

## MEMORANDUM

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**Date:** July 15, 2016 **TG:** 15312.01

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**To:** Thang T. Nguyen – City of Kirkland

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**From:** Kevin L. Jones, P.E., PTOE – Transpo Group

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**cc:** Rob Risinger – Quadrant  
Justin Goroch, P.E. – BCRA

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**Subject:** Traffic Impact Analysis – Beta Townhomes

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The purpose of this traffic impact analysis (TIA) is to evaluate potential transportation-related impacts associated with the proposed Beta Townhomes residential development. The following sections summarize existing conditions of NE 116th Street within the site vicinity, present forecast conditions at the site access intersection and evaluate traffic operations, sight distance, and turn lane warrants, and address transportation impact fees and transportation concurrency. The scope of the analysis was coordinated in advance with City staff and satisfies the City's requirements for Traffic Impact Analyses.

### Project Description

The project site is located at 11795/11801 NE 116th Street (Tax Parcel No. 3326059152). The proposed development would demolish an existing 62,940-sf commercial building with three businesses, "Rainbow Playground Depot," "Skymania" and "The Gymnastics Connection," and construct approximately 86 townhouse units. It is anticipated that the proposed project would be completed and fully occupied by 2019.

A vicinity map showing the project site (Attachment 1) and preliminary site plan (Attachment 2) are both attached to this memo. Vehicle traffic currently accesses the site via NE 116th Street approximately 750 feet west of 120th Avenue NE. This driveway also provides vehicle access to the property located immediately west of the project site (an existing 63,150-sf commercial building with four businesses, "Eastside Basketball Club," "Evergreen Building Products," "Kitchen Plus" and "Pump It Up").

### Existing Conditions

Within the site vicinity, NE 116th Street is a three-lane principal arterial with a posted speed limit of 35 miles per hour (mph). On-street bicycle lanes and sidewalk currently exist on the north and south sides of NE 116th Street. The intersection of NE 116th Street/120th Avenue NE is signalized and includes one or more turn lanes by approach.

### Collision History

The Washington State Department of Transportation (WSDOT) provided vehicle collision data along NE 116th Street in the vicinity of the site access intersection for the most recent three-year period (January 1, 2013 and December 31, 2015). Collision data were reviewed and it was determined that no collisions were reported within 250 feet east and west of the site access intersection during that time period. Collisions that occurred in other locations along NE 116th Street are summarized in Attachment 3.

## Traffic Volumes

The following summarizes existing and forecast traffic volumes at the site access intersection.

### **Existing Traffic Volumes**

Existing AM and PM peak period traffic counts at the site access intersection were collected on Thursday, April 21, 2016; copies of these counts are included in Attachment 4.

Existing AM and PM peak hour traffic volumes are summarized in Attachment 5. The project site currently generates an average of approximately 490 daily vehicle trips, 4 AM peak hour vehicle trips, and 49 PM peak hour vehicle trips. Existing peak hour trip generation was determined by counting the vehicle trips at the site access intersection on Thursday, April 21, 2016, Tuesday, April 26, 2016, and Wednesday, April 27, 2016, subtracting the number of vehicle trips generated by the property located immediately west of the project site, and calculating a three-day average. Existing AM and PM peak hour trips that would be displaced as part of the proposed development are illustrated in Attachment 5; detailed existing trip generation calculations are provided in Attachment 6.

It was assumed that PM peak hour vehicle trip generation represents as much as 10 percent of daily vehicle trip generation. This is supported by data in the *Trip Generation Manual* in which the average PM peak hour trip generation rate is 8 to 10 percent of the average daily trip generation rate for several different commercial land uses.

### **Project Trip Generation**

The proposed project would generate new trips associated with the townhomes as well as eliminate trips currently generated by the existing commercial building. The number of net new daily, AM peak hour, and PM peak hour trips was estimated by calculating the difference between future and existing trip generation.

In the future, it is estimated that the proposed project would generate approximately 564 new daily vehicle trips, 46 new AM peak hour vehicle trips, and 53 new PM peak hour vehicle trips. These trip generation estimates were derived based on the anticipated size of development (86 units) and trip regression equations published in the *Trip Generation Manual* for Residential Condominium/Townhouse. Existing and future vehicle trip generation is summarized in Table 2 as well as the number of net new vehicle trips by time of day.

**Table 1. Vehicle Trip Generation Summary**

Condition	Weekday Daily	AM Peak Hour	PM Peak Hour
Future Trip Generation <sup>1</sup>	564 (282 in/282 out)	46 (8 in/38 out)	53 (36 in/17 out)
Less Existing Trip Generation <sup>2</sup>	-490 (-245 in/-245 out)	-4 (-3 in/-1 out)	-49 (-28 in/-21 out)
<b>Net New Trip Generation<sup>3</sup></b>	<b>74 (37 in/37 out)</b>	<b>42 (5 in/37 out)</b>	<b>4 (8 in/-4 out)</b>

1. Future vehicle trip generation estimates based on the number of future townhouse units (86) and trip regression equations published by the ITE in the *Trip Generation Manual* (9th Edition, 2012) for Residential Condominium/Townhouse.
2. Existing AM and PM peak hour vehicle trip generation represents a three-day average based on vehicle trip counts on April 21, 26 and 27, 2016. It was assumed that PM peak hour vehicle trip generation represents as much as 10 percent of daily vehicle trip generation.
3. Net new vehicle trip generation represents future vehicle trip generation less existing vehicle trip generation by time period.

## ***Project Trip Distribution & Assignment***

Project trips were distributed and assigned to the site access intersection based on the City's concurrency model run. The model predicts approximately 85 percent of PM peak hour project traffic will travel to/from the east and 15 percent to/from the west. A similar trip distribution pattern is anticipated during the AM peak hour as well. Assignment of new project vehicle trips are illustrated in Attachment 5.

## ***Future With-Project Traffic Volumes***

Future (2019) with-project traffic volumes at the site access intersection are illustrated in Attachment 5 and were estimated by subtracting displaced traffic from existing traffic and adding new project traffic to the northbound left- and right-turning movements as well as the eastbound right- and westbound left-turning movements. Future eastbound and westbound PM peak hour through traffic volumes at the site access intersection are based on the City's concurrency model run. It is anticipated that these through volumes will increase by approximately 8 percent and it was assumed that eastbound and westbound through volumes will increase by this percentage during the AM peak hour as well.

## **Traffic Operations**

This section summarizes future levels of service and average vehicular delay at the site access intersection. Levels of service were not calculated at any off-site intersections as the proposed project's proportionate share of net new daily trips would not be greater than 1 percent at any off-site intersection, including the nearby intersection of NE 116th Street/120th Avenue NE. The City's formulated Excel spreadsheet was used to calculate the project's proportionate share at this location and a copy is provided in Attachment 7.

## ***Driveway Level of Service***

The operational characteristics of an intersection are evaluated by calculating the intersection level of service (LOS). Traffic operations were evaluated based on the procedures identified in the *Highway Capacity Manual* (2010), and evaluated using Synchro version 9.0. At side-street stop-controlled intersections LOS is measured in average delay per vehicle during the peak hour of traffic and is reported for the worst operating approach of the intersection. Traffic operations for an intersection can be described alphabetically with a range of levels of service (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Attachment 8 contains a detailed explanation of LOS criteria and definitions.

It was determined that with the proposed development, the northbound approach of the site access intersection will operate at LOS C during the weekday AM and PM peak hours. Detailed LOS worksheets are included in Attachment 9.

## **Sight Distance**

Per the City's Sight Distance Guidelines, the site access driveway is defined as a "E3" driveway type in that it will serve 50-200 PM peak hour trips and the average annual daily traffic (ADT) volume on NE 116th Street is more than 6,000 vehicles per day. Since the speed limit is 35 mph, the minimum intersection and stopping sight distance is 250 feet. Measuring existing sight distance at this driveway, it was determined that more than 250 feet exist both east and west, meeting the City's minimum sight distance requirements.

## Turn Lane Warrants

The site access intersection was reviewed for right-turn lane warrants for the eastbound right-turning movement. Per *WSDOT Design Manual* Chapter 1310, future with-project AM and PM peak hour traffic conditions will not warrant the need for a dedicated right-turn lane or right-turn pocket/taper. Attachment 10 illustrates the provided exhibit from the *Design Manual*.

## Transportation Impact Fee

The City of Kirkland requires new development to pay a transportation impact fee. The City's current transportation impact fee schedule requires \$2,855 per attached and stacked housing unit. To the extent the proposed 86-unit development would generate 53 PM peak hour vehicle trips while eliminating an average of 49 PM peak hour vehicle trips currently generated by the existing commercial building, the project would result in a net increase of 4 PM peak hour trips. This is the same number of vehicle trips generated by 4 townhouse units based on the PM peak hour trip regression equation published in the *Trip Generation Manual* for Residential Condominium/Townhouse.

Therefore, recognizing that the City's current transportation impact fee schedule does not identify a land use category comparable to the existing use and the site's existing PM peak hour trip generation is known, it would be reasonable to calculate the City's transportation impact fee by multiplying the current fee per attached and stacked housing unit by the effective number of townhouse units reflecting the anticipated net new PM peak hour trip generation. This would equate to a fee of \$11,420 (4 units x \$2,855 per unit).

## Transportation Concurrency

The City of Kirkland requires new development to pass a transportation concurrency test. The proposed project was tested against and passed the City's concurrency requirements. The concurrency test results are included in Attachment 11 along with future without- and with-project traffic projections from the City's concurrency model.

## Summary & Conclusions

- The proposed 86-unit townhouse project is located south of NE 116th Street approximately 750 feet west of 120th Avenue NE.
- The project is anticipated to generate a total of 564 weekday vehicle trips, including 46 AM peak hour trips and 53 PM peak hour trips.
- The project is anticipated to generate 74 net new weekday vehicle trips, including 42 net new AM peak hour trips and 4 net new PM peak hour trips since existing vehicle trips would be eliminated.
- The site access intersection is anticipated to operate acceptably at LOS C under 2019 with-project AM and PM peak hour conditions.
- The City's minimum sight distance requirements are satisfied at the site access driveway as there is more than 250 feet available both to the east and west.
- Future traffic volumes would not warrant an eastbound right-turn lane or right-turn pocket/tape at the site access intersection
- The proposed project would have no significant impact on traffic operations or safety.

Attachments 1-11





## Site Vicinity

Beta Townhomes

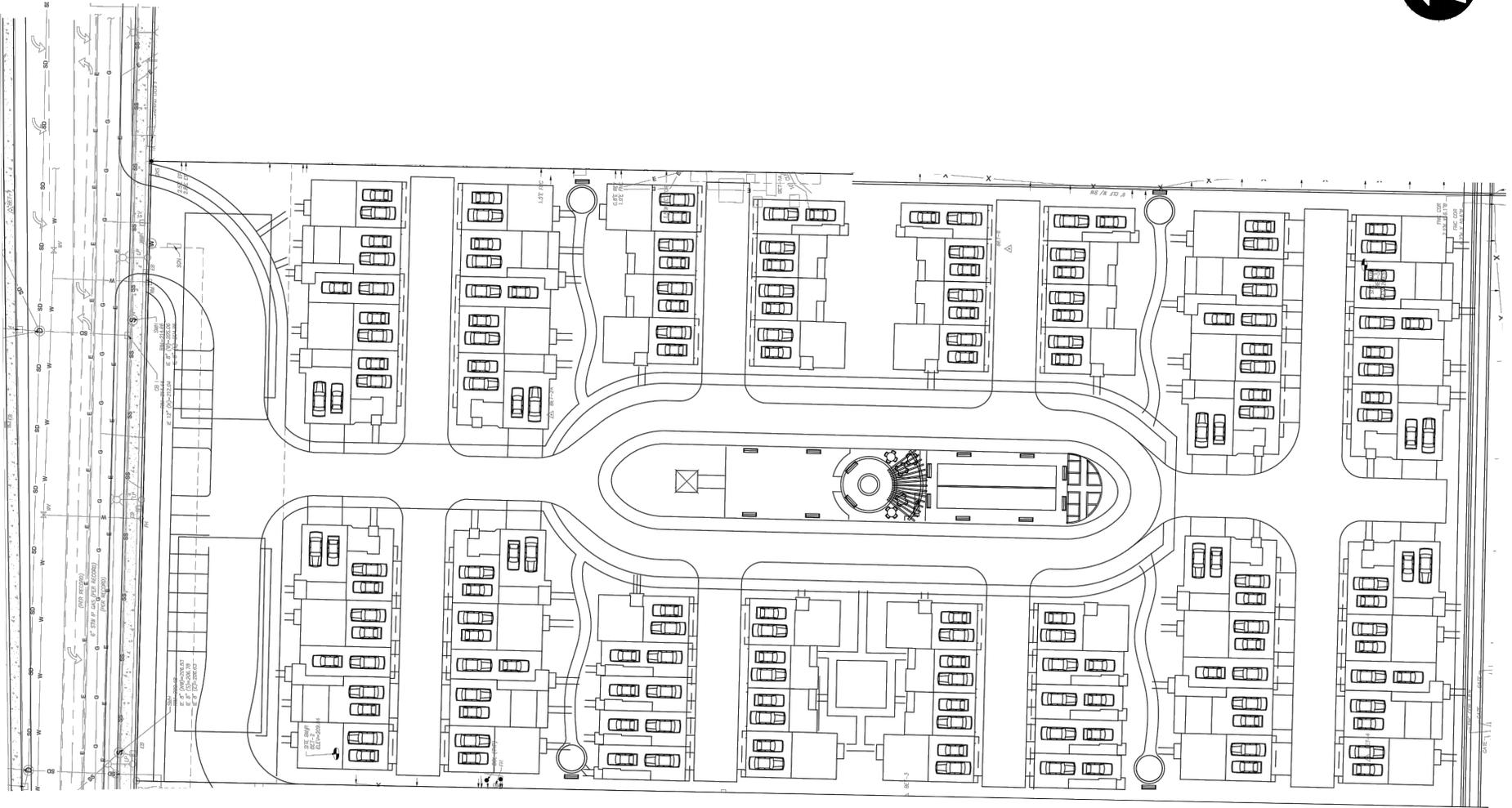
ATTACHMENT

1

transpogroup   
WHAT TRANSPORTATION CAN BE.



NE 116th St



# Preliminary Site Plan

Beta Townhomes

ATTACHMENT

2

## Attachment 3: Collision Data

OFFICER REPORTED CRASHES THAT OCCURRED *on* OR *in the vicinity of* THE FOLLOWING ROAD SEGMENTS IN THE CITY OF KIRKLAND

116th ST FROM 114th CT / 114th DR TO 120th AVE

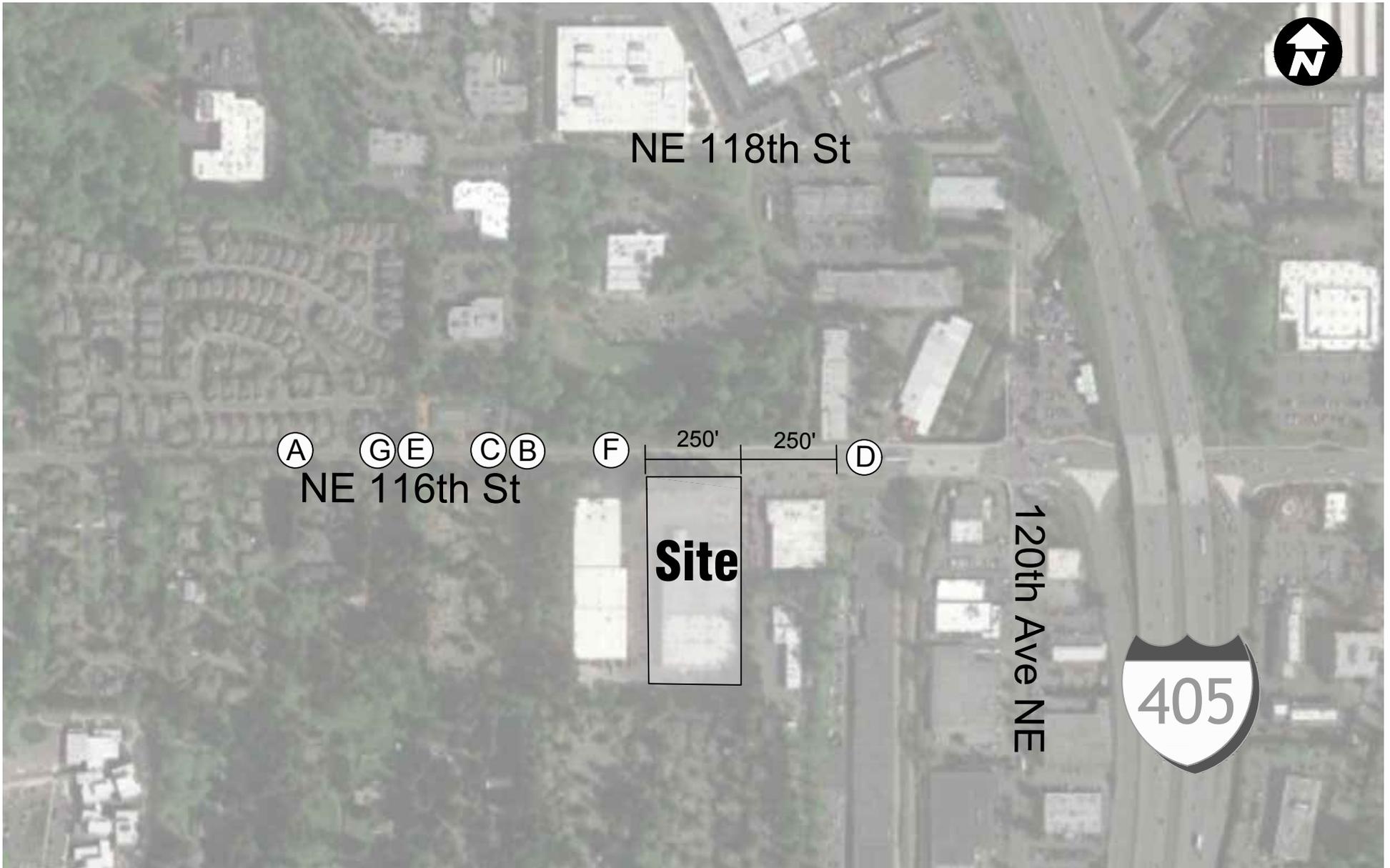
SR 405LX01983 (aka 116th St, mp 0.00 - 0.05) @ 120th Ave See interchange drawing for reference

**1/1/2013 - 12/31/2015**

*UNDER 23 UNITED STATES CODE – SECTION 409, THIS DATA CANNOT BE USED IN DISCOVERY OR AS EVIDENCE*

*AT TRIAL IN ANY ACTION FOR DAMAGES AGAINST THE WSDOT, OR ANY JURISDICTIONS INVOLVED IN THE DATA*

	JURISDICTION	PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	MILE POST	A / B	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE
A	City Street	NE 116TH ST	11300		100	F	W	114TH CT NE			E426111	5/18/2015	17:27	No Injury
B	City Street	NE 116TH ST	11600		450	F	E	114TH DR NE			E235912	4/1/2013	15:43	No Injury
C	City Street	NE 116TH ST	11500		21	F	E	115TH LN NE			E242598	5/2/2013	7:52	No Injury
D	City Street	NE 116TH ST	11800		470	F	W	120TH AVE NE			E274283	10/2/2013	7:50	No Injury
E	City Street	NE 116TH ST	11500		185	F	E	114TH DR NE			E333723	6/7/2014	13:38	Serious Injury
F	City Street	NE 116TH ST	11600		379	F	E	115TH LN NE			E464592	9/22/2015	17:06	Possible Injury
G	City Street	NE 116TH ST	11400		98	F	E	114TH DR NE			E475259	10/22/2015	9:08	No Injury



## Collision Locations

Beta Townhomes

Jul 14, 2016 - 2:37pm darwinl M:\15\15312.01 - Beta Townhomes\Graphics\Drawing1.dwg Layout: attachment 3 collisions

ATTACHMENT

transpogroup   
WHAT TRANSPORTATION CAN BE.

3

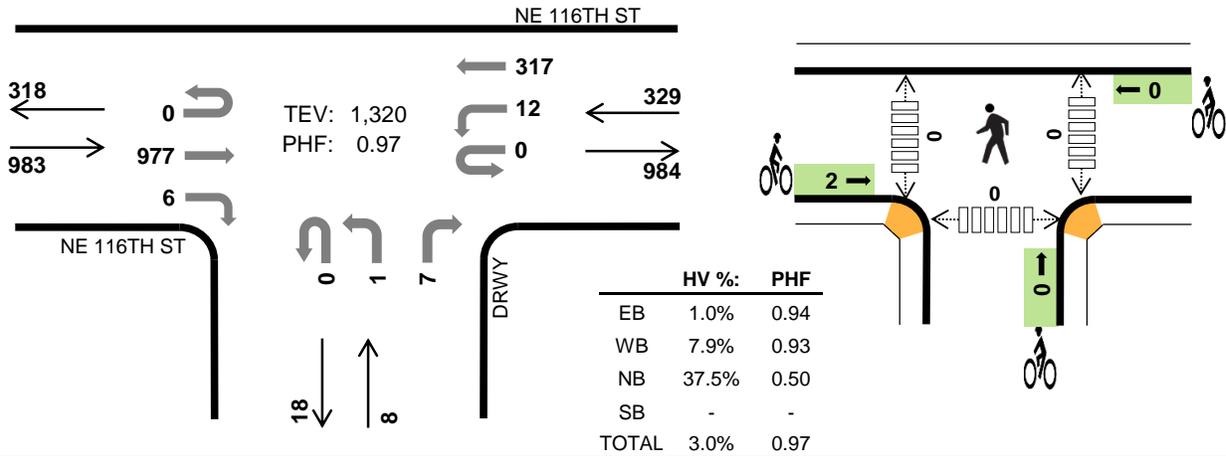
## Attachment 4: Existing Traffic Counts

# DRWY NE 116TH ST



Peak Hour

Date: Thu, Apr 21, 2016  
 Count Period: 7:00 AM to 9:00 AM  
 Peak Hour: 7:15 AM to 8:15 AM



## Two-Hour Count Summaries

Interval Start	NE 116TH ST Eastbound				NE 116TH ST Westbound				DRWY Northbound				DRWY Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	217	0	0	4	63	0	0	0	0	2	0	0	0	0	286	0
<b>7:15 AM</b>	<b>0</b>	<b>0</b>	<b>252</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>83</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>339</b>	0
7:30 AM	0	0	259	2	0	4	70	0	0	0	0	4	0	0	0	0	339	0
7:45 AM	0	0	227	1	0	2	86	0	0	1	0	2	0	0	0	0	319	1,283
8:00 AM	0	0	239	1	0	4	78	0	0	0	0	1	0	0	0	0	323	1,320
8:15 AM	0	0	211	1	0	2	99	0	0	0	0	2	0	0	0	0	315	1,296
8:30 AM	0	0	201	2	1	3	87	0	0	0	0	3	0	0	0	0	297	1,254
8:45 AM	0	0	243	1	0	3	89	0	0	1	0	4	0	0	0	0	341	1,276
Count Total	0	0	1,849	10	1	24	655	0	0	2	0	18	0	0	0	0	2,559	0
<b>Peak Hour</b>	<b>0</b>	<b>0</b>	<b>977</b>	<b>6</b>	<b>0</b>	<b>12</b>	<b>317</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,320</b>	<b>0</b>

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

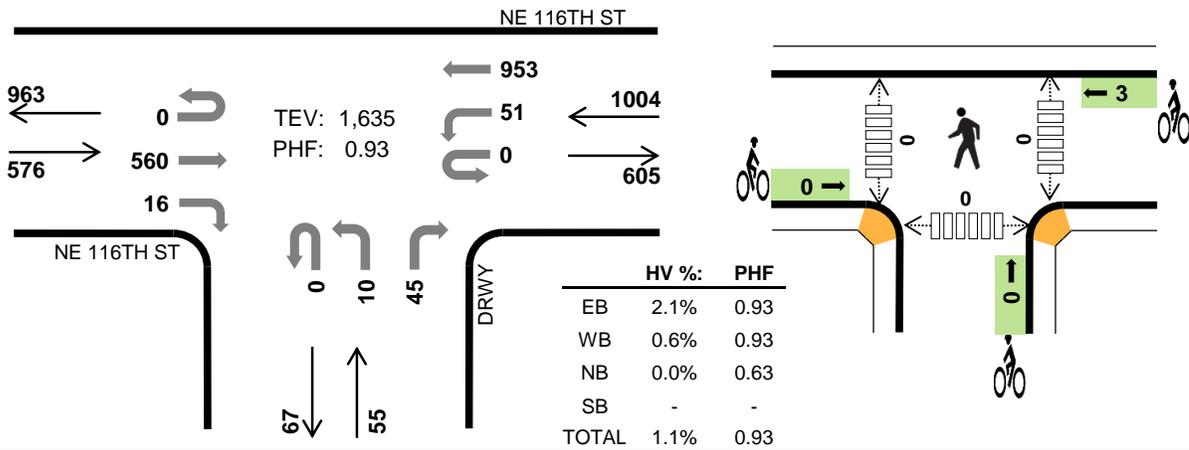
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	5	0	0	8	0	0	0	0	0	0	0	0	1	1
<b>7:15 AM</b>	<b>1</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
7:30 AM	2	6	1	0	9	1	0	0	0	1	0	0	0	0	0
7:45 AM	3	4	2	0	9	0	0	0	0	0	0	0	0	0	0
8:00 AM	4	6	0	0	10	0	0	0	0	0	0	0	0	0	0
8:15 AM	8	8	0	0	16	0	0	0	0	0	0	0	0	0	0
8:30 AM	4	3	0	0	7	0	0	0	0	0	0	0	0	0	0
8:45 AM	3	5	0	0	8	1	0	0	0	1	0	0	0	0	0
Count Total	28	47	3	0	78	3	0	0	0	3	0	0	0	1	1
<b>Peak Hr</b>	<b>10</b>	<b>26</b>	<b>3</b>	<b>0</b>	<b>39</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

# DRWY NE 116TH ST



Peak Hour

Date: Thu, Apr 21, 2016  
 Count Period: 4:00 PM to 6:00 PM  
 Peak Hour: 5:00 PM to 6:00 PM



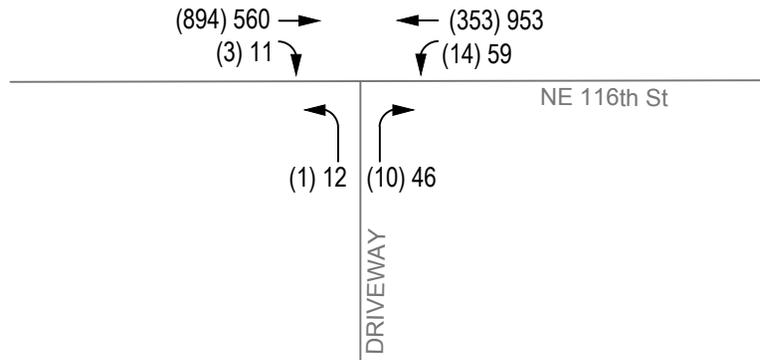
## Two-Hour Count Summaries

Interval Start	NE 116TH ST Eastbound				NE 116TH ST Westbound				DRWY Northbound				0 Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	170	3	0	14	209	0	0	4	0	7	0	0	0	0	407	0
4:15 PM	1	0	148	4	0	5	215	0	0	3	0	12	0	0	0	0	388	0
4:30 PM	0	0	155	1	0	6	250	0	0	0	0	4	0	0	0	0	416	0
4:45 PM	0	0	126	4	0	10	235	0	0	2	0	3	0	0	0	0	380	1,591
<b>5:00 PM</b>	<b>0</b>	<b>0</b>	<b>136</b>	<b>3</b>	<b>0</b>	<b>8</b>	<b>238</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>393</b>	<b>1,577</b>
5:15 PM	0	0	140	4	0	12	207	0	0	5	0	17	0	0	0	0	385	1,574
5:30 PM	0	0	136	2	0	10	259	0	0	0	0	11	0	0	0	0	418	1,576
<b>5:45 PM</b>	<b>0</b>	<b>0</b>	<b>148</b>	<b>7</b>	<b>0</b>	<b>21</b>	<b>249</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>439</b>	<b>1,635</b>
Count Total	1	0	1,159	28	0	86	1,862	0	0	19	0	71	0	0	0	0	3,226	0
Peak Hour	0	0	560	16	0	51	953	0	0	10	0	45	0	0	0	0	1,635	0

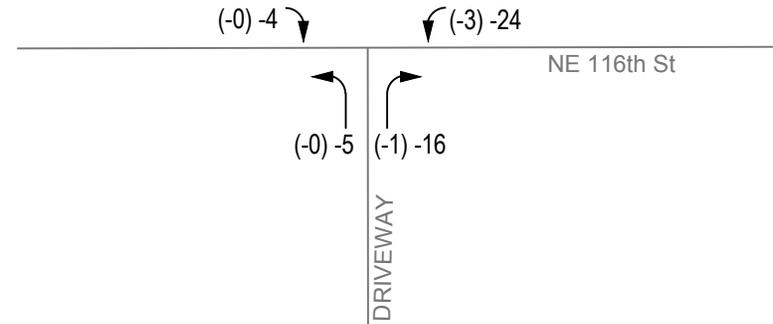
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	7	1	0	0	8	0	0	0	0	0	0	0	0	1	1
4:15 PM	5	2	0	0	7	0	0	0	0	0	0	0	0	0	0
4:30 PM	2	3	0	0	5	0	0	0	0	0	0	0	0	1	1
4:45 PM	3	3	0	0	6	0	0	0	0	0	0	0	0	0	0
<b>5:00 PM</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
5:15 PM	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0
5:30 PM	2	3	0	0	5	0	1	0	0	1	0	0	0	0	0
<b>5:45 PM</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Count Total	29	15	0	0	44	0	3	0	0	3	0	0	0	2	2
Peak Hr	12	6	0	0	18	0	3	0	0	3	0	0	0	0	0

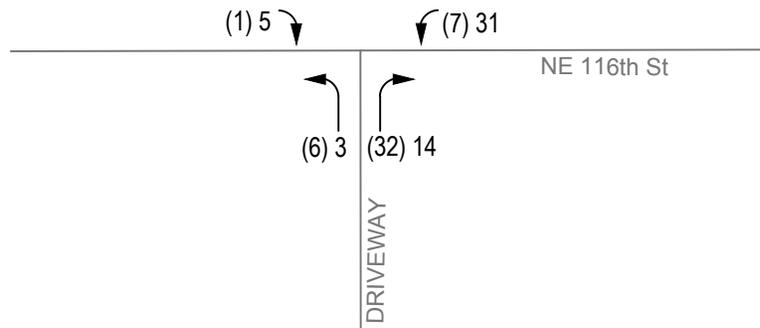
EXISTING



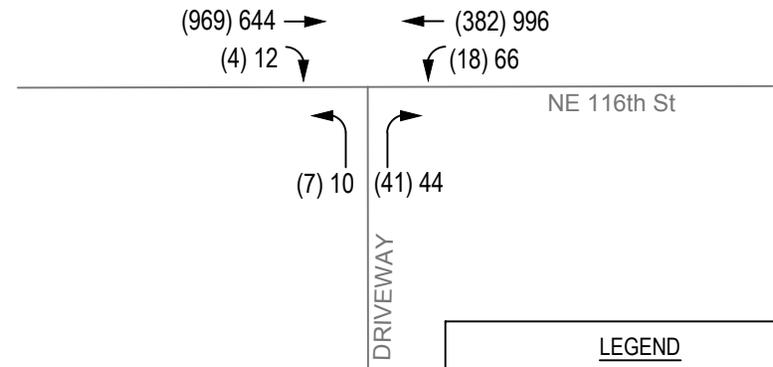
DISPLACED TRIPS



NEW PROJECT TRIPS



FUTURE (2019) WITH-PROJECT



LEGEND	
X	Weekday PM Peak Hour Traffic Volumes
(X)	Weekday AM Peak Hour Traffic Volumes

Existing and Future Weekday AM and PM Peak Hour Traffic Volumes

ATTACHMENT

## Attachment 6: Existing Trip Generation

## Existing AM Peak Hour Vehicle Trip Generation

Thu., 4/21/2016	Total Vehicle Trips at Site Driveway					Vehicle Trips Generated by Adjacent Parcel					Vehicle Trips Generated by Project Site				
	EBR	WBL	NBL	NBR	Total	EBR	WBL	NBL	NBR	Total	EBR	WBL	NBL	NBR	Total
7:00 - 8:00 a.m.	5	12	1	8	26	5	11	1	8	25	0	1	0	0	1
7:15 - 8:15 a.m.	6	12	1	7	26	6	11	1	7	25	0	1	0	0	1
7:30 - 8:30 a.m.	5	12	1	9	27	5	10	1	8	24	0	2	0	1	3
7:45 - 8:45 a.m.	5	11	1	8	25	5	8	1	6	20	0	3	0	2	5
8:00 - 9:00 a.m.	5	12	1	10	28	5	9	1	8	23	0	3	0	2	5
<b>Tue., 4/26/2016</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>
7:00 - 8:00 a.m.	7	13	1	11	32	7	9	0	11	27	0	4	1	0	5
7:15 - 8:15 a.m.	6	14	1	12	33	6	8	0	12	26	0	6	1	0	7
7:30 - 8:30 a.m.	5	15	1	9	30	5	11	0	9	25	0	4	1	0	5
7:45 - 8:45 a.m.	4	16	0	8	28	4	12	0	8	24	0	4	0	0	4
8:00 - 9:00 a.m.	4	17	0	12	33	4	14	0	11	29	0	3	0	1	4
<b>Wed., 4/27/2016</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>
7:00 - 8:00 a.m.	3	15	2	12	32	3	13	2	11	29	0	2	0	1	3
7:15 - 8:15 a.m.	2	14	1	12	29	2	11	1	11	25	0	3	0	1	4
7:30 - 8:30 a.m.	1	16	2	12	31	1	13	2	12	28	0	3	0	0	3
7:45 - 8:45 a.m.	1	16	2	12	31	1	12	2	12	27	0	4	0	0	4
8:00 - 9:00 a.m.	1	13	2	7	23	1	10	2	7	20	0	3	0	0	3
<b>3-Day Average</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>
7:00 - 8:00 a.m.	5	13	1	10	29	5	11	1	10	27	0	2	0	0	2
7:15 - 8:15 a.m.	5	13	1	10	29	5	10	1	10	26	0	3	0	0	3
7:30 - 8:30 a.m.	4	14	1	10	29	4	11	1	10	26	0	3	0	0	3
7:45 - 8:45 a.m.	3	14	1	9	27	3	11	1	9	24	0	3	0	0	3
<b>8:00 - 9:00 a.m.</b>	<b>3</b>	<b>14</b>	<b>1</b>	<b>10</b>	<b>28</b>	<b>3</b>	<b>11</b>	<b>1</b>	<b>9</b>	<b>24</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>1</b>	<b>4</b>

EBR = eastbound right-turning movement (inbound)  
WBL = westbound left-turning movement (inbound)  
NBL = northbound left-turning movement (outbound)  
NBR = northbound right-turning movement (outbound)

## Existing PM Peak Hour Vehicle Trip Generation

Thu., 4/21/2016	Total Vehicle Trips at Site Driveway					Vehicle Trips Generated by Adjacent Parcel					Vehicle Trips Generated by Project Site				
	EBR	WBL	NBL	NBR	Total	EBR	WBL	NBL	NBR	Total	EBR	WBL	NBL	NBR	Total
4:00 - 5:00 p.m.	12	35	9	26	82	5	15	3	12	35	7	20	6	14	47
4:15 - 5:15 p.m.	12	29	8	24	73	5	15	4	14	38	7	14	4	10	35
4:30 - 5:30 p.m.	12	36	10	29	87	7	22	6	20	55	5	14	4	9	32
4:45 - 5:45 p.m.	13	40	10	36	99	9	26	6	26	67	4	14	4	10	32
5:00 - 6:00 p.m.	16	51	10	45	122	9	29	6	32	76	7	22	4	13	46
<b>Tue., 4/26/2016</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>
4:00 - 5:00 p.m.	14	44	16	35	109	6	29	8	22	65	8	15	8	13	44
4:15 - 5:15 p.m.	12	57	10	42	121	6	30	5	23	64	6	27	5	19	57
4:30 - 5:30 p.m.	12	58	18	44	132	5	30	9	24	68	7	28	9	20	64
4:45 - 5:45 p.m.	11	61	18	46	136	4	33	9	25	71	7	28	9	21	65
5:00 - 6:00 p.m.	10	71	14	45	140	7	42	7	28	84	3	29	7	17	56
<b>Wed., 4/27/2016</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>
4:00 - 5:00 p.m.	8	58	15	50	131	4	40	12	37	93	4	18	3	13	38
4:15 - 5:15 p.m.	6	52	13	57	128	3	36	10	41	90	3	16	3	16	38
4:30 - 5:30 p.m.	5	44	12	47	108	3	29	10	32	74	2	15	2	15	34
4:45 - 5:45 p.m.	7	51	10	48	116	5	33	8	32	78	2	18	2	16	38
5:00 - 6:00 p.m.	7	54	11	47	119	6	35	9	30	80	1	19	2	17	39
<b>3-Day Average</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>	<b>EBR</b>	<b>WBL</b>	<b>NBL</b>	<b>NBR</b>	<b>Total</b>
4:00 - 5:00 p.m.	11	46	13	37	107	5	28	8	24	65	6	18	5	13	42
4:15 - 5:15 p.m.	10	46	10	41	107	5	27	6	26	64	5	19	4	15	43
4:30 - 5:30 p.m.	10	46	13	40	109	5	27	8	25	65	5	19	5	15	44
4:45 - 5:45 p.m.	10	51	13	43	117	6	31	8	28	73	4	20	5	15	44
<b>5:00 - 6:00 p.m.</b>	<b>11</b>	<b>59</b>	<b>12</b>	<b>46</b>	<b>128</b>	<b>7</b>	<b>35</b>	<b>7</b>	<b>30</b>	<b>79</b>	<b>4</b>	<b>24</b>	<b>5</b>	<b>16</b>	<b>49</b>

EBR = eastbound right-turning movement (inbound)  
WBL = westbound left-turning movement (inbound)  
NBL = northbound left-turning movement (outbound)  
NBR = northbound right-turning movement (outbound)

## Attachment 7: Proportionate Share Calculation

## Proportional Share Impact Worksheet

*Input appropriate information in green cells*

<sup>1</sup> See "Intersection Description" worksheet for descriptions

<b>Project Name:</b>	Beta Townhomes		<b>Through Lanes<sup>1</sup></b>
<b>Major Street<sup>1</sup></b>	NE 116th Street	# of Lanes* = 1	
<b>Minor Street<sup>1</sup></b>	120th Avenue NE	# of Lanes* = 1	

<sup>1</sup> May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:

6/28/2016

**Daily Project Traffic Entering the Intersection**

(Total of both approaches divided by two)

(Total of both approaches divided by two)

	Daily Volumes	Entering Leg Volumes *	
<b>Major Street</b> Volume $V_1 =$	25.5	31	20
<b>Minor Street</b> Volume $V_2 =$	6	12	0

*Major*

*Minor*

**\*Do not leave cell empty for zero volume**

**Determine Geometric Factors**

Number of Lanes		Geometric Factors			
Major Street	Minor Street	$f_1$	$f_2$	$f_3$	$f_4$
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

$f_1$	$f_2$	$f_3$	$f_4$
<b>0.833</b>	<b>1</b>	<b>0.833</b>	<b>1</b>

**Calculate Base Percentages**

$P_1 = V_1 / (10,000 \times f_1) =$	0.31%
$P_2 = V_2 / (5,000 \times f_2) =$	0.12%
$P_3 = V_1 / (15,000 \times f_3) =$	0.20%
$P_4 = V_2 / (2,500 \times f_4) =$	0.24%

**Calculate Proportional Share**

$S_1 = (P_1 + P_2) / 2 =$	0.21%
$S_2 = (P_3 + P_4) / 2 =$	0.22%

**Intersection Proportional Share = Maximum of S1 and S2 = 0.22%**  
**Significant Intersection? no**

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

**Computed By:** Kevin Jones  
**Company:** Transpo Group

## Attachment 8: Level of Service Definitions

## Highway Capacity Manual 2010

**Signalized intersection** level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* (Transportation Research Board, 2010).

**Table 1. Level of Service Criteria for Signalized Intersections**

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F <sup>1</sup>	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

**Unsignalized intersection** LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

**Table 2. Level of Service Criteria for Unsignalized Intersections**

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F <sup>1</sup>	>50

Source: *Highway Capacity Manual 2010*, Transportation Research Board, 2010.

1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

## Attachment 9: LOS Worksheets

**Intersection**

Int Delay, s/veh 0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	969	4	18	382	7	41
Future Vol, veh/h	969	4	18	382	7	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	6	6	0	0
Mvmt Flow	1031	4	19	406	7	44

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	1035	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.16	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.254	-
Pot Cap-1 Maneuver	-	-	656	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	656	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	20.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	281	-	-	656	-
HCM Lane V/C Ratio	0.182	-	-	0.029	-
HCM Control Delay (s)	20.6	-	-	10.7	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

**Intersection**

Int Delay, s/veh 0.9

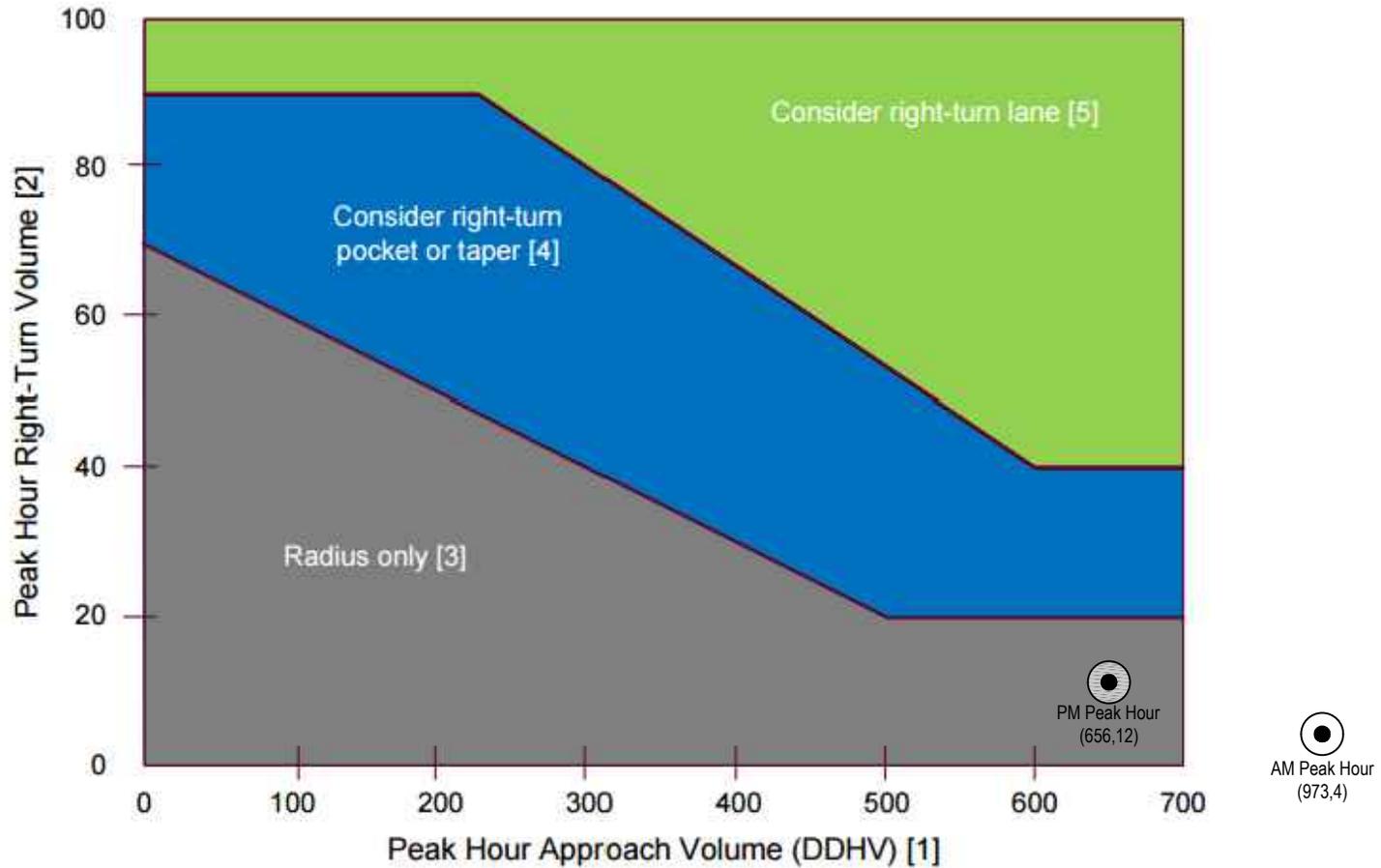
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	644	12	66	996	10	44
Future Vol, veh/h	644	12	66	996	10	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	50	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	692	13	71	1071	11	47

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	705	1912
Stage 1	-	-	699
Stage 2	-	-	1213
Critical Hdwy	-	4.11	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.209	3.5
Pot Cap-1 Maneuver	-	898	76
Stage 1	-	-	497
Stage 2	-	-	284
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	898	70
Mov Cap-2 Maneuver	-	-	185
Stage 1	-	-	497
Stage 2	-	-	262

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	352	-	-	898	-
HCM Lane V/C Ratio	0.165	-	-	0.079	-
HCM Control Delay (s)	17.2	-	-	9.4	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0.3	-

Exhibit 1310-11 Right-Turn Lane Guidelines



Based on WSDOT Design Manual Chapter 1310, Exhibit 1310-11 Right-Turn Lane Guidelines revised November 2015

## Right Turn Lane Warrants (Future With-Project Conditions)

Beta Townhomes

ATTACHMENT

# Attachment 11: Transportation Concurrency



## CITY OF KIRKLAND

### Department of Public Works

123 Fifth Avenue, Kirkland, WA 98033 425.587.3800

[www.kirklandwa.gov](http://www.kirklandwa.gov)

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## MEMORANDUM

**To:** Planning Department

**From:** Thang Nguyen, Transportation Engineer

**Date:** June 27, 2016

**Subject:** Beta Townhouse Development Traffic Concurrency Test Notice, Tran16-01340.

The purpose of this memo is to inform you that the proposed Beta Townhouse development has passed traffic concurrency.

### Project Description

The project is located at 11792/11801 Northeast 116<sup>th</sup> Street. The applicant proposed to replace a 62,940 square foot industrial building that currently has three businesses (Rainbow Playground Depot, Skymania and The Gymnastics Connection) with 86 single-family homes. The existing driveway off of NE 116<sup>th</sup> Street will provide access to/from the project site.

The proposed project is anticipated to be built and fully occupied by the end of 2019. Based on the ITE Trip Generation Manual 9<sup>th</sup> Edition and existing traffic count at the existing project site, the project is forecasted to generate 74 net new daily trips, 4 net new PM peak hour trips and 42 net new AM peak hour trips. For traffic concurrency testing the project is forecasted to generate 220 net new daily person trips, 17 net new PM peak hour person trips and 62 net new AM peak hour person trips.

This memo will serve as the concurrency test notice for the proposed project. Per *Section 25.10.020 Procedures* of the KMC (Kirkland Municipal Code), this Concurrency Test Notice will expire in one year (June 27, 2017) unless a development permit and certificate of concurrency are issued or an extension is granted.

### EXPIRATION

The concurrency test notice shall expire and a new concurrency test application is required unless:

1. A complete SEPA checklist, traffic impact analysis and all required documentation are submitted to the City within 90 calendar days of the concurrency test notice (September 27, 2016).
2. A Certificate of Concurrency is issued or an extension is requested and granted by the Public Works Department within one year of issuance of the concurrency test notice. (A Certificate of Concurrency is issued at the same time a development

permit or building permit is issued if the applicant holds a valid concurrency test notice.)

3. A Certificate of Concurrency shall expire six years from the date of issuance of the concurrency test notice unless all building permits are issued for buildings approved under the concurrency test notice.

### **APPEALS**

The concurrency test notice may be appealed by the public or agency with jurisdiction. The concurrency test notice is subject to an appeal until the SEPA review process is complete and the appeal deadline has passed. Concurrency appeals are heard before the Hearing Examiner along with any applicable SEPA appeal. For more information, refer to the Kirkland Municipal Code, Title 25. If you have any questions, please call me at x3869.

cc: Kevin Jones, PE, PTOE, Transpo Group  
Rob Jammerman, Development Engineer Manager  
Energov Tran16-01340

2019	Future w/o Project	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
101	Lake WA Blvd/NE 38th PI	22	8	33	116	1	198	11	1106	100	77	896	7
102	Lake WA Blvd/Lakeview Dr	31	97	171	336	29	3	64	494	665	10	402	13
103	NE 68th St/State St	385	413	3	7	230	271	3	14	18	159	2	133
104	NE 68th St/108th Ave NE	214	403	78	237	268	180	115	425	239	219	341	100
105	Central Way/6th St	36	523	95	160	793	178	177	325	304	77	119	57
106	Central Way/3rd St S	50	361	75	137	546	108	139	312	145	122	110	20
107	Central Way/Lake St	2	245	231	157	453	0	468	0	57	0	0	0
108	Lake St/Kirkland Ave	7	33	34	101	28	57	5	485	63	4	351	32
109	NE 85th St/114th Ave NE	2	852	2	359	1188	375	12	84	589	266	24	7
110	6th St S/4th St	97	7	29	64	11	213	21	478	86	109	215	17
111	Kirkland Ave/3rd Street	34	114	60	123	151	173	67	363	121	85	165	55
112	Kirkland Way/6th Street	97	226	41	56	148	39	79	463	77	30	218	91
201	NE 116th St/98th Ave NE	72	290	243	69	469	124	548	786	146	151	277	67
202	NE 124th St/100th Ave NE	28	65	21	354	224	984	42	854	248	403	422	27
203	NE 132nd St/100th Ave NE	98	142	139	69	298	537	272	1398	87	240	641	79
204	NE 132nd St/116th Way NE	7	375	223	142	621	29	574	39	259	12	28	10
205	Forbes Creek Dr/Market St	11	0	1	55	0	13	1	1464	100	18	580	4
206	NE 120th PI/100th Ave NE	0	0	0	0	0	0	0	33	0	0	7	0
207	Juanita Dr/93rd Ave NE	0	8	0	0	21	0	0	0	0	0	0	0
208	Juanita Dr/97th Ave NE	80	480	6	24	1007	65	6	15	22	47	13	96
209	n/a	0	0	0	0	0	0	0	0	0	0	0	0
211	n/a	0	0	0	0	0	0	0	0	0	0	0	0
301	NE 132nd St/120th Ave NE	2	403	64	149	402	3	160	6	440	0	4	5
302	NE 130th St/120th Ave NE	24	28	33	190	3	54	6	495	150	23	231	5
303	NE 128th St/120th Ave NE	159	158	143	159	239	26	108	449	115	12	293	190
304	NE 132nd St/124th Ave NE	413	332	13	51	307	297	35	324	187	118	72	184
306	NE 124th St/Slater Ave NE	205	923	63	233	1126	263	64	496	296	172	214	215
307	Totem Lake Blvd/120th Ave NE	27	327	58	166	653	309	213	235	16	452	146	27
310	NE 116th St/120th Ave NE	143	503	28	235	810	468	35	175	210	290	158	186
311	NE 1166th St/124th Ave NE	164	362	252	108	463	31	538	628	273	85	322	214
312	NE 124th St/116th Way NE	135	715	97	270	1236	321	271	312	249	495	141	148
313	NE 124th St/113th Ave NE	57	631	51	59	1358	135	180	40	172	99	19	87
314	NE 120th St/Slater Ave NE	28	144	11	176	339	419	33	549	106	120	417	27
315	NE 124th St/124th Ave NE	120	869	334	112	1048	413	397	634	178	253	342	214
316	NE 132nd St/Totem Lake Blvd	114	387	166	58	423	19	286	202	95	4	93	55
317	NE 124th St/SB I-405 off Ramp	0	823	0	0	1255	1	0	0	0	614	0	554
318	NE 124th St/NB I-405 on/off Ramp	0	1165	0	0	1180	0	423	0	204	0	0	0
319	n/a	0	470	83	258	1558	0	0	0	0	0	0	0
320	NE 116th St/NB I-405 off Ramp	0	488	0	0	1262	0	592	5	335	0	2	0
324	NE 128th St/116th Way NE	0	0	0	50	3	77	0	588	85	48	575	0
325	NE 124th St/128th Lane NE	50	1133	19	6	1457	30	12	0	7	25	0	99
401	NE 85th St/132nd Ave NE	127	1044	71	60	1249	871	55	333	30	209	120	47
402	NE 85th St/124th Ave NE	247	1057	29	15	956	302	98	357	33	183	131	167
403	NE 85th St/120th Ave NE	267	1227	134	10	1165	57	278	149	49	96	73	248
404	NE 100th St/124th Ave NE	7	10	21	67	13	228	19	1017	31	44	416	8
406	NE 70th St/132nd Ave NE	140	412	53	158	566	115	127	319	121	77	154	54
407	NE 70th St/116th Ave NE	283	467	360	236	356	28	203	433	232	7	72	166
408	NE 90th St/124th Ave NE	315	54	64	20	42	34	76	772	16	12	347	120
409	NE 85th St/122nd Ave NE	105	1298	63	37	1035	77	40	43	36	57	33	70
410	116th Ave NE/I-405 NB off Ramp	519	0	63	0	2	0	388	352	1	3	164	473
411	NE 70th St/I-405 SB off Ramp	0	0	0	224	1	267	0	860	161	173	632	0
999													
501	NE 122nd PI/Juanita Dr NE	0	0	0	105	0	30	0	754	149	11	341	0
502	76th PI NE/Juanita Dr NE	29	3	50	5	0	3	74	875	8	0	405	40
503	NE 141st Street/Juanita Dr NE	24	10	19	96	15	63	13	645	94	57	349	24
504	Juanita-Woodinville Way/100th Ave NE	30	14	27	336	33	55	32	1450	429	29	597	18
505	NE 137th Street/100th Avenue NE	33	53	85	37	93	108	159	1284	87	60	539	37
506	Simonds Road/100th Avenue NE	291	0	335	0	0	0	589	718	0	0	292	398
507	NE 145th street/100th Avenue NE	5	11	10	382	21	256	18	732	237	82	307	4
508	NE 145th Street/Juanita-Woodinville Way	272	13	51	7	10	25	190	455	19	42	424	521
509	NE 140th Street/132nd Avenue NE	0	0	0	0	0	0	2	5	0	4	0	0
510	NE 132nd Street/132nd Avenue NE	186	112	215	20	207	256	299	642	35	46	245	75
511	NE 144th Street/124th Avenue NE	53	88	13	122	116	374	51	681	149	118	288	16
512	NE 124th Street/Willows Road NE	27	840	371	65	605	73	822	393	385	155	116	77
3xx	120th Avenue NE/NE 118th Street	67	3	141	6	4	26	130	748	17	17	542	19
3xx	NE 124th St/120th PI NE	99	1162	101	135	1566	12	67	4	107	6	2	53
3xx	NE 100th st/132nd Ave NE	23	0	75	31	6	25	242	1027	78	8	265	21
3xx	NE 132nd Street/108th Ave NE	22	508	12	35	892	368	16	0	81	121	0	0
3xx	NE 132nd Street/Juanita High School	2	409	86	111	820	5	52	0	62	3	0	2
3xx	NE 124th Street/134th Ct	7	1175	19	7	1565	0	111	0	46	0	0	5
3xx	116th Ave NE/NE 128th St	15	51	50	427	148	400	79	364	252	118	350	17
3xx	NE 128th Street/Totem Lake Blvd	2	343	161	2	485	76	376	482	51	34	216	119
4xx	NE 60th Street/132nd Ave NE	139	0	29	0	0	0	117	515	0	0	157	132
4xx	NE 60th Street/116th Ave NE	2	1	2	73	1	116	2	588	73	70	112	2

2019	Beta Town House	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Sum
101	Lake WA Blvd/NE 38th Pl													0
102	Lake WA Blvd/Lakeview Dr													0
103	NE 68th St/State St													0
104	NE 68th St/108th Ave NE													0
105	Central Way/6th St													0
106	Central Way/3rd St S													0
107	Central Way/Lake St													0
108	Lake St/Kirkland Ave													0
109	NE 85th St/114th Ave NE													0
110	6th St S/4th St													0
111	Kirkland Ave/3rd Street													0
112	Kirkland Way/6th Street													0
201	NE 116th St/98th Ave NE		1		1	1	1			2	1			7
202	NE 124th St/100th Ave NE													0
203	NE 132nd St/100th Ave NE													0
204	NE 132nd St/116th Way NE													0
205	Forbes Creek Dr/Market St													0
206	NE 120th Pl/100th Ave NE													0
207	Juanita Dr/93rd Ave NE													0
208	Juanita Dr/97th Ave NE													0
209	n/a													0
211	n/a													0
301	NE 132nd St/120th Ave NE													0
302	NE 130th St/120th Ave NE													0
303	NE 128th St/120th Ave NE													0
304	NE 132nd St/124th Ave NE													0
306	NE 124th St/Slater Ave NE													0
307	Totem Lake Blvd/120th Ave NE													0
310	NE 116th St/120th Ave NE	5	9			19							12	45
311	NE 116th St/124th Ave NE	2	1	2		3		4					4	16
312	NE 124th St/116th Way NE													0
313	NE 124th St/113th Ave NE													0
314	NE 120th St/Slater Ave NE													0
315	NE 124th St/124th Ave NE				3				1	1		1		6
316	NE 132nd St/Totem Lake Blvd													0
317	NE 124th St/SB I-405 off Ramp													0
318	NE 124th St/NB I-405 on/off Ramp													0
319	n/a													0
320	NE 116th St/NB I-405 off Ramp		5			11		8						24
323	NE 128th St/116th Way NE													0
325	NE 124th St/128th Lane NE													0
401	NE 85th St/132nd Ave NE													0
402	NE 85th St/124th Ave NE													0
403	NE 85th St/120th Ave NE													0
404	NE 100th St/124th Ave NE													0
406	NE 70th St/132nd Ave NE													0
407	NE 70th St/116th Ave NE													0
408	NE 90th St/124th Ave NE													0
409	NE 85th St/122nd Ave NE													0
410	116th Ave NE/I-405 NB off Ramp													0
411	NE 70th St/I-405 SB off Ramp													0
412	NE 85th St/128th Ave NE													0
416	NE 80th St/132nd Ave NE													0
999	Project Driveway/ NE 116th Street			4	31			3		14				52
501	NE 122nd Pl/Juanita Dr NE													0
502	76th Pl NE/Juanita Dr NE													0
503	NE 141st Street/Juanita Dr NE													0
504	Juanita-Woodinville Way/100th Ave NE													0
505	NE 137th Street/100th Avenue NE													0
506	Simonds Road/100th Avenue NE													0
507	NE 145th street/100th Avenue NE													0
508	NE 145th Street/Juanita-Woodinville Way													0
509	NE 140th Street/132nd Avenue NE													0
510	NE 132nd Street/132nd Avenue NE													0
511	NE 144th Street/124th Avenue NE													0
512	NE 124th Street/Willows Road NE													0
3xx	120th Avenue NE/NE 118th Street													0
3xx	NE 124th St/120th Pl NE													0
3xx	NE 100th st/132nd Ave NE													0
3xx	NE 132nd Street/108th Ave NE													0
3xx	NE 132nd Street/Juanita High School													0
3xx	NE 124th Street/134th Ct													0
3xx	116th Ave NE/NE 128th St													0
3xx	NE 128th Street/Totem Lake Blvd													0
4xx	NE 60th Street/132nd Ave NE													0
4xx	NE 60th Street/116th Ave NE													0
	Project Driveway/3rd ave	3					32				14		56	105
	3rd ave/2nd st	52	4			30						2		88
	4th ave/2nd st				2					52				54
	4th ave/3rd st	1	51					2						54
	2nd Pl/Central Way						29		1		2	2		34
	1st/Central Way						2				4			6

2019	Future w Project	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Sum
101	Lake WA Blvd/NE 38th PI	22	8	33	116	1	198	11	1106	100	77	896	7	2578
102	Lake WA Blvd/Lakeview Dr	31	97	171	336	29	3	64	494	665	10	402	13	2313
103	NE 68th St/State St	385	413	3	7	230	271	3	14	18	159	2	133	1640
104	NE 68th St/108th Ave NE	214	403	78	237	268	180	115	425	239	219	341	100	2818
105	Central Way/6th St	36	523	95	160	793	178	177	325	304	77	119	57	2845
106	Central Way/3rd St S	50	361	75	137	546	108	139	312	145	122	110	20	2125
107	Central Way/Lake St	2	245	231	157	453	0	468	0	57	0	0	0	1613
108	Lake St/Kirkland Ave	7	33	34	101	28	57	5	485	63	4	351	32	1200
109	NE 85th St/114th Ave NE	2	852	2	359	1188	375	12	84	589	266	24	7	3761
110	6th St S/4th St	97	7	29	64	11	213	21	478	86	109	215	17	1346
111	Kirkland Ave/3rd Street	34	114	60	123	151	173	67	363	121	85	165	55	1512
112	Kirkland Way/6th Street	97	226	41	56	148	39	79	463	77	30	218	91	1565
201	NE 116th St/98th Ave NE	72	291	243	70	470	125	548	786	148	152	277	67	3249
202	NE 124th St/100th Ave NE	28	65	21	354	224	984	42	854	248	403	422	27	3672
203	NE 132nd St/100th Ave NE	98	142	139	69	298	537	272	1398	87	240	641	79	3999
204	NE 132nd St/116th Way NE	7	375	223	142	621	29	574	39	259	12	28	10	2318
205	Forbes Creek Dr/Market St	11	0	1	55	0	13	1	1464	100	18	580	4	2247
206	NE 120th Pl/100th Ave NE	0	0	0	0	0	0	0	33	0	0	7	0	40
207	Juanita Dr/93rd Ave NE	0	8	0	0	21	0	0	0	0	0	0	0	29
208	Juanita Dr/97th Ave NE	80	480	6	24	107	65	6	15	22	47	13	96	1861
209	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0
211	n/a	0	0	0	0	0	0	0	0	0	0	0	0	0
301	NE 132nd St/120th Ave NE	2	403	64	149	402	3	160	6	440	0	4	5	1639
302	NE 130th St/120th Ave NE	24	28	33	190	3	54	6	495	150	23	231	5	1243
303	NE 128th St/120th Ave NE	159	158	143	159	239	26	108	449	115	12	293	190	2051
304	NE 132nd St/124th Ave NE	413	332	13	51	307	297	35	324	187	118	72	184	2331
306	NE 124th St/Slater Ave NE	205	923	63	233	1126	263	64	496	296	172	214	215	4269
307	Totem Lake Blvd/120th Ave NE	27	327	58	166	653	309	213	235	16	452	146	27	2629
310	NE 116th St/120th Ave NE	148	512	28	235	829	468	35	175	210	290	158	198	3286
311	NE 116th St/124th Ave NE	166	363	254	108	466	31	542	628	273	85	322	218	3456
312	NE 124th St/116th Way NE	135	715	97	270	1236	321	271	312	249	495	141	148	4389
313	NE 124th St/113th Ave NE	57	631	51	59	1358	135	180	40	172	99	19	87	2888
314	NE 120th St/Slater Ave NE	28	144	11	176	339	419	33	549	106	120	417	27	2368
315	NE 124th St/124th Ave NE	120	869	334	115	1048	413	397	635	179	253	343	214	4920
316	NE 132nd St/Totem Lake Blvd	114	387	166	58	423	19	286	202	95	4	93	55	1904
317	NE 124th St/SB I-405 off Ramp	0	823	0	0	1255	1	0	0	0	614	0	554	3246
318	NE 124th St/NB I-405 on/off Ramp	0	1165	0	0	1180	0	423	0	204	0	0	0	2972
319	n/a	0	470	83	258	1558	0	0	0	0	0	0	0	2368
320	NE 116th St/NB I-405 off Ramp	0	493	0	0	1273	0	600	5	335	0	2	0	2709
323	NE 128th St/116th Way NE	0	0	0	50	3	77	0	588	85	48	575	0	1426
325	NE 124th St/128th Lane NE	50	1133	19	6	1457	30	12	0	7	25	0	99	2837
401	NE 85th St/132nd Ave NE	127	1044	71	60	1249	871	55	333	30	209	120	47	4216
402	NE 85th St/124th Ave NE	247	1057	29	15	956	302	98	357	33	183	131	167	3575
403	NE 85th St/120th Ave NE	267	1227	134	10	1165	57	278	149	49	96	73	248	3752
404	NE 100th St/124th Ave NE	7	10	21	67	13	228	19	1017	31	44	416	8	1881
406	NE 70th St/132nd Ave NE	140	412	53	158	566	115	127	319	121	77	154	54	2297
407	NE 70th St/116th Ave NE	283	467	360	236	356	28	203	433	232	7	72	166	2844
408	NE 90th St/124th Ave NE	315	54	64	20	42	34	76	772	16	12	347	120	1872
409	NE 85th St/122nd Ave NE	105	1298	63	37	1035	77	40	43	36	57	33	70	2895
410	116th Ave NE/I-405 NB off Ramp	519	0	63	0	2	0	388	352	1	3	164	473	1965
411	NE 70th St/I-405 SB off Ramp	0	0	0	224	3	267	0	860	161	173	632	0	2318
999		0	0	4	31	0	0	3	0	14	0	0	0	52
501	NE 122nd Pl/Juanita Dr NE	0	0	0	105	0	30	0	754	149	11	341	0	1389
502	76th Pl NE/Juanita Dr NE	29	3	50	5	0	3	74	875	8	0	405	40	1494
503	NE 141st Street/Juanita Dr NE	24	10	19	96	15	63	13	645	94	57	349	24	1409
504	Juanita-Woodinville Way/100th Ave NE	30	14	27	336	33	55	32	1450	429	29	597	18	3049
506	Simonds Road/100th Avenue NE	291	0	335	0	0	0	589	718	0	0	292	398	2622
507	NE 145th street/100th Avenue NE	5	11	10	382	21	256	18	732	237	82	307	4	2063
508	NE 145th Street/Juanita-Woodinville Way	272	13	51	7	10	25	190	455	19	42	424	521	2029
510	NE 132nd Street/132nd Avenue NE	186	112	215	20	207	256	299	642	35	46	245	75	2339
511	NE 144th Street/124th Avenue NE	53	88	13	122	116	374	51	681	149	118	288	16	2067
512	NE 124th Street/Willows Road NE	27	840	371	65	605	73	822	393	385	155	116	77	3929
3xx	120th Avenue NE/NE 118th Street	67	3	141	6	4	26	130	748	17	17	542	19	1720
3xx	NE 124th St/120th Pl NE	99	1162	101	135	1566	12	67	4	107	6	2	53	3315
3xx	NE 100th st/132nd Ave NE	23	0	75	31	6	25	242	1027	78	8	265	21	1803
3xx	NE 132nd Street/108th Ave NE	22	508	12	35	892	368	16	0	81	121	0	0	2056
3xx	NE 132nd Street/Juanita High School	2	409	86	111	820	5	52	0	62	3	0	2	1553
3xx	NE 124th Street/134th Ct	7	1175	19	7	1565	0	111	0	46	0	0	5	2936
3xx	116th Ave NE/NE 128th St	15	51	50	427	148	400	79	364	252	118	350	17	2269
3xx	NE 128th Street/Totem Lake Blvd	2	343	161	2	485	76	376	482	51	34	216	119	2347
4xx	NE 60th Street/132nd Ave NE	139	0	29	0	0	0	117	515	0	0	157	132	1088
4xx	NE 60th Street/116th Ave NE	2	1	2	73	1	116	2	588	73	70	112	2	1043
	Project Driveway/3rd ave													0
	3rd ave/2nd st													0
	4th ave/2nd st													0
	4th ave/3rd st													0
	2nd Pl/Central Way													0
	1st/Central Way													0