	33.4	14.5	11.9
Average Queue (m)	21.7	14.5	6.5	19.3	24.5	6.4	3.8
95th Queue (m)	41.0	32.5	12.9	30.6	39.3	17.2	12.1
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				7	12	0	
Queuing Penalty (veh)				35	57	0	
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			15	20			
Queuing Penalty (veh)			69	15			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.6	24.3	21.9	10.2	28.4	36.9	16.9	26.4	39.0	36.0
Average Queue (m)	7.9	9.3	8.4	4.6	15.2	22.4	8.0	12.4	24.5	16.2
95th Queue (m)	17.7	24.3	22.0	11.7	30.7	39.4	19.0	25.7	40.3	37.2
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	4	5			0				5	0
Queuing Penalty (veh)	7	2			0				5	0

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	82.4	249.9	231.1	10.6	40.8	41.3	32.3	129.3	36.6	27.6
Average Queue (m)	74.9	142.0	126.5	2.3	26.8	29.1	31.0	80.9	18.4	13.1
95th Queue (m)	97.5	299.3	279.1	10.4	42.9	44.2	35.0	147.4	39.6	31.7
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)		4	1							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	66	0			17		48	17	3	2
Queuing Penalty (veh)	168	1			4		75	49	7	4

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	91.8	50.5	47.7	80.2
Average Queue (m)	48.8	29.7	29.5	54.5
95th Queue (m)	94.2	53.3	56.7	94.0
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				6
Queuing Penalty (veh)				27
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	13.2	42.0	13.1	29.5
Average Queue (m)	4.1	17.7	3.1	8.5
95th Queue (m)	14.8	53.0	12.6	32.2
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.9	3.6	6.2
Average Queue (m)	7.3	0.6	0.6
95th Queue (m)	15.6	4.2	5.6
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.9	2.6	6.9	0.6
Average Queue (m)	3.2	0.4	1.4	0.1
95th Queue (m)	10.1	3.3	6.9	1.3
Link Distance (m)	197.4	61.4	38.2	84.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	9.8	6.8	18.6
Average Queue (m)	3.2	1.0	11.9
95th Queue (m)	10.5	5.7	18.9
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (m)	17.3	0.9
Average Queue (m)	10.5	0.1
95th Queue (m)	16.3	1.9
Link Distance (m)	58.3	83.2
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1068

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	0.0	2.1	0.7	0.5	0.0	0.0	0.0	2.2	0.7	2.2
Total Del/Veh (s)	42.5	26.3	2.1	34.5	48.7	37.2	54.1	25.7	20.3	45.7	32.1	5.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	30.3

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.3	4.9	3.2	0.8	8.0	3.2

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	6.1	4.1	23.4	8.1	21.1	3.5	8.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.8	0.5	0.0	0.0
Total Del/Veh (s)	19.6	7.9	7.1	25.5	10.4	9.7	29.8	23.5	16.2	37.2	22.8	16.1

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.4

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.4	0.4	0.3	0.0	0.0	3.6	0.8	0.7	0.0	0.1	0.4
Total Del/Veh (s)	49.9	19.9	18.8	48.5	23.7	12.9	38.4	38.1	24.9	28.2	36.4	15.8

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	26.8

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	94.5	96.1	91.3	30.5	29.8	25.0	28.2	23.1	23.9	32.2	30.0	29.4

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	50.2

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1		0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	9.7		3.7	17.0	8.3	8.5	8.4	3.4	2.9	5.4	2.3	1.8

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.9

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.0	0.1	0.3	0.2
Total Del/Veh (s)	10.4	6.3	1.1	0.6	2.6	1.0	1.4

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	5.0	0.1	3.2		2.0	0.1		0.0	0.1	1.0

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	4.6	1.6	0.6	0.5	6.7	4.4	2.8

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0		0.0	0.0
Total Del/Veh (s)	5.7	4.0	0.5	0.4		0.7	2.1

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	306.4

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	46.1	69.1	77.2	147.4	83.2	73.1	9.3	6.7	65.1	41.4
Average Queue (m)	27.0	52.1	32.5	80.7	51.1	45.9	2.5	2.2	31.6	13.1
95th Queue (m)	50.6	79.9	79.3	159.5	93.8	78.0	22.8	7.1	63.7	41.0
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	3	17			4					
Queuing Penalty (veh)	8	48			0					
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	16				12	47	0
Queuing Penalty (veh)			0	28				58	119	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	14.5	4.9	38.7	41.2	15.8
Average Queue (m)	2.3	0.9	18.0	19.9	8.1
95th Queue (m)	13.5	6.1	40.9	43.3	16.0
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)	0		2	2	
Queuing Penalty (veh)	2		9	10	
Storage Bay Dist (m)					
Storage Blk Time (%)	2				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	43.4	28.6	11.4	32.8	34.2	15.4	19.7
Average Queue (m)	23.3	14.6	9.4	26.0	26.1	7.2	9.3
95th Queue (m)	46.1	29.5	12.9	34.7	36.7	16.6	21.1
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)			0	24	14	0	0
Queuing Penalty (veh)			0	106	64	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			37	37			
Queuing Penalty (veh)			142	45			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.7	46.4	53.2	23.6	35.6	41.4	34.0	49.6	39.4	48.8
Average Queue (m)	7.3	18.3	21.5	12.4	19.3	26.4	21.2	30.8	26.6	24.6
95th Queue (m)	17.5	49.6	55.5	24.5	38.0	47.4	38.8	53.0	43.2	54.5
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							0	4		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	5			1				5	2
Queuing Penalty (veh)	7	2			0				10	3

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	60.4	73.3	81.1	21.0	65.0	70.4	32.3	88.7	42.2	28.2
Average Queue (m)	38.3	42.0	52.6	5.1	41.4	43.4	28.6	48.4	22.0	13.0
95th Queue (m)	64.9	71.5	83.5	19.6	68.5	71.5	37.0	94.0	50.5	34.3
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	3	0		0	28		25	10	5	2
Queuing Penalty (veh)	9	1		0	6		37	22	11	3

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	188.8	59.9	58.1	64.4
Average Queue (m)	119.0	35.3	34.4	41.0
95th Queue (m)	225.4	65.1	62.4	74.3
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				1
Queuing Penalty (veh)				4
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.7	20.8	19.9	16.6
Average Queue (m)	3.3	11.1	5.5	4.5
95th Queue (m)	11.6	20.4	18.6	19.1
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.5	14.2	8.6
Average Queue (m)	6.2	2.9	1.9
95th Queue (m)	14.1	12.4	9.7
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	7.0	1.7	4.5
Average Queue (m)	2.2	0.2	0.5
95th Queue (m)	8.3	2.6	4.0
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	16.9	9.2	17.3
Average Queue (m)	8.5	1.9	10.4
95th Queue (m)	17.7	8.5	17.4
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB
Directions Served	LR	TR
Maximum Queue (m)	12.9	3.3
Average Queue (m)	8.7	0.5
95th Queue (m)	14.6	4.3
Link Distance (m)	58.3	28.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 754

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.2	0.0	1.8	0.7	0.7	0.0	0.0	0.0	2.2	0.8	2.3
Total Del/Veh (s)	51.7	33.2	2.0	81.4	96.7	100.5	48.8	22.9	16.6	64.7	46.8	15.3

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	47.5

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	15.7	1.0	1.8	1.0	1.0	7.3	2.2

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.8	2.7	16.8	4.7	28.4	2.3	5.4

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.6	0.0	0.1
Total Del/Veh (s)	18.4	5.4	4.1	18.1	7.2	6.1	34.2	24.7	13.3	37.3	24.0	15.3

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	11.4

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.3	0.3	0.2	0.0	0.0	3.5	1.0	1.2	0.0	0.1	0.4
Total Del/Veh (s)	32.5	19.7	17.4	41.4	35.1	20.6	47.2	44.1	28.1	27.2	35.9	21.1

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	30.9

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.5	0.5	0.5	0.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	22.5	11.0	6.7	14.8	11.7	7.8	24.4	9.4	6.8	16.0	12.3	9.6

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	13.2

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Del/Veh (s)		8.8	15.5	3.3	8.3	5.1	2.1	2.1	4.0	1.4		3.3

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.4	0.3	0.1
Total Del/Veh (s)	9.4	4.5	1.2	0.8	4.8	1.0	1.4

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)			0.0			0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)			3.5			2.4	0.1	0.1	0.0	1.4

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.4	0.7	0.9	0.7	5.4	3.8	2.5

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0		0.0	0.1
Total Del/Veh (s)	5.3	3.7	0.4	0.2		0.6	2.5

Total Zone Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	338.4

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	46.0	61.0	77.4	270.6	69.0	73.0	2.1	8.9	128.8	47.5
Average Queue (m)	27.6	44.1	62.4	166.5	42.9	42.9	0.0	4.8	71.4	30.5
95th Queue (m)	51.5	66.4	106.1	311.8	80.0	73.9	0.0	10.0	142.6	63.3
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	5	16			1	0				
Queuing Penalty (veh)	11	32			0	0				
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	51				34	57	0
Queuing Penalty (veh)			0	92				203	196	2

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	L	T	T	TR	R
Maximum Queue (m)	11.4	23.0	19.2	25.1	14.2
Average Queue (m)	8.2	6.0	4.9	8.4	8.4
95th Queue (m)	14.1	22.6	20.4	24.5	14.1
Link Distance (m)		22.9	36.7	36.7	50.7
Upstream Blk Time (%)		1	0	0	
Queuing Penalty (veh)		3	2	1	
Storage Bay Dist (m)	10.0				
Storage Blk Time (%)	17	1			
Queuing Penalty (veh)	51	1			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	33.7	24.8	9.1	26.8	35.6	12.4	11.6
Average Queue (m)	17.7	9.4	8.1	18.2	23.6	4.6	4.4
95th Queue (m)	37.1	24.3	12.3	30.1	39.2	13.2	12.9
Link Distance (m)	114.6	114.6		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				6	9		
Queuing Penalty (veh)				30	42		
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			21	21			
Queuing Penalty (veh)			92	15			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.5	33.7	30.5	11.8	33.3	42.1	16.0	26.4	39.5	38.5
Average Queue (m)	7.9	10.4	9.4	5.3	16.9	23.1	8.0	13.5	27.5	15.1
95th Queue (m)	18.1	34.7	30.1	13.2	35.5	42.9	18.7	27.3	45.8	34.7
Link Distance (m)		164.8	164.8		114.6	114.6	45.1	45.1		136.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	4	3			0				7	0
Queuing Penalty (veh)	8	1			0				8	1

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	46.5	62.1	69.7	20.5	74.8	79.0	32.3	98.4	41.1	30.5
Average Queue (m)	26.8	40.6	44.5	6.6	54.8	57.3	30.9	66.3	19.7	17.2
95th Queue (m)	51.8	64.1	72.1	23.5	80.3	84.5	34.9	114.4	44.8	35.8
Link Distance (m)		341.3	341.3		164.8	164.8		218.0	117.6	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	0	0		0	46		47	8	6	5
Queuing Penalty (veh)	1	0		2	11		74	22	15	7

Intersection: 6: Fromme Rd & 29th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	35.3	44.1	17.1	40.7	26.1	39.2	20.9	61.0
Average Queue (m)	23.5	22.0	5.3	24.1	15.1	19.9	6.7	33.9
95th Queue (m)	38.2	43.4	17.9	40.0	28.3	42.4	20.3	61.4
Link Distance (m)		471.1		136.2		117.6		84.8
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	30.0		30.0		30.0		30.0	
Storage Blk Time (%)	5	1		3	1	3	0	8
Queuing Penalty (veh)	13	1		1	3	2	1	2

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.8	29.8	15.8	18.5
Average Queue (m)	3.5	14.9	3.8	5.1
95th Queue (m)	11.5	27.8	14.9	17.6
Link Distance (m)	85.9	199.8	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	15.2	7.8	9.1
Average Queue (m)	7.1	1.7	1.7
95th Queue (m)	16.1	9.0	10.3
Link Distance (m)	197.3	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.0	3.4	7.5
Average Queue (m)	4.1	0.6	1.3
95th Queue (m)	11.2	4.1	7.2
Link Distance (m)	197.3	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	10.4	6.6	17.5
Average Queue (m)	3.0	2.0	11.5
95th Queue (m)	10.5	8.3	17.6
Link Distance (m)	199.8	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	16.7	1.8	0.9
Average Queue (m)	10.3	0.3	0.1
95th Queue (m)	17.0	2.8	1.8
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 947

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.6	0.2	0.0	2.2	0.7	0.6	0.0	0.0	0.0	2.4	0.7	2.1
Total Del/Veh (s)	54.4	29.2	2.2	40.1	49.6	42.3	53.0	25.1	19.0	61.1	31.5	5.5

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	32.3

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	16.2	2.4	12.9	4.8	0.6	10.4	7.6

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.3	0.0
Total Del/Veh (s)	12.2	6.9	38.9	9.4	29.6	6.8	12.5

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.6	0.4	0.1	0.5
Total Del/Veh (s)	20.3	7.8	5.6	28.7	10.0	8.3	30.3	22.7	17.4	43.0	25.1	20.3

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.9

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.3	0.4	0.4	0.1	0.0	0.0	3.6	0.8	0.8	0.0	0.1	0.5
Total Del/Veh (s)	25.0	19.7	19.8	56.1	31.3	32.4	38.2	36.6	29.1	33.9	33.2	15.3

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	26.2

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.5	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	18.6	11.6	8.2	17.5	11.0	8.5	19.3	9.8	9.4	15.3	9.9	8.3

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	11.6

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)			0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	
Total Del/Veh (s)			6.1	13.8	1.8	7.1	7.5	2.7	1.8	3.4	1.3	

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.0

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.3	0.3	0.2
Total Del/Veh (s)	9.8	4.9	1.1	0.5	3.4	0.9	1.3

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.5	0.7	4.9		2.2	0.1	0.1	0.0	1.3

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	5.2	0.9	1.2	0.7	6.8	6.0	2.7

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.6	2.8	0.4	0.3	3.0	0.6	2.0

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	293.7

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	54.0	68.4	75.1	133.4	84.2	72.6	9.8	6.4	59.1	47.0
Average Queue (m)	31.7	53.2	45.2	86.7	50.7	45.4	1.9	2.4	32.2	15.5
95th Queue (m)	59.2	78.3	91.1	150.6	95.0	76.4	17.1	7.4	58.9	46.3
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	11	20			5	0				
Queuing Penalty (veh)	31	55			0	0				
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	22				19	47	0
Queuing Penalty (veh)			1	38				86	118	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	R
Maximum Queue (m)	11.6	30.3	5.6	52.6	55.0	15.4
Average Queue (m)	8.4	13.1	0.8	31.6	32.1	8.5
95th Queue (m)	15.3	38.5	7.2	62.0	60.7	16.0
Link Distance (m)		22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		5	0	16	7	
Queuing Penalty (veh)		23	0	77	32	
Storage Bay Dist (m)	10.0					
Storage Blk Time (%)	20	5				
Queuing Penalty (veh)	83	4				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	68.8	48.7	9.7	34.0	37.3	16.2	22.1
Average Queue (m)	36.3	21.2	9.0	28.0	27.9	7.1	11.3
95th Queue (m)	82.4	50.3	10.1	36.3	37.1	17.3	24.7
Link Distance (m)	114.6	114.6		22.9	22.9	26.8	26.8
Upstream Blk Time (%)	1			41	18	0	1
Queuing Penalty (veh)	3			177	79	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			47	51			
Queuing Penalty (veh)			177	63			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	18.3	44.2	37.5	27.8	28.5	35.0	31.0	52.0	41.7	79.5
Average Queue (m)	8.7	18.0	18.0	12.0	15.3	22.7	17.9	29.7	29.2	33.3
95th Queue (m)	18.5	45.1	39.5	24.7	29.3	36.7	32.9	53.2	45.4	75.1
Link Distance (m)		164.8	164.8		114.6	114.6	45.1	45.1		136.2
Upstream Blk Time (%)							0	4		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	6	6			0				11	4
Queuing Penalty (veh)	16	2			0				22	8

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	44.0	80.2	91.4	13.2	67.4	66.5	32.2	75.4	38.2	31.0
Average Queue (m)	19.9	48.8	58.2	2.9	44.2	45.4	28.5	46.9	18.3	14.0
95th Queue (m)	43.7	80.1	94.4	14.0	71.3	71.6	36.5	87.3	40.8	31.8
Link Distance (m)		341.3	341.3		164.8	164.8		218.0	117.6	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		1		0	37		27	10	4	1
Queuing Penalty (veh)		1		0	8		40	24	8	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	32.6	50.6	15.6	40.1	21.4	31.1	23.8	40.1
Average Queue (m)	16.8	28.5	5.7	21.8	11.1	15.7	9.2	25.0
95th Queue (m)	33.5	50.3	15.2	38.9	22.3	34.1	24.2	42.4
Link Distance (m)		471.1		136.2		117.6		84.8
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	30.0		30.0		30.0		30.0	
Storage Blk Time (%)	2	5		3	0	1	0	4
Queuing Penalty (veh)	6	5		1	0	1	0	2

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.5	22.3	20.2	14.4
Average Queue (m)	2.4	11.4	6.9	4.4
95th Queue (m)	9.8	21.3	20.2	15.8
Link Distance (m)	85.9	199.8	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	9.8	7.6	7.1
Average Queue (m)	7.2	1.6	1.3
95th Queue (m)	13.6	8.2	7.0
Link Distance (m)	197.3	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.0	0.9	5.5
Average Queue (m)	2.6	0.0	1.3
95th Queue (m)	9.0	0.0	6.3
Link Distance (m)	197.3	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	12.4	11.2	18.0
Average Queue (m)	4.3	2.3	10.8
95th Queue (m)	12.8	11.3	18.6
Link Distance (m)	199.8	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	14.8	2.7	2.7
Average Queue (m)	9.3	0.4	0.4
95th Queue (m)	14.3	3.3	3.4
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 1192

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	0.0	2.1	0.9	1.1	0.0	0.0	0.0	2.3	0.9	2.2
Total Del/Veh (s)	63.9	32.5	1.9	91.5	107.2	103.7	62.1	21.8	14.4	78.4	55.1	22.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	54.2

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	1.9	1.0	0.8	8.9	1.9

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.5	3.4	13.4	5.4	25.4	1.9	5.6

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.5	0.0	0.1
Total Del/Veh (s)	17.6	5.3	4.1	13.1	7.3	6.0	26.3	21.2	9.2	37.4	27.0	17.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	11.4

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.3	0.3	0.4	0.0	0.0	3.5	1.1	1.0	0.0	0.1	0.6
Total Del/Veh (s)	44.0	17.2	12.7	47.7	34.4	32.3	43.6	44.6	33.6	45.5	37.5	18.6

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	31.0

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.3	0.5	0.5	0.7	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	23.5	13.3	9.5	16.7	12.6	10.2	20.9	11.0	7.2	17.8	12.2	8.7

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	13.6

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		6.3	13.4	11.4	7.3	4.1	3.1	2.5	5.2	1.6	1.1	3.3

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.4	0.3	0.2
Total Del/Veh (s)	9.0	3.6	1.1	0.7	5.6	1.1	1.4

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	4.5	2.0	3.8		2.4	0.1		0.1	0.0	1.3

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.3	1.0	0.4	0.3	6.7	4.2	2.8

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.3	3.2	0.3	0.3	2.0	0.6	2.4

Total Zone Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	338.0

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	51.0	60.9	77.4	273.9	81.0	72.8	3.8	8.8	148.9	47.5
Average Queue (m)	33.2	41.8	59.9	179.4	52.5	40.6	1.2	5.0	87.4	32.0
95th Queue (m)	64.8	68.4	104.7	349.6	99.8	75.0	8.5	10.2	189.9	65.3
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	11	12		2	3					
Queuing Penalty (veh)	23	25		0	0					
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	56				38	56	0
Queuing Penalty (veh)			1	102				227	195	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	2.2	1.6	21.4	26.8	20.6
Average Queue (m)	0.5	0.2	6.1	9.4	10.9
95th Queue (m)	5.5	3.3	21.7	28.1	20.3
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)	0		0	0	
Queuing Penalty (veh)	0		0	2	
Storage Bay Dist (m)					
Storage Blk Time (%)	1				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	31.6	25.3	9.1	28.0	36.9	9.9	13.2
Average Queue (m)	13.9	10.3	7.6	20.4	25.6	4.4	3.6
95th Queue (m)	33.0	26.0	12.8	32.0	40.6	12.2	13.3
Link Distance (m)	114.6	114.6		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				7	13		
Queuing Penalty (veh)				36	62		
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			16	21			
Queuing Penalty (veh)			71	15			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	14.8	30.1	30.3	12.8	31.0	39.4	15.3	27.0	38.8	43.5
Average Queue (m)	6.7	8.9	10.5	5.3	15.8	23.0	6.4	13.6	24.7	19.5
95th Queue (m)	15.7	31.5	32.6	14.1	31.1	42.5	17.2	28.8	41.8	46.7
Link Distance (m)		164.8	164.8		114.6	114.6	45.1	45.1		136.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	3	2			0				5	0
Queuing Penalty (veh)	6	1			0				5	0

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	57.1	57.8	51.2	17.3	72.7	74.0	32.4	107.6	49.3	31.9
Average Queue (m)	36.7	33.5	34.9	5.2	53.6	55.2	30.9	66.6	20.7	18.9
95th Queue (m)	62.8	61.8	53.8	19.9	76.9	77.8	35.6	113.7	48.4	36.8
Link Distance (m)		341.3	341.3		164.8	164.8		218.0	117.6	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	2	0		0	47		40	15	7	5
Queuing Penalty (veh)	5	0		0	12		63	44	16	7

Intersection: 6: Fromme Rd & 29th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	35.9	44.2	16.1	38.9	30.2	44.2	17.6	50.3
Average Queue (m)	22.1	24.2	5.8	23.4	13.6	25.6	5.6	30.9
95th Queue (m)	37.3	43.5	17.0	40.3	27.7	45.2	16.3	49.6
Link Distance (m)		471.1		136.2		117.6		84.8
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (m)	30.0		30.0		30.0		30.0	
Storage Blk Time (%)	4	3		3	1	4		8
Queuing Penalty (veh)	10	4		1	3	3		2

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.2	20.8	24.0	18.6
Average Queue (m)	4.7	11.8	9.0	5.7
95th Queue (m)	12.4	21.7	25.7	17.8
Link Distance (m)	85.9	199.8	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.3	4.0	7.6
Average Queue (m)	7.6	0.7	1.1
95th Queue (m)	15.6	4.5	10.4
Link Distance (m)	197.3	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.0	1.7	5.5
Average Queue (m)	4.3	0.3	1.1
95th Queue (m)	11.3	2.9	6.0
Link Distance (m)	197.3	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	10.8	7.4	17.3
Average Queue (m)	3.8	1.4	11.9
95th Queue (m)	11.9	6.9	19.9
Link Distance (m)	199.8	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	13.2	2.5	1.8
Average Queue (m)	9.2	0.4	0.3
95th Queue (m)	14.8	4.0	2.7
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 945

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.1	0.0	2.1	0.7	0.8	0.0	0.0	0.0	2.4	0.7	2.2
Total Del/Veh (s)	54.8	23.8	2.2	42.6	60.4	55.2	63.8	25.0	17.2	40.1	32.8	5.8

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	34.2

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.7	7.1	3.1	0.9	9.7	4.3

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	6.9	4.4	25.2	8.3	30.0	2.9	8.7

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.3	0.4	0.0	0.1
Total Del/Veh (s)	21.4	7.1	6.1	29.0	10.9	8.7	28.0	24.6	16.2	40.5	23.6	13.7

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.5

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.4	0.4	0.1	0.0	0.1	3.6	0.8	0.8	0.0	0.0	0.5
Total Del/Veh (s)	28.6	20.8	19.9	50.2	32.3	16.0	39.2	35.9	24.5	52.0	36.3	16.4

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	27.6

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.3	0.5	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	17.0	11.2	7.2	18.8	10.2	7.9	23.0	10.2	6.9	17.2	10.8	9.2

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	11.6

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)		0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	
Total Del/Veh (s)		7.8	2.7	14.7	15.4	8.3	6.3	3.3	2.2	7.3	1.6	0.2

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.5

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.3	0.2
Total Del/Veh (s)	12.3	4.1	1.4	1.2	4.9	1.1	1.6

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	5.8	0.3	3.4		2.1	0.2		0.2	0.0	1.2

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Del/Veh (s)	4.8	1.8	0.8	0.4	7.7	6.2	3.1

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.3	4.2	0.4	0.5	1.9	0.6	1.9

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	288.1

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	51.5	69.8	77.4	177.3	84.6	74.4	17.3	5.6	62.7	43.6
Average Queue (m)	32.9	49.3	41.9	100.1	54.5	45.8	2.7	1.7	36.0	13.3
95th Queue (m)	64.6	76.2	88.9	184.2	102.6	81.3	30.0	6.6	68.5	42.1
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	13	12			5	0	1			
Queuing Penalty (veh)	35	34			0	0	0			
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	28				7	46	0
Queuing Penalty (veh)			0	49				30	118	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	12.0	7.8	41.2	46.5	19.1
Average Queue (m)	3.3	1.3	22.6	24.6	9.3
95th Queue (m)	18.5	11.6	46.2	51.4	19.5
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)	2	0	5	3	
Queuing Penalty (veh)	8	1	23	14	
Storage Bay Dist (m)					
Storage Blk Time (%)	3				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	46.2	30.8	10.3	31.8	33.7	14.1	21.6
Average Queue (m)	25.4	16.5	9.1	25.5	26.1	6.3	11.0
95th Queue (m)	53.6	30.1	10.8	33.0	36.1	15.5	22.0
Link Distance (m)	114.6	114.6		22.9	22.9	26.8	26.8
Upstream Blk Time (%)	0			27	15		0
Queuing Penalty (veh)	1			118	68		0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			40	40			
Queuing Penalty (veh)			152	49			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	17.9	35.0	37.7	24.2	35.0	42.7	28.2	47.8	41.1	48.8
Average Queue (m)	8.8	14.1	16.5	12.6	19.0	25.0	19.2	30.2	30.1	27.5
95th Queue (m)	19.5	35.7	37.7	25.8	38.2	46.1	31.8	51.5	47.1	53.8
Link Distance (m)		164.8	164.8		114.6	114.6	45.1	45.1		136.2
Upstream Blk Time (%)							0	4		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	5	4			1				9	3
Queuing Penalty (veh)	12	2			1				19	5

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	44.2	71.2	81.3	16.1	68.6	73.0	32.2	76.6	46.9	27.6
Average Queue (m)	26.6	43.1	58.4	4.2	46.2	48.5	28.3	40.5	21.7	14.7
95th Queue (m)	46.4	70.9	87.3	17.7	71.7	74.2	36.8	83.0	49.7	34.1
Link Distance (m)		341.3	341.3		164.8	164.8		218.0	117.6	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		0			40		29	8	7	1
Queuing Penalty (veh)		0			9		42	19	14	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	33.4	48.6	17.6	31.1	18.4	33.7	21.2	44.6
Average Queue (m)	16.9	26.9	6.7	18.5	9.9	19.5	8.4	25.3
95th Queue (m)	33.2	47.6	19.0	31.3	20.9	34.4	20.2	45.3
Link Distance (m)		471.1		136.2		117.6		84.8
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	30.0		30.0		30.0		30.0	
Storage Blk Time (%)	1	4		1	0	2		4
Queuing Penalty (veh)	2	4		0	1	1		2

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	8.4	21.6	27.9	22.5
Average Queue (m)	2.5	12.6	10.4	7.8
95th Queue (m)	10.2	23.2	28.6	24.0
Link Distance (m)	85.9	199.8	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	10.4	7.6	11.0
Average Queue (m)	6.9	1.7	2.3
95th Queue (m)	13.9	9.6	10.7
Link Distance (m)	197.3	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.5	2.5	3.6
Average Queue (m)	3.3	0.4	0.8
95th Queue (m)	10.5	3.2	5.0
Link Distance (m)	197.3	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	18.4	8.4	19.1
Average Queue (m)	7.6	1.7	11.1
95th Queue (m)	19.0	9.0	18.8
Link Distance (m)	199.8	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	13.5	6.2	0.9
Average Queue (m)	8.8	0.9	0.1
95th Queue (m)	13.8	5.4	1.9
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 836

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.4	0.2	0.0	1.8	0.8	0.7	0.0	0.0	0.0	2.1	0.9	2.3
Total Del/Veh (s)	42.8	27.2	2.0	55.9	60.0	62.7	74.7	24.3	17.1	67.9	55.5	20.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	42.5

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.9	1.6	0.9	1.0	8.3	1.8

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	7.1	4.4	12.4	4.4	24.3	1.9	5.8

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.7	0.1	0.0
Total Del/Veh (s)	22.7	6.5	4.7	13.3	6.7	5.9	30.3	23.6	11.1	38.9	29.2	14.4

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	12.2

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	5.9	3.9	3.4	0.3	0.0	0.1	3.5	1.1	1.0	0.0	0.1	0.6
Total Del/Veh (s)	269.0	58.9	28.3	26.7	14.2	8.8	46.6	46.7	33.6	26.9	38.7	22.3

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	2.1
Total Del/Veh (s)	57.9

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	43.4	43.1	38.7	25.4	24.7	19.8	19.4	18.7	25.8	41.4	39.6	38.6

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	33.1

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Del/Veh (s)		23.2	24.5	17.5	13.7	10.3	3.3	2.7	7.0	5.3		6.2

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.4	0.3	0.2
Total Del/Veh (s)	10.1	4.9	0.8	0.6	2.4	0.9	1.2

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0		0.0	0.1	0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	3.4		2.7	3.6	2.7	0.1		0.2	0.0	1.3

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.6	0.9	0.3	0.4	5.8	3.6	2.6

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0		0.0	0.1
Total Del/Veh (s)	5.4	3.8	0.3	0.2		0.8	2.5

Total Zone Performance

Denied Del/Veh (s)	1.9
Total Del/Veh (s)	355.9

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	37.8	61.7	77.3	167.7	87.8	67.6	16.2	10.1	153.5	47.4
Average Queue (m)	22.0	38.0	50.1	105.9	60.5	42.4	3.1	5.6	86.5	29.6
95th Queue (m)	40.5	64.5	97.7	193.3	107.7	72.7	24.7	11.3	185.0	63.3
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	0	7			5	0				
Queuing Penalty (veh)	1	15			0	0				
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			1	30				32	56	0
Queuing Penalty (veh)			5	55				189	194	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	2.4	0.9	14.3	21.5	17.7
Average Queue (m)	0.3	0.1	3.9	8.6	10.6
95th Queue (m)	3.7	1.9	15.1	23.2	18.6
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (m)					
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	41.0	31.7	9.6	26.3	34.2	13.9	13.1
Average Queue (m)	21.6	15.0	8.0	18.4	21.7	5.1	4.5
95th Queue (m)	46.6	33.6	12.6	30.7	38.4	14.4	13.7
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				4	10	0	
Queuing Penalty (veh)				21	48	0	
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			15	17			
Queuing Penalty (veh)			71	12			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.1	20.0	24.2	11.0	31.9	40.6	18.1	25.3	38.0	35.9
Average Queue (m)	6.7	7.3	9.4	4.7	17.3	23.1	8.2	13.1	26.0	16.7
95th Queue (m)	17.0	20.4	25.0	12.5	33.6	41.6	19.2	26.0	41.7	39.7
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	4	4			0				7	1
Queuing Penalty (veh)	9	2			0				8	2

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	81.8	281.6	275.3	15.4	45.8	47.3	32.3	105.8	46.6	31.4
Average Queue (m)	77.6	171.8	158.0	4.4	28.4	30.0	30.2	64.4	23.5	17.0
95th Queue (m)	93.0	349.1	328.3	18.0	48.1	49.9	36.8	127.7	48.7	37.6
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)		7	3					0		
Queuing Penalty (veh)		0	0					0		
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	70	0			18		38	14	5	6
Queuing Penalty (veh)	180	1			5		59	42	13	9

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	90.4	56.3	43.8	82.8
Average Queue (m)	58.2	31.3	27.5	58.1
95th Queue (m)	118.0	58.7	46.2	93.7
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				4
Queuing Penalty (veh)				18
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	11.9	28.7	17.4	36.9
Average Queue (m)	3.5	13.6	4.9	9.4
95th Queue (m)	12.0	26.8	16.6	36.1
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	14.8	4.9	5.1
Average Queue (m)	8.0	1.0	0.9
95th Queue (m)	17.1	5.3	7.9
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.0	4.3	6.9
Average Queue (m)	4.1	0.6	1.6
95th Queue (m)	11.2	4.3	7.8
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	8.6	5.1	19.5
Average Queue (m)	3.0	1.0	12.0
95th Queue (m)	10.1	6.0	19.9
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	17.8	2.7	0.9
Average Queue (m)	11.4	0.3	0.0
95th Queue (m)	17.8	2.7	0.0
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 958

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.5	0.1	0.4	2.1	0.7	0.8	0.0	0.0	0.0	1.8	0.6	2.2
Total Del/Veh (s)	44.3	29.5	2.1	35.1	50.7	42.4	51.5	26.9	18.4	56.2	32.0	5.0

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	31.2

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.1	4.9	2.3	1.0	9.1	3.2

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	6.3	4.1	21.6	7.8	25.3	2.7	8.0

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	1.4	0.5	0.1	0.1
Total Del/Veh (s)	17.1	6.3	5.2	22.3	10.6	8.3	29.5	24.9	19.0	41.1	25.3	15.6

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	15.1

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.4	0.4	0.0	0.0	0.0	3.6	0.9	0.8	0.2	0.1	0.4
Total Del/Veh (s)	69.9	20.2	18.2	48.6	23.6	20.2	35.8	38.8	24.7	39.2	35.1	16.1

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	28.4

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.4	0.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	77.1	74.6	65.8	20.9	24.8	21.2	30.0	23.8	24.5	38.6	28.0	30.2

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	42.0

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)		0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	
Total Del/Veh (s)		16.9	7.6	13.0	12.3	8.0	6.3	3.5	2.6	4.3	2.1	

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.8

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.6	0.3	0.2
Total Del/Veh (s)	12.5	4.9	1.1	1.1	4.4	1.2	1.6

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	2.9	1.2	4.5		2.0	0.1		0.2	0.0	1.5

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.1
Total Del/Veh (s)	4.8	1.6	1.0	0.3	9.3	6.1	3.7

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.6	3.9	0.6	0.4	3.0	0.6	2.2

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	308.9

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	51.0	68.0	77.3	137.4	72.6	74.2	7.2	6.9	56.1	38.8
Average Queue (m)	28.7	54.2	36.3	81.5	49.2	48.7	2.4	2.0	30.9	12.1
95th Queue (m)	51.9	78.5	79.1	156.7	89.1	79.3	22.3	7.2	59.6	39.6
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	4	20			4	0				
Queuing Penalty (veh)	11	56			0	0				
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	16				11	47	0
Queuing Penalty (veh)			0	28				53	120	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	6.6	5.0	35.9	43.0	18.9
Average Queue (m)	0.9	0.7	19.2	22.2	9.4
95th Queue (m)	6.2	6.0	42.6	49.1	18.0
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		0	2	2	
Queuing Penalty (veh)		0	9	9	
Storage Bay Dist (m)					
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	39.8	31.3	9.9	32.8	33.8	14.2	16.6
Average Queue (m)	24.2	15.9	9.0	24.8	25.8	7.3	7.8
95th Queue (m)	42.3	32.8	10.8	34.5	37.7	16.8	18.7
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				19	14		0
Queuing Penalty (veh)				86	64		0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			34	34			
Queuing Penalty (veh)			134	42			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	16.4	31.9	38.3	20.5	35.6	49.4	37.0	47.0	37.8	41.4
Average Queue (m)	7.4	11.4	14.4	10.2	20.1	27.4	20.1	28.8	26.7	23.0
95th Queue (m)	17.8	33.6	39.0	23.3	37.0	50.5	37.2	48.3	43.9	47.7
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							1	4		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	4	3			0				4	2
Queuing Penalty (veh)	9	1			0				8	3

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	71.3	74.2	80.1	17.3	61.5	61.0	32.2	82.3	45.5	29.4
Average Queue (m)	47.7	42.7	53.5	5.3	39.4	41.9	28.7	47.3	21.1	13.5
95th Queue (m)	82.0	80.2	84.3	19.0	62.5	63.3	38.2	91.5	45.9	32.7
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	5	0		0	30		26	11	6	1
Queuing Penalty (veh)	16	1		0	8		39	27	12	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	157.0	48.9	47.7	56.6
Average Queue (m)	92.4	28.3	31.9	39.2
95th Queue (m)	192.3	50.5	58.7	75.3
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				2
Queuing Penalty (veh)				9
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	10.6	21.6	16.8	22.9
Average Queue (m)	2.8	11.9	5.4	4.5
95th Queue (m)	11.1	20.3	17.1	17.4
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.9	12.5	18.1
Average Queue (m)	7.3	2.6	3.5
95th Queue (m)	14.8	12.7	15.6
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.0	1.7	5.4
Average Queue (m)	3.4	0.1	0.8
95th Queue (m)	10.3	1.8	4.9
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	16.4	10.0	19.7
Average Queue (m)	7.6	1.4	13.0
95th Queue (m)	18.3	6.9	20.2
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	16.6	8.1	2.8
Average Queue (m)	10.7	1.4	0.3
95th Queue (m)	17.0	7.3	2.8
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 745

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	1.9	0.8	0.6	0.0	0.0	0.0	2.0	0.9	2.2
Total Del/Veh (s)	54.3	32.4	2.0	89.3	104.5	102.2	59.1	22.6	16.6	87.3	63.1	27.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	54.1

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.8	2.1	1.1	1.1	9.8	2.1

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	4.5	3.6	16.9	5.0	21.7	1.8	5.5

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.5	0.0	0.0
Total Del/Veh (s)	20.4	5.8	5.2	10.9	7.3	7.0	29.7	26.3	14.1	34.1	26.3	19.6

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	11.7

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.5	0.4	0.3	0.3	0.0	0.0	3.7	1.0	1.2	0.0	0.3	0.6
Total Del/Veh (s)	50.5	18.3	13.0	43.0	35.5	27.9	54.2	55.2	36.1	42.3	37.1	21.6

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	34.1

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.2	0.5	0.6	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	20.8	11.0	9.2	13.7	11.6	8.6	21.5	12.0	9.7	18.5	12.2	8.9

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	13.0

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		7.3	14.6	8.1	7.0	6.2	3.0	2.5	5.9	1.7	0.4	3.3

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.5	0.3	0.1
Total Del/Veh (s)	9.5	5.2	1.1	0.8	4.8	0.9	1.3

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0		0.0			0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	4.6		3.6			2.7	0.1		0.1	0.0	1.5

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	3.2	1.3	0.5	0.6	6.1	4.5	3.1

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0		0.0	0.1
Total Del/Veh (s)	5.7	4.5	0.3	0.3		0.7	2.7

Total Zone Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	340.0

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	51.4	62.1	77.4	262.7	77.4	69.9	3.4	10.0	178.9	47.5
Average Queue (m)	29.1	43.0	55.2	177.3	50.1	40.9	0.5	6.0	97.4	31.0
95th Queue (m)	52.3	65.4	103.9	353.8	93.4	71.1	5.2	12.2	216.3	65.5
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	5	12			3					
Queuing Penalty (veh)	10	24			0					
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	47				43	56	0
Queuing Penalty (veh)			0	86				259	194	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	WB	WB	SB
Directions Served	T	TR	R
Maximum Queue (m)	21.1	24.7	22.6
Average Queue (m)	7.6	9.6	12.0
95th Queue (m)	26.1	28.3	22.3
Link Distance (m)	36.7	36.7	50.7
Upstream Blk Time (%)	0	0	
Queuing Penalty (veh)	2	1	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	31.5	23.9	11.6	28.8	35.3	16.2	10.7
Average Queue (m)	14.7	11.4	8.0	20.5	23.7	5.7	3.7
95th Queue (m)	34.1	25.7	14.2	33.4	38.1	15.2	11.5
Link Distance (m)	114.6	114.6		22.9	22.9	26.8	26.8
Upstream Blk Time (%)			0	9	12		
Queuing Penalty (veh)			0	44	58		
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			20	22			
Queuing Penalty (veh)			93	16			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	17.9	34.2	32.1	12.2	31.4	41.3	15.8	27.9	39.1	43.7
Average Queue (m)	8.2	11.2	13.0	5.7	18.6	25.8	8.2	13.8	26.2	16.3
95th Queue (m)	18.5	37.0	36.7	13.4	37.6	46.8	17.7	27.5	41.6	38.4
Link Distance (m)		164.8	164.8		114.6	114.6	45.1	45.1		136.2
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	6	4			0				4	1
Queuing Penalty (veh)	11	2			0				5	2

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	63.5	72.0	67.1	17.6	80.4	81.2	32.3	117.0	53.3	31.6
Average Queue (m)	41.4	40.3	40.2	4.1	56.9	57.7	31.0	77.4	24.7	16.9
95th Queue (m)	73.4	87.1	78.0	17.3	85.0	84.1	35.5	148.9	58.8	35.9
Link Distance (m)		341.3	341.3		164.8	164.8		218.0	117.6	
Upstream Blk Time (%)								1		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	6	0		0	47		43	12	7	4
Queuing Penalty (veh)	16	1		0	13		67	35	16	6

Intersection: 6: Fromme Rd & 29th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	34.2	43.7	12.5	39.3	26.5	51.1	28.3	59.7
Average Queue (m)	22.3	22.6	4.8	23.0	13.4	27.8	7.0	35.1
95th Queue (m)	36.1	43.1	14.6	42.1	28.6	51.0	23.7	61.7
Link Distance (m)		471.1		136.2		117.6		84.8
Upstream Blk Time (%)								0
Queuing Penalty (veh)								0
Storage Bay Dist (m)	30.0		30.0		30.0		30.0	
Storage Blk Time (%)	3	2		3	0	5	0	8
Queuing Penalty (veh)	8	4		1	1	4	0	2

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	11.5	24.5	21.8	20.9
Average Queue (m)	3.7	13.1	6.0	5.0
95th Queue (m)	11.7	23.7	21.1	20.2
Link Distance (m)	85.9	199.8	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	14.1	5.0	13.6
Average Queue (m)	6.5	1.1	2.4
95th Queue (m)	15.9	6.8	12.1
Link Distance (m)	197.3	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.6	3.4	9.1	0.9
Average Queue (m)	4.4	0.5	1.9	0.1
95th Queue (m)	11.5	3.8	9.6	1.9
Link Distance (m)	197.3	61.4	38.2	84.4
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	10.7	8.2	22.9
Average Queue (m)	3.8	1.4	13.1
95th Queue (m)	12.7	7.6	22.3
Link Distance (m)	199.8	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	15.7	3.4	1.7
Average Queue (m)	10.7	0.5	0.2
95th Queue (m)	16.9	4.3	2.6
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 981

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.1	0.0	2.4	0.7	0.8	0.0	0.0	0.0	2.6	0.6	2.3
Total Del/Veh (s)	54.0	31.7	2.1	44.4	47.2	48.6	63.6	26.4	20.3	48.0	29.3	5.4

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	33.7

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.8	10.3	3.8	1.3	11.9	5.9

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	6.2	4.1	30.6	8.8	23.1	4.7	9.0

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.4	0.3	0.1
Total Del/Veh (s)	25.7	7.5	6.6	27.8	11.1	8.0	29.4	24.7	15.6	42.7	27.4	19.8

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	16.5

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.4	0.3	0.1	0.0	0.0	3.6	0.8	1.0	0.0	0.2	0.4
Total Del/Veh (s)	29.0	19.7	18.4	58.3	35.6	34.4	37.5	37.9	24.1	46.9	40.5	16.6

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	28.9

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.1	0.4	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	17.7	11.8	8.4	19.7	10.6	8.8	20.8	10.7	10.2	17.6	11.4	8.6

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	11.9

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)			0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)			8.4	15.6	8.9	8.4	5.5	3.7	2.7	4.9	1.6	0.4

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.7

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.5	0.3	0.2
Total Del/Veh (s)	9.2	4.3	1.4	1.1	7.2	1.2	1.6

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	5.4	0.4	4.0		2.3	0.3		0.3	0.0	1.6

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.8	2.3	0.9	0.6	8.6	6.4	3.8

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.6	4.0	0.5	0.5	3.9	0.7	2.3

Total Zone Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	297.4

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	52.9	70.1	71.9	153.2	88.4	73.8	8.2	7.7	56.1	32.7
Average Queue (m)	33.3	57.3	41.6	87.2	57.5	47.4	1.8	1.8	30.5	10.7
95th Queue (m)	63.1	81.2	89.1	166.4	102.0	80.4	14.0	6.6	57.8	34.7
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	9	25			5	0				
Queuing Penalty (veh)	25	71			0	0				
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			1	17				10	42	0
Queuing Penalty (veh)			4	30				46	107	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	18.6	3.8	50.4	51.1	23.8
Average Queue (m)	5.4	0.5	29.6	26.5	11.6
95th Queue (m)	26.7	4.9	56.8	56.2	24.5
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)	2		11	6	
Queuing Penalty (veh)	10		54	28	
Storage Bay Dist (m)					
Storage Blk Time (%)	3				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	44.8	24.9	9.2	33.9	37.7	13.5	18.6
Average Queue (m)	26.7	14.5	8.7	26.1	28.4	6.4	9.4
95th Queue (m)	48.2	27.9	10.9	34.3	39.6	15.5	20.3
Link Distance (m)	114.6	114.6		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				32	18		1
Queuing Penalty (veh)				145	80		0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			45	45			
Queuing Penalty (veh)			174	55			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	18.6	45.6	42.2	27.1	34.6	41.3	34.1	44.1	41.2	69.7
Average Queue (m)	10.3	19.6	18.1	13.9	19.4	25.8	19.5	26.7	31.2	32.9
95th Queue (m)	22.8	48.8	41.5	28.1	37.2	44.3	35.5	45.4	47.4	75.2
Link Distance (m)		164.8	164.8		114.6	114.6	45.1	45.1		136.2
Upstream Blk Time (%)							0	1		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	10	5		0	1				12	3
Queuing Penalty (veh)	24	2		1	0				24	6

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	47.3	71.4	81.8	21.9	68.1	73.8	32.2	75.8	51.9	30.5
Average Queue (m)	31.2	41.5	52.9	7.4	49.5	52.8	28.2	43.2	24.5	15.2
95th Queue (m)	50.3	68.6	82.5	24.3	72.5	75.6	37.9	85.9	53.9	34.6
Link Distance (m)		341.3	341.3		164.8	164.8		218.0	117.6	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		0		2	47		26	12	10	1
Queuing Penalty (veh)		0		6	13		38	29	20	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	30.6	45.5	13.9	35.6	26.7	38.1	18.9	48.0
Average Queue (m)	17.2	29.5	4.5	20.0	12.4	24.3	8.2	27.4
95th Queue (m)	33.4	49.1	14.6	35.1	27.7	41.6	22.4	50.9
Link Distance (m)		471.1		136.2		117.6		84.8
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	30.0		30.0		30.0		30.0	
Storage Blk Time (%)	0	5		2	0	4		6
Queuing Penalty (veh)	0	6		0	0	2		2

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.3	22.4	27.9	21.0
Average Queue (m)	2.1	12.6	11.4	6.6
95th Queue (m)	8.8	22.8	28.5	20.2
Link Distance (m)	85.9	199.8	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.4	8.2	14.0
Average Queue (m)	7.4	1.7	3.4
95th Queue (m)	14.4	8.1	14.5
Link Distance (m)	197.3	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.0	2.6	8.4
Average Queue (m)	3.6	0.4	1.6
95th Queue (m)	10.6	3.3	7.8
Link Distance (m)	197.3	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	18.9	9.9	21.8
Average Queue (m)	9.8	2.6	13.8
95th Queue (m)	20.8	10.3	22.2
Link Distance (m)	199.8	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	17.3	5.4	1.8
Average Queue (m)	10.9	1.1	0.4
95th Queue (m)	17.4	5.9	3.4
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 1004

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.4	0.1	1.9	0.7	0.6	0.0	0.0	0.0	2.1	0.8	2.2
Total Del/Veh (s)	40.7	25.7	1.9	60.8	80.8	70.9	52.4	24.7	16.2	71.7	52.1	23.2

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	44.0

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.0	1.7	1.2	1.0	7.9	1.9

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.1	0.0
Total Del/Veh (s)	8.1	6.4	12.7	4.9	24.9	1.8	6.5

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.5	0.0	0.0
Total Del/Veh (s)	22.2	7.2	4.6	12.7	7.0	6.1	33.2	26.5	11.6	35.6	30.6	19.7

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	12.4

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	4.1	1.7	1.5	0.4	0.0	0.0	3.5	1.1	1.0	0.0	0.0	0.6
Total Del/Veh (s)	215.8	52.3	27.2	29.7	15.5	9.2	54.2	54.6	38.5	27.7	35.7	18.4

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.4
Total Del/Veh (s)	51.5

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.3	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	43.1	45.6	38.5	18.0	23.7	18.1	22.2	22.2	18.4	36.6	36.1	33.0

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	32.8

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Total Del/Veh (s)		7.7	25.1	12.4	8.9	9.2	3.1	2.7	4.6	3.3		5.1

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.3	0.2
Total Del/Veh (s)	10.1	3.9	0.7	0.5	2.7	0.9	1.1

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0		0.0			0.1	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.5		3.7			1.9	0.0	0.2	0.0	1.3

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	3.1	1.2	0.4	0.3	6.2	3.9	3.0

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.2	3.8	0.4	0.2	2.1	0.6	2.6

Total Zone Performance

Denied Del/Veh (s)	1.4
Total Del/Veh (s)	360.8

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	37.4	56.0	77.4	234.4	71.8	73.8	6.0	8.6	156.7	47.5
Average Queue (m)	23.2	38.2	55.2	138.7	45.8	45.4	0.6	5.4	79.3	29.8
95th Queue (m)	41.9	60.5	103.3	266.6	83.8	75.8	8.7	10.0	187.5	64.1
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	0	7			2	0				
Queuing Penalty (veh)	1	15			0	0				
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	44				42	54	0
Queuing Penalty (veh)			1	79				254	185	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	WB	WB	SB
Directions Served	T	T	TR	R
Maximum Queue (m)	0.9	16.8	26.0	16.7
Average Queue (m)	0.2	5.4	10.5	10.0
95th Queue (m)	2.2	18.5	28.6	17.6
Link Distance (m)	22.9	36.7	36.7	50.7
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		0	1	
Storage Bay Dist (m)				
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	49.9	37.8	9.1	28.1	36.3	14.1	15.1
Average Queue (m)	24.1	16.2	7.4	19.4	24.4	5.7	4.2
95th Queue (m)	51.8	38.0	12.8	31.8	39.3	15.1	14.8
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				7	12	0	0
Queuing Penalty (veh)				33	61	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			15	20			
Queuing Penalty (veh)			69	14			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	19.8	32.4	19.4	12.3	37.8	46.5	17.9	27.8	37.2	40.9
Average Queue (m)	9.1	11.8	7.8	5.9	18.1	23.7	7.9	14.1	23.6	15.8
95th Queue (m)	20.6	32.3	20.8	14.8	38.3	48.8	19.3	28.6	41.5	41.2
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	7	6			1				4	1
Queuing Penalty (veh)	13	4			0				4	2

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	81.4	235.8	227.3	10.5	41.5	42.1	32.4	118.3	39.3	30.1
Average Queue (m)	70.1	137.8	125.5	2.8	28.8	31.4	30.2	76.7	16.7	13.1
95th Queue (m)	98.7	314.9	296.1	11.9	46.0	46.5	36.4	153.7	39.1	30.9
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)		7	2							
Queuing Penalty (veh)		0	0							
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	54	0			21		45	17	4	2
Queuing Penalty (veh)	144	1			6		70	49	8	3

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	92.7	45.1	54.4	78.0
Average Queue (m)	57.4	28.7	32.4	52.5
95th Queue (m)	121.5	53.0	55.6	89.4
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				3
Queuing Penalty (veh)				12
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.5	34.6	17.2	23.5
Average Queue (m)	2.8	15.4	4.3	6.0
95th Queue (m)	9.7	33.9	15.8	23.7
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	14.4	3.4	9.5
Average Queue (m)	7.2	0.5	1.5
95th Queue (m)	16.8	4.4	11.1
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.9	4.2	5.3
Average Queue (m)	3.3	0.8	0.8
95th Queue (m)	10.2	5.0	4.9
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	12.2	4.3	17.6
Average Queue (m)	3.0	0.8	11.7
95th Queue (m)	11.9	4.9	17.8
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	15.4	2.7	1.8
Average Queue (m)	10.9	0.4	0.3
95th Queue (m)	16.1	3.4	2.7
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 1031

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.1	0.0	2.1	0.7	0.7	0.0	0.0	0.0	2.5	0.6	2.1
Total Del/Veh (s)	43.7	29.7	2.1	39.8	51.2	54.6	55.7	23.9	19.2	45.3	33.0	5.7

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	32.5

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.3	5.5	2.3	1.0	9.2	3.6

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Del/Veh (s)	5.9	3.7	22.3	7.8	30.0	3.7	7.9

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.9	0.4	0.0	0.1
Total Del/Veh (s)	29.7	9.0	6.8	23.1	10.2	8.3	29.2	23.8	15.1	39.7	24.3	15.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.9

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.3	0.4	0.4	0.0	0.0	0.0	3.6	0.8	0.8	0.0	0.0	0.3
Total Del/Veh (s)	68.3	21.1	18.5	61.0	25.3	24.2	36.0	34.9	20.2	34.8	34.5	14.9

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	28.2

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	79.9	83.1	74.7	31.6	28.5	25.0	26.9	25.9	23.7	26.1	24.8	25.7

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	44.5

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)		0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	
Total Del/Veh (s)		10.9	3.0	10.5	7.4	5.0	5.6	3.4	2.8	6.6	1.4	

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.1

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.4	0.3	0.2
Total Del/Veh (s)	8.6	4.9	1.1	1.2	6.0	1.2	1.5

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	2.6	0.5	3.2		2.1	0.2		0.0	0.0	1.2

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	5.6	2.5	0.7	0.4	7.7	5.3	3.8

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.2	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.6	4.0	0.5	0.4	2.1	0.6	2.3

Total Zone Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	324.3

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	45.9	70.5	71.4	147.8	77.2	76.4	1.2	6.9	63.5	36.7
Average Queue (m)	26.5	55.6	39.8	90.2	54.3	45.8	0.2	2.1	36.3	13.5
95th Queue (m)	50.5	78.1	86.3	200.5	93.7	81.3	2.6	7.0	69.9	43.7
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	2	23			1	0				
Queuing Penalty (veh)	7	64			0	0				
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	19				13	45	0
Queuing Penalty (veh)			2	34				61	116	0

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	10.2	2.3	39.5	39.0	17.4
Average Queue (m)	1.7	0.3	20.6	20.4	9.8
95th Queue (m)	11.3	4.8	47.0	44.2	18.4
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)	1	0	4	2	
Queuing Penalty (veh)	3	0	18	9	
Storage Bay Dist (m)					
Storage Blk Time (%)	1				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	39.8	26.2	11.4	33.4	36.6	14.0	22.0
Average Queue (m)	21.5	14.2	9.4	26.0	26.1	5.8	10.1
95th Queue (m)	43.4	28.0	11.8	34.5	39.0	16.0	22.5
Link Distance (m)	114.5	114.5		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				22	14	0	1
Queuing Penalty (veh)				97	62	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			37	35			
Queuing Penalty (veh)			144	43			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	19.9	51.4	51.6	26.2	36.4	42.2	31.8	45.6	39.7	44.7
Average Queue (m)	11.9	23.6	23.3	12.9	17.3	24.5	19.3	29.3	26.5	23.6
95th Queue (m)	23.8	59.4	54.0	30.1	37.3	43.9	33.6	49.7	41.9	46.0
Link Distance (m)		165.1	165.1		114.5	114.5	45.1	45.1		137.9
Upstream Blk Time (%)							0	3		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	14	7		0	0				5	2
Queuing Penalty (veh)	35	5		1	0				10	3

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	63.6	85.6	94.6	12.6	63.5	68.7	32.3	72.1	39.9	29.2
Average Queue (m)	41.9	48.8	60.1	3.1	43.5	46.9	28.7	42.3	19.5	12.2
95th Queue (m)	76.2	97.3	105.5	14.2	67.5	72.6	36.9	76.0	45.0	30.2
Link Distance (m)		341.3	341.3		165.1	165.1		218.0	118.0	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	5	1		0	31		28	8	6	1
Queuing Penalty (veh)	17	2		1	8		42	18	12	1

Intersection: 6: Fromme Rd & 29th St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	157.2	54.8	52.4	61.1
Average Queue (m)	100.1	31.8	32.4	37.0
95th Queue (m)	200.8	63.0	57.6	68.9
Link Distance (m)	472.9	137.9	118.0	84.8
Upstream Blk Time (%)				1
Queuing Penalty (veh)				2
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.5	17.2	18.5	16.2
Average Queue (m)	3.0	11.3	5.4	3.7
95th Queue (m)	11.1	17.8	16.2	12.3
Link Distance (m)	87.7	201.6	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.9	8.2	16.2
Average Queue (m)	7.6	2.0	2.9
95th Queue (m)	15.0	9.5	12.8
Link Distance (m)	197.4	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.0	4.3	6.4
Average Queue (m)	2.7	0.6	1.0
95th Queue (m)	9.3	4.3	5.8
Link Distance (m)	197.4	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	21.3	6.7	18.2
Average Queue (m)	10.2	1.5	12.2
95th Queue (m)	22.6	7.1	19.4
Link Distance (m)	201.6	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	15.6	2.7	4.6
Average Queue (m)	10.8	0.4	0.7
95th Queue (m)	15.9	3.4	4.6
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 816

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.4	0.1	1.8	0.8	0.6	0.0	0.0	0.0	2.5	0.8	2.2
Total Del/Veh (s)	45.7	34.3	2.0	74.4	94.8	90.3	77.7	23.4	18.0	52.6	42.5	11.6

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	48.5

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	0.7	1.8	1.1	0.9	9.2	1.9

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	3.7	3.1	13.6	5.0	25.4	2.3	5.1

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.6	0.0	0.0
Total Del/Veh (s)	21.9	7.4	5.1	15.2	6.5	5.1	31.8	24.9	13.5	36.0	29.3	18.1

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	12.0

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.6	0.4	0.3	0.5	0.0	0.0	3.5	1.1	1.3	0.0	0.0	0.5
Total Del/Veh (s)	29.7	16.4	13.4	46.5	34.2	33.4	46.2	45.1	36.3	48.5	36.8	18.8

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	29.4

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.4	0.5	0.5	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	21.9	13.6	10.1	17.2	12.3	8.6	22.2	11.3	8.1	18.4	12.1	9.7

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	13.6

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)		7.6	13.6	8.0	6.2	2.9	2.8	2.0	5.1	1.4	0.3	3.0

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.3	0.2
Total Del/Veh (s)	7.8	4.1	1.2	1.7	4.2	0.9	1.3

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.0		0.0	0.1	0.0	0.0		0.2	0.1	0.0
Total Del/Veh (s)	4.1		3.5	3.9	2.4	0.1		0.3	0.2	1.3

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	3.2	1.1	0.4	0.4	6.7	4.9	3.2

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	6.1	3.4	0.4	0.2	2.3	0.8	2.8

Total Zone Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	317.0

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	47.0	64.6	77.4	260.0	90.5	79.1	30.8	8.4	108.2	47.5
Average Queue (m)	26.9	45.0	56.6	159.3	61.8	43.7	12.7	4.3	68.8	34.0
95th Queue (m)	48.3	68.1	104.5	317.5	111.7	80.4	70.5	9.7	120.7	65.9
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	1	16			12	0	3			
Queuing Penalty (veh)	1	33			0	0	0			
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	48				29	58	0
Queuing Penalty (veh)			0	87				174	201	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	1.4	1.4	23.3	27.2	20.3
Average Queue (m)	0.2	0.2	6.8	10.7	10.7
95th Queue (m)	2.9	3.0	21.8	28.4	20.6
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			0	1	
Storage Bay Dist (m)					
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	27.7	20.6	9.7	26.0	35.5	11.4	11.1
Average Queue (m)	12.1	8.4	6.9	18.9	24.9	5.7	4.2
95th Queue (m)	29.0	23.0	13.2	29.6	38.2	14.3	12.7
Link Distance (m)	114.6	114.6		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				7	13		
Queuing Penalty (veh)				34	65		
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			14	21			
Queuing Penalty (veh)			63	15			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	19.8	47.3	36.0	11.7	32.1	38.0	14.1	27.5	39.4	43.6
Average Queue (m)	9.8	16.0	13.8	5.9	16.2	22.0	7.0	14.1	24.4	19.5
95th Queue (m)	20.5	50.4	38.4	13.7	33.3	39.0	15.2	29.3	41.8	43.5
Link Distance (m)		164.8	164.8		114.6	114.6	45.1	45.1		136.2
Upstream Blk Time (%)								0		
Queuing Penalty (veh)								0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	7	5			0				4	1
Queuing Penalty (veh)	14	4			0				5	1

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	52.4	51.9	57.8	22.1	76.7	78.3	32.2	105.9	37.1	30.2
Average Queue (m)	29.5	33.9	35.6	6.9	53.9	57.2	30.3	64.5	19.4	17.2
95th Queue (m)	52.0	55.9	59.2	23.4	79.2	83.0	36.3	119.3	41.9	35.1
Link Distance (m)		341.3	341.3		164.8	164.8		218.0	117.6	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)	0			0	45		40	11	5	3
Queuing Penalty (veh)	0			0	12		63	32	12	5

Intersection: 6: Fromme Rd & 29th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	35.0	57.7	15.8	39.9	31.2	39.1	23.6	48.9
Average Queue (m)	21.6	28.8	5.2	23.3	16.7	24.4	7.7	32.1
95th Queue (m)	38.1	57.4	15.0	39.3	33.1	40.8	26.3	51.4
Link Distance (m)		471.1		136.2		117.6		84.8
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	30.0		30.0		30.0		30.0	
Storage Blk Time (%)	4	4		4	1	3	0	7
Queuing Penalty (veh)	12	7		1	3	3	0	2

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	9.6	20.8	19.8	18.8
Average Queue (m)	2.9	12.3	5.4	5.0
95th Queue (m)	10.0	21.0	19.4	19.3
Link Distance (m)	85.9	199.8	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	12.8	10.0	7.0
Average Queue (m)	7.6	1.8	1.6
95th Queue (m)	15.9	10.8	8.8
Link Distance (m)	197.3	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	9.5	3.5	6.2
Average Queue (m)	3.4	0.9	1.5
95th Queue (m)	10.6	5.2	7.0
Link Distance (m)	197.3	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	13.4	6.2	21.8
Average Queue (m)	4.4	1.2	13.2
95th Queue (m)	13.6	6.3	21.6
Link Distance (m)	199.8	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	20.7	1.8	1.7
Average Queue (m)	11.6	0.3	0.2
95th Queue (m)	20.1	2.8	2.6
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 852

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.7	0.1	2.2	0.7	1.1	0.0	0.0	0.0	2.1	0.7	2.3
Total Del/Veh (s)	50.3	38.0	2.1	44.3	57.6	51.7	59.4	32.1	22.9	77.4	32.8	6.9

1: Mountain Hwy & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	36.5

2: Lynn Valley Rd & Ross Rd Performance by movement

Movement	EBT	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	2.1	9.1	5.1	1.2	11.5	5.7

3: Mall Access & Lynn Valley Rd Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.3	0.0
Total Del/Veh (s)	6.4	4.1	29.5	9.0	19.3	6.3	9.2

4: 29th St & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.9	0.7	0.4	0.2	0.5
Total Del/Veh (s)	29.2	8.8	7.3	27.4	11.4	9.5	30.4	24.9	15.6	40.1	27.4	21.3

4: 29th St & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	17.1

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.5	0.4	0.4	0.0	0.0	0.1	3.5	0.9	0.8	0.0	0.0	0.4
Total Del/Veh (s)	24.8	20.4	20.2	74.6	35.4	39.8	43.2	39.7	31.4	34.1	36.7	16.8

5: 27th St/Fromme Rd & Lynn Valley Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	29.1

6: Fromme Rd & 29th St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.2	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	19.6	11.2	7.5	17.3	9.5	8.0	21.9	10.0	8.9	17.1	10.4	7.8

6: Fromme Rd & 29th St Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	11.5

7: Fromme Rd & Ross Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)			0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	
Total Del/Veh (s)			5.5	12.6	3.9	7.0	5.9	2.9	2.1	3.8	1.3	

7: Fromme Rd & Ross Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	3.1

8: Fromme Rd & Harold Rd Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0	0.3	0.3	0.2
Total Del/Veh (s)	12.2	4.5	1.3	0.7	4.9	1.1	1.5

9: Baird Rd & Harold Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	NBL	NBT	NBR	SBT	SBR	All
Denied Del/Veh (s)		0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)		0.5	3.0		2.5	0.0		0.1	0.0	1.3

10: Ross Rd & Baird Rd Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.7	0.1
Total Del/Veh (s)	4.7	2.5	0.7	0.4	7.3	5.1	3.6

12: Baird Rd & Site Access Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.1
Total Del/Veh (s)	5.7	4.4	0.5	0.4	3.0	0.6	2.4

Total Zone Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	319.9

Intersection: 1: Mountain Hwy & Lynn Valley Rd

Movement	EB	EB	WB	WB	NB	NB	B32	SB	SB	SB
Directions Served	L	T	L	TR	L	TR	T	L	T	R
Maximum Queue (m)	57.1	71.4	77.3	159.7	87.7	91.5	17.1	6.3	66.8	44.6
Average Queue (m)	30.7	60.2	47.5	96.9	54.2	54.0	4.4	2.3	33.9	16.2
95th Queue (m)	61.6	83.5	91.3	184.2	103.0	96.6	32.1	7.1	67.2	48.3
Link Distance (m)	46.7	46.7		508.2	100.3	100.3	129.0		482.2	
Upstream Blk Time (%)	7	37			5	2				
Queuing Penalty (veh)	21	102			0	0				
Storage Bay Dist (m)			70.0					5.0		40.0
Storage Blk Time (%)			0	26				18	46	0
Queuing Penalty (veh)			0	45				86	118	1

Intersection: 2: Lynn Valley Rd & Ross Rd

Movement	EB	EB	WB	WB	SB
Directions Served	T	T	T	TR	R
Maximum Queue (m)	25.5	6.1	47.3	48.3	20.7
Average Queue (m)	8.6	1.5	29.8	27.1	10.9
95th Queue (m)	33.5	10.7	53.6	53.1	20.5
Link Distance (m)	22.9	22.9	36.7	36.7	50.7
Upstream Blk Time (%)	3	0	8	5	
Queuing Penalty (veh)	13	1	38	25	
Storage Bay Dist (m)					
Storage Blk Time (%)	5				
Queuing Penalty (veh)	0				

Intersection: 3: Mall Access & Lynn Valley Rd

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	TR	L	T	T	L	R
Maximum Queue (m)	43.0	25.1	10.2	33.6	38.0	16.8	22.9
Average Queue (m)	25.5	15.3	9.1	27.3	27.6	7.1	9.9
95th Queue (m)	44.6	26.9	10.9	34.3	40.3	17.6	24.7
Link Distance (m)	114.6	114.6		22.9	22.9	26.8	26.8
Upstream Blk Time (%)				36	16	0	1
Queuing Penalty (veh)				163	72	0	0
Storage Bay Dist (m)			7.0				
Storage Blk Time (%)			48	47			
Queuing Penalty (veh)			186	58			

Intersection: 4: 29th St & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (m)	21.6	53.3	44.8	22.8	38.2	44.4	33.1	44.4	41.3	65.3
Average Queue (m)	12.3	20.7	20.4	12.6	19.4	25.5	20.3	27.9	32.3	32.1
95th Queue (m)	24.0	53.3	46.9	25.6	40.3	47.8	35.8	48.5	46.7	69.7
Link Distance (m)		164.8	164.8		114.6	114.6	45.1	45.1		136.2
Upstream Blk Time (%)							0	3		
Queuing Penalty (veh)							0	0		
Storage Bay Dist (m)	15.0			40.0					35.0	
Storage Blk Time (%)	15	6			1				11	5
Queuing Penalty (veh)	36	4			1				21	8

Intersection: 5: 27th St/Fromme Rd & Lynn Valley Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	LT	R
Maximum Queue (m)	35.1	71.0	84.6	20.4	76.0	78.4	32.2	85.9	49.3	28.3
Average Queue (m)	20.4	46.3	58.9	5.1	49.9	51.6	29.5	53.3	23.0	13.9
95th Queue (m)	36.7	77.8	88.7	20.9	78.3	80.5	36.9	100.8	52.7	32.5
Link Distance (m)		341.3	341.3		164.8	164.8		218.0	117.6	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (m)	75.0			20.0			25.0			25.0
Storage Blk Time (%)		0		2	44		35	7	7	2
Queuing Penalty (veh)		0		7	12		51	17	14	3

Intersection: 6: Fromme Rd & 29th St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (m)	31.6	50.1	12.5	35.5	24.2	33.7	22.2	45.7
Average Queue (m)	16.8	27.4	5.0	19.7	12.7	18.5	8.6	24.1
95th Queue (m)	32.4	48.4	13.1	37.2	26.4	35.1	22.4	42.9
Link Distance (m)		471.1		136.2		117.6		84.8
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	30.0		30.0		30.0		30.0	
Storage Blk Time (%)	1	5		2	0	1		3
Queuing Penalty (veh)	3	5		1	1	1		1

Intersection: 7: Fromme Rd & Ross Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	7.1	20.0	20.6	13.5
Average Queue (m)	1.4	11.8	7.4	3.8
95th Queue (m)	6.7	20.3	20.5	13.9
Link Distance (m)	85.9	199.8	84.8	183.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Fromme Rd & Harold Rd

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	11.4	9.4	10.9
Average Queue (m)	7.5	1.6	3.0
95th Queue (m)	13.9	8.1	13.8
Link Distance (m)	197.3	183.1	378.7
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Baird Rd & Harold Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	8.8	1.7	5.3
Average Queue (m)	2.3	0.2	1.4
95th Queue (m)	8.6	2.6	6.6
Link Distance (m)	197.3	61.4	38.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Ross Rd & Baird Rd

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	16.2	6.6	20.5
Average Queue (m)	7.8	1.2	12.8
95th Queue (m)	18.4	7.6	21.2
Link Distance (m)	199.8	50.7	28.0
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: Baird Rd & Site Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (m)	16.7	4.6	2.7
Average Queue (m)	10.5	0.9	0.3
95th Queue (m)	16.6	5.5	2.8
Link Distance (m)	58.3	28.0	83.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 1112

The attached information is provided to support the agency's review process and shall not be distributed to other parties without written consent from Bunt & Associates Engineering Ltd.

APPENDIX D

NCHRP - INTERNAL CAPTURE

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	1246-1268 Lynn Valley Rd	**Organization:**	Bunt
Project Location:	District of North Vancouver	**Performed By:**	JHA
Scenario Description:		**Date:**	2025-06-25
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office		15	1000sqft GFA	23	20.00	3.00
Retail		12	1000sqft GFA	28	17.00	11.00
Restaurant				0		
Cinema/Entertainment				0		
Residential		408	dwelling units	151	35.00	116.00
Hotel				0		
All Other Land Uses[2]				0		
Total				202	72	130

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.20	9%	17%	1.20	9%	17%
Retail	1.20	9%	17%	1.20	9%	17%
Restaurant	1.20	9%	17%	1.20	9%	17%
Cinema/Entertainment	1.20	9%	17%	1.20	9%	17%
Residential	1.20	9%	17%	1.20	9%	17%
Hotel	1.20	9%	17%	1.20	9%	17%
All Other Land Uses[2]	1.20	9%	17%	1.20	9%	17%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	1		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	242	86	156
Internal Capture Percentage	4%	6%	3%
External Vehicle-Trips[3]	143	49	94
External Transit-Trips[4]	21	8	13
External Non-Motorized Trips[4]	40	14	26

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	8%	25%
Retail	10%	15%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	1246-1268 Lynn Valley Rd	**Organization:**	Bunt
Project Location:	District of North Vancouver	**Performed By:**	JHA
Scenario Description:		**Date:**	2025-06-25
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office		15	1000sqft GFA	22	4.00	18.00
Retail		12	1000sqft GFA	78	39.00	39
Restaurant				0		
Cinema/Entertainment				0		
Residential		408	dwelling units	159	97.00	62.00
Hotel				0		
All Other Land Uses[2]						
Total				259	140	119

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.20	9%	17%	1.20	9%	17%
Retail	1.20	9%	17%	1.20	9%	17%
Restaurant	1.20	9%	17%	1.20	9%	17%
Cinema/Entertainment	1.20	9%	17%	1.20	9%	17%
Residential	1.20	9%	17%	1.20	9%	17%
Hotel	1.20	9%	17%	1.20	9%	17%
All Other Land Uses[2]	1.20	9%	17%	1.20	9%	17%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0		0	
Retail					0	
Restaurant					0	
Cinema/Entertainment					0	
Residential		0	0			
Hotel					0	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		4	0	0	0	0
Retail	1		0	0	12	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	5	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	311	168	143
Internal Capture Percentage	16%	15%	17%
External Vehicle-Trips[3]	162	89	73
External Transit-Trips[4]	23	12	11
External Non-Motorized Trips[4]	44	24	20

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	80%	18%
Retail	19%	28%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	10%	11%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

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APPENDIX E

URBAN LAND INSTITUTE SHARED PARKING ANALYSIS

Shared Parking ULI **Full Site Buildout**

Land Use	AVPR STALLS	Assumptions	Type
Residential - Visitor	40		Time-of-Day Factors **Number of Parking Stalls**
Retail Guests	3	assumed 26 allocated / required parking spaces	Time-of-Day Factors **Number of Parking Stalls**
Retail Staff	23	Assumed that 10% of spaces are reserved for retail staff	Time-of-Day Factors **Number of Parking Stalls**
Office Guests	5	31 assumed / required office Assumed that 15% of spaces are	Time-of-Day Factors **Number of Parking Stalls**
Office Staff	27	Assumed office staff are unreserved spaces	Time-of-Day Factors **Number of Parking Stalls**
			Total Usage
TOTAL Parking	97		**TOTAL Parking**

Based on GFA split, 45% of commercial parking has been assumed as retail and 55% as offi **Utilization**

Shared parking reduction MAX

28 **Available Parking**

TIME OF DAY				
6:00 AM	7:00 AM	8:00 AM	9:00 AM	
0%	10%	20%	20%	
0	4	8	8	
1%	5%	15%	35%	
0	0	0	1	
10%	15%	25%	45%	
2	3	6	10	
0%	1%	20%	60%	
0	0	1	3	
3%	15%	50%	90%	
1	4	13	24	
3	12	28	46	
97	97	97	97	
3%	12%	29%	47%	
94	85	68	51	

10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM
20%	20%	20%	20%	20%	20%	20%
8	8	8	8	8	8	8
60%	75%	100%	100%	95%	85%	85%
2	2	3	3	2	2	2
75%	95%	100%	100%	100%	100%	100%
17	22	23	23	23	23	23
100%	45%	15%	45%	95%	45%	15%
5	2	1	2	4	2	1
100%	100%	85%	85%	95%	95%	85%
27	27	23	23	25	25	23
58	60	57	58	63	60	56
97	97	97	97	97	97	97
60%	62%	59%	60%	65%	63%	58%
39	36	40	39	34	36	40

5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM
40%	60%	100%	100%	100%	100%	80%	50%
16	24	40	40	40	40	32	20
85%	90%	80%	65%	45%	15%	5%	0%
2	2	2	2	1	0	0	0
100%	100%	100%	90%	60%	40%	20%	0%
23	23	23	21	14	9	5	0
10%	5%	2%	1%	0%	0%	0%	0%
0	0	0	0	0	0	0	0
60%	25%	15%	5%	3%	1%	0%	0%
16	7	4	1	1	0	0	0
58	56	69	64	56	50	37	20
97	97	97	97	97	97	97	97
59%	58%	71%	66%	58%	52%	38%	21%
39	41	28	33	41	47	60	77

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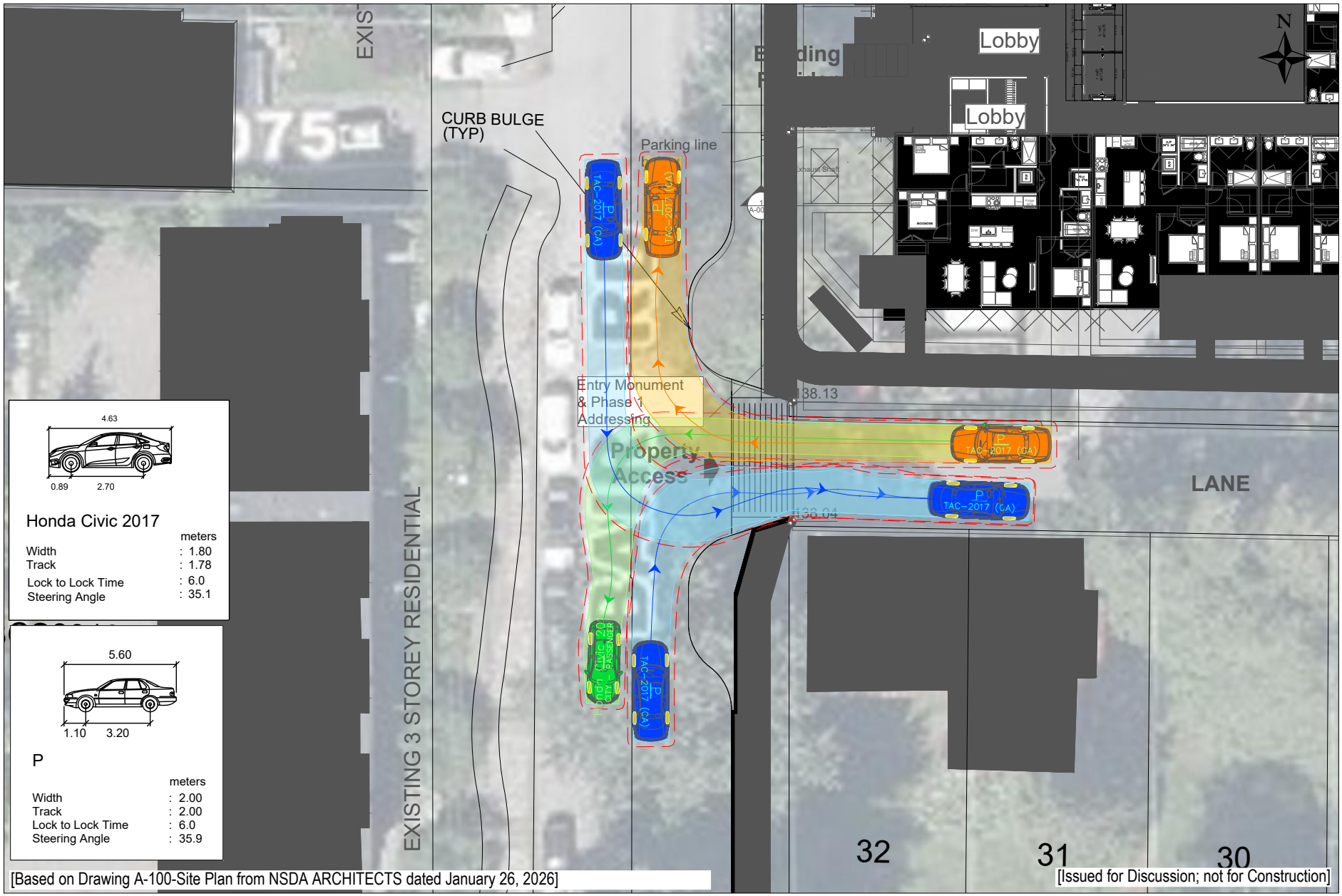
APPENDIX F

AUTOTURN REVIEW



O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:51, Plotted by Gordon Lu

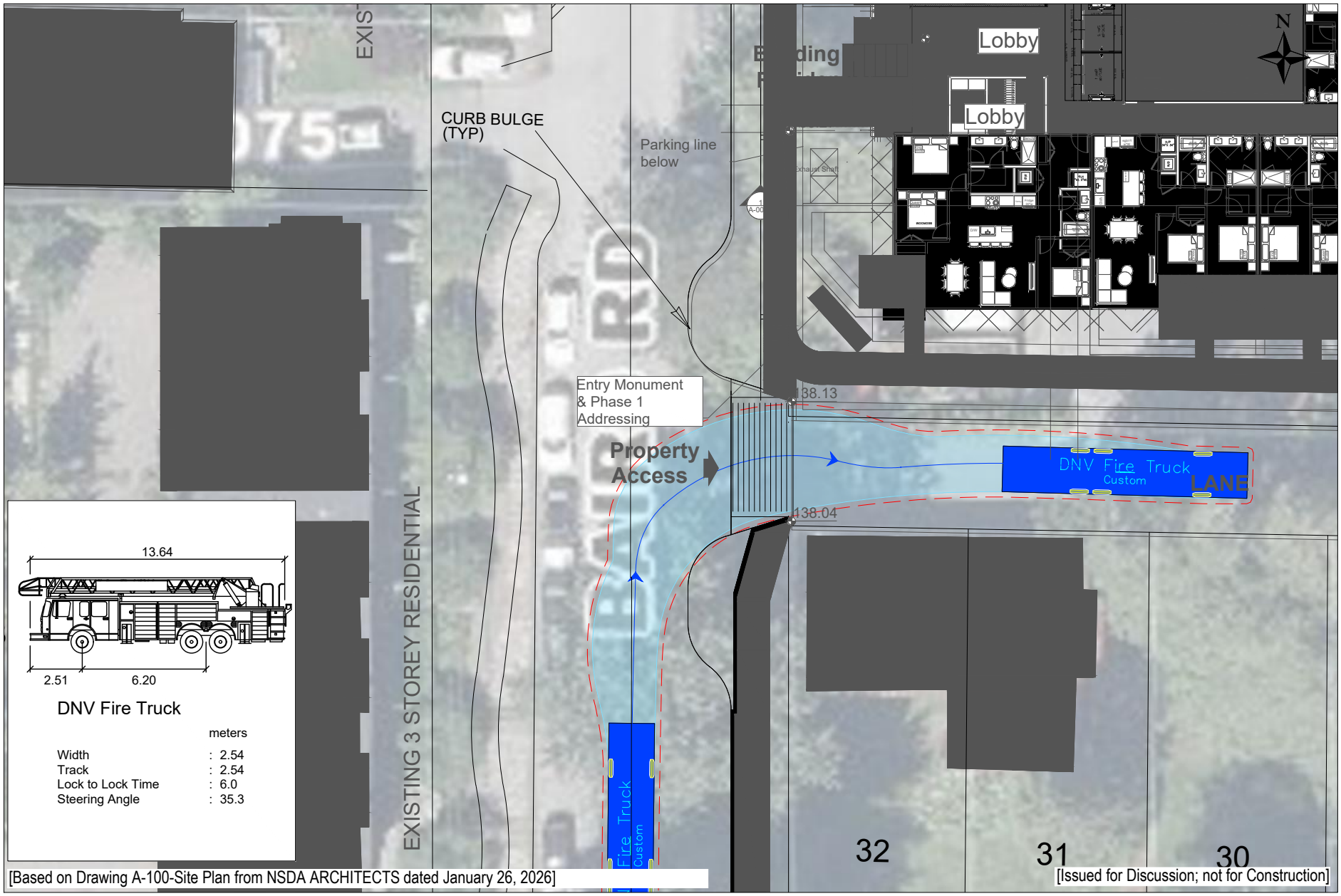
Exhibit F1.1

Passenger Vehicle Site Access

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:300 on Letter Prepared by GL

bunt & associates



O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:59, Plotted by Gordon Lu

Exhibit F1.2

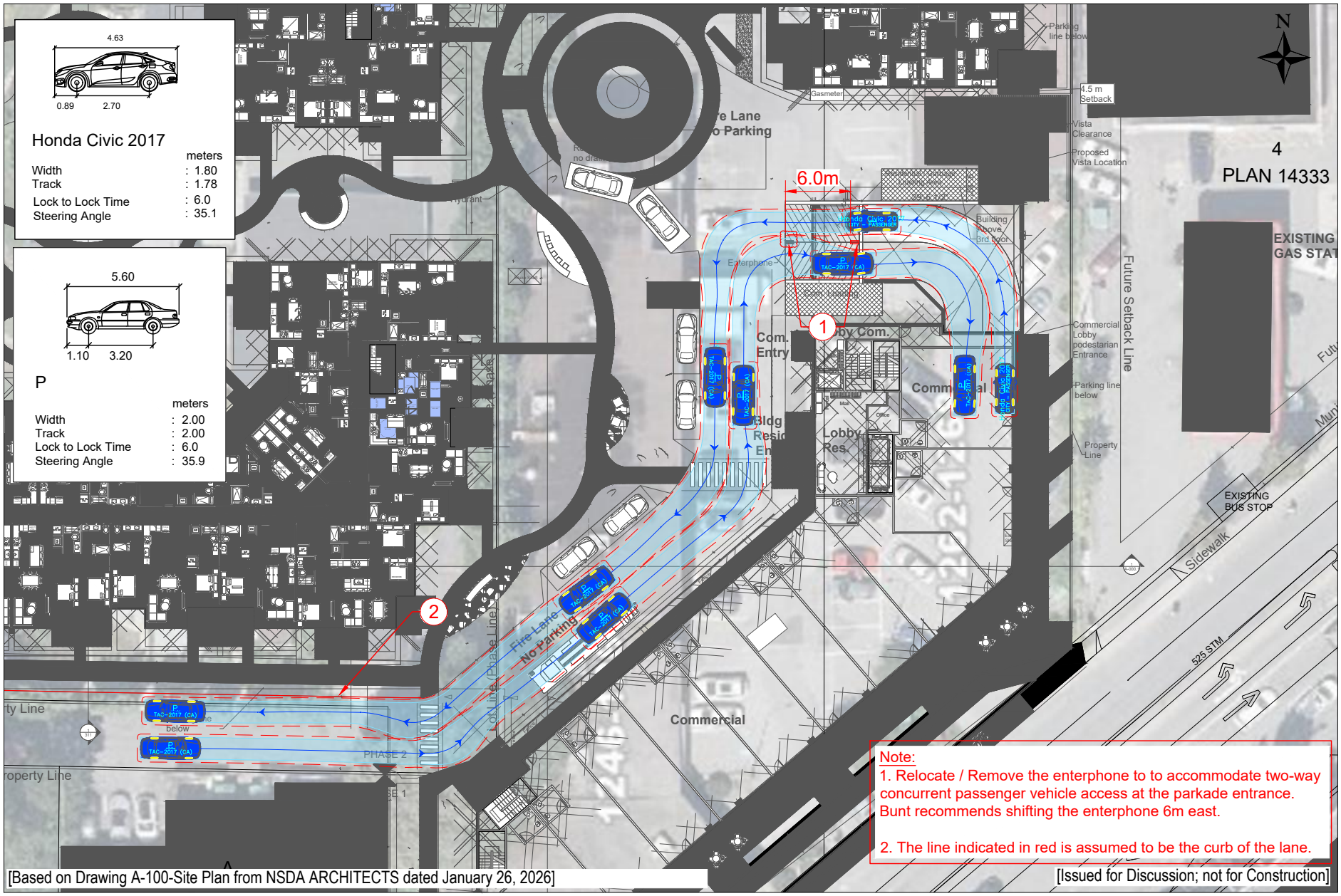
Fire Truck Site Access

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:300 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-5.dwg
2026/01/29 16:21, Plotted by Gordon Lu



[Based on Drawing A-100-Site Plan from NSDA ARCHITECTS dated January 26, 2026]

Note:
1. Relocate / Remove the enterphone to to accommodate two-way concurrent passenger vehicle access at the parkade entrance. Bunt recommends shifting the enterphone 6m east.

2. The line indicated in red is assumed to be the curb of the lane.

[Issued for Discussion; not for Construction]

Exhibit F2.1

Passenger Vehicle Circulation - L1

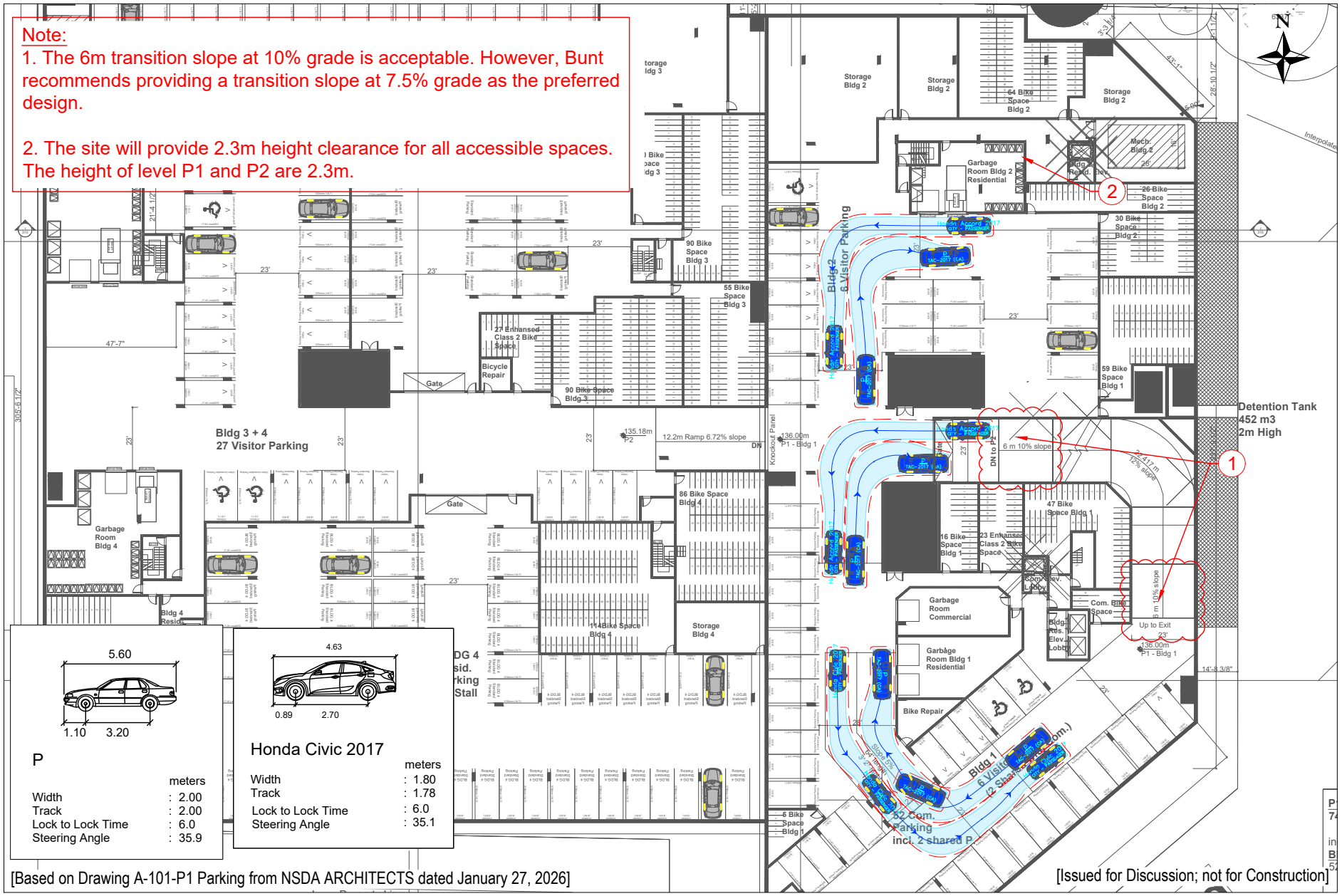
1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1:500_1 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:03, Plotted by Gordon Lu

Note:
1. The 6m transition slope at 10% grade is acceptable. However, Bunt recommends providing a transition slope at 7.5% grade as the preferred design.

2. The site will provide 2.3m height clearance for all accessible spaces. The height of level P1 and P2 are 2.3m.



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

Honda Civic 2017

	meters
Width	: 1.80
Track	: 1.78
Lock to Lock Time	: 6.0
Steering Angle	: 35.1

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]

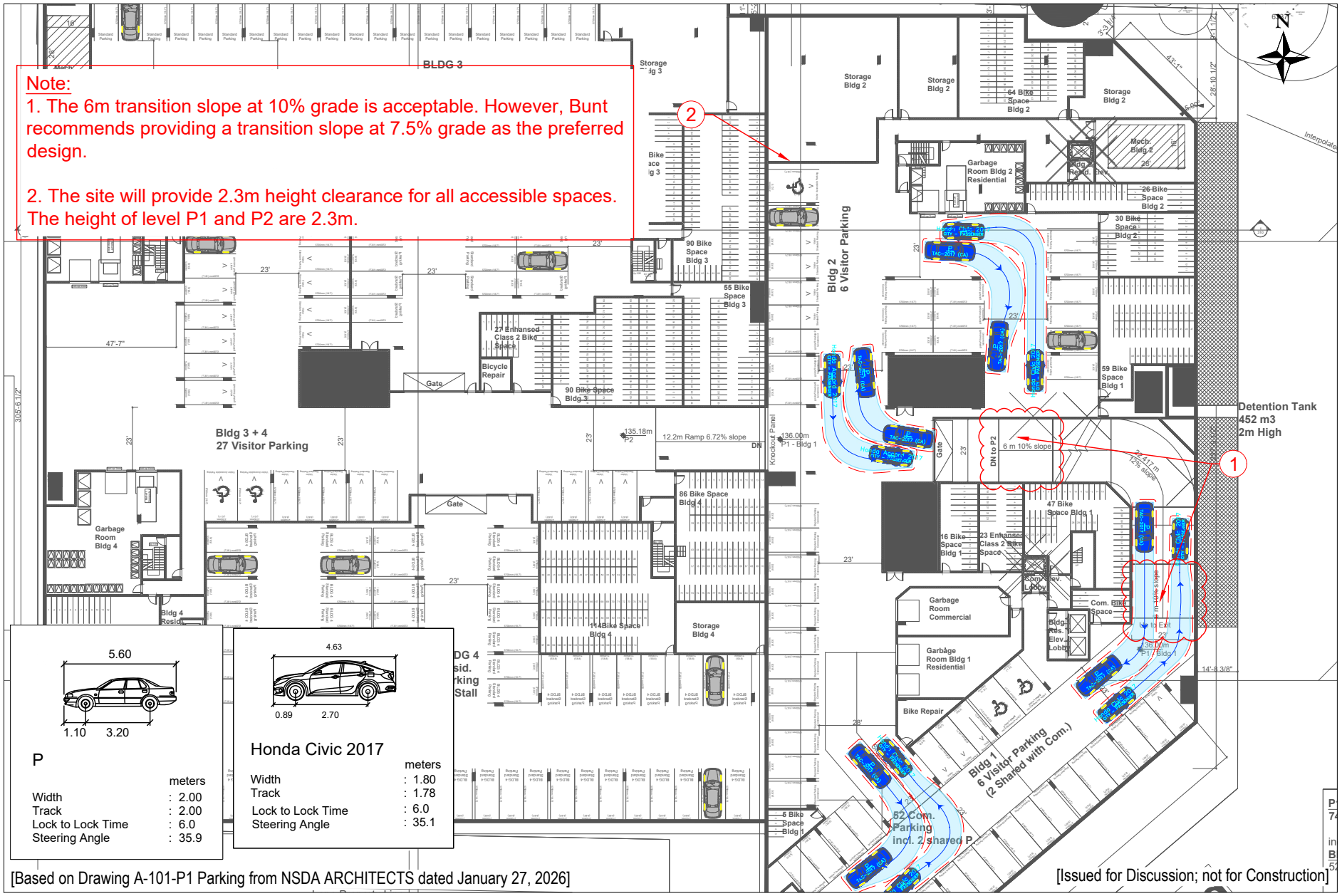
[Issued for Discussion; not for Construction]

Exhibit F2.2.1

P1 Passenger Vehicle Circulation - Building 1 & Building 2 Parking (1/2)

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1;600 on Letter Prepared by GL

bunt & associates



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2026/01/29 15:01, Plotted by Gordon Lu

Exhibit F2.2.2

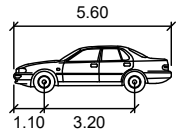
P1 Passenger Vehicle Circulation - Building 1 & Building 2 Parking (2/2)

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1;600 on Letter Prepared by GL

bunt & associates

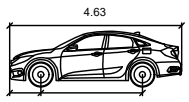
O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:03, Plotted by Gordon Lu

Note:
1. The site will provide 2.3m height clearance for all accessible spaces. The height of level P1 and P2 are 2.3m.



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9



Honda Civic 2017

	meters
Width	: 1.80
Track	: 1.78
Lock to Lock Time	: 6.0
Steering Angle	: 35.1

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]

[Issued for Discussion; not for Construction]

Exhibit F2.3.1

P1 Passenger Vehicle Circulation - Building 3 & Building 4 Parking (1/2)

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1;600 on Letter Prepared by GL

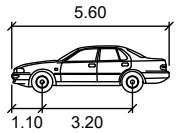
bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-5.dwg
2026/01/29 16:29, Plotted by Gordon Lu

Note:

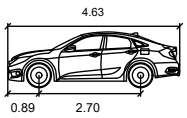
1. The site will provide 2.3m height clearance for all accessible spaces. The height of level P1 and P2 are 2.3m.

2. It is recommended that vehicle reversing distances not exceed 10 m; therefore, relocation of the existing accessible parking space and adjacent column is recommended to facilitate vehicle turnaround.



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9



Honda Civic 2017

	meters
Width	: 1.80
Track	: 1.78
Lock to Lock Time	: 6.0
Steering Angle	: 35.1

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]

[Issued for Discussion; not for Construction]

Exhibit F2.3.2

P1 Passenger Vehicle Circulation - Building 3 & Building 4 Parking (2/2)

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1;600 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:58, Plotted by Gordon Lu

Exhibit F2.4.1

P2 Passenger Vehicle Circulation - Building 1 & Building 2 Parking (1/2)

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1;600 on Letter Prepared by GL

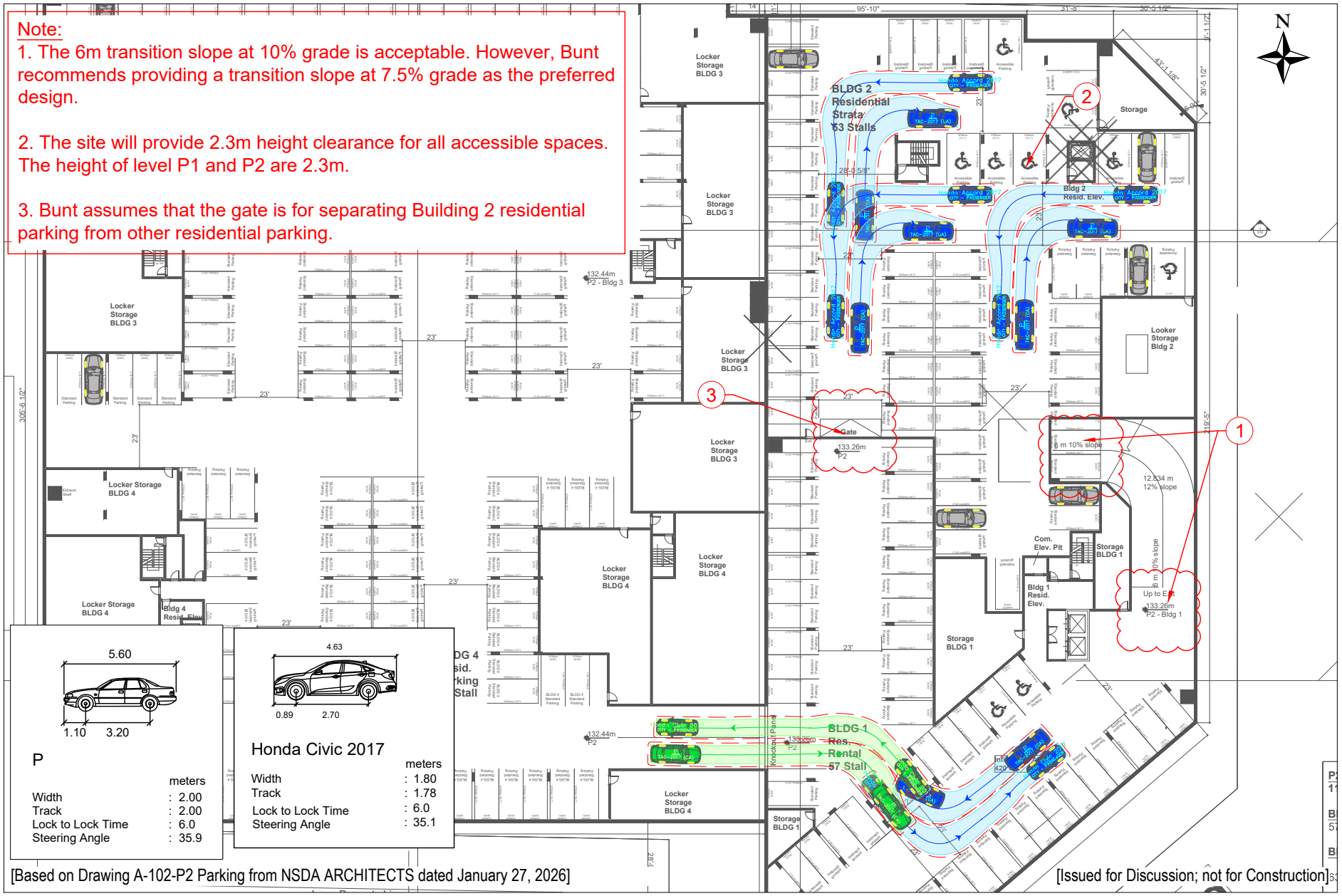
bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:06, Plotted by Cordon Lu

Note:
1. The 6m transition slope at 10% grade is acceptable. However, Bunt recommends providing a transition slope at 7.5% grade as the preferred design.

2. The site will provide 2.3m height clearance for all accessible spaces. The height of level P1 and P2 are 2.3m.

3. Bunt assumes that the gate is for separating Building 2 residential parking from other residential parking.



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

Honda Civic 2017

	meters
Width	: 1.80
Track	: 1.78
Lock to Lock Time	: 6.0
Steering Angle	: 35.1

[Based on Drawing A-102-P2 Parking from NSDA ARCHITECTS dated January 27, 2026]

[Issued for Discussion; not for Construction]

Exhibit F2.4.2

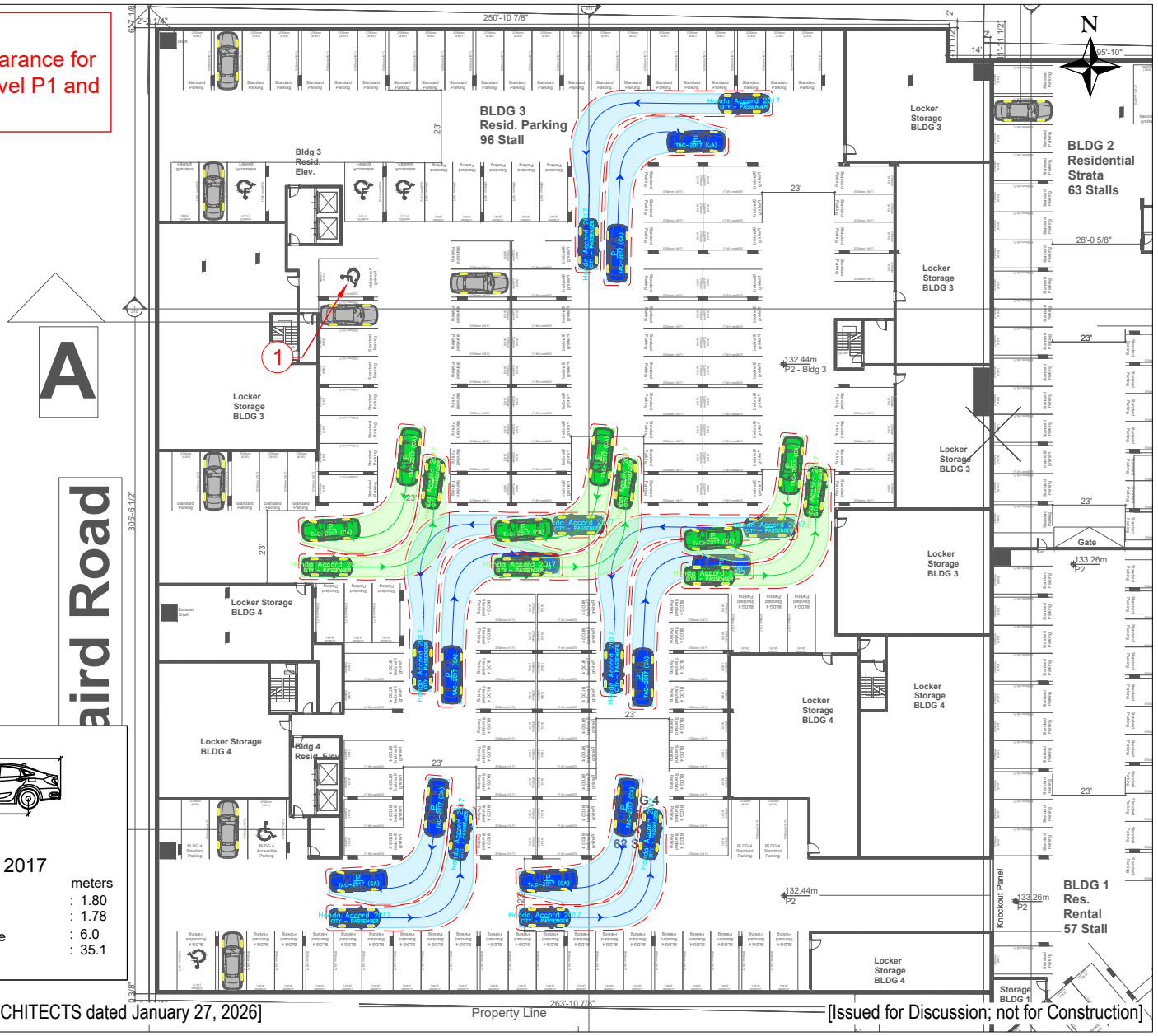
P2 Passenger Vehicle Circulation - Building 1 & Building 2 Parking (2/2)

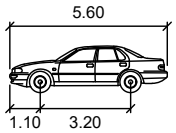
1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1;600 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:00, Plotted by Cordon Lu

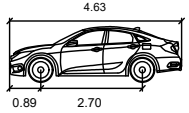
Note:
1. The site will provide 2.3m height clearance for all accessible spaces. The height of level P1 and P2 are 2.3m.





P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9



Honda Civic 2017

	meters
Width	: 1.80
Track	: 1.78
Lock to Lock Time	: 6.0
Steering Angle	: 35.1

[Based on Drawing A-102-P2 Parking from NSDA ARCHITECTS dated January 27, 2026]

[Issued for Discussion; not for Construction]

Exhibit F2.5.1

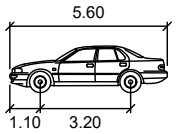
P2 Passenger Vehicle Circulation - Building 3 & Building 4 Parking (1/2)

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1;600 on Letter Prepared by GL

bunt & associates

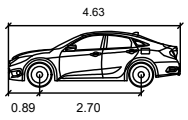
O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:04, Plotted by Gordon Lu

Note:
1. The site will provide 2.3m height clearance for all accessible spaces. The height of level P1 and P2 are 2.3m.



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9



Honda Civic 2017

	meters
Width	: 1.80
Track	: 1.78
Lock to Lock Time	: 6.0
Steering Angle	: 35.1

[Based on Drawing A-102-P2 Parking from NSDA ARCHITECTS dated January 27, 2026]

[Issued for Discussion; not for Construction]

Exhibit F2.5.2

P2 Passenger Vehicle Circulation - Building 3 & Building 4 Parking (2/2)

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1;600 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
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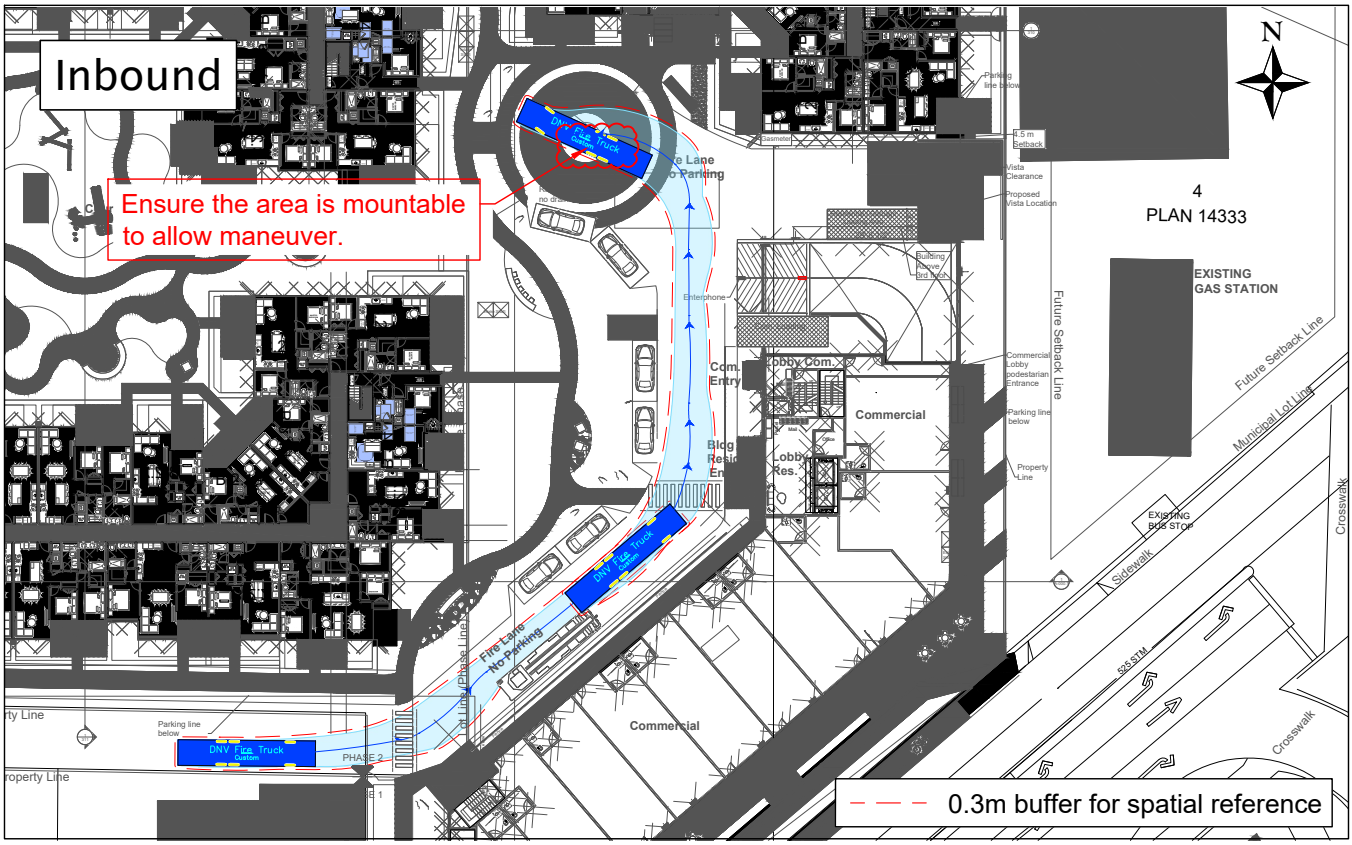
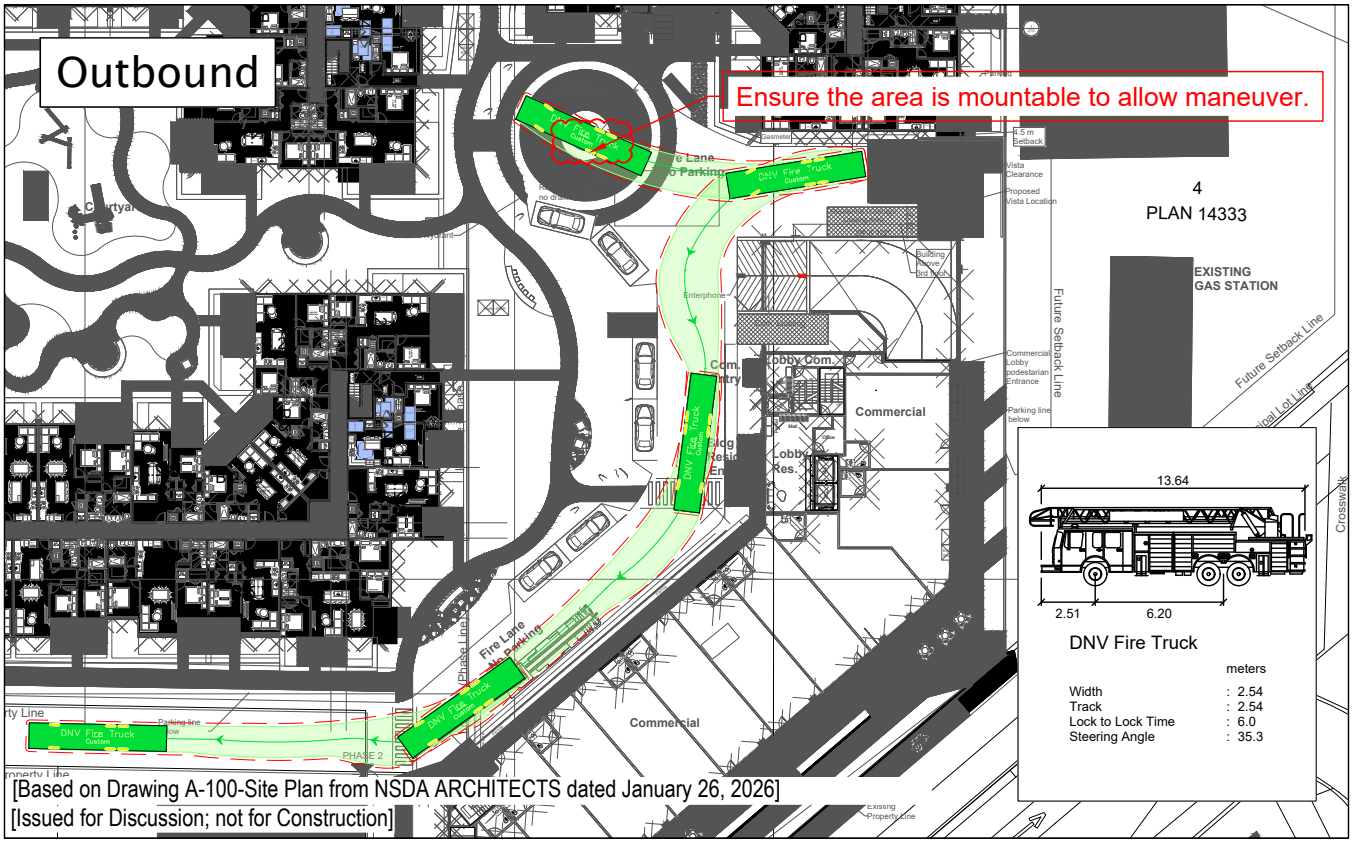




[Based on Drawing A-100-Site Plan from NSDA ARCHITECTS dated January 26, 2026]
[Issued for Discussion; not for Construction]

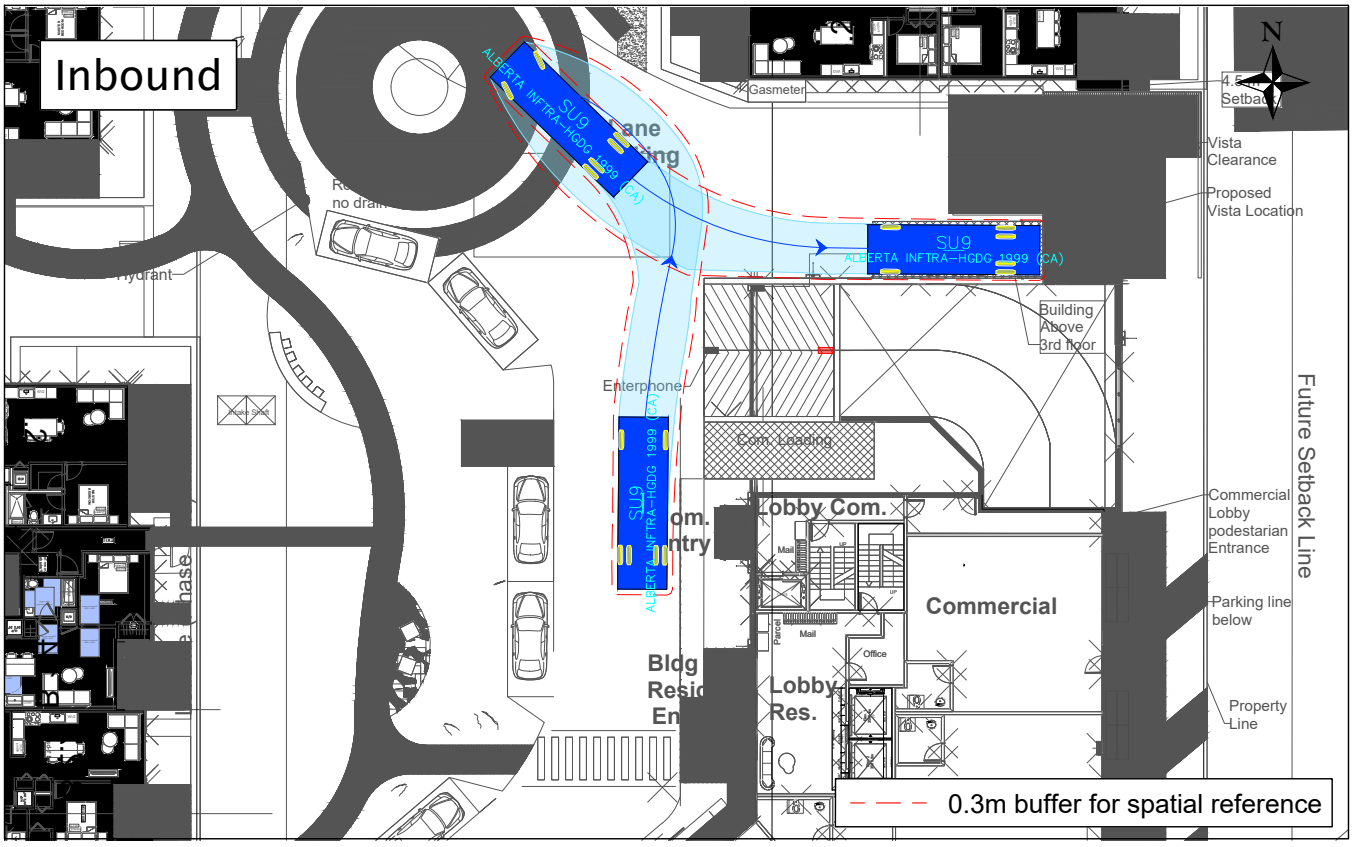
Exhibit F3

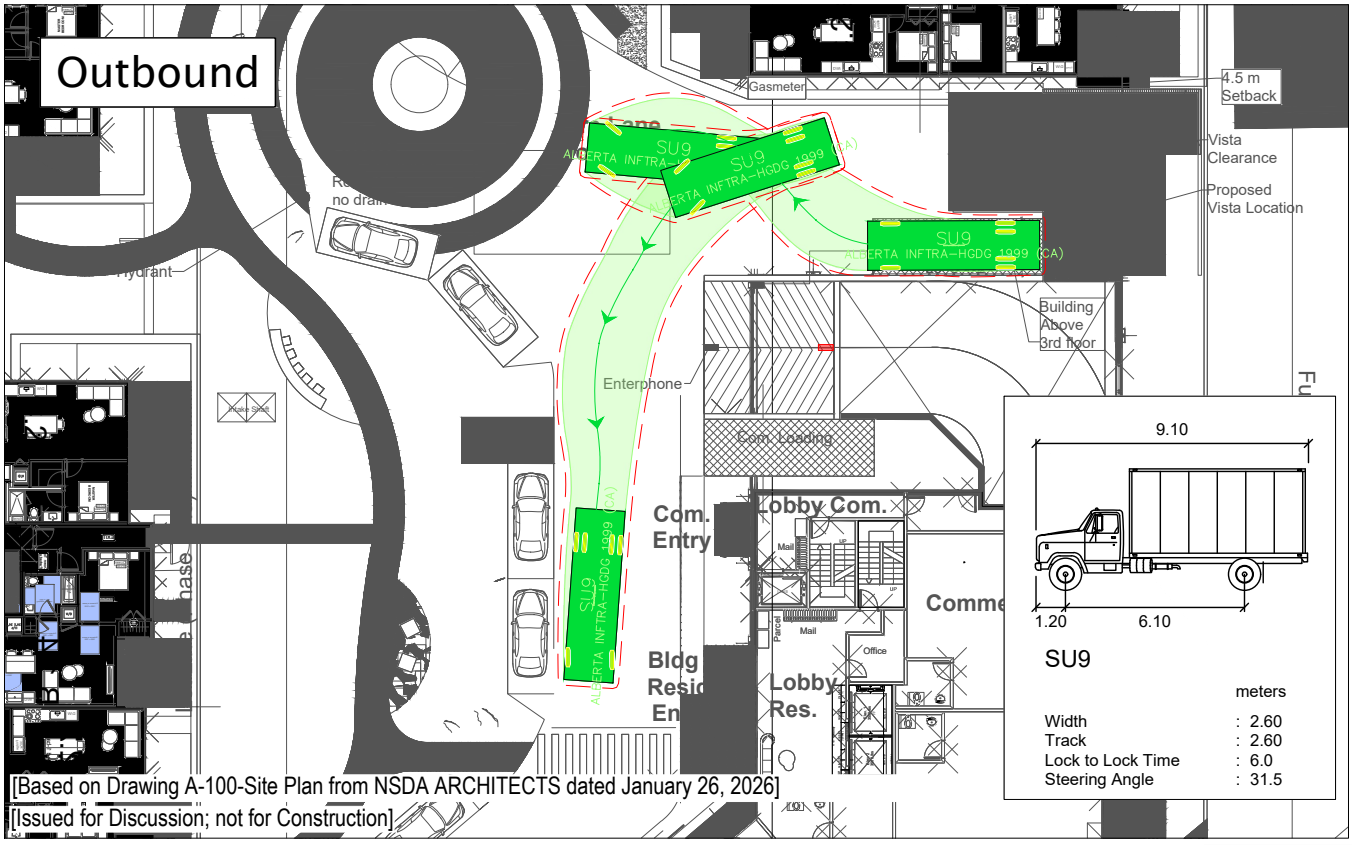
Fire Truck Circulation

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:06, Plotted by Gordon Lu





[Based on Drawing A-100-Site Plan from NSDA ARCHITECTS dated January 26, 2026]
[Issued for Discussion; not for Construction]

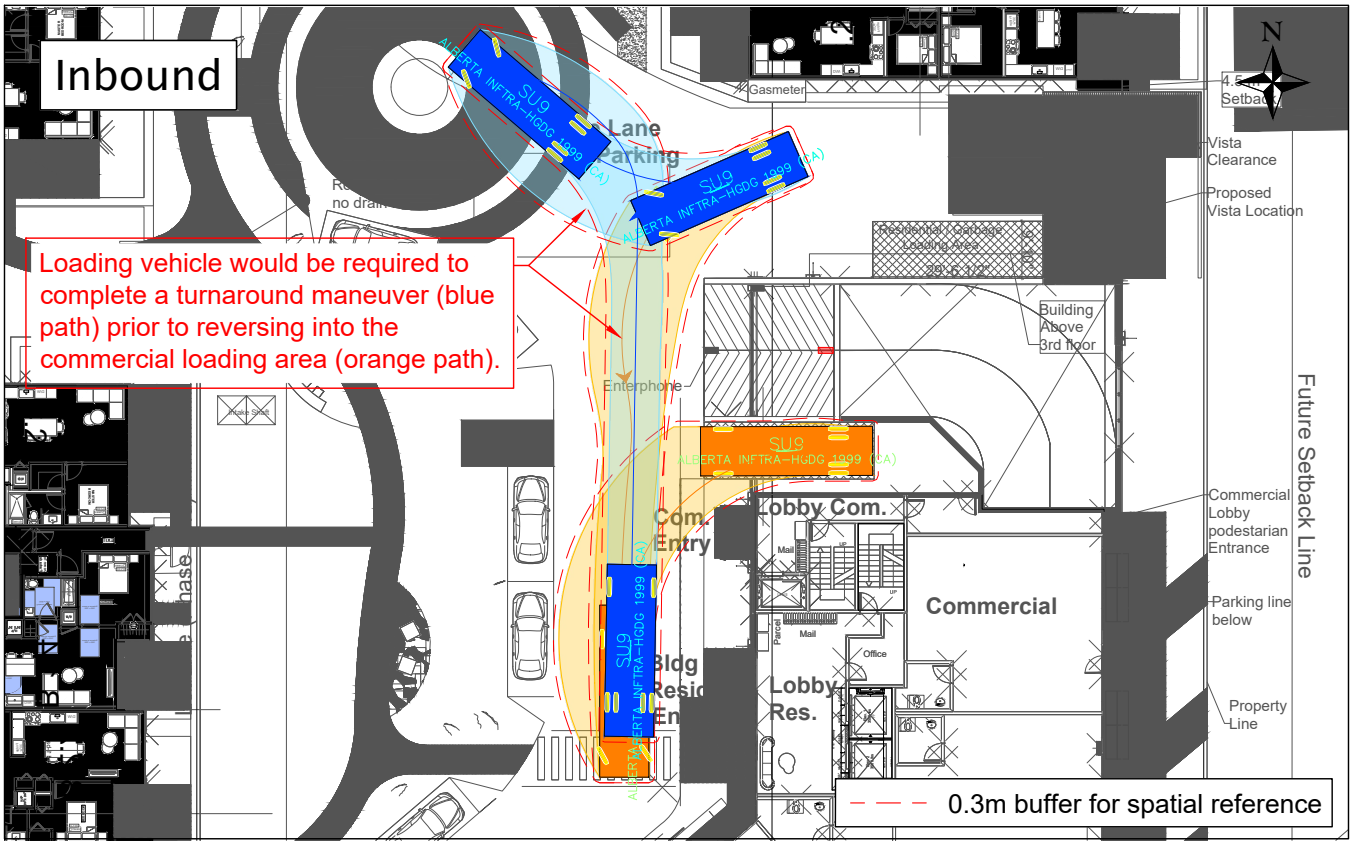
Exhibit F4.1

Loading Vehicle Maneuver (1/2)

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1:400 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:57, Plotted by Gordon Lu



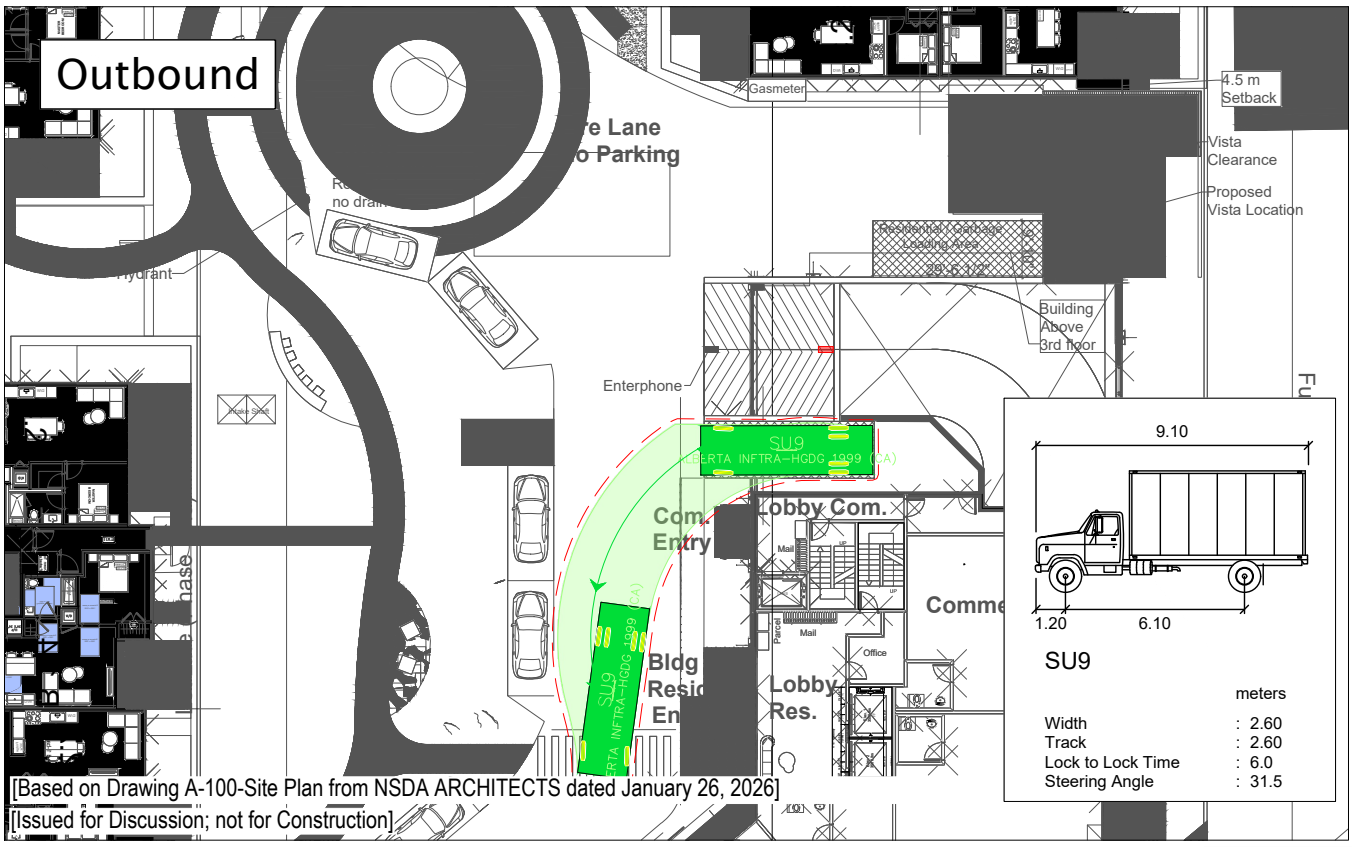


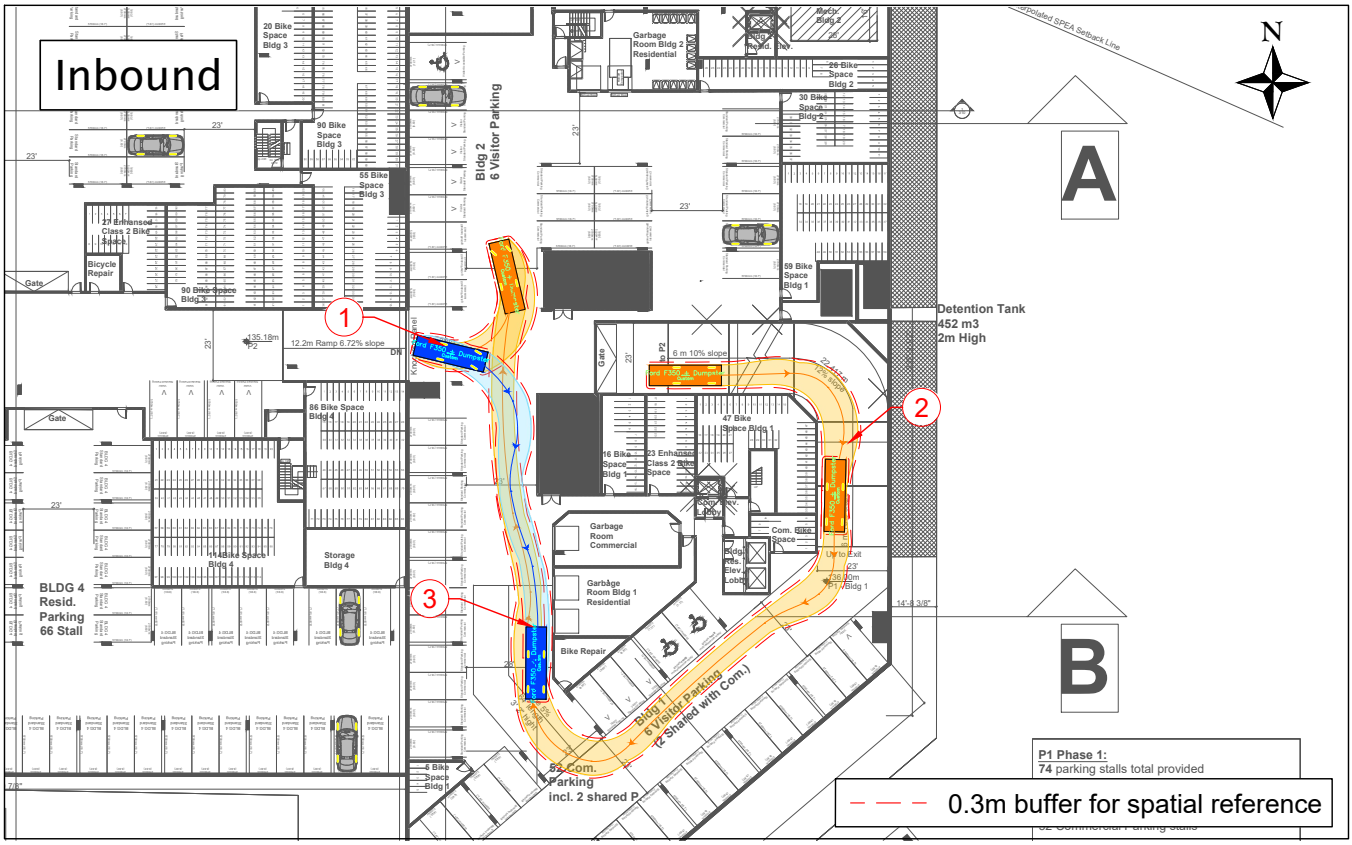
Exhibit F4.2

Loading Vehicle Maneuver (2/2)

1246-1268 Lynn Valley Road
04-25-0159 January 2026 Scale 1:400 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:59, Plotted by Gordon Lu



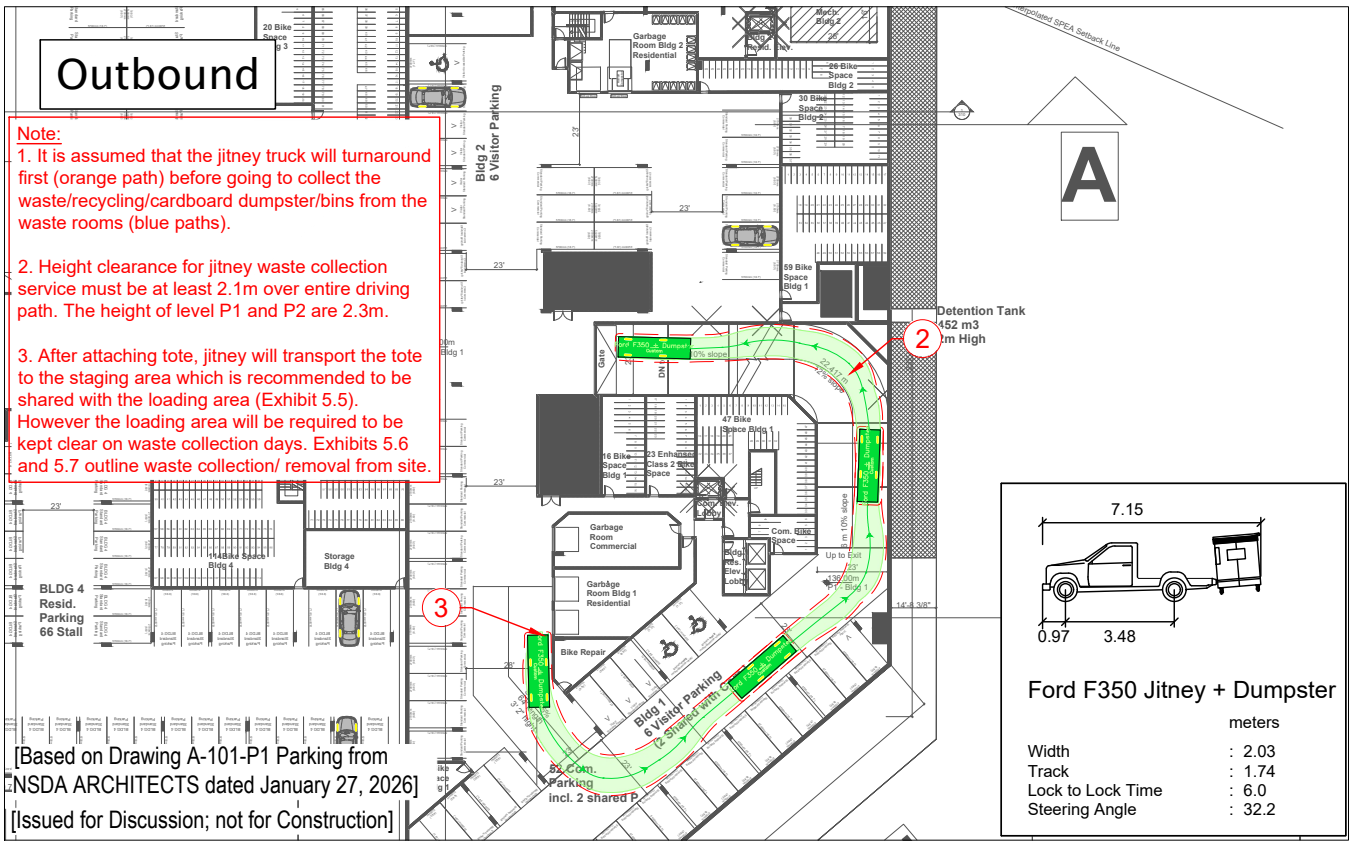


Exhibit F5.1

Jitney Truck Maneuver (Building 1 - Residential & Commercial)

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:54, Plotted by Gordon Lu

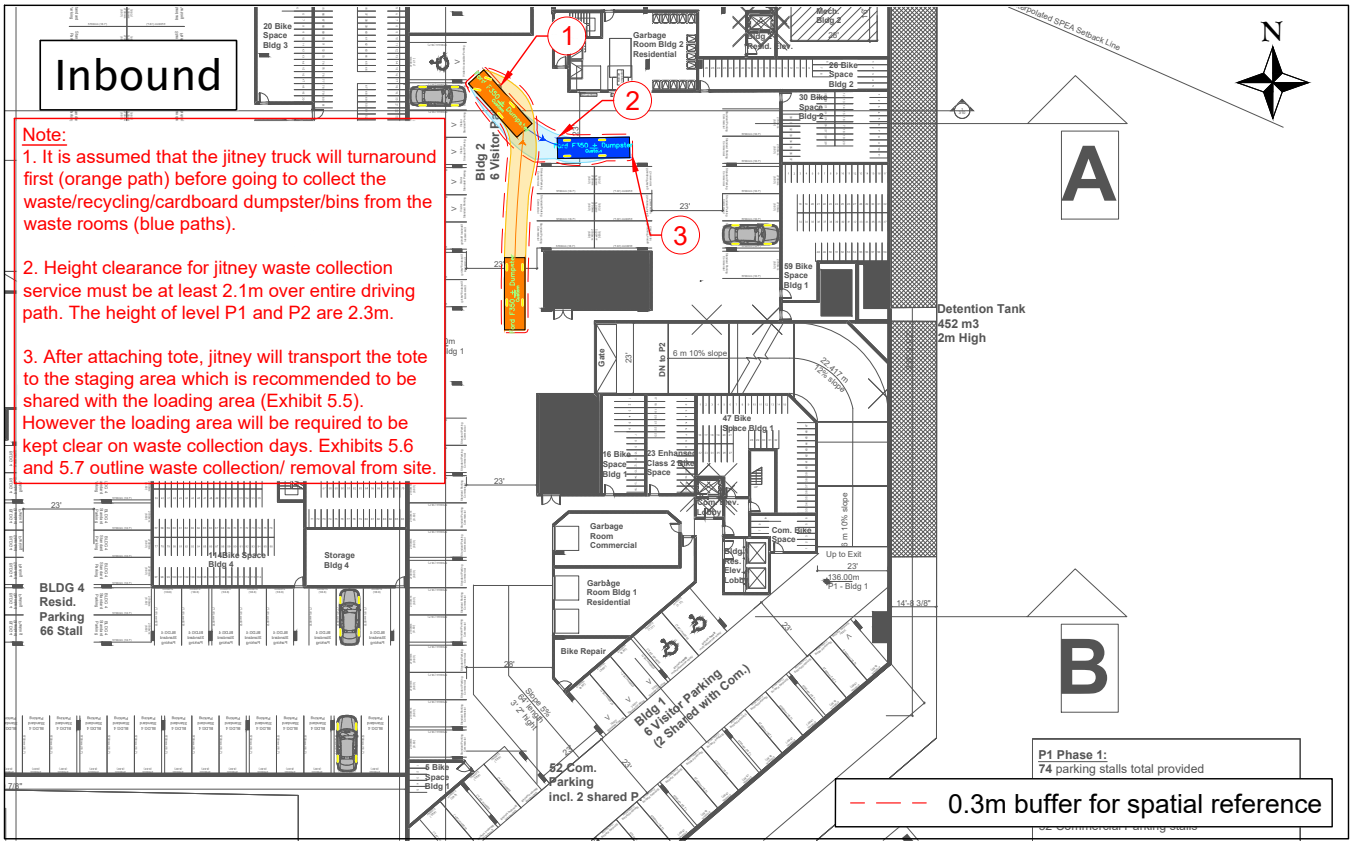


Exhibit F5.2.1

Jitney Truck Maneuver (Building 2)

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:05, Plotted by Gordon Lu

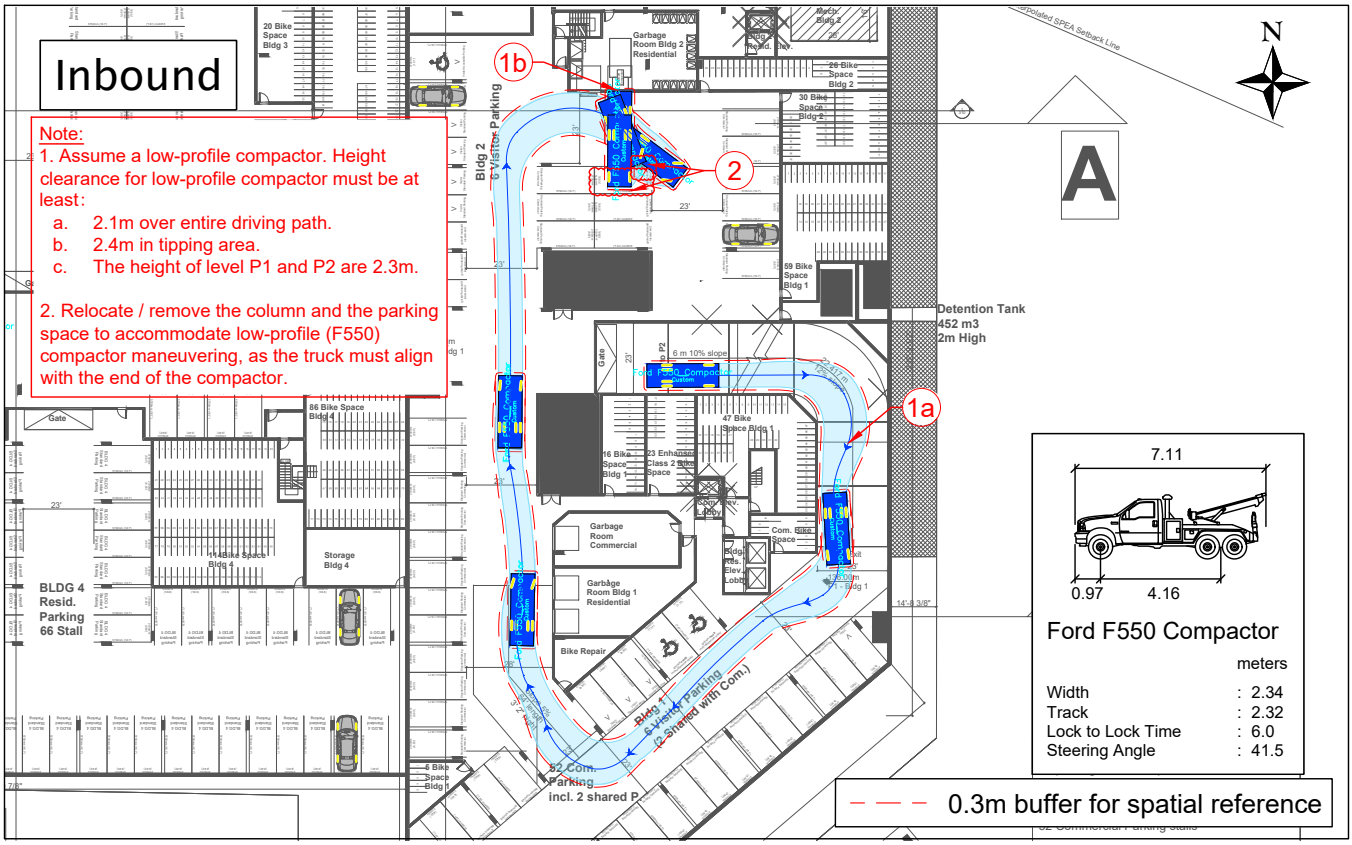


Exhibit F5.2.2

F550 Compactor Maneuver (Building 2)

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

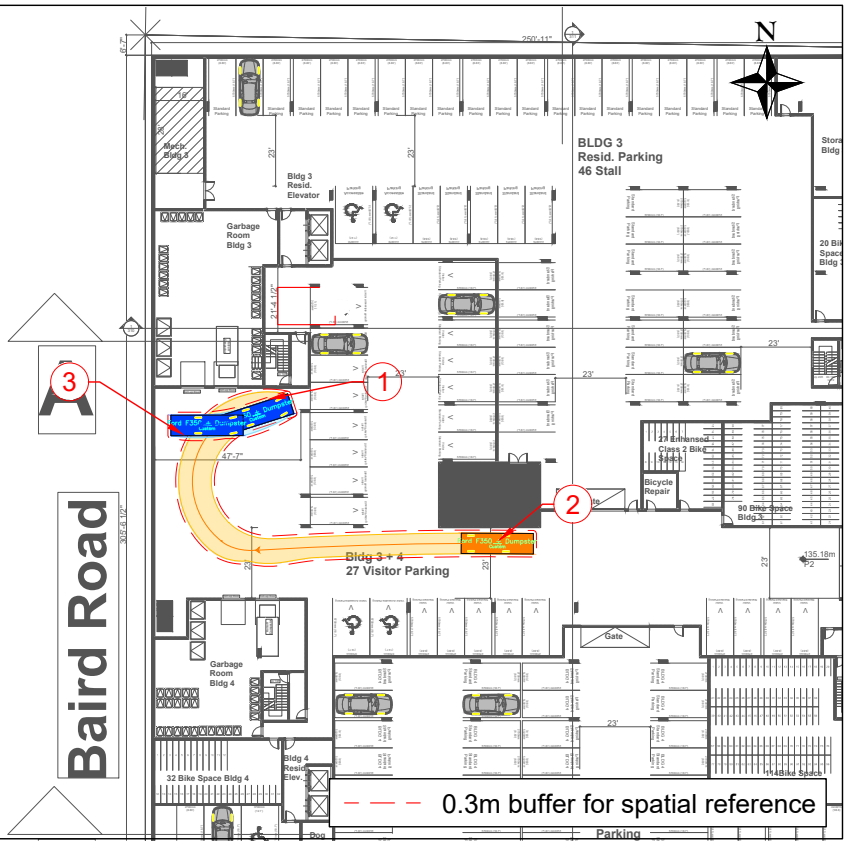
O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-5.dwg
2026/01/29 16:22, Plotted by Gordon Lu

Inbound

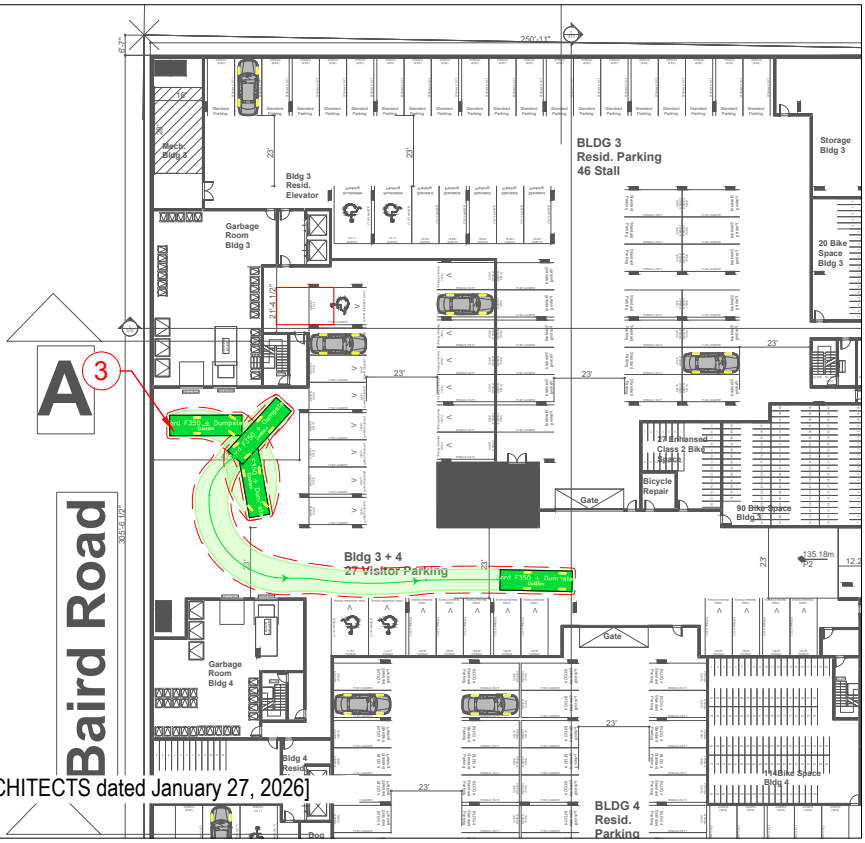
Note:
1. It is assumed that the jitney truck will turnaround first (orange path) before going to collect the waste/recycling/cardboard dumpster/bins from the waste rooms (blue paths).

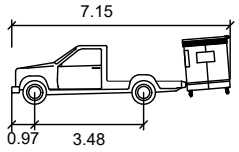
2. Height clearance for jitney waste collection service must be at least 2.1m over entire driving path. The height of level P1 and P2 are 2.3m.

3. After attaching tote, jitney will transport the tote to the staging area which is recommended to be shared with the loading area (Exhibit 5.5). However the loading area will be required to be kept clear on waste collection days. Exhibits 5.6 and 5.7 outline waste collection/ removal from site.



Outbound





Ford F350 Jitney + Dumpster

	meters
Width	: 2.03
Track	: 1.74
Lock to Lock Time	: 6.0
Steering Angle	: 32.2

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]
[Issued for Discussion; not for Construction]

Exhibit F5.3.1

Jitney Truck Maneuver (Building 3)

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

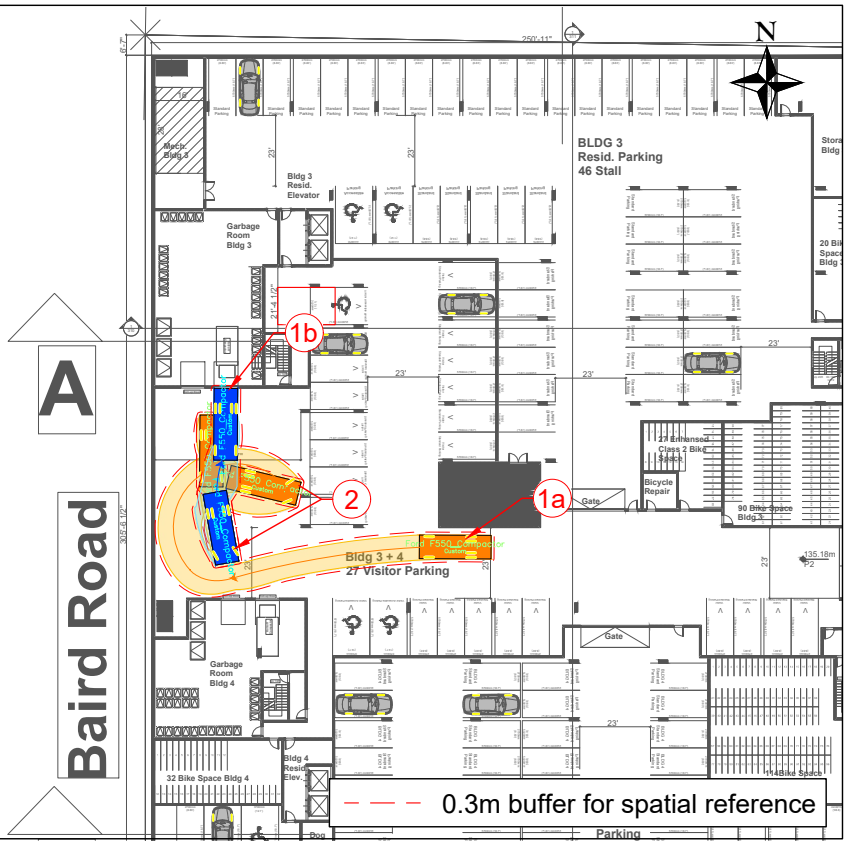
bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-5.dwg
2026/01/29 16:23, Plotted by Gordon Lu

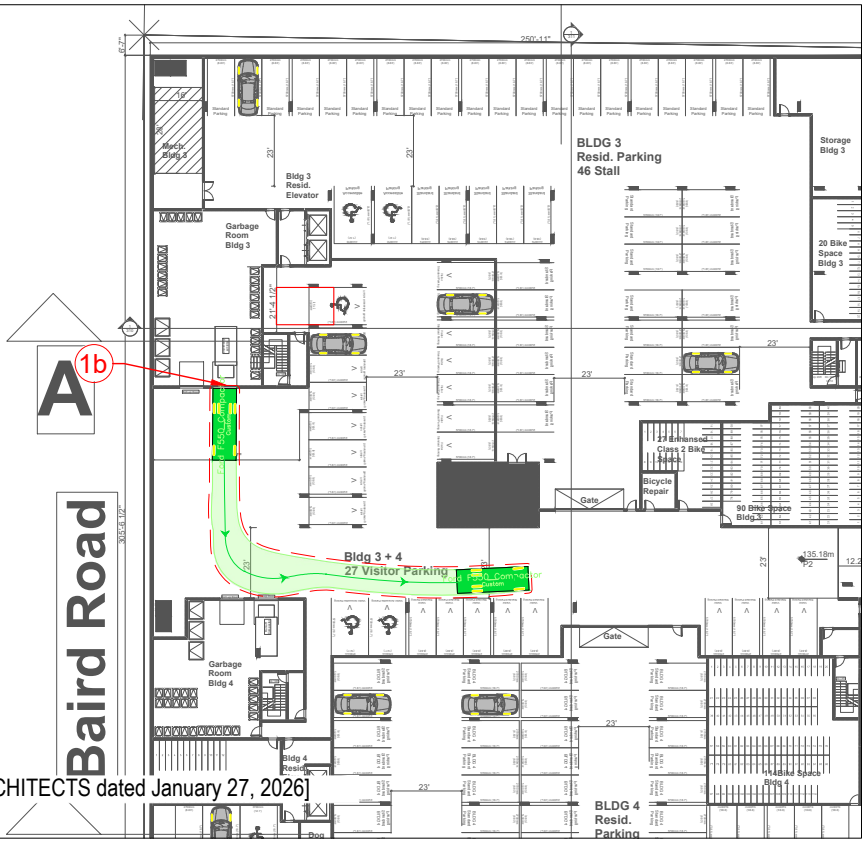
Inbound

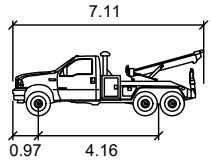
Note:
1. Assume a low-profile compactor. Height clearance for low-profile compactor must be at least:
   a. 2.1m over entire driving path.
   b. 2.4m in tipping area.
   c. The height of level P1 and P2 are 2.3m.

2. It is assumed that the low-profile compactor will turnaround first (orange path) before going to collect the roll-off compactor from the waste rooms (blue paths).



Outbound





Ford F550 Compactor

	meters
Width	: 2.34
Track	: 2.32
Lock to Lock Time	: 6.0
Steering Angle	: 41.5

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]
[Issued for Discussion; not for Construction]

Exhibit F5.3.2

F550 Compactor Maneuver (Building 3)

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

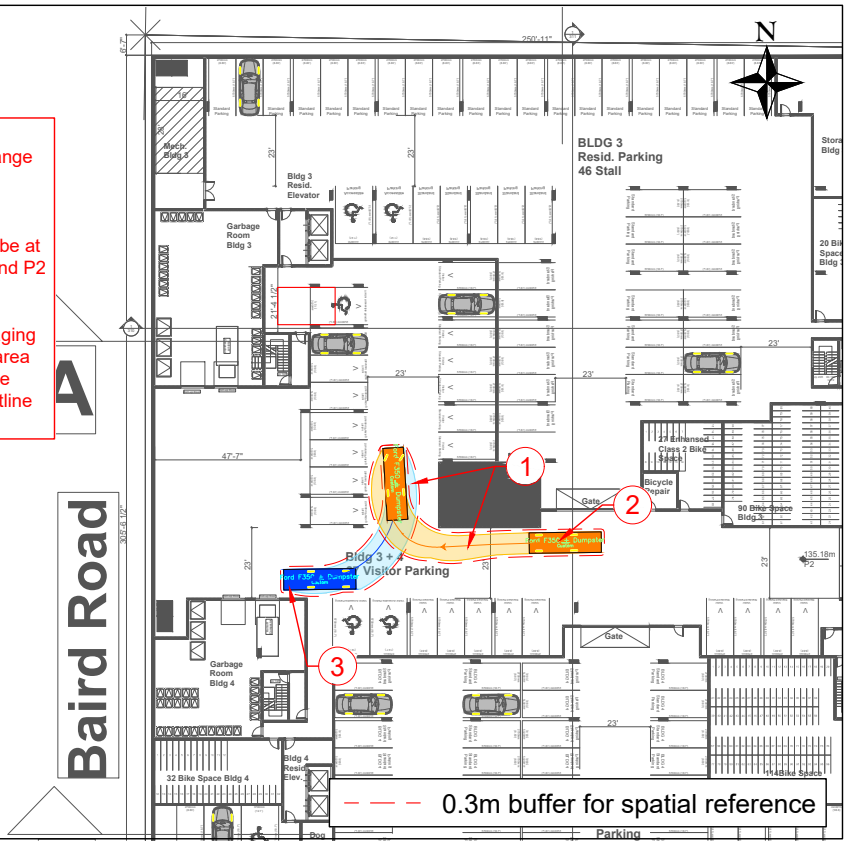
O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-5.dwg
2026/01/29 16:22, Plotted by Gordon Lu

Inbound

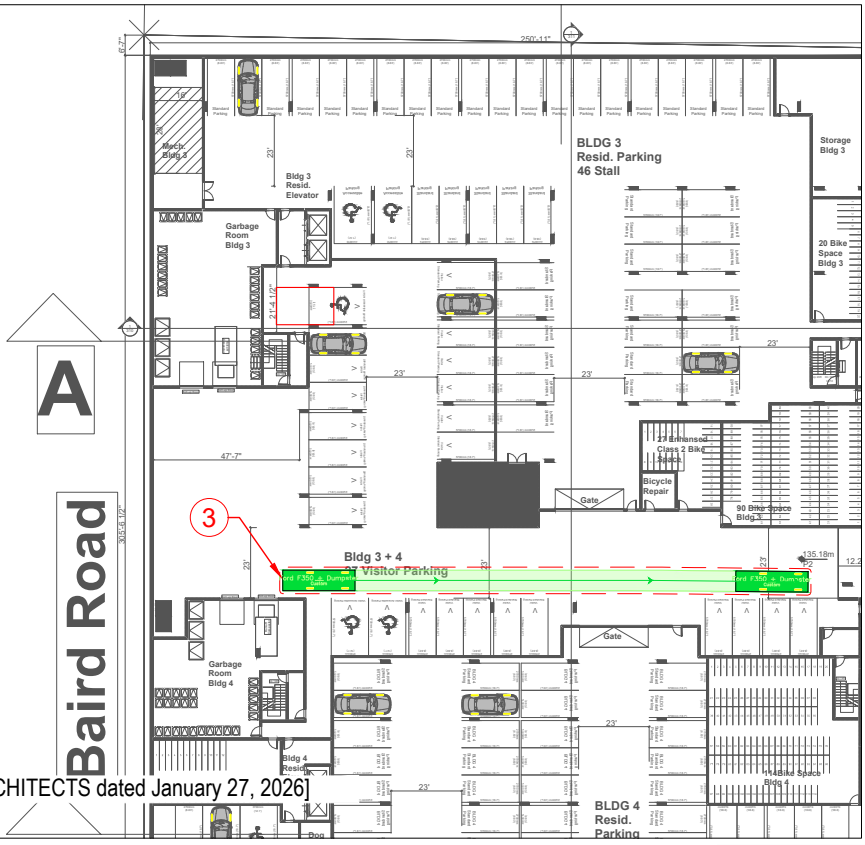
Note:
1. It is assumed that the jitney truck will turnaround first (orange path) before going to collect the waste/recycling/cardboard dumpster/bins from the waste rooms (blue paths).

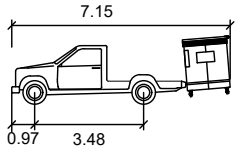
2. Height clearance for jitney waste collection service must be at least 2.1m over entire driving path. The height of level P1 and P2 are 2.3m.

3. After attaching tote, jitney will transport the tote to the staging area which is recommended to be shared with the loading area (Exhibit 5.5). However the loading area will be required to be kept clear on waste collection days. Exhibits 5.6 and 5.7 outline waste collection/ removal from site.



Outbound





Ford F350 Jitney + Dumpster

	meters
Width	: 2.03
Track	: 1.74
Lock to Lock Time	: 6.0
Steering Angle	: 32.2

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]
[Issued for Discussion; not for Construction]

Exhibit F5.4.1

Jitney Truck Maneuver (Building 4)

1246-1268 Lynn Valley Road

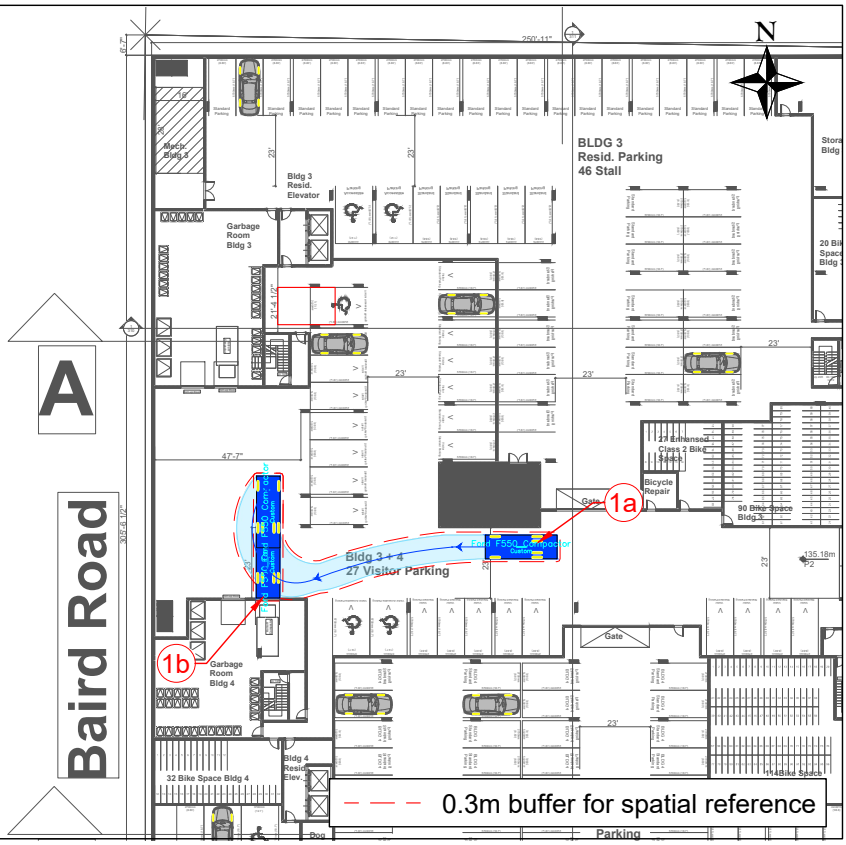
04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

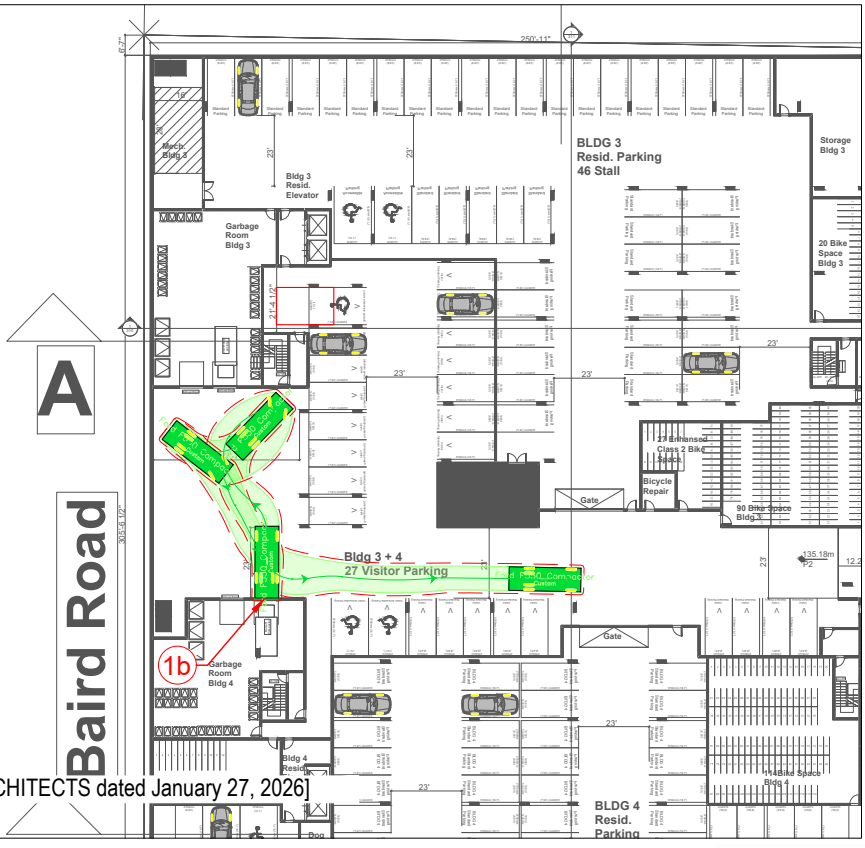
O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-5.dwg
2026/01/29 16:22, Plotted by Gordon Lu

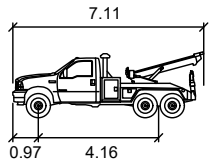
Inbound

Note:
1. Assume a low-profile compactor. Height clearance for low-profile compactor must be at least:
   a. 2.1m over entire driving path.
   b. 2.4m in tipping area.
   c. The height of level P1 and P2 are 2.3m.



Outbound





Ford F550 Compactor

	meters
Width	: 2.34
Track	: 2.32
Lock to Lock Time	: 6.0
Steering Angle	: 41.5

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]
[Issued for Discussion; not for Construction]

Exhibit F5.4.2

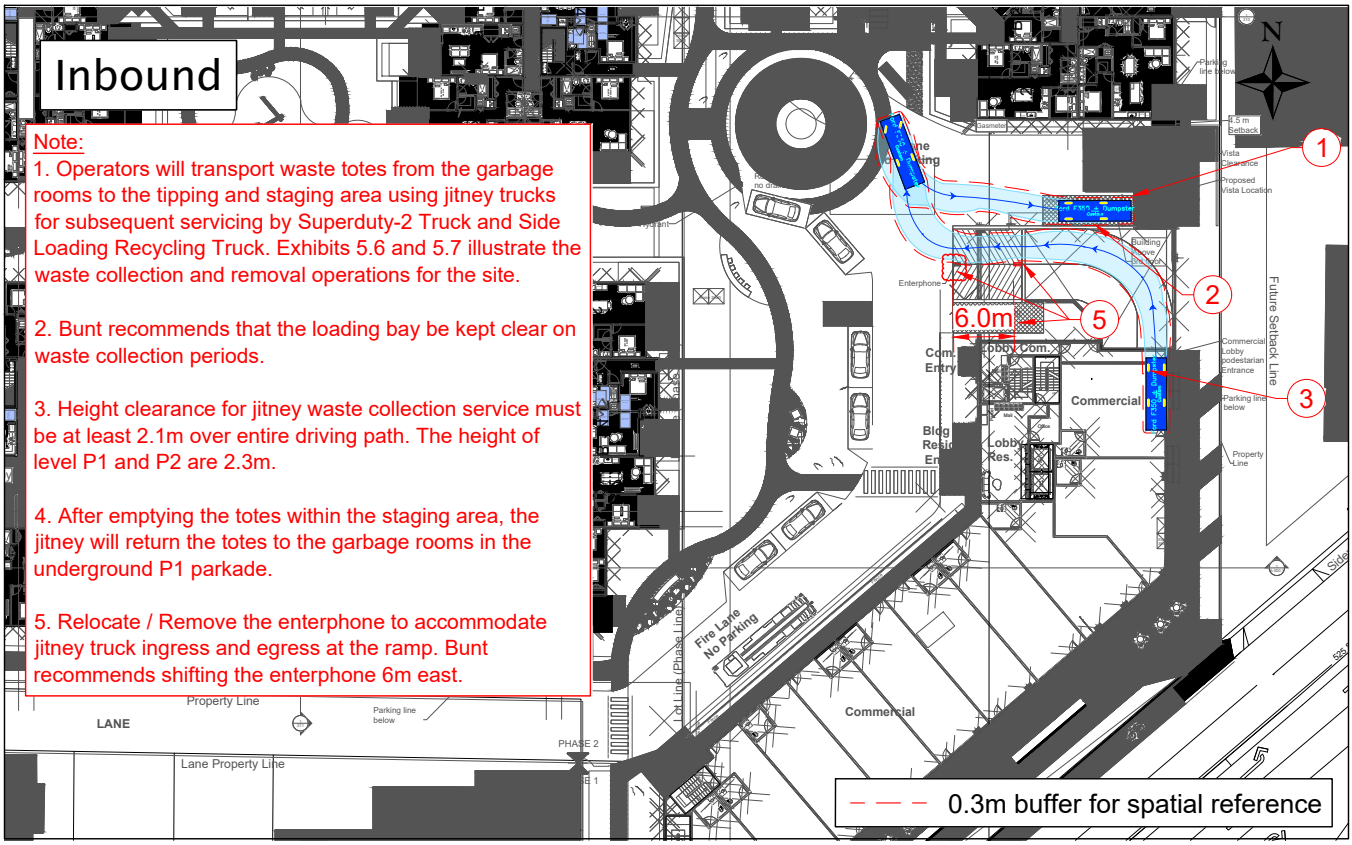
F550 Compactor Maneuver (Building 4)

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:01, Plotted by Gordon Lu



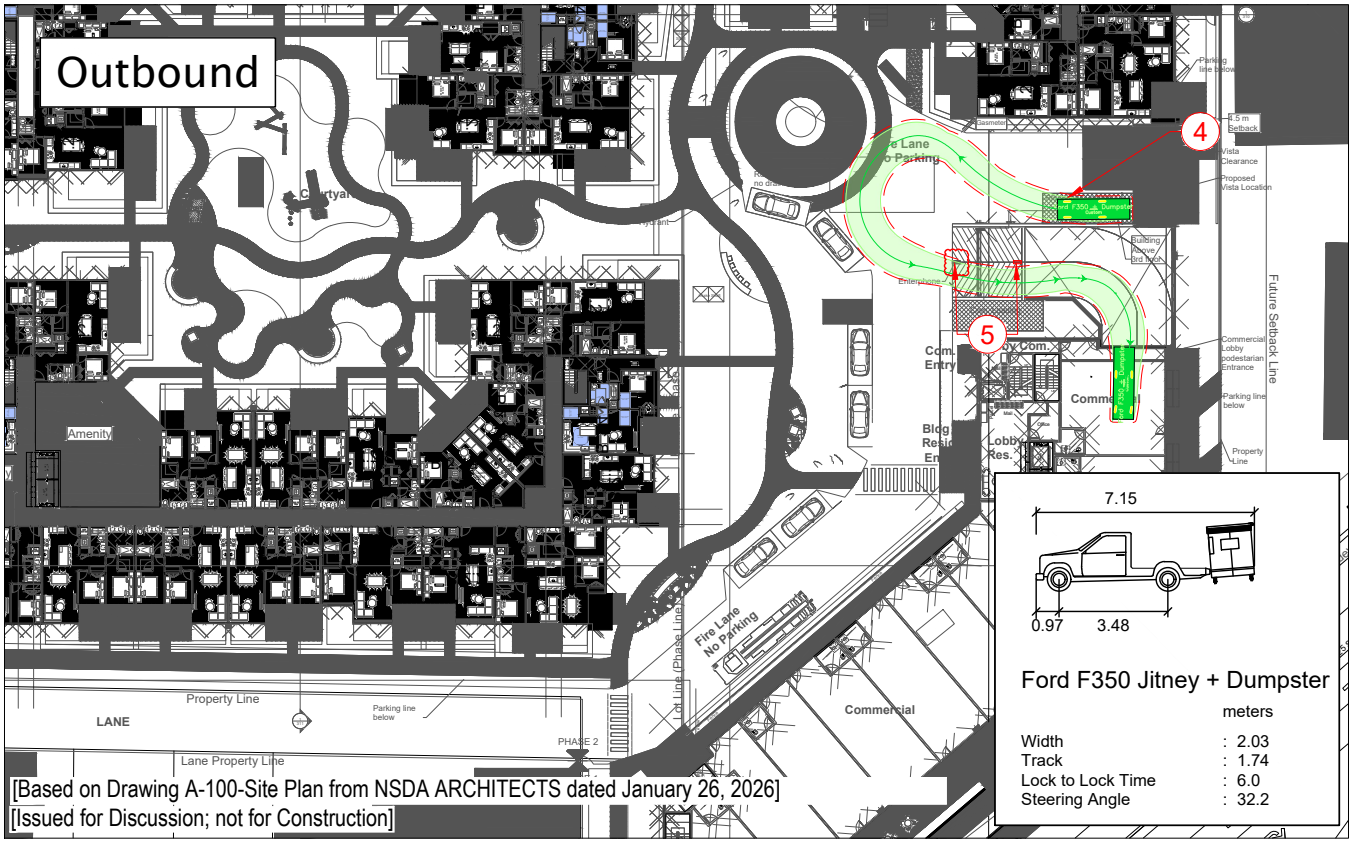


Exhibit F5.5

Jitney Truck Maneuver (Ground Level Staging Area)

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:55, Plotted by Gordon Lu

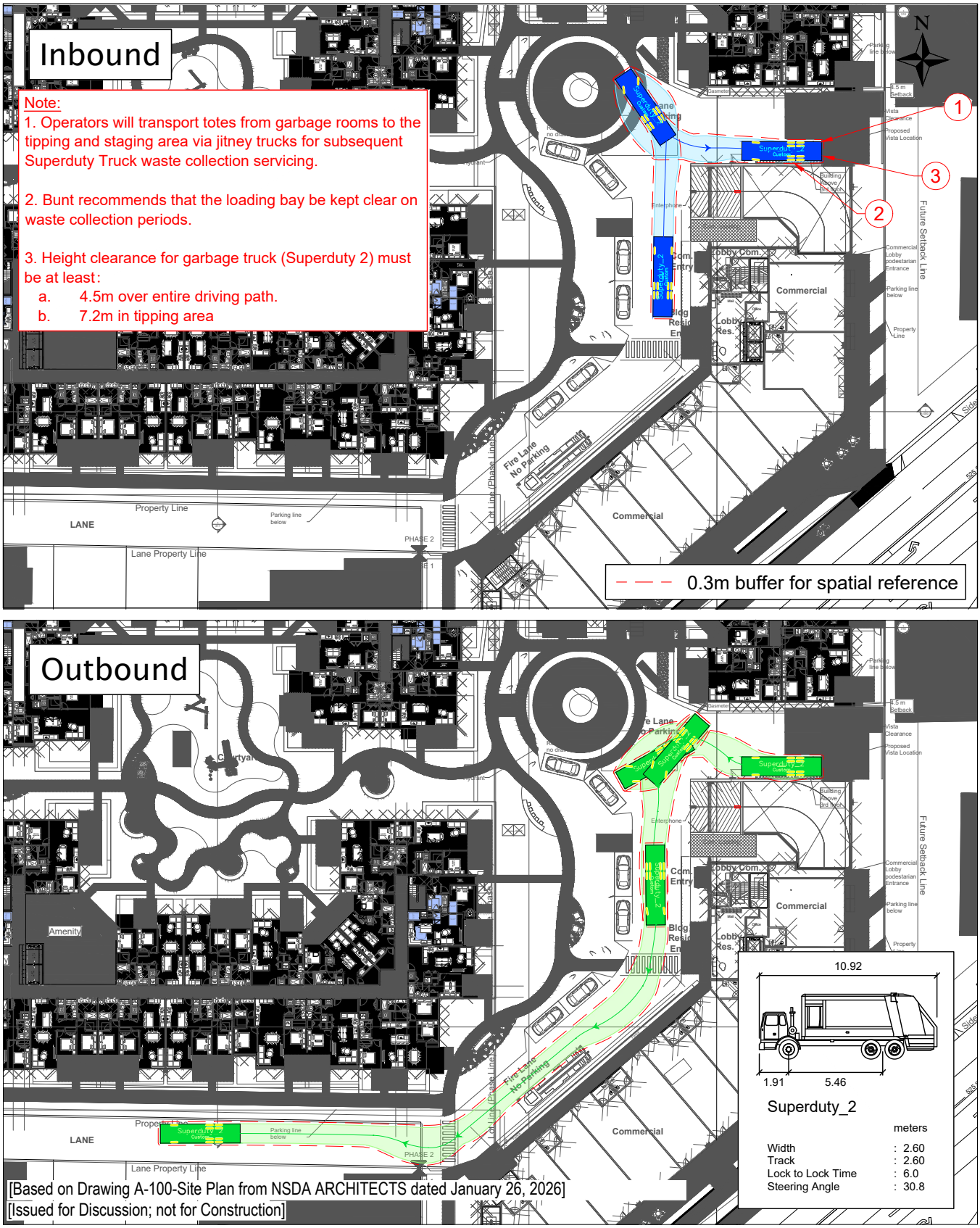


Exhibit F5.6

Waste Collection Vehicle (Superduty 2) Maneuver (Ground Level)

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:52, Plotted by Gordon Lu

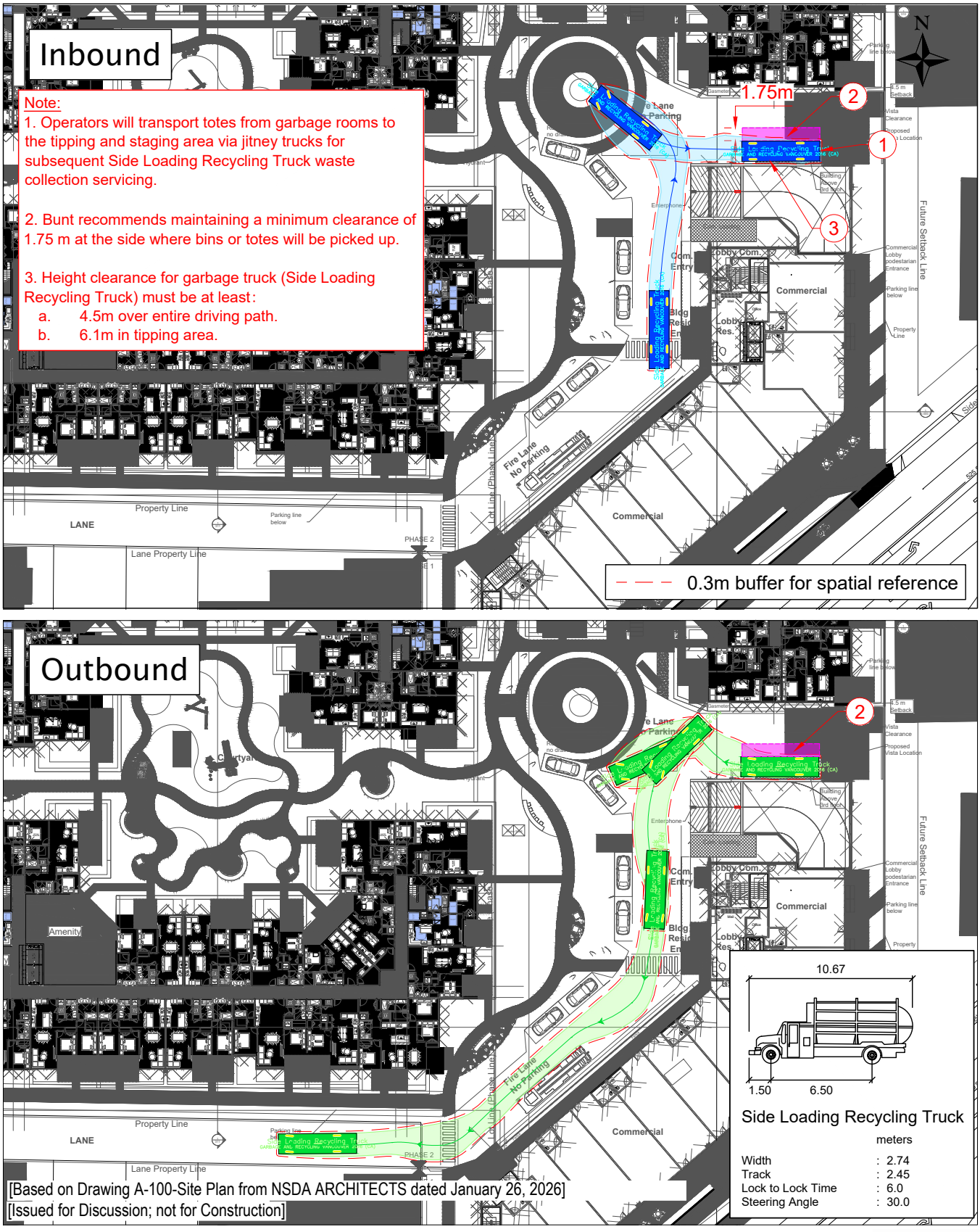


Exhibit F5.7

Side Loading Recycling Truck Maneuver (Ground Level)

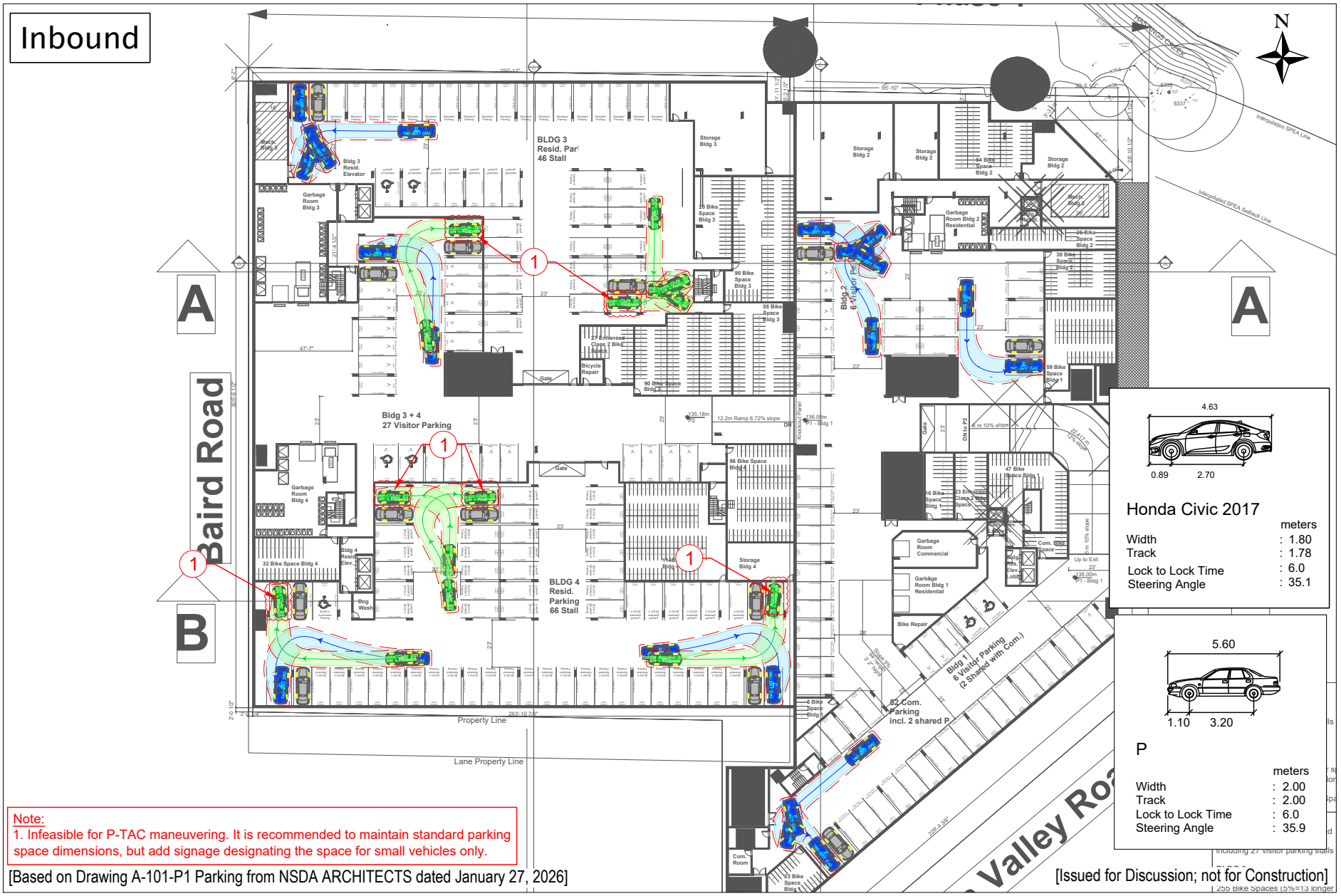
1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:750 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:55, Plotted by Gordon Lu

Inbound



Note:
1. Infeasible for P-TAC maneuvering. It is recommended to maintain standard parking space dimensions, but add signage designating the space for small vehicles only.

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]

[Issued for Discussion; not for Construction]

Exhibit F6.1

P1 End Stall Accessibility (Inbound)

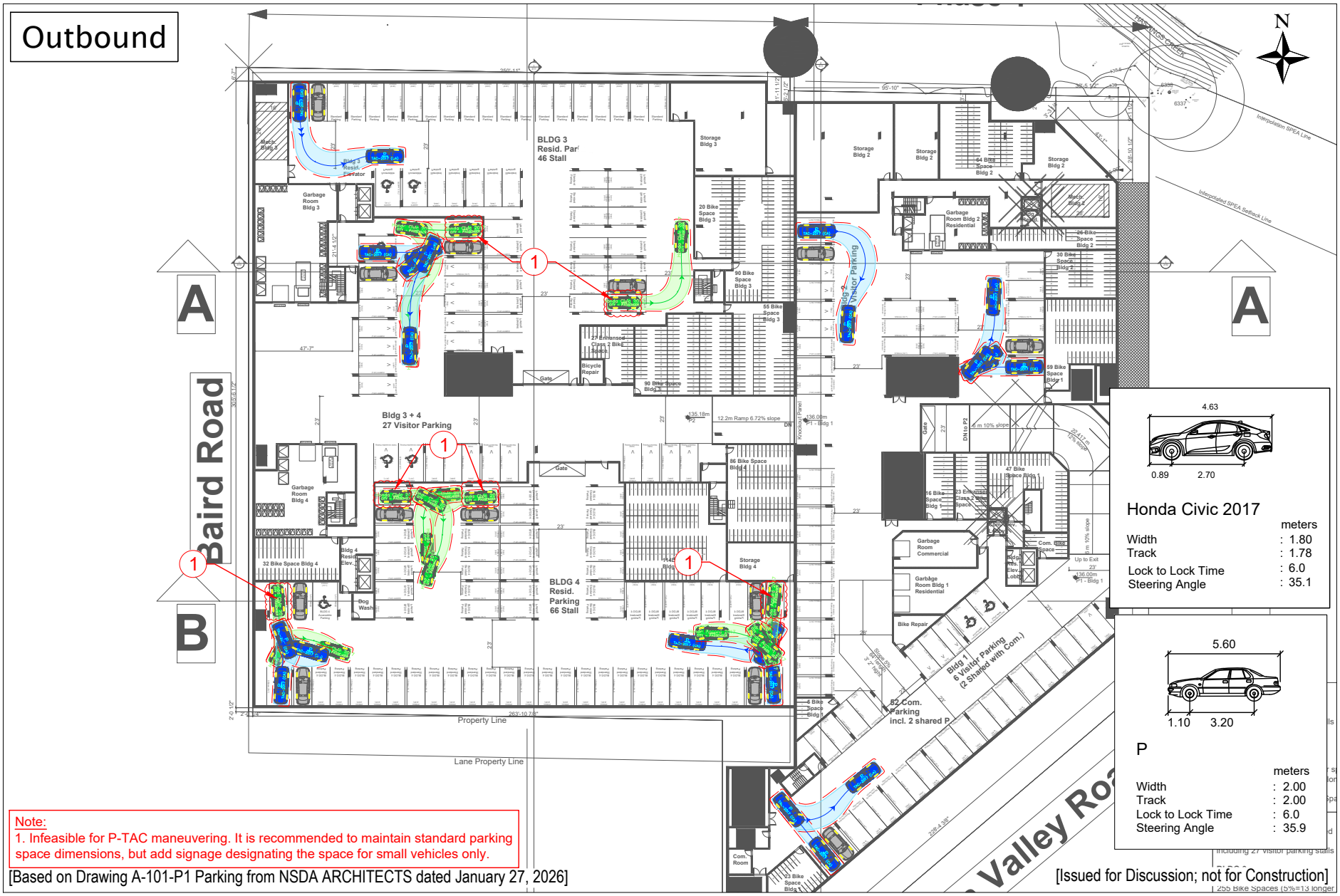
1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:800 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 14:56, Plotted by Gordon Lu

Outbound



Note:
1. Infeasible for P-TAC maneuvering. It is recommended to maintain standard parking space dimensions, but add signage designating the space for small vehicles only.

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]

[Issued for Discussion; not for Construction]

Exhibit F6.2

P1 End Stall Accessibility (Outbound)

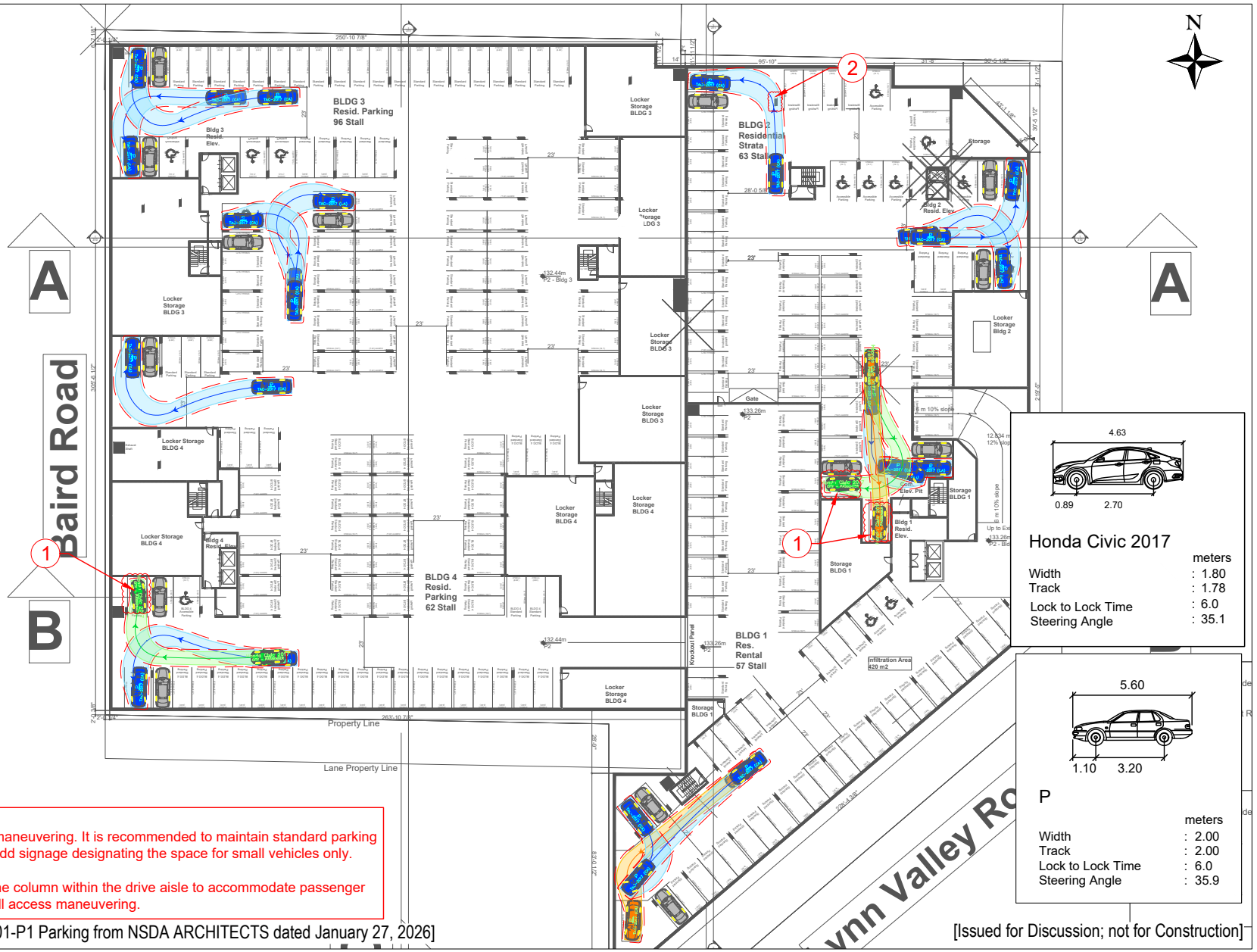
1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:800 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:02, Plotted by Gordon Lu

Inbound



Note:
1. Infeasible for P-TAC maneuvering. It is recommended to maintain standard parking space dimensions, but add signage designating the space for small vehicles only.

2. Relocate or remove the column within the drive aisle to accommodate passenger vehicle (P-TAC) end-stall access maneuvering.

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]

[Issued for Discussion; not for Construction]

Exhibit F7.1

P2 End Stall Accessibility (Inbound)

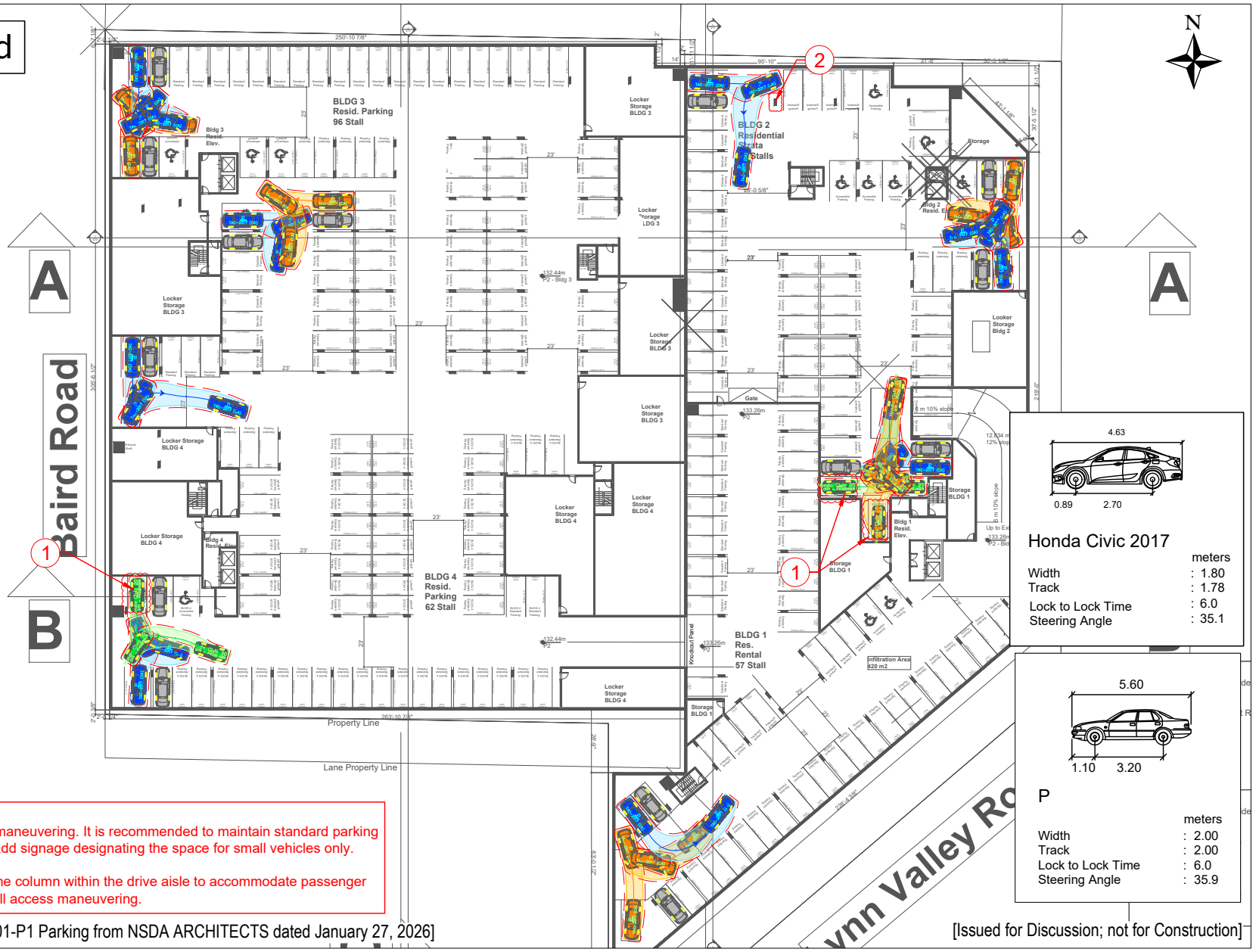
1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:800 on Letter Prepared by GL

bunt & associates

O:\Dept BC\Projects\2025\04-25-0159 1246-1268 Lynn Valley Rd\4.0 Analysis & Design\4.2 ACAD\04-25-0159_1246 & 1268 Lynn Valley Rd_AT_V05-4.dwg
2026/01/29 15:04, Plotted by Gordon Lu

Outbound



Honda Civic 2017

	meters
Width	: 1.80
Track	: 1.78
Lock to Lock Time	: 6.0
Steering Angle	: 35.1

P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

Note:
1. Infeasible for P-TAC maneuvering. It is recommended to maintain standard parking space dimensions, but add signage designating the space for small vehicles only.

2. Relocate or remove the column within the drive aisle to accommodate passenger vehicle (P-TAC) end-stall access maneuvering.

[Based on Drawing A-101-P1 Parking from NSDA ARCHITECTS dated January 27, 2026]

[Issued for Discussion; not for Construction]

Exhibit F7.2

P2 End Stall Accessibility (Outbound)

1246-1268 Lynn Valley Road

04-25-0159 January 2026 Scale 1:800 on Letter Prepared by GL

bunt & associates