



# 6020 LINLEY VALLEY DRIVE DEVELOPMENT

## Traffic Impact Assessment

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Our File: 2806.B01

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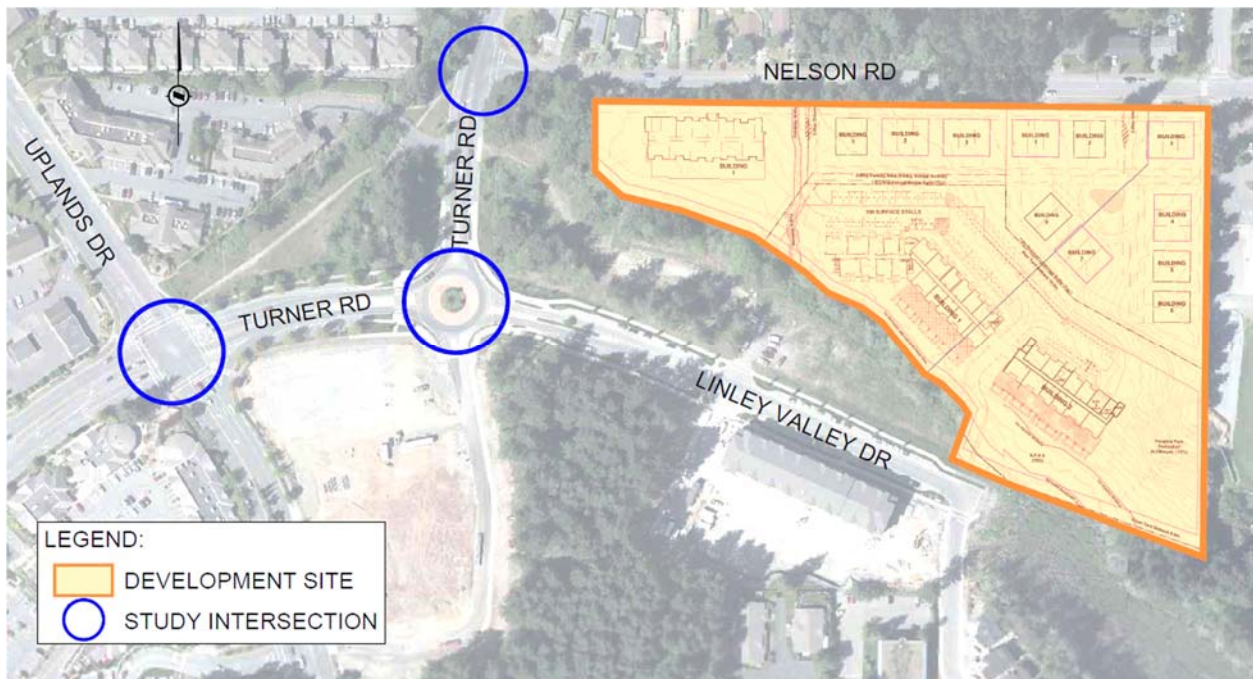
## 1.0 INTRODUCTION

Watt Consulting Group was retained by Insight Holdings Ltd. to undertake a traffic impact assessment (TIA) for the proposed 6020 Linley Valley Drive residential development in the City of Nanaimo. The development is proposed to be a 140 unit multi-family residential development. This report examines the existing and long-term conditions within the study area, highlights any potential operational issues, and (if necessary) recommends mitigation measures to ensure accommodation of development traffic. The study also includes a review of the alternative transportation networks (pedestrian, cycling, and transit) within the vicinity of the development site.

### 1.1 STUDY AREA

The development site is located between Nelson Road and Linley Valley Drive approximately 100m east of Turner Road in Nanaimo, BC. There is proposed to be site accesses on both Nelson Road and Linley Valley Drive. The study area includes the following key intersections:

- Uplands Drive / Turner Road;
- Turner Road / Linley Valley Drive; and
- Turner Road / Nelson Road.



**Figure 1: Development Site and Key Intersections**

## 2.0 EXISTING CONDITIONS

### 2.1 LAND USE

The development site is currently zoned as Single Dwelling Residential (R1) and Townhouse Residential (R6). The surrounding land use is comprised of Single Dwelling Residential (R1), Duplex Residential (R4), Medium Density Residential (R8), and Community Corridor (COR3).

### 2.2 ROAD NETWORK

There are four roadways within the study area as described below:

- **Uplands Drive** is a divided four lane arterial road that generally runs north / south. Uplands Drive is reduced to two lanes 100 meters north of Turner Road. There are sidewalks on both sides of Uplands Drive; south of Turner Road, there are landscaped boulevards on both sides of Uplands Drive as well as landscaped median islands.
- **Turner Road** west of the roundabout at Linley Valley Drive is a four lane divided arterial road that drops to two lanes at the approach to the roundabout. North of the roundabout, Turner Road is an undivided two lane minor collector road. There are sidewalks on both sides of Turner Road within the study area.
- **Linley Valley Drive** is a two-lane undivided road that is classified as a major collector road. Linley Valley Drive begins at the Turner Road roundabout and runs east for 240m before terminating at Stillwater Way. An extension of Linley Valley Road which would continue east to another existing section of Linley Valley Drive 860m east is specified as a medium-term project in the City of Nanaimo's Transportation Master Plan. There are sidewalks, boulevards and bike lanes on both sides of Linley Valley Drive.
- **Nelson Road** is a two lane local road with runs east-west from Turner Road to Rutherford Road. Nelson Road has a sidewalk on the north side for the entire length of the road as well as a sidewalk on the south side which begins at the west boundary of the development site and continues east to Rutherford Road. Between the west development site boundary and Turner Road, Nelson Road has a gravel shoulder on the south side of the road.

### 2.3 TRAFFIC MODELLING – BACKGROUND INFORMATION

Analysis of the traffic conditions at the study intersections was undertaken using Synchro Studio (Version 9). Synchro / SimTraffic is a two-part traffic modelling software that provides analysis of the traffic conditions based on the Highway Capacity Manual (2010) evaluation methodology. A detailed description is provided in **Appendix A**. SIDRA (Version 8) roundabout modelling software was used for the analysis of the Turner Road / Linley Valley Drive roundabout.

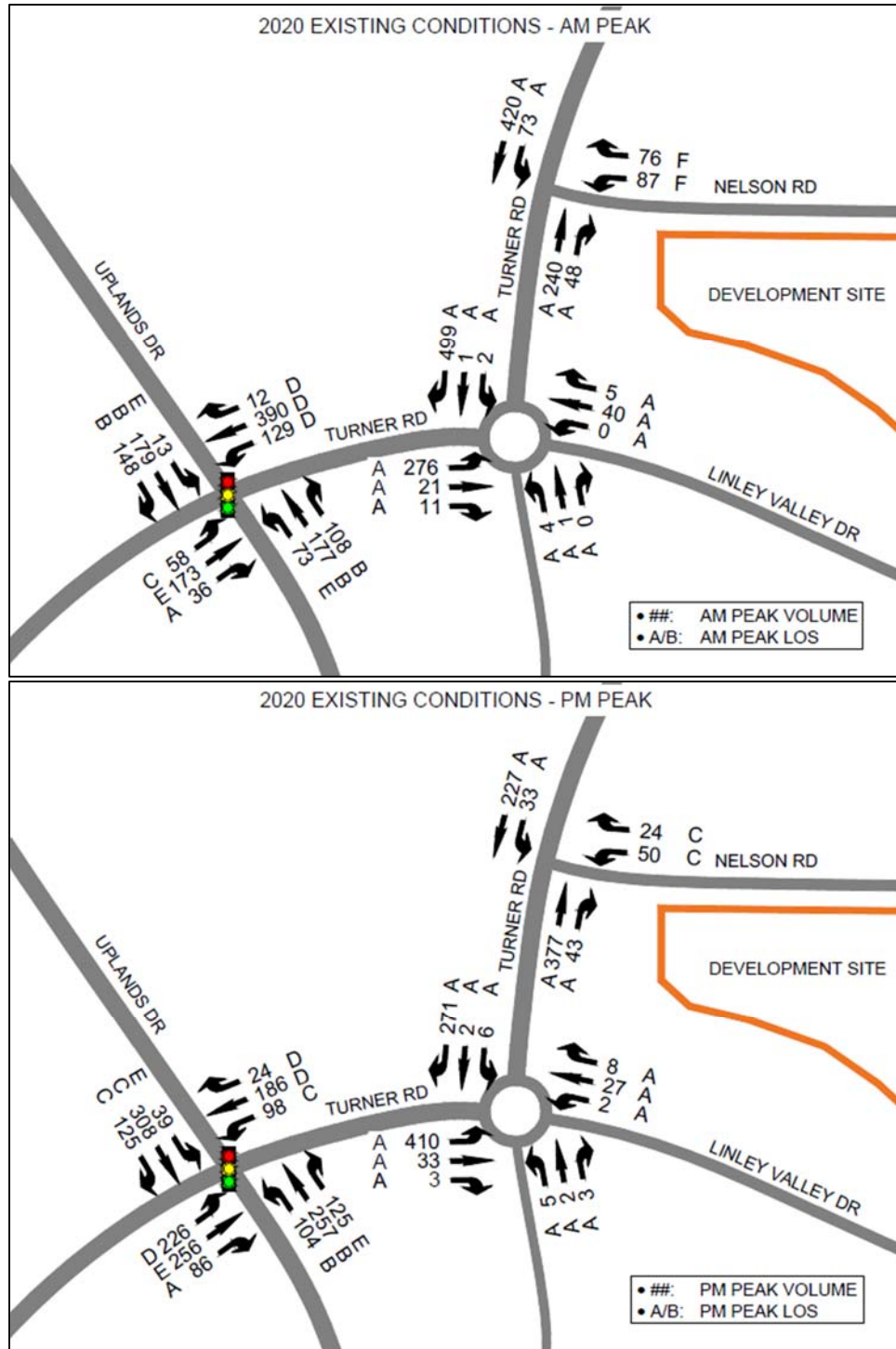
For unsignalized (stop-controlled) intersections, the level of service (LOS) is based on the computed delay on each of the critical movements. LOS A represents minimal delays for minor street traffic movements, and LOS F represents a scenario with an insufficient number of gaps on the major street for minor street motorists to complete their movements without significant delays.

For signalized intersections, the methodology considers the intersection geometry, traffic volumes, the traffic signal phasing / timing plan, and pedestrian volumes. The average delay for each lane group is calculated, as well as the delay for the overall intersection.

## 2.4 EXISTING TRAFFIC CONDITIONS (2020)

Weekday AM and PM turning movement counts were conducted at the key intersections within the study area for the peak periods (8:00-9:00AM and 4:00-5:00PM) on Thursday, February 20<sup>th</sup>, 2020.

The existing 2020 traffic conditions were analyzed for the AM and PM peak hours in Synchro and SIDRA traffic modelling software. The existing signal timing was used for modelling the Uplands Drive / Turner Road traffic signal (based on the January 2007 signal timing sheet provided by the City of Nanaimo). See **Figure 2** and **Table 1** for the existing AM and PM traffic volumes and conditions.



**Figure 2: 2020 Existing Volumes & LOS**

**TABLE 1: 2020 EXISTING CONDITIONS – AM AND PM PEAK HOUR**

Intersection	Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	95 <sup>th</sup> % Queue (m)	V/C Ratio	LOS	Delay (s)	95 <sup>th</sup> % Queue (m)	V/C Ratio
Turner Rd / Uplands Dr	EBL	C	27.1	18.80	0.29	D	37.7	64.9	0.69
	EBT	<b>E</b>	<b>59.0</b>	63.0	0.76	<b>E</b>	<b>59.1</b>	96.1	0.80
	EBR	A	0.9	0.0	0.16	A	3.7	60.1	0.23
	WBL	D	35.5	35.7	0.64	C	30.7	29.4	0.42
	WB T/R	D	40.0	66.0	0.59	D	41.6	37.1	0.45
	SBL	<b>E</b>	<b>55.7</b>	9.3	0.18	<b>E</b>	<b>57.9</b>	19.4	0.44
	SB T/R	B	14.2	29.4	0.30	C	23.2	57.2	0.37
	NBL	<b>E</b>	<b>63.6</b>	31.7	0.64	<b>E</b>	<b>62.7</b>	44.9	0.65
	NB T/R	B	10.3	26.4	0.21	B	18.7	45.0	0.32
Turner Rd / Linley Valley Dr	EB L/T/R	A	4.8	10.4	0.25	A	6.0	17.7	0.36
	WB L/T/R	A	4.1	1.6	0.05	A	4.7	1.5	0.05
	SB L/T/R	A	7.0	22.2	0.42	A	4.8	9.4	0.23
	NB L/T/R	A	3.8	0.2	0.01	A	4.5	0.4	0.01
Turner Rd / Nelson Rd	WB L/R	<b>F</b>	<b>168.9</b>	107.2	1.20	C	16.7	7.0	0.23
	SB L/T	A	0.0	0.0	0.24	A	0.0	0.0	0.28
	NB T/R	A	3.8	4.7	0.16	A	0.5	1.1	0.04

At the signalized Turner Road / Uplands Drive intersection, the eastbound through and the northbound and southbound left turn movements are at LOS E under existing traffic volumes during both peak hours. All remaining movements at this intersection are at LOS D or better during both peak hours. Adjustments to the signal timing results in all movements operating at LOS D or better during both the AM and PM peak hour.

The Turner Road / Linley Valley Drive roundabout operates well under existing volumes with all movements at LOS A during the AM and PM peak hour.

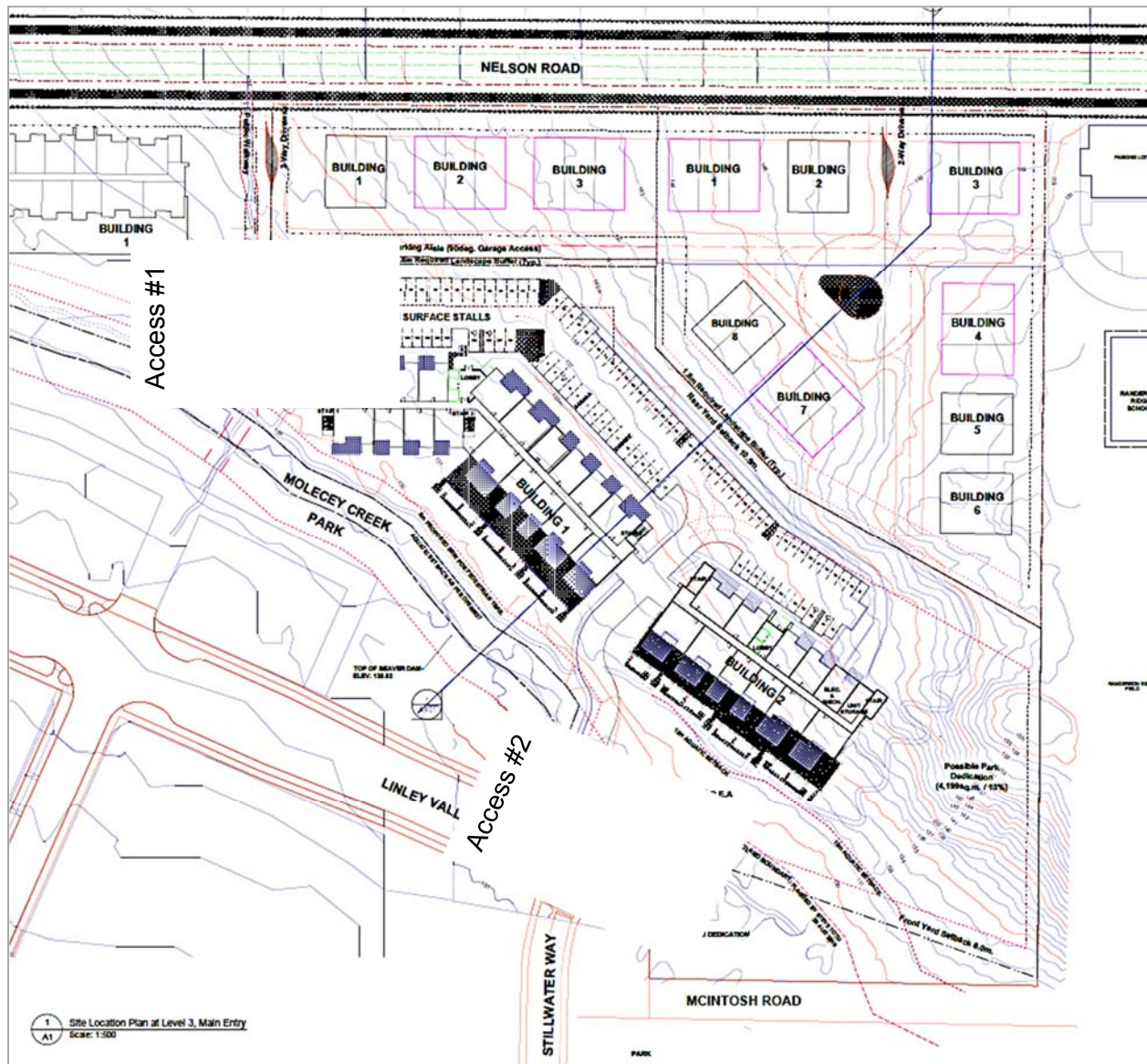
At the stop-controlled Turner Road / Nelson Road intersection, the westbound movement is at a failing level of service (LOS F) during the AM peak. The westbound queue is over 15 vehicles in length, with westbound vehicles waiting over 2.5 minutes to turn out onto Turner Road. Adding a westbound left turn lane results in the westbound right turn movement improving to LOS B; however, the westbound left turn would remain at LOS F. The westbound left turn lane would need to be 60m in length to accommodate the left turn queue. A restriction on left turns, during the AM peak hour, from Nelson Road onto Turner Road improves operations, but would require these vehicles to either have to turn right and head to Hammond Bay Road or head east on Nelson Road to Rutherford Road where they would turn right.



### 3.0 POST DEVELOPMENT ANALYSIS

#### 3.1 PROPOSED LAND USE & SITE ACCESS

The 6020 Linley Valley Drive development is proposed to have 140 unit multi-family residential units. The site is proposed to have full movement accesses onto both Nelson Road and Linley Valley Drive. The site plan is shown below in **Figure 3**.



**Figure 3: Site Plan**

### 3.2 TRIP GENERATION

Site trips were estimated from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual (10<sup>th</sup> Edition)*. The *Trip Generation Manual* provides trip rates for a wide variety of land uses gathered from actual sites across North America over the past 40 years.

The proposed developments will generate 50 trips (10 inbound / 40 outbound) during the AM peak hour and 73 trips (50 inbound / 23 outbound) during the PM peak hour. The trip generation results for the proposed development in the AM and PM peak hour are summarized in **Table 2**.

**TABLE 2: PROPOSED DEVELOPMENT TRIP GENERATION – AM / PM PEAK HOURS**

ITE Code	Land Use	Units	Trip Rate	Trips In	Trips Out	Total Trips
AM Peak Hour						
221	Multi-Family Housing (Mid-Rise)	140 units	0.36 / unit	10	40	50
PM Peak Hour						
221	Multi-Family Housing (Mid-Rise)	140 units	0.52 / unit	50	23	73

### 3.3 TRIP ASSIGNMENT

The trip assignment was based on the existing traffic patterns and key origin / destinations in the region. As the development has accesses onto both Nelson Road and Linley Valley Road, it was assumed each access would be equally utilized due to the placement of the buildings on the site. The trips generated by the proposed development were assigned using the following distribution pattern:

- AM peak hour of travel;
  - Inbound trips:
    - 20% of site trips are coming from the north on Turner Road;
    - 50% of site trips are coming from the west on Turner Road; and
    - 30% of site trips are coming from the south on Uplands Drive.
  - Outbound trips:
    - 20% of site trips are heading to the north on Turner Road;
    - 2% of site trips are heading to the north on Uplands Drive;
    - 58% of site trips are heading to the west on Turner Road; and
    - 20% of site trips are heading to the south on Uplands Drive.

- PM peak hour of travel;
  - Inbound trips:
    - 15% of site trips are coming from the north on Turner Road;
    - 7% of site trips are coming from the north on Uplands Drive;
    - 52% of site trips are coming from the west on Turner Road; and
    - 26% of site trips are coming from the south on Uplands Drive.
  - Outbound trips:
    - 15% of site trips are heading to the north on Turner Road;
    - 6% of site trips are heading to the north on Uplands Drive;
    - 50% of site trips are heading to the west on Turner Road; and
    - 29% of site trips are heading to the south on Uplands Drive.

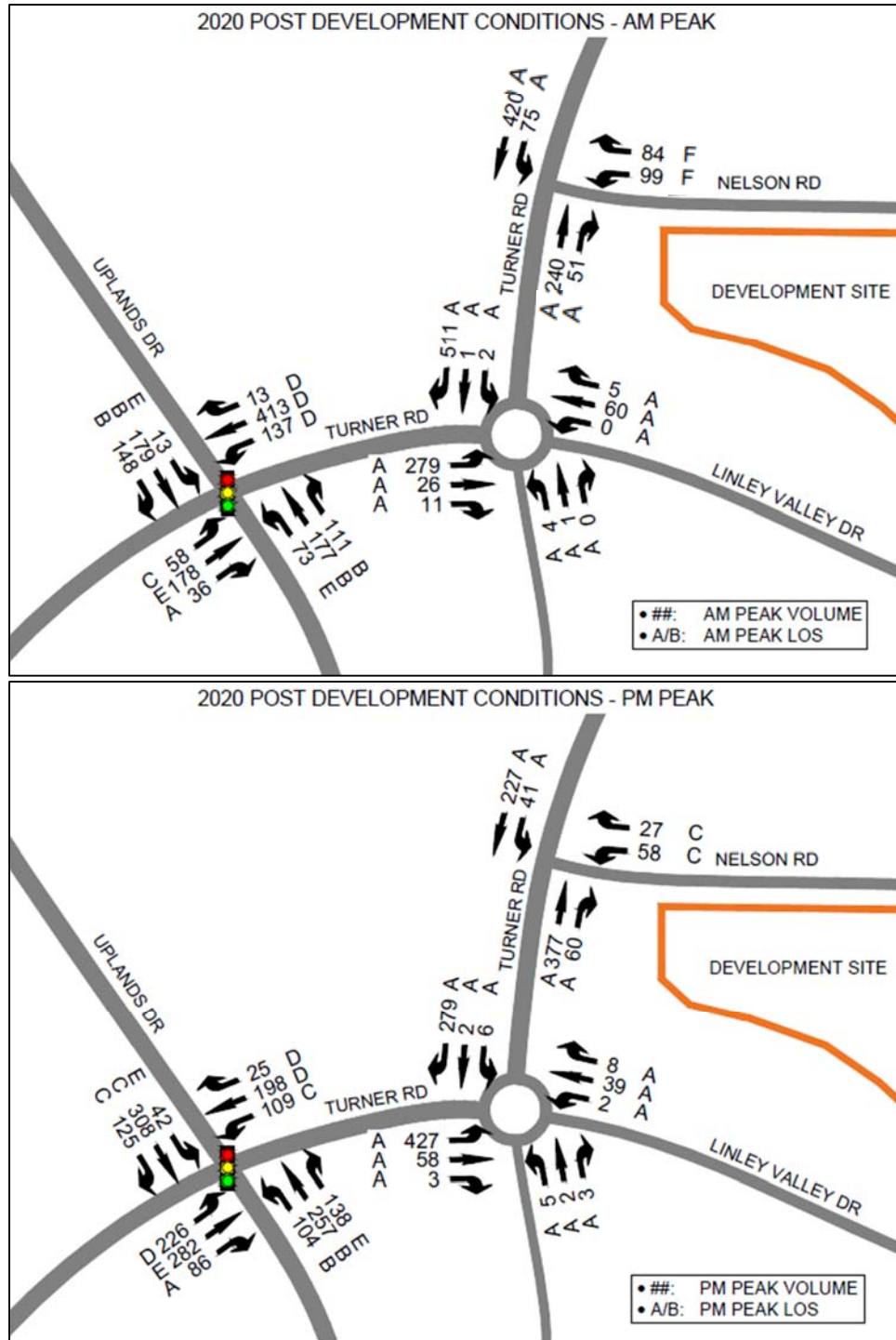
The resulting trip assignment is shown in **Figure 4**.



**Figure 4: Trip Assignment**

### 3.4 POST DEVELOPMENT ANALYSIS (2020)

The 2020 post development volumes were determined by adding the site trips to the existing traffic volumes. The post development traffic conditions were then analyzed for the AM and PM peak hours in Synchro and SIDRA traffic modelling software. The existing signal timing was used for modelling the Uplands Drive / Turner Road traffic signal. See **Figure 5** and **Table 3** for the post development AM and PM traffic volumes and conditions.



**Figure 5: 2020 Post Development Volumes & LOS**

**TABLE 3: 2020 POST DEVELOPMENT CONDITIONS – AM AND PM PEAK HOUR**

Intersection	Move-ment	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	95 <sup>th</sup> % Queue (m)	V/C Ratio	LOS	Delay (s)	95 <sup>th</sup> % Queue (m)	V/C Ratio
Turner Rd / Uplands Dr	EBL	C	27.2	18.80	0.29	D	36.9	64.9	0.68
	EBT	<b>E</b>	<b>59.7</b>	65	0.77	<b>E</b>	<b>62.4</b>	116.5	0.84
	EBR	A	0.9	0.0	0.15	A	3.5	6.1	0.22
	WBL	D	37.1	37.7	0.67	C	31.9	32.2	0.47
	WB T/R	D	40.4	70.1	0.61	D	40.9	39.2	0.44
	SBL	<b>E</b>	<b>56.0</b>	9.3	0.19	<b>E</b>	<b>59.2</b>	20.4	0.46
	SB T/R	B	14.4	29.4	0.30	C	24.1	57.6	0.38
	NBL	<b>E</b>	<b>64.2</b>	31.7	0.64	<b>E</b>	<b>64.0</b>	45.2	0.66
	NB T/R	B	10.3	26.4	0.21	B	18.9	45.7	0.34
Turner Rd / Linley Valley Dr	EB L/T/R	A	4.8	10.4	0.25	A	6.4	20.5	0.40
	WB L/T/R	A	4.3	2.3	0.07	A	5.0	2.0	0.06
	SB L/T/R	A	7.4	23.5	0.44	A	4.9	9.9	0.24
	NB L/T/R	A	3.8	0.2	0.01	A	4.8	0.4	0.01
Turner Rd / Nelson Rd	WB L/R	<b>F</b>	<b>241.8</b>	138.8	1.39	C	18.1	8.9	0.28
	SB L/T	A	0.0	0.0	0.25	A	0.0	0.0	0.30
	NB T/R	A	3.9	4.8	0.17	A	2.0	1.4	0.06

At the signalized Turner Road / Uplands Drive intersection, with the addition of site traffic the levels of service for all movements remain unchanged from existing conditions. The Turner Road / Linley Valley Drive roundabout continues to operate well under post development volumes with the addition of site traffic.

At the stop-controlled Turner Road / Nelson Road intersection, the westbound movement remains at a failing level of service (LOS F) during the AM peak. Restricting left turns off Nelson Road will improve operations to a LOS B or better.

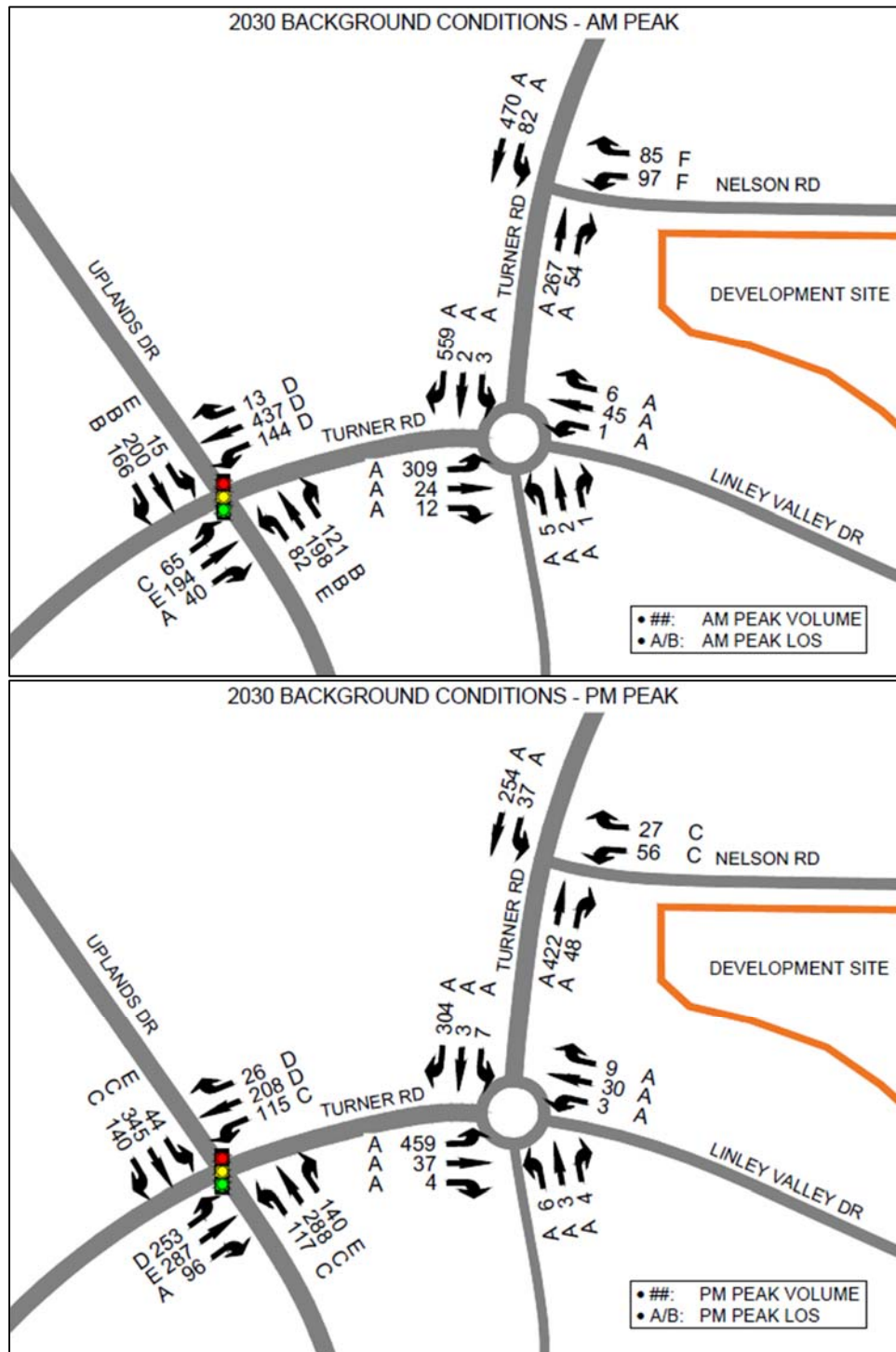
#### 4.0 LONG TERM CONDITIONS – 10 YEAR HORIZON (2030)

The long term conditions were analyzed assuming the existing roadway network. Annual growth rate of AADT volumes on Island Highway was estimated at 0.61% between 2008 MoTI's short counts and 2015 (both measured in November) at 400m north of Jingle Pot Road. Therefore, the 2020 existing traffic volumes were projected with a 1.0% annual growth rate to obtain the 2030 background traffic volumes.

##### 4.1 2030 BACKGROUND CONDITIONS

The 2030 background traffic conditions were analyzed for the AM and PM peak hours in Synchro and SIDRA. The existing signal timing was used for modelling the Uplands Drive / Turner Road

traffic signal. See **Figure 6** and **Table 4** for the 2030 background AM and PM traffic volumes and conditions.



**Figure 6: 2030 Background Volumes & LOS**

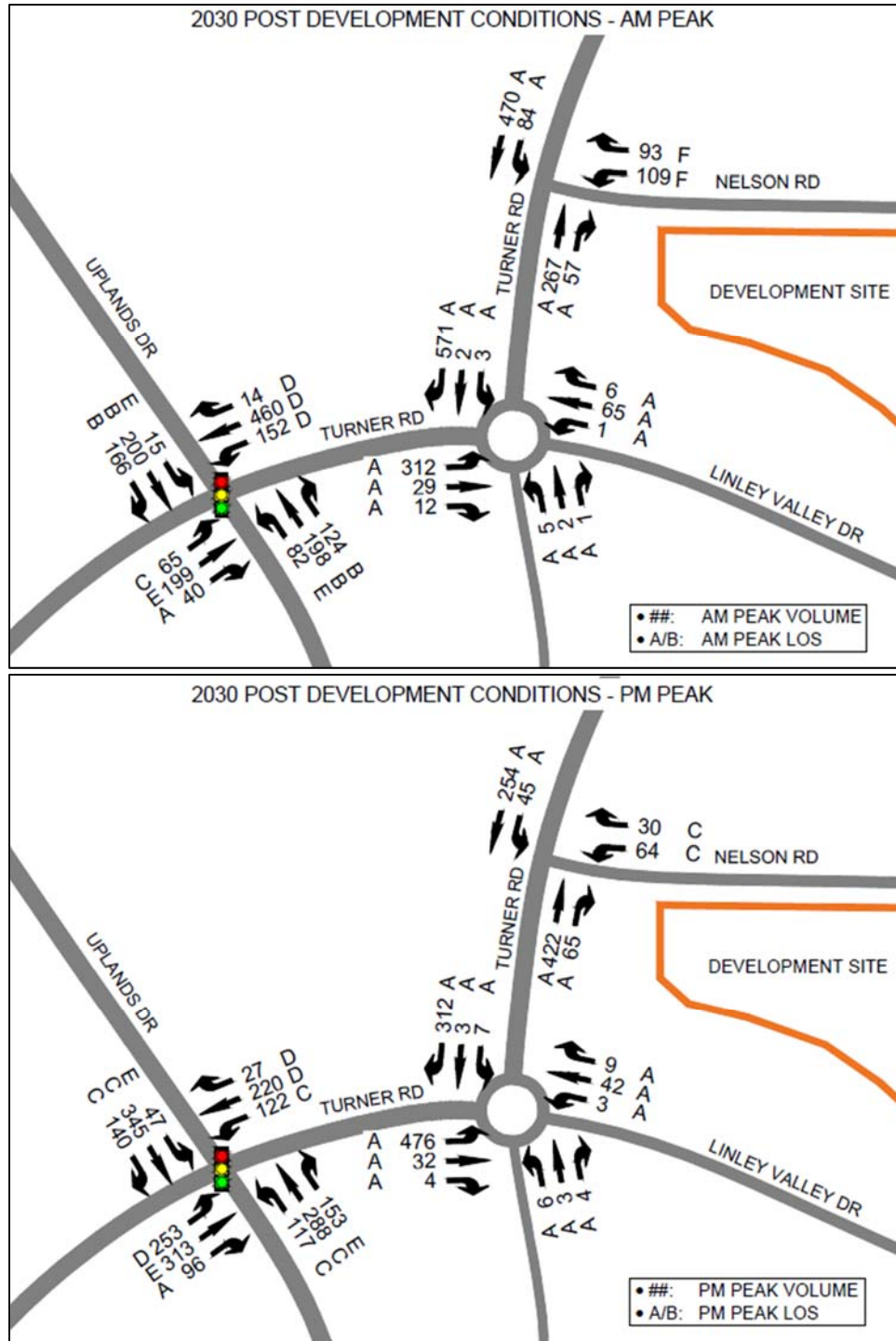
**TABLE 4: 2030 BACKGROUND CONDITIONS – AM AND PM PEAK HOUR**

Intersection	Move-ment	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	95 <sup>th</sup> % Queue (m)	V/C Ratio	LOS	Delay (s)	95 <sup>th</sup> % Queue (m)	V/C Ratio
Turner Rd / Uplands Dr	EBL	C	27.9	20.7	0.34	D	42.6	72.9	0.76
	EBT	<b>E</b>	<b>62.5</b>	71.0	0.8	<b>E</b>	<b>64.1</b>	120.3	0.85
	EBR	A	1.0	0.0	0.17	A	4.7	9.0	0.25
	WBL	D	40.5	39.4	0.72	C	32.8	33.7	0.50
	WB T/R	D	41.3	74.8	0.63	D	41.5	40.8	0.46
	SBL	<b>E</b>	<b>56.9</b>	10.2	0.21	<b>E</b>	<b>60.0</b>	21.1	0.48
	SB T/R	B	15.0	32.8	0.34	C	25.5	66.0	0.43
	NBL	<b>E</b>	<b>68.0</b>	34.8	0.69	<b>E</b>	<b>67.5</b>	50.3	0.71
	NB T/R	B	11.6	29.3	0.24	C	20.8	53.2	0.37
Turner Rd / Linley Valley Dr	EB L/T/R	A	5.1	12.2	0.28	A	6.6	21.3	0.41
	WB L/T/R	A	4.3	1.9	0.06	A	5.1	1.7	0.06
	SB L/T/R	A	7.8	27.2	0.48	A	5.1	11.1	0.26
	NB L/T/R	A	4.0	0.3	0.01	A	4.9	0.5	0.02
Turner Rd / Nelson Rd	WB L/R	<b>F</b>	<b>374.5</b>	167.8	1.68	C	19.4	9.6	0.29
	SB L/T	A	0.0	0.0	0.27	A	0.0	0.0	0.32
	NB T/R	A	4.3	5.6	0.19	A	1.7	1.3	0.05

In the 2030 background there is no change to the levels of service for any movement within the study area.

#### 4.2 10 YEAR POST DEVELOPMENT ANALYSIS (2030)

The 2030 post development volumes were determined by adding the site trips to the 2030 background traffic volumes. The 2030 post development traffic conditions were then analyzed for the AM and PM peak hours in Synchro and SIDRA software. The existing signal timing was used for modelling the Uplands Drive / Turner Road traffic signal. See **Figure 7** and **Table 5** for the 2030 post development AM and PM traffic volumes and conditions.



**Figure 7: 2030 Post Development Volumes & LOS**



**TABLE 5: 2030 POST DEVELOPMENT CONDITIONS – AM AND PM PEAK HOUR**

Intersection	Move-ment	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	95 <sup>th</sup> % Queue (m)	V/C Ratio	LOS	Delay (s)	95 <sup>th</sup> % Queue (m)	V/C Ratio
Turner Rd / Uplands Dr	EBL	C	28.1	20.70	0.35	D	42.0	72.9	0.76
	EBT	<b>E</b>	<b>63.5</b>	73	0.82	<b>E</b>	<b>68.5</b>	138.1	0.89
	EBR	A	1.0	0	0.17	A	4.6	9.1	0.24
	WBL	D	43.5	41.6	0.77	C	34.3	35.3	0.54
	WB T/R	D	41.8	78.8	0.66	D	41.2	43.2	0.45
	SBL	<b>E</b>	<b>57.1</b>	10.2	0.21	<b>E</b>	<b>60.9</b>	22.1	0.50
	SB T/R	B	15.1	32.8	0.34	C	26.2	66.5	0.44
	NBL	<b>E</b>	<b>68.4</b>	34.8	0.7	<b>E</b>	<b>68.6</b>	50.3	0.72
	NB T/R	B	11.5	29.4	0.25	C	20.9	54.1	0.39
Turner Rd / Linley Valley Dr	EB L/T/R	A	5.2	12.6	0.29	A	7.0	24.5	0.44
	WB L/T/R	A	4.6	2.6	0.08	A	5.4	2.3	0.08
	SB L/T/R	A	8.3	28.9	0.5	A	5.2	11.6	0.27
	NB L/T/R	A	4.0	0.3	0.01	A	5.1	0.6	0.02
Turner Rd / Nelson Rd	WB L/R	<b>F</b>	<b>479.5</b>	203.3	1.92	C	21.5	12.3	0.35
	SB L/T	A	0.0	0.0	0.27	A	0.0	0.0	0.33
	NB T/R	A	4.4	5.8	0.20	A	2.1	1.6	0.06

In 2030 at the signalized Turner Road / Uplands Drive intersection, with the addition of site traffic the levels of service for all movements remain unchanged from 2030 background conditions. The Turner Road / Linley Valley Drive roundabout continues to operate well under 2030 post development volumes at a LOS A.

At the stop-controlled Turner Road / Nelson Road intersection, the westbound movement remains at a failing level of service (LOS F) during the AM peak. Restricting left turns from Nelson Road during the AM peak hour results in the westbound movement improving to LOS C.

## **5.0 ALTERNATIVE TRANSPORTATION MODES**

### **5.1 PEDESTRIAN NETWORK**

Nelson Road has a sidewalk along the north side of the road for the length of the road as well as a sidewalk on the south side east of the site that ends at the west boundary of the development; a zebra crosswalk crosses Nelson Road at this location. A sidewalk on the north site frontage would directly connect to the existing sidewalk and would provide a direct pedestrian connection to the adjacent Randerson Ridge School. Therefore a sidewalk should be installed along the Nelson Road property frontage.

Uplands Drive, Turner Road, and Linley Valley Road each have sidewalks on both sides of the road in the vicinity of the development site. There are crosswalks on all approaches at the Uplands Drive / Turner Road and Turner Road / Linley Valley Drive intersections; an additional crosswalk across Turner Road is located 70m north Nelson Road at the Glacier Way intersection. No additional pedestrian network upgrades are recommended as a result of the proposed development.

### **5.2 CYCLING NETWORK**

Linley Valley Drive has bike lanes on both sides of the road. Bike lanes are also located on both sides of Turner Road between Uplands Drive and Nelson Road. Uplands Drive does not have bike facilities, however the Nanaimo Transportation Master Plan short term bicycle network plan designates Uplands Drive as a bicycle lane road north of Turner Road and a shared use road south of Turner Road. The long-term bicycle network plan designates Uplands Drive a bicycle lane road, which means bicycle lanes should be installed in the long term when Uplands Drive is upgraded. Until future road upgrades occur, cyclists will share the road with motorists on Uplands Drive.

Nelson Road is a local road with approximately 1,500 vehicles per day. Bike lanes are not required on Nelson Road.

### **5.3 TRANSIT NETWORK**

The Transit Bus service (Route: #40) operates along Uplands Drive. Currently this route provides service to VIU and downtown Nanaimo several times. The nearest bus stop is on the east and west sides of Uplands Drive north of Turner Road. The bus stops are located 500m west of the site. The bus stops currently have benches at each location.

## 6.0 CONCLUSIONS

During the AM and PM peak hours the signal at Turner Road / Uplands Drive has several movements that are currently operating at a LOS E including the eastbound through, northbound left, and southbound left. The remaining movements operate at a LOS D or better. The poor movements can be improved to a LOS D with adjustments to the signal timing plans. The addition of the development traffic, through this intersection, does not change the operations in the short and long term.

The roundabout at Turner Road / Linley Valley Drive operates at a LOS A under existing, post development, and long term conditions.

At Turner Road / Nelson Road, during the AM peak hour the shared left/right from Nelson Road operates at a LOS F with several minutes of delay to make the turn, on average. Conditions during the PM peak hour are significantly better with the westbound movement operating at a LOS C. The addition of the development traffic, during the peak periods, does not change the LOS; however in the AM the delays are increased exponentially due to the existing failing conditions.

In order to improve the AM peak hour operations the westbound left turn movement should be restricted between 7:00am and 9:00am. The implementation of the left turn restriction will improve conditions, in the long term with the development, to a LOS C. There are alternative routes to access areas to the north and west of Uplands Drive using Rutherford Road or Turner Road to Hammond Bay Road. The Turner Road to Hammond Bay route less than 200m longer than using Uplands Drive to Hammond Bay Road and therefore not adding substantially to driver's travel distance.

The site is generally well provided for in terms of pedestrian facilities; however, a sidewalk is to be installed along the north (Nelson Road) frontage. The provision of bicycle lanes is not required. The site has access to transit within 500m of the site.

## 7.0 RECOMMENDATIONS

As part of the development of the site the following recommendations are provided:

- Restrict left turns from Nelson Road onto Turner Road from 7:00am to 9:00am using signage
- Install a sidewalk along the north property frontage

## APPENDIX A: SYNCHRO BACKGROUND

## SYNCHRO MODELLING SOFTWARE DESCRIPTION

The traffic analysis was completed using Synchro and SimTraffic traffic modelling software. Results were measured in delay, level of service (LOS), 95th percentile queue length and volume to capacity ratio. Synchro is based on the Highway Capacity Manual (HCM) methodology. SimTraffic integrates established driver behaviours and characteristics to simulate actual conditions by randomly “seeding” or positioning vehicles travelling throughout the network. The simulation is run ten times (ten different random seedings of vehicle types, behaviours and arrivals) to obtain statistical significance of the results.

### Levels of Service

Traffic operations are typically described in terms of levels of service, which rates the amount of delay per vehicle for each movement and the entire intersection. Levels of service range from LOS A (representing best operations) to LOS E/F (LOS E being poor operations and LOS F being unpredictable/disruptive operations). LOS E/F are generally unacceptable levels of service under normal everyday conditions. A LOS C or better is considered acceptable operations, while D is considered to be on the threshold between acceptable and unacceptable operations. Highway operations will typically need to operate at LOS C or better for through movements and LOS E or better for other traffic movements with lower order roads.

The hierarchy of criteria for grading an intersection or movement not only includes delay times, but also takes into account traffic control type (stop signs or traffic signal). For example, if a vehicle is delayed for 19 seconds at an unsignalized intersection, it is considered to have an average operation, and would therefore be graded as an LOS C. However, at a signalized intersection, a 19 second delay would be considered a good operation and therefore it would be given an LOS B. The table below indicates the range of delay for LOS for signalized and unsignalized intersections.

**Table A1: LOS Criteria, by Intersection Traffic Control**

Level of Service (LOS)	Unsignalized Intersection Average Vehicle Delay (sec/veh)	Signalized Intersection Average Vehicle Delay (sec/veh)
A	0 – 10	0 – 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80