



City of Bellevue  
Transportation Department  
Modeling and Analysis Group

*Concurrency Update Report*  
*Performance Snapshot*  
*December 31, 2017*

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*Prepared August 2018*

## Executive Summary

Model analysis indicates that the 2017-2023 Capital Improvement Program (CIP) projects are expected to accommodate the increased demand associated with new development approved through December 31, 2017. All Mobility Management Areas (MMAs) meet the adopted congestion allowance, and all MMAs meet the adopted average volume to capacity (V/C) level of service standard.

### Concurrency Summary by MMA

MMA		Concurrency Standard		2017 Existing Condition				2018 Concurrency Platform			
		V/C Ratio	Congestion Allowance	V/C Ratio Test		Congestion Allowance Test		V/C Ratio Test		Congestion Allowance Test	
				V/C Ratio	Standard Met?	No of Intersections Below the Standard	Standard Met?	V/C Ratio	Standard Met?	No of Intersections Below the Standard	Standard Met?
1	North Bellevue	0.85	3	0.53	Yes	0	Yes	0.53	Yes	0	Yes
2	Bridle Trails	0.80	4	0.67	Yes	2	Yes	0.67	Yes	2	Yes
3	Downtown	0.95	9	0.72	Yes	3	Yes	0.74	Yes	3	Yes
4	Wilburton	0.90	3	0.72	Yes	0	Yes	0.73	Yes	0	Yes
5	Crossroads	0.90	2	0.72	Yes	0	Yes	0.74	Yes	0	Yes
6	N-E Bellevue	0.80	2	0.72	Yes	0	Yes	0.72	Yes	0	Yes
7	South Bellevue	0.85	4	0.68	Yes	0	Yes	0.70	Yes	0	Yes
8	Richards Valley	0.85	5	0.69	Yes	2	Yes	0.71	Yes	2	Yes
9	East Bellevue	0.85	5	0.81	Yes	4	Yes	0.81	Yes	4	Yes
10	Eastgate	0.90	4	0.72	Yes	2	Yes	0.68	Yes	2	Yes
11	S-E Bellevue	0.80	3	0.75	Yes	3	Yes	0.71	Yes	2	Yes
12	Bel-Red/Northup	0.95	7	0.68	Yes	0	Yes	0.73	Yes	0	Yes
13	Factoria	0.95	5	0.82	Yes	2	Yes	0.85	Yes	2	Yes
14	Newport Hills*	-	-	-	-	-	-	-	-	-	-

\* There are no system intersections in MMA 14 and, therefore, no standards

Prior to 2017, the city's concurrency analyses were performed using a proprietary software based on the 2004 version of the Highway Capacity Manual (HCM). This tool has been updated to stay consistent with the latest version of HCM, along with additional enhancements as described in the Methodology section.

These analysis results represent a snapshot of average traffic conditions over a two-hour period from 4 PM to 6 PM on a typical weekday. Because traffic conditions change constantly and the two-hour average is what is reported, it is inevitable that drivers will sometimes experience worse or less traffic congestion than reported herein.

Following the release of this Concurrency Update Report, the 2018 Concurrency Platform (2018 CP; model version MP6-R15) will be used as the background condition for project-level development review modeling until a new concurrency update is completed.

## Introduction

The Washington State Growth Management Act (GMA) of 1990 requires that local jurisdictions adopt ordinances to establish *concurrency* measurement mechanisms to determine the ability of the transportation system to support new development. The City of Bellevue's adopted Traffic Standards Code (Bellevue City Code Chapter 14.10) establishes the City's transportation concurrency standards and methodologies, and compliance determination process. The Director's Rule of 2017 further defines the specifications of this procedure.

An assessment of transportation concurrency is prepared periodically by the Bellevue Transportation Department to update information on land use development and transportation conditions within the City. The primary objective is to provide a snapshot of the latest transportation system performance findings related to vehicle capacity only to inform land use and transportation decision-making. In addition, the concurrency report is used to identify problem areas so that traffic mitigation options can be explored and identified to effectively accommodate changing conditions.

This report summarizes concurrency analysis results for two scenarios:

**2017 Existing Condition** represents the observed 2017 or latest traffic counts and existing roadway and intersection geometries and signal phasing.

**2018 Concurrency Platform** includes existing land use plus approved development with the City's six-year CIP. It forms the basis for conducting future project level concurrency analyses. The Platform includes:

- existing land use information extracted from the King County Tax Assessor's Office as of December 31, 2017;
- approved development that had received either design review approvals or building permits issued by the City of Bellevue Development Services Department (DSD) as of December 31, 2017; and
- 2017 existing roadway network, plus fully funded vehicle capacity improvement projects in the 2017 – 2023 CIP and with projects sponsored by WSDOT and Sound Transit that are expected to be completed by 2023.

The concurrency snapshot reflects short-range projections about average traffic conditions within the city during the two-hour PM peak period. The conditions described represent computed volume-to-capacity (V/C) ratios for designated "system" intersections within the 14 Mobility Management Areas (MMAs) as defined in the City's Traffic Standards Code. System intersections are arterial street intersections controlled by existing and likely future traffic signals. MMAs are geographic sub-areas of the City, designated for transportation concurrency analysis and reporting purposes.

## Concurrency Standards

The City's concurrency standard consists of two metrics for each of the MMAs: the permitted maximum average system intersection V/C ratio and the maximum number of intersections allowed to exceed the V/C ratio for each MMA (congestion allowance). The standards vary according to the land use vision for each area, the availability and level of service of alternative modes of travel, and community input. Table 1 shows the concurrency standard for each MMA.

**Table 1 Concurrency Standards for Mobility Management Areas**

MMA		Concurrency Standard	
		V/C Ratio	Congestion Allowance
1	North Bellevue	0.85	3
2	Bridle Trails	0.80	4
3	Downtown	0.95	9
4	Wilburton	0.90	3
5	Crossroads	0.90	2
6	Northeast Bellevue	0.80	2
7	South Bellevue	0.85	4
8	Richards Valley	0.85	5
9	East Bellevue	0.85	5
10	Eastgate	0.90	4
11	Southeast Bellevue	0.80	3
12	BelRed/Northup	0.95	7
13	Factoria	0.95	5
14	Newport Hills*	-	-

*\*There are no system intersections in MMA 14 and, therefore, no standards  
Source: Bellevue City Code 14.10.030*

## Methodology

The concurrency methodology for the City of Bellevue consists of program level analysis and project level analysis. This report is a program level analysis. At the program level, all analysis is performed using the City's EMME travel demand model in conjunction with a customized capacity analysis program based on the latest Highway Capacity Manual. The manual provides procedures to analyze intersection operating conditions. Assumptions include:

- Per the City's Traffic Standards Code (Chapter 14.10), traffic volumes are averaged over a two-hour period from 4 PM to 6 PM, which generally represents the most congested traffic conditions.

- V/C ratios are calculated at each system intersection. The average V/C ratio for all system intersections within each MMA is then calculated and compared with the adopted standard for the respective MMA.
- An MMA is considered to meet the traffic standard if the resulting area-wide average V/C ratio does not exceed the V/C ratio and the number of congested intersections in the area does not exceed the congestion allowance as established in the Traffic Standards Code.

Prior to 2017, the concurrency analyses were performed using UFOSNet, proprietary software developed by RST International Inc. based on the 2004 version of the Highway Capacity Manual (HCM). The city strives to incorporate best practices in all modeling related activities, so this tool has been updated with the following improvements/refinements:

- The underlying methodology has been updated based on the latest version of the Highway Capacity Manual.
- The new tool has added features to treat non-standard intersections, such as three- and five-legged intersections, more logically than the previous tool.
- To more reasonably represent real world conditions, the impact of intersection downstream bottlenecks at several known locations were considered in calculating the available capacity of affected intersections.
- The pedestrian module has been refined. Consideration of pedestrian crossing effects on traffic flow was first introduced in the 2017 update using a gross approximation method. In this update, the methodology has been refined based on traffic simulations at sampled intersections. Detailed simulations using 2017 count data quantified pedestrian effects on reduced green time available for vehicle traffic, which resulted in increased V/C ratios ranging from 0 (very few pedestrian crossings) to 0.06 at the Bellevue Way NE/NE 8<sup>th</sup> St and 108<sup>th</sup> Ave NE/NE 4<sup>th</sup> St intersections where the highest pedestrian volumes were observed.

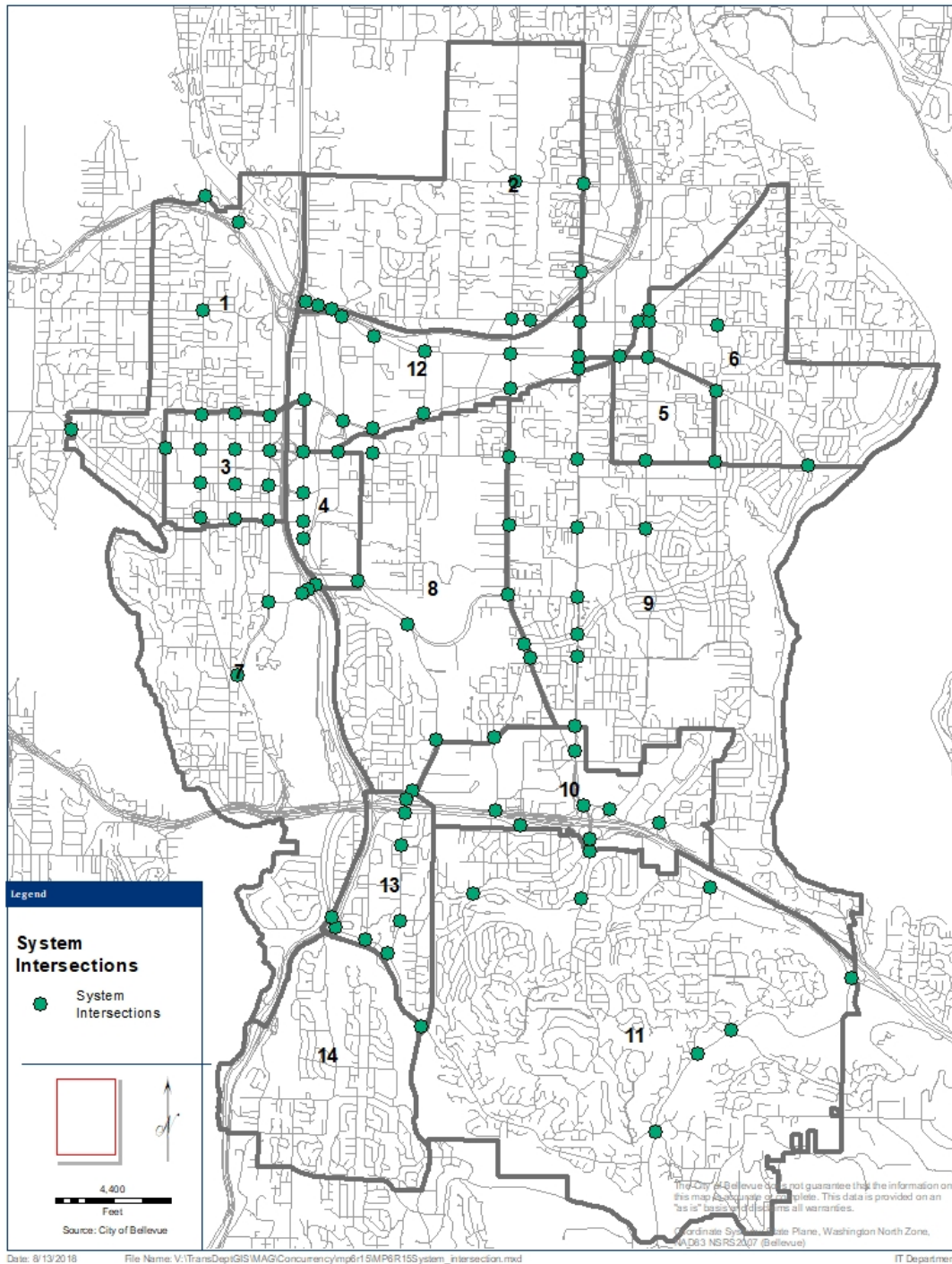
To assess the difference between the tool used previously and the updated tool, 2016 traffic counts were used as input into the updated tool. The updated tool identified seven more intersections operating below the traffic standard. This result is more consistent with ground observations.

It should be noted that the analysis results represent average traffic conditions over a two-hour period from 4 PM to 6 PM, so it is inevitable that drivers will sometimes experience worse or less traffic congestion than reported herein.

## MMA Boundaries

Per the City's Traffic Standards Code, the city is divided into 14 MMAs. Within each MMA, there are a certain number of designated system intersections. The MMA boundaries and system intersections are shown in Figure 1 below.

**Figure 1 Mobility Management Areas (MMA) and System Intersections**



## Input Data

### Land Use

The land use data includes existing plus new development approved by the City of Bellevue through the end of 2017. The existing land use information was extracted from the King County Tax Assessor's file as of December 31, 2017. Table 2 provides an MMA-level summary of the existing 2017 land use. The land use permit tracking system (AMANDA) is the source of new development approved by the City. Table 3 lists major development approved as of the end of 2017. Since not all development occurred on formerly vacant land, the land use information accounted for demolition and conversions of land use and represents the net change.

Table 4 provides aggregation of approved development by MMA. It includes 4,149 new dwelling units, nearly 550,000 gross square feet (GSF) of Office, 170,000 GSF of Retail, and over 80,000 GSF reduction of other spaces (institutional, industrial and hotel). The reduction of other spaces is primarily due to conversion/demolition of industrial spaces for multi-family residential uses, East Link Extension, and the construction of the Sound Transit Operation and Maintenance Facility. Most of the approved development/demolitions fall into two MMAs: Downtown Bellevue (MMA 3) and BelRed/Northup (MMA 12). Table 5 contains existing plus approved land use totals by category for the 14 MMAs.

Vacancy rates are assumed citywide for modeling of existing and concurrency land use snapshots: Office = 10%, Retail = 5%, and Industrial = 7.5%. Actual vacancy rates may differ but the assumed rates are consistent with observed vacancy rates over time.

**Table 2 2017 Existing Land Use Summary**

MMA	Subarea	Commercial (sqft)			Dwelling Units	
		Office	Retail	Others	MF	SF
1	North Bellevue	1,444,680	211,292	218,333	2,183	2,173
2	Bridle Trails	732,690	430,806	381,890	3,254	1,688
3	Downtown	10,409,270	3,819,883	2,194,027	9,796	-
4	Wilburton	1,235,264	657,212	1,034,217	605	76
5	Crossroads	153,453	625,868	176,686	3,559	49
6	Northeast Bellevue	426,608	14,393	621,901	255	3,310
7	South Bellevue	1,210,925	251,247	1,188,067	2,001	2,610
8	Richards Valley	218,610	81,761	209,470	3,523	2,491
9	East Bellevue	550,581	465,060	1,258,366	2,513	6,793
10	Eastgate	4,034,738	495,329	1,846,308	654	240
11	Southeast Bellevue	140,261	126,164	744,391	1,017	8,364
12	BelRed/Northup	2,333,273	2,491,025	3,759,042	880	1
13	Factoria	1,467,633	856,218	316,028	1,219	347
14	Newport Hills	10,439	96,830	152,517	472	2,680
Total		24,368,425	10,623,088	14,101,243	31,931	30,822

*Source: King County Tax Assessor's Office as of December 2017, City of Bellevue Community Development Department*

**Table 3 Approved Major Developments/Demolitions as of December 31, 2017**

Development Name	MMA	Office (sqft)	Retail (sqft)	Others (sqft)	Dwelling (units)
30 Bellevue	1	-	12,104	-	62
BBGC, LLC Townhomes	1	-	-	-	6
Park East Townhomes	1	-	458	-	5
Pro Sports Club	2	53,765	-	-	(7)
888 Bellevue Tower	3	(1,313)	937	3,872	157
Alamo Manhattan B2	3	-	5,199	-	165
Brio	3	-	25,895	-	260
ELEV8	3	-	88,500	-	797
FANA Four 106	3	(11,694)	-	-	326
GIS Plaza	3	-	623	-	13
One88 (Bosa)	3	3,895	22,743	23,858	143
Plaza Residential	3	-	3,500	-	260
Washington Sq Hilton Garden Inn	3	12,018	16,990	126,436	-
OR-2 SURGERY EXPANSION CORE & SHELL	4	-	-	7,168	-
Overlake Medical Center - Project futureCARE	4	-	-	239,000	-
Westridge Apartments	4	260	984	-	31
Wilburton Elementary School CO8606	4	-	-	83,725	-
Breva Townhomes	5	-	-	-	29
Crossroads Senior Living	5	4,599	3,742	2,647	185
Crossroads Village	5	-	14,436	-	134
E320 South Bellevue East Link Extension	7	-	-	-	(13)
The Bellevue Condos	7	-	-	-	8
Bellevue Memory Care	9	-	-	-	30
Kelsey Creek Center - Building E	9	3,828	1,898	-	-
Stevenson Elementary School	9	-	(5,094)	46,383	-
Sunset Elementary School, Classroom/Cafeteria Add	9	-	-	12,419	-
Bellevue College Student Housing Phase I	10	-	8,505	-	147
Cougar Ridge Elementary School	11	-	-	10,455	-
Aegis Overlake	12	493	698	773	118
Auto Nation BMW	12	-	(80,200)	-	-
COBT - Delta Demolition	12	(4,720)	-	(4,720)	-
E360	12	(23,135)	-	(34,970)	-
Hyde Square	12	1,378	5,402	-	618
Lario Townhomes	12	(25,557)	-	-	46
Sound Transit OMFE and other demolitions	12	(73,882)	(10,108)	(286,549)	-
The Spring District development and demolitions	12	614,087	42,758	(325,443)	503
Vida Townhomes (Avid)	12	-	-	-	22
Windward Factoria Townhomes	13	-	-	-	24

Source: City of Bellevue Community Development Department and Development Services Department



**Table 4 Approved Development Aggregated by MMA (As of December 31, 2017)**

MMA	Name	Office	Retail	Others (sqft)	Dwelling Units
1	North Bellevue	-	14,209	-	79
2	Bridle Trails	55,092	614	-	(6)
3	Downtown Bellevue	4,882	168,156	154,166	2,121
4	Wilburton	260	984	329,893	31
5	Crossroads	4,599	18,178	2,647	348
6	Northeast Bellevue	-	-	-	(2)
7	South Bellevue	-	-	-	11
8	Richards Valley	-	-	-	-
9	East Bellevue	5,671	(3,196)	62,294	38
10	Eastgate	-	8,505	-	144
11	Southeast Bellevue	-	640	10,455	42
12	BelRed/Northup	478,190	(37,629)	(640,435)	1,307
13	Factoria	-	-	-	34
14	Newport Hills	-	-	-	2
<b>Total</b>		<b>548,694</b>	<b>170,461</b>	<b>(80,980)</b>	<b>4,149</b>

Source: City of Bellevue Community Development Department and Development Services Department

**Table 5 Existing Plus Approved Development for 2018 Concurrency Platform**

MMA	Name	Commercial (sqft)			Dwelling Units	
		Office	Retail	Others	MF Units	SF Units
1	North Bellevue	1,444,680	225,501	218,333	2,256	2,179
2	Bridle Trails	787,782	431,420	381,890	3,254	1,682
3	Downtown Bellevue	10,414,152	3,988,039	2,348,193	11,917	-
4	Wilburton	1,235,524	658,196	1,364,110	636	76
5	Crossroads	158,052	644,046	179,333	3,897	59
6	Northeast Bellevue	426,608	14,393	621,901	255	3,308
7	South Bellevue	1,210,925	251,247	1,188,067	2,009	2,613
8	Richards Valley	218,610	81,761	209,470	3,523	2,491
9	East Bellevue	556,252	461,864	1,320,660	2,543	6,801
10	Eastgate	4,034,738	503,834	1,846,308	801	237
11	Southeast Bellevue	140,261	126,804	754,846	1,017	8,406
12	Bel-Red/Northup	2,811,463	2,453,396	3,118,607	2,165	23
13	Factoria	1,467,633	856,218	316,028	1,219	381
14	Newport Hills	10,439	96,830	152,517	472	2,682
<b>Total</b>		<b>24,917,119</b>	<b>10,793,549</b>	<b>14,020,263</b>	<b>35,964</b>	<b>30,938</b>

Source: King County Tax Assessor's Office, City of Bellevue Community Development Department and Development Services Department

### ***Transportation Network***

The adopted 2017-2023 CIP is the basis for identifying transportation projects to be included in this analysis. The concurrency model network includes all fully funded projects that would be completed and in operation by 2023. These capacity projects include roadway widenings, intersection signalization and channelization, and access improvements. These capacity projects are described in Table 6.

Major capacity projects funded by WSDOT and Sound Transit that are expected to be completed by 2023, namely the I-90 auxiliary lanes between Eastgate and Issaquah and the East Link Light Rail Extension, are also included.

### ***Traffic Counts***

The latest PM peak, two-hour average vehicle and pedestrian counts (mostly collected in late summer, 2017) were used along with the 2017 existing intersection geometry and signal timing plans to calculate intersection V/C ratios for the existing condition. These counts were also used to adjust the outputs from the 2018 Concurrency Platform (MP6-R15) to account for model validation differences.

**Table 6 Capacity Projects Included in the 2017 Concurrency Platform Analysis**

<b>CIP# or Sponsor</b>	<b>Project Name</b>	<b>Description</b>
R-166	124th Avenue NE - Spring Boulevard to Ichigo Way (NE 18th Street)	Widen and raise the profile for 124th Avenue NE from NE Spring Boulevard to Ichigo Way (NE 18th Street). The roadway cross-section will consist of five lanes, including two travel lanes in each direction with turn pockets or a center turn lane, install curb, gutter and sidewalk on east side and sidewalk on west side from NE Spring Boulevard to NE 16th Street.
R-169	124th Avenue NE - NE 12th Street to NE Spring Boulevard	Construct improvements to 124th Avenue NE from NE 12th Street (BelRed Road) to NE Spring Boulevard. The roadway cross-section of this segment consists of five lanes, including two travel lanes in each direction with turn pockets or a center turn lane; curb, gutter and separated multi-use path on both sides.
R-170	130th Avenue NE/NE 20th to NE BelRed Road	Construct improvements to 130th Avenue NE from NE 20th Street to NE BelRed Road. The roadway cross-section will include one through lane in each direction, and an additional center turn lane between NE Spring Blvd and BelRed Road.
R-172	NE Spring Boulevard (Zone 1) - 116th Avenue NE to 120th Avenue NE	Construct a new multi-modal arterial street connection between NE 12th Street/116th Avenue NE and 120th Avenue NE. to include two travel lanes in each direction with turn pockets, along with new traffic signals at the NE 12th Street and at 120th Avenue NE intersections. NE 12th Street will be widened from the new connection to 116th Avenue NE.
R-173	NE Spring Boulevard (Zone 2)- 120th Avenue NE to 124th Avenue NE	Construct a new arterial street connection between 120th and 124th Avenues NE, including signalized intersections at 120th, 121st, 123rd, and 124th Avenues NE. The planned roadway cross-section will include two travel lanes in each direction with bicycle facilities, turn pockets or center medians, curb, gutter, and sidewalks on both sides.
R-174	NE Spring Boulevard - 130th Avenue NE to 132nd Avenue NE	Construct a new arterial roadway connection between 130th Avenue NE and 132nd Avenue NE. The project includes a single travel lane in each direction and traffic signals at the 130th Avenue NE and 132nd Avenue NE intersections. Signals will also accommodate East Link light rail traffic.
R-184	Bellevue Way/ 112th Ave SE "Y" to I-90	Construct southbound HOV lane from South Bellevue Park & Ride to I-90 (funded by Sound Transit as part of the East Link project).
R-185	Newport Way/150th Ave Intersection	Add southbound turn lanes from 150 Ave SE to SE Newport Way.
R-190	124th Avenue NE/NE 8th to NE 12th Streets	This project involves taking a NB lane to make room for the construction of a separated multipurpose pathway on both side son 124th Avenue NE between NE 8th and NE 12th Streets.
R-191	124th Avenue NE/Ichigo Way (NE 18th St) to Northup Way	Construct improvements to 124th Avenue NE between Ichigo Way (NE 18th Street) and Northup Way. The roadway cross-section of this segment consists of five lanes, including two travel lanes in each direction with turn pockets or a center turn lane; curb, gutter and sidewalks on both sides. A new signal at Ichigo Way.
WSDOT	I-90 Auxiliary Lanes	Adds an auxiliary lane each direction to I-90, eastbound from 150th Ave SE to Lakemont Blvd, westbound from SR 900 to Eastgate.
Sound Transit	East Link Light Rail	Construction of the East Link light rail project from Seattle to the Overlake Station in Redmond.

## Concurrency Analysis Findings

The V/C ratios for the two scenarios are compared to the city’s concurrency standard as depicted in Table 7.

**Table 7 Concurrency Analysis Results by MMA**

MMA		Concurrency Standard		2017 Existing Condition				2018 Concurrency Platform			
		V/C Ratio	Congestion Allowance	V/C Ratio	Remaining Capacity (V/C Ratio)	Congestion Allowance Consumed	Remaining Congestion Allowance	V/C Ratio	Remaining Capacity (V/C Ratio)	Congestion Allowance Consumed	Remaining Congestion Allowance
1	North Bellevue	0.85	3	0.53	0.32	0	3	0.53	0.32	0	3
2	Bridle Trails	0.80	4	0.67	0.13	2	2	0.67	0.13	2	2
3	Downtown	0.95	9	0.72	0.23	3	6	0.74	0.21	3	6
4	Wilburton	0.90	3	0.72	0.18	0	3	0.73	0.17	0	3
5	Crossroads	0.90	2	0.72	0.18	0	2	0.74	0.16	0	2
6	Northeast Bellevue	0.80	2	0.72	0.08	0	2	0.72	0.08	0	2
7	South Bellevue	0.85	4	0.68	0.17	0	4	0.70	0.15	0	4
8	Richards Valley	0.85	5	0.69	0.16	2	3	0.71	0.14	2	3
9	East Bellevue	0.85	5	0.81	0.04	4	1	0.81	0.04	4	1
10	Eastgate	0.90	4	0.72	0.18	2	2	0.68	0.22	2	2
11	Southeast Bellevue	0.80	3	0.75	0.05	3	0	0.71	0.09	2	1
12	BelRed/Northup	0.95	7	0.68	0.27	0	7	0.73	0.22	0	7
13	Factoria	0.95	5	0.82	0.13	2	3	0.85	0.10	2	3
14	Newport Hills	-	-	-	-	-	-	-	-	-	-

\* There are no system intersections in MMA 14 and, therefore, is not included in the analysis.

### Average V/C Ratios Analysis by MMA

Under 2017 existing conditions, the V/C ratios for individual MMAs ranged from 0.53 (MMA 1 – North Bellevue) to 0.82 (MMA 13 – Factoria). The average remaining capacity ranged from 0.04 (MMA 9 – East Bellevue) to 0.32 (MMA 1 – North Bellevue). Remaining capacity is the capacity available for accommodating future development without exceeding the concurrency standard; it is the difference between calculated V/C ratio and V/C ratio standard. Under the 2018 Concurrency Platform with the funded capacity projects completed and approved development in place, the V/C ratios for individual MMAs range from 0.53 (MMA 1 - North Bellevue) to 0.85 (Factoria). The analysis indicates that all MMAs meet their respective V/C ratio standard.

### Intersection Congestion Analysis by MMA

The V/C ratio analysis for individual system intersections by MMA for the two scenarios are shown in Table 8. Based on the analysis result, each intersection is then subjected to the test of “does it meet the standard?” The answers are “yes”, “barely”, or “no”, defined as follows:

*Yes: Intersection with a V/C ratio of at least 0.05 from exceeding the standard*

*Barely: Intersection with a V/C ratio lower than but within 0.05 of the standard*

*No: Intersection with a V/C ratio that exceeds the standard*

**Table 8 Intersection Congestion Analysis by MMA**

**MMA 1: North Bellevue, V/C Threshold: 0.85, Congestion Allowance: 3**

Intersection		2017 Existing		2018 CP	
ID#	Cross Streets	V/C	Standard Met?	V/C	Standard Met?
69	Bellevue Way NE   NE 24th Street	0.56	Yes	0.56	Yes
74	Bellevue Way NE   Northup Way NE	0.63	Yes	0.63	Yes
78	108th Ave NE   Northup Way NE	0.62	Yes	0.62	Yes
93	Lk Washington B   NE 1st/NE 10 St.	0.32	Yes	0.31	Yes
<b>Areawide</b>		<b>0.53</b>	<b>Yes</b>	<b>0.53</b>	<b>Yes</b>

**MMA 2: Bridle Trails, V/C Threshold: 0.80, Congestion Allowance: 4**

Intersection		2017 Existing		2018 CP	
ID#	Cross Streets	V/C	Standard Met?	V/C	Standard Met?
64	140th Ave NE   NE 24th Street	0.79	Barely	0.83	No
79	148th Ave NE   NE 40th Street	0.65	Yes	0.67	Yes
114	116th Ave NE   Northup Way NE	0.74	Yes	0.66	Yes
116	115th Place NE   Northup Way	0.81	No	0.75	Yes
118	Northup Way   NE 24th Street	0.52	Yes	0.53	Yes
123	140th Ave NE   NE 40th Street	-	-	-	-
188	148th Ave NE   NE 29th Place	0.85	No	0.87	No
189	NE 29th Place   NE 24th Street	0.36	Yes	0.36	Yes
<b>Areawide</b>		<b>0.67</b>	<b>Yes</b>	<b>0.67</b>	<b>Yes</b>

**MMA 3: Downtown, V/C Threshold: 0.95, Congestion Allowance : 9**

Intersection		2017 Existing		2018 CP	
ID#	Cross Streets	V/C	Standard Met?	V/C	Standard Met?
3	100th Ave NE   NE 8th Street	0.64	Yes	0.62	Yes
5	Bellevue Way NE   NE 12th Street	0.70	Yes	0.71	Yes
7	Bellevue Way NE   NE 8th Street	0.78	Yes	0.76	Yes
8	Bellevue Way NE   NE 4th Street	0.69	Yes	0.72	Yes
9	Bellevue Way   Main Street	0.96	No	1.00	No
20	108th Ave NE   NE 12th Street	0.45	Yes	0.47	Yes
21	108th Ave NE   NE 8th Street	0.61	Yes	0.58	Yes
22	108th Ave NE   NE 4th Street	0.68	Yes	0.77	Yes
24	108th Ave   Main Street	0.52	Yes	0.51	Yes
25	112th Ave NE   NE 12th Street	0.74	Yes	0.77	Yes
26	112th Ave NE   NE 8th Street	1.05	No	1.07	No
36	112th Ave   Main Street	0.98	No	1.02	No
72	112th Ave NE   NE 4th Street	0.67	Yes	0.64	Yes
<b>Areawide</b>		<b>0.72</b>	<b>Yes</b>	<b>0.74</b>	<b>Yes</b>

Note: Dash indicates an unsignalized intersection, which is not included in the calculations.

**Table 8 Intersection Analysis by MMA, Cont'd**

**MMA 4: Wilburton, V/C Threshold: 0.90, Congestion Allowance: 3**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
30	116th Ave NE	NE 8th Street	0.71	Yes	0.68	Yes
73	116th Ave	Main Street	0.65	Yes	0.66	Yes
131	116th Ave SE	SE 1st Street	0.80	Yes	0.82	Yes
139	116th Ave NE	NE 4th Street	0.82	Yes	0.87	Barely
233	120th Ave NE	NE 8th Street	0.62	Yes	0.61	Yes
<b>Areawide</b>			<b>0.72</b>	<b>Yes</b>	<b>0.73</b>	<b>Yes</b>

**MMA 5: Crossroads, V/C Threshold: 0.90, Congestion Allowance: 2**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
58	Bel-Red Rd	NE 20th Street	0.62	Yes	0.65	Yes
62	156th Ave NE	Northup Way	0.83	Yes	0.86	Barely
63	156th Ave NE	NE 8th Street	0.70	Yes	0.70	Yes
<b>Areawide</b>			<b>0.72</b>	<b>Yes</b>	<b>0.74</b>	<b>Yes</b>

**MMA 6: North-East Bellevue, V/C Threshold: 0.80, Congestion Allowance: 2**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
75	164th Ave NE	NE 24th Street	0.70	Yes	0.70	Yes
76	164th Ave NE	Northup Way	0.72	Yes	0.71	Yes
87	164th Ave NE	NE 8th Street	0.74	Yes	0.75	Yes
111	Northup Way	NE 8th Street	-	-	-	-
<b>Areawide</b>			<b>0.72</b>	<b>Yes</b>	<b>0.72</b>	<b>Yes</b>

**MMA 7: South Bellevue, V/C Threshold: 0.85, Congestion Allowance: 4**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
14	112th Ave SE	Bellevue Way SE	0.77	Yes	0.71	Yes
89	112th Ave SE	SE 8th Street	0.64	Yes	0.60	Yes
102	118th Ave SE	SE 8th Street	0.76	Yes	0.81	Barely
219	I-405 NB Ramps	SE 8th Street	0.63	Yes	0.72	Yes
226	I-405 SB Ramps	SE 8th Street	0.59	Yes	0.63	Yes
<b>Areawide</b>			<b>0.68</b>	<b>Yes</b>	<b>0.70</b>	<b>Yes</b>

Note: Dash indicates an unsignalized intersection, which is not included in the calculations.

**Table 8 Intersection Analysis by MMA Cont'd**

**MMA 8: Richards Valley, V/C Threshold: 0.85, Congestion Allowance: 5**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
35	124th Ave NE	NE 8th Street	0.62	Yes	0.67	Yes
43	140th Ave SE	SE 8th Street	0.76	Yes	0.79	Yes
44	145th Place SE	Lake Hills Blvd	0.64	Yes	0.65	Yes
45	145th Place SE	SE 16th Street	0.69	Yes	0.71	Yes
71	Lk Hills Connector	SE 8th St	0.94	No	0.96	No
82	Richards Rd	Kamber Rd	0.87	No	0.87	No
85	Richards Rd	SE 32nd Street	0.51	Yes	0.56	Yes
134	Richards Rd	Lk Hills Connector	0.60	Yes	0.59	Yes
280	139th Ave SE	Kamber Road	0.59	Yes	0.58	Yes
<b>Areawide</b>			<b>0.69</b>	<b>Yes</b>	<b>0.71</b>	<b>Yes</b>

**MMA 9: East Bellevue, V/C Threshold: 0.85, Congestion Allowance: 5**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
41	140th Ave NE	NE 8th Street	0.79	Yes	0.79	Yes
42	140th Ave	Main Street	0.63	Yes	0.63	Yes
49	148th Ave NE	NE 8th Street	0.94	No	0.96	No
50	148th Ave	Main Street	0.91	No	0.91	No
51	148th Ave SE	Lake Hills Blvd	0.85	No	0.86	No
52	148th Ave SE	SE 16th Street	0.87	No	0.87	No
55	148th Ave SE	SE 24th Street	0.77	Yes	0.74	Yes
65	148th Ave SE	SE 8th Street	0.74	Yes	0.74	Yes
83	156th Ave	Main Street	0.76	Yes	0.76	Yes
<b>Areawide</b>			<b>0.81</b>	<b>Yes</b>	<b>0.81</b>	<b>Yes</b>

**MMA 10: Eastgate, V/C Threshold: 0.90, Congestion Allowance: 4**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
56	148th Ave SE	SE 27th Street	0.67	Yes	0.64	Yes
86	156th Ave SE	SE Eastgate Way	0.59	Yes	0.44	Yes
92	161st Ave SE	SE Eastgate Way	0.46	Yes	0.54	Yes
101	150th Ave SE	SE Eastgate Way	1.06	No	0.95	No
171	142nd Ave SE	SE 36th Street	0.80	Yes	0.80	Yes
227	150th Ave SE	I-90 EB Off-Ramp	1.01	No	0.99	No
272	139th Ave SE	SE Eastgate Way	0.45	Yes	0.43	Yes
<b>Areawide</b>			<b>0.72</b>	<b>Yes</b>	<b>0.68</b>	<b>Yes</b>

**Table 8 Intersection Analysis by MMA Cont'd**

**MMA 11: Southeast Bellevue, V/C Threshold: 0.80, Congestion Allowance: 3**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
99	Somerset Blvd	SE Newport Way	0.60	Yes	0.64	Yes
133	150th Ave SE	SE Newport Way	0.96	No	0.94	No
174	150th Ave SE	SE 38th Street	1.02	No	1.05	No
218	Lakemont Blvd	SE 63rd St	0.66	Yes	0.65	Yes
228	Lakemont Blvd	SE Newport Way	0.83	No	0.62	Yes
242	164th Ave SE	Lakemont Blvd	0.68	Yes	0.63	Yes
257	164th Ave SE	SE Newport Way	-	-	-	-
274	Village Park Dr	Lakemont Blvd	0.55	Yes	0.46	Yes
<b>Areawide</b>			<b>0.75</b>	<b>Yes</b>	<b>0.71</b>	<b>Yes</b>

**MMA 12: Bel-Red/Northup, V/C Threshold: 0.95, Congestion Allowance: 7**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
29	116th Ave NE	NE 12th Street	0.69	Yes	0.91	Barely
32	120th Ave NE	NE 12th Street	0.55	Yes	0.66	Yes
34	124th Ave NE	Bel-Red Rd	0.79	Yes	0.71	Yes
37	130th Ave NE	Bel-Red Rd	0.58	Yes	0.61	Yes
39	140th Ave NE	NE 20th Street	0.67	Yes	0.70	Yes
40	140th Ave NE	Bel-Red Rd	0.69	Yes	0.64	Yes
47	148th Ave NE	NE 20th Street	0.88	Yes	0.91	Barely
48	148th Ave NE	Bel-Red Rd	0.89	Yes	0.90	Barely
59	Bel-Red Rd	NE 24th Street	0.64	Yes	0.65	Yes
60	156th Ave NE	Bel-Red Rd	0.74	Yes	0.76	Yes
61	156th Ave NE	NE 24th Street	0.80	Yes	0.84	Yes
68	130th Ave NE	NE 20th Street	0.60	Yes	0.71	Yes
81	148th Ave NE	NE 24th Street	0.89	Yes	0.91	Barely
88	124th Ave NE	Northup Way NE	0.58	Yes	0.66	Yes
117	120th Ave NE	NE 20th Street	0.31	Yes	0.33	Yes
<b>Areawide</b>			<b>0.68</b>	<b>Yes</b>	<b>0.73</b>	<b>Yes</b>

**MMA 13: Factoria, V/C Threshold: 0.95, Congestion Allowance: 5**

Intersection			2017 Existing		2018 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
98	Coal Creek Pkwy	Forest Drive	0.86	Yes	0.88	Yes
105	Richards Rd	SE Eastgate Way	0.67	Yes	0.67	Yes
202	128th Ave SE/Ne	SE Newport Way	0.74	Yes	0.82	Yes
203	Factoria Blvd.	Coal Creek Pkwy	0.73	Yes	0.75	Yes
204	128th Ave SE	SE 36th Street	1.04	No	1.06	No
220	I-405 NB Ramps	Coal Creek Pkwy	0.68	Yes	0.69	Yes
221	I-405 SB Ramps	Coal Creek Pkwy	0.78	Yes	0.80	Yes
222	128th Ave SE	SE 38th Place	1.08	No	1.08	No
284	124th Ave SE	Coal Creek Pkwy	0.83	Yes	0.89	Yes
<b>Areawide</b>			<b>0.82</b>	<b>Yes</b>	<b>0.85</b>	<b>Yes</b>



Under 2017 existing conditions, the total number of intersections that do not meet the MMA V/C standard is 18, compared to the total of 56 allowed for all MMAs.

Under the 2018 CP, with the CIP completed and approved development in place, all MMAs meet their respective congestion allowance standards. The number of intersections that do not meet the standard is expected to be 17, thanks to the expected completion of CIP projects. The number of intersections approaching the V/C standards increased from 1 under the existing condition to 7 under the 2018 Concurrency Platform. Results for each MMA are as follows:

- North Bellevue (MMA 1): Under the 2017 existing condition, all four system intersections met the standard. This is not expected to change under the 2018 CP.
- Bridle Trails (MMA 2): In 2017, two intersections did not meet the V/C standard. Under the 2018 CP, the number of intersections exceeding the standard is expected to remain at two, within the four allowed.
- Downtown Bellevue (MMA 3): Under the 2017 existing condition, three of the 13 system intersections did not meet the V/C standard. This number is expected to remain unchanged under the 2018 CP, within the nine allowed.
- Wilburton (MMA 4): All five system intersections met the standard in 2017. No intersection is expected to exceed the standard under the 2018 CP.
- Crossroads (MMA 5): In 2017, all three system intersections met the standard. One intersection is expected to approach the MMA's V/C standard under the 2018 CP.
- North-East Bellevue (MMA 6): All the system intersections met the standard under existing conditions. The analysis revealed no major change under the 2018 CP.
- South Bellevue (MMA 7): All five system intersections met the standard in 2017. No major change is expected under the 2018 CP.
- Richards Valley (MMA 8): Under the existing condition, two of the nine system intersections did not meet the standard. Very little change is projected from 2017 to 2023. The number of intersections exceeding the standard is expected to remain at two, within the five allowed.
- East Bellevue (MMA 9): Of all the MMAs, this MMA has the smallest cushion between the calculated V/C and the standard. Under existing conditions, the MMA's average V/C ratio is 0.81 compared to the standard of 0.85; the number of intersections exceeding the standard is four, within the maximum five allowed. Under the 2018 CP, the number of intersections exceeding the standard is expected to remain at four and the average V/C ratio is expected to remain stable at 0.81. This MMA should be closely monitored in future development reviews.

- Eastgate (MMA 10): The number of intersections exceeding the V/C standard is two under both existing conditions and the 2018 CP. Under the 2018 CP, the completion of the auxiliary lane project on I-90 between Eastgate and Issaquah is expected to improve traffic operations in this MMA, particularly along Eastgate Way at 150<sup>th</sup> Ave SE and at 156<sup>th</sup> Ave SE.
- Southeast Bellevue (MMA 11): Under the 2017 existing condition, the analysis revealed three system intersections exceeded the V/C standard, the maximum allowed. Under the 2018 CP, this number is reduced to two, thanks to the expected completion of the I-90 Auxiliary Lane Project funded by WSDOT.
- Bel-Red (MMA 12): Under both the 2017 existing condition and 2018 CP, all the system intersections meet the standard. This MMA gets significant shares of both new development and new capacity projects. The completion of Spring Blvd Phase 1 and 2 is expected to improve traffic operations at some intersections. Compounded with additional developments, it will also draw more traffic to some existing intersections. Consequently, four system intersections are expected to approach the V/C standard.
- Factoria (MMA 13): Of all the MMAs, Factoria has the highest average V/C ratios, 0.82 and 0.85 under both existing conditions and 2018 CP respectively. Under the 2017 existing condition, two intersections operated below the standard. This is expected to remain under the 2018 CP, within the congestion allowance of five.
- Newport Hills (MMA 14): this MMA has no designated system intersections.

Figures 2 and 3 depict the system intersection analysis results for the 2017 existing condition and the 2018 Concurrency Platform. Intersections operating below the concurrency standard (with V/C ratios exceeding the respective MMA V/C standard) are shown in red. Intersections that barely meet the concurrency standard (with calculated V/C ratios lower than but within 0.05 of the V/C standard) are shown in orange. The remaining System Intersections are shown in green, indicating they are within their respective MMA's concurrency standard.

## Conclusion

The funded transportation projects that increase vehicle capacity are able to accommodate the increased demand associated with new development permitted through December 31, 2017. All MMAs meet their congestion allowance and all MMAs are within the average V/C ratios allowed by the concurrency standard.

Following the release of this Concurrency Update Report, the 2018 Concurrency Platform (2018 CP; model version MP6-R15) will be used as the background condition for project-level development review modeling until a new concurrency update is completed.

Figure 2. 2017 Existing Condition (PM Peak) System Intersection Assessment

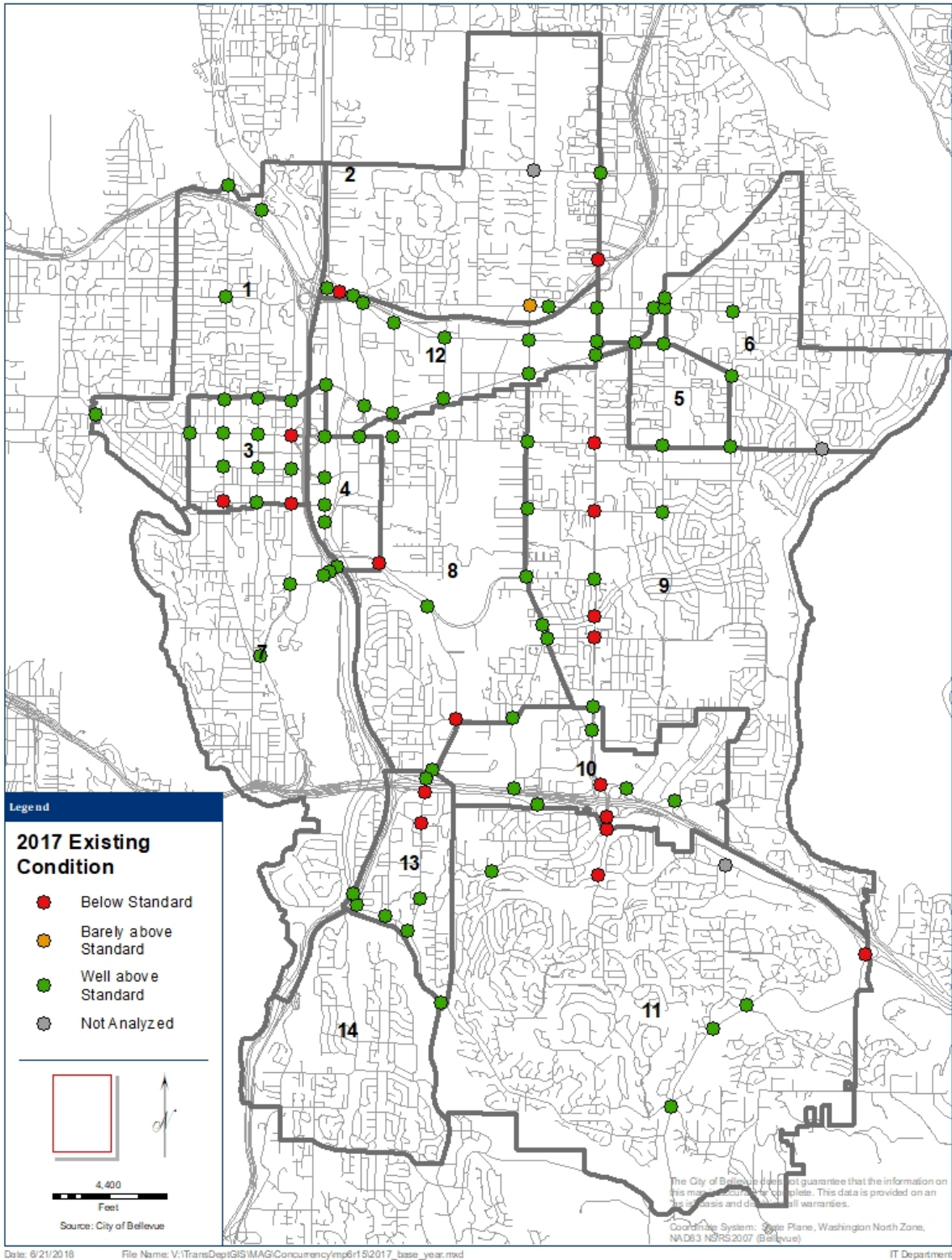
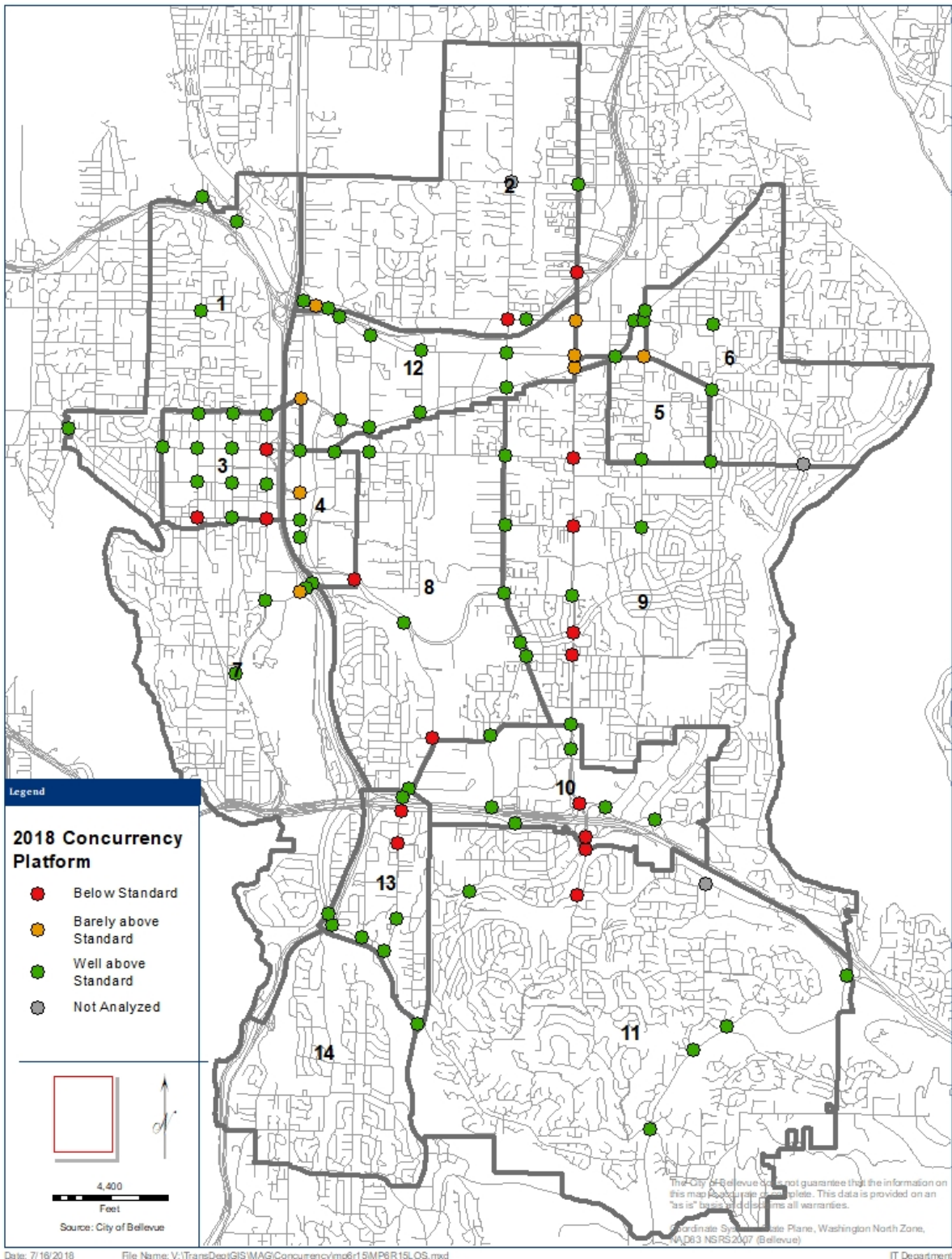


Figure 3. 2018 CP (PM Peak) System Intersection Assessment



## Appendix A: Glossary of Terms

**Approved development** is a new proposed development that has either received building permit or design approval from the city.

**Capital Improvement Program (CIP)** is the list of fully funded six-year vehicle capacity improvement projects as adopted every two years by the Bellevue City Council.

**Concurrency** is a requirement of the Washington State Growth Management Act (RCW 36.70A.070 (6), now or as hereafter amended) that the city must adopt level of service standard and enforce an ordinance precluding approval of a proposed development if that development would cause the level of service of a transportation facility to fall below the city's adopted standard, unless a financial commitment is in place to complete mitigating transportation improvements or strategies within six years.

**Concurrency standard** is a standard adopted in the city of Bellevue Traffic Standards Code (BCC Chapter 14.10) to meet GMA requirements. It establishes the City's transportation concurrency requirements, methodologies, and compliance determination process. It consists of two indicators: Congestion Allowance and maximum average system intersection V/C ratio by individual Mobility Management Area.

**Congestion allowance** means the number of signalized system intersections in a Mobility Management Area that are allowed to exceed the V/C standard adopted for that area as defined in the City's Traffic Standards Code.

**Highway Capacity Manual** is a traffic operation analysis procedural manual published by the Transportation Research Board. It is used by engineers and planners to assess the traffic and environmental effects of highway and arterial projects.

**Mobility Management Area (MMA)** is a geographic area, as defined in the City's Traffic Standards Code, for concurrency analysis and reporting purposes. There are 14 MMAs in the city. The MMA boundaries have evolved slightly over time to include newly annexed lands and to better align with existing land use characteristics, corridor travel patterns, and anticipated future development patterns.

**Model Platform MP6-R14** is the given model platform name and version where 6 represents a 6-year forecasting period and R14 indicates release number 14. It is the City's adopted model platform for concurrency review until the next version is available.

**Remaining capacity** refers to the capacity available in an MMA for additional vehicles before the V/C standard is exceeded. It is calculated by subtracting the modeled V/C ratio from the MMA concurrency standard.

**System intersections** means an intersection that contributes to the system function within each mobility management area. System intersections within the mobility management areas are listed and mapped in BCC 14.10.060.

**Travel demand model** refers to computerized program designed to perform travel demand forecast. It takes transportation networks and land use information as inputs. The City of Bellevue uses EMME software developed by Inro Inc. in Montreal, Canada.

**Traffic Standards Code** is Chapter 14 of the Bellevue City Code. It sets forth specific standards providing for city compliance with the concurrency requirements of the state Growth Management Act (GMA) and for consistency between city and countywide planning policies under the GMA. The GMA requires that transportation improvements or strategies to accommodate the traffic impacts of development be provided concurrently with development to handle the increased traffic projected to result from growth and development in the city and region.

**V/C ratio** is an indication of congestion at intersections and the ability of the intersection to accommodate transportation demand. Intersection V/C ratio is the sum of the approaching “critical” lane volumes divided by the available corresponding capacity for those lanes. Critical lane volume is the number of vehicles/hour that use the same travel space to get to their destination during the two-hour PM peak analysis period.

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