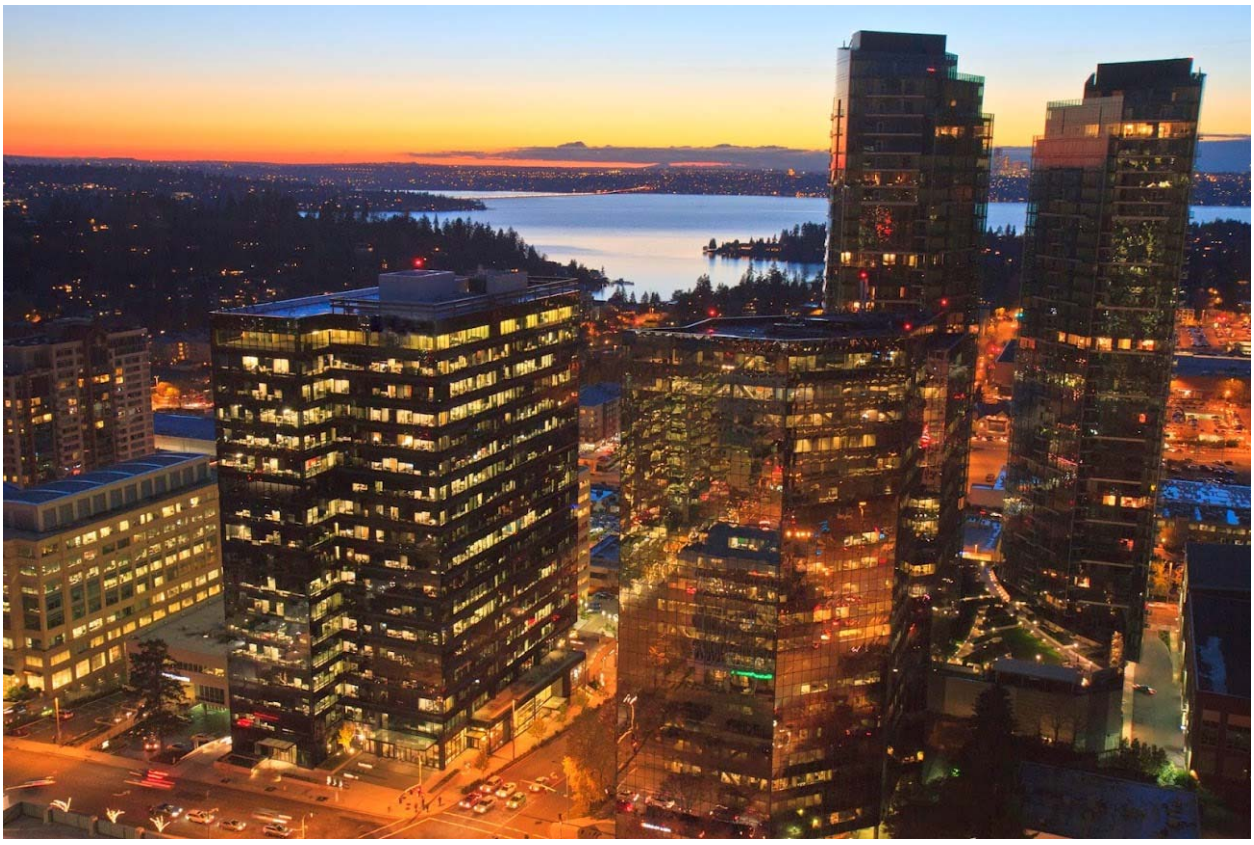
City of Bellevue
Transportation Department
Modeling and Analysis Group

Concurrency Update Report

Performance Snapshot

December 31, 2016



Prepared August 2017

Executive Summary

Model analysis indicates that the 2016-2022 Capital Improvement Program (CIP) projects are expected to accommodate the increased demand associated with new development approved through December 31, 2016. All Mobility Management Areas (MMAs) meet their congestion allowance, and all MMAs are within the average V/C ratios allowed.

For the first time, the impact of pedestrian crossings was considered in the concurrency update. Pedestrian crossings often reduce green time available to certain vehicle movements; this factor was not considered in the past due to lack of pedestrian data. Including pedestrian crossing factors in the analysis resulted in higher V/C ratios at intersections in downtown and other activity centers, which better reflects actual traffic operation conditions.

Because the analysis results represent average traffic conditions over a two-hour period from 4 PM to 6 PM, it is conceivable that travelers may experience worse traffic congestion than reported herein for short durations depending on the time of day and/or day of the week.

Concurrency Summary by MMA

MMA		Concurrency Standard		2016 Existing Condition				2017 Concurrency Platform			
				V/C Ratio Test		Congestion Allowance Test		V/C Ratio Test		Congestion Allowance Test	
		V/C Ratio	Congestion Allowance	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	0.62	Yes	0	Yes	0.63	Yes	0	Yes
2	Bridle Trails	0.80	4	0.68	Yes	1	Yes	0.67	Yes	1	Yes
3	Downtown	0.95	9	0.77	Yes	1	Yes	0.78	Yes	1	Yes
4	Wilburton	0.90	3	0.69	Yes	0	Yes	0.69	Yes	0	Yes
5	Crossroads	0.90	2	0.70	Yes	0	Yes	0.72	Yes	0	Yes
6	N-E Bellevue	0.80	2	0.69	Yes	0	Yes	0.68	Yes	0	Yes
7	South Bellevue	0.85	4	0.66	Yes	0	Yes	0.68	Yes	0	Yes
8	Richards Valley	0.85	5	0.68	Yes	1	Yes	0.71	Yes	1	Yes
9	East Bellevue	0.85	5	0.81	Yes	3	Yes	0.82	Yes	4	Yes
10	Eastgate	0.90	4	0.68	Yes	1	Yes	0.65	Yes	1	Yes
11	S-E Bellevue	0.80	3	0.60	Yes	1	Yes	0.57	Yes	1	Yes
12	Bel-Red/Northup	0.95	7	0.66	Yes	0	Yes	0.72	Yes	1	Yes
13	Factoria	0.95	5	0.83	Yes	2	Yes	0.85	Yes	2	Yes
14	Newport Hills*	-	-	-	-	-	-	-	-	-	-

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

Following the release of this Concurrency Update Report, the 2017 Concurrency Platform (2017 CP; model version MP6-R14) will be used as the background condition for project-level development review modeling until a new concurrency update is completed. The 2017 CP includes existing development plus the development approved through December 31, 2016 and the 2016-2022 CIP projects.

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 2011 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 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:

2016 Existing Condition represents the observed 2016 or latest traffic counts and existing roadway and intersection geometries and signal phasing.

2017 Concurrency Platform includes existing land use plus approved development with the City's six year CIP in place. It forms the basis for conducting future project level concurrency analysis. The Platform includes:

- existing land use information extracted from the King County Tax Assessor's Office as of December 31, 2016;
- 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, 2016; and
- 2016 existing roadway network, plus fully funded capacity improvement projects in the 2017 – 2023 CIP that are expected to be completed by 2022.

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 possible 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 defined for each MMA (congestion allowance.) The standards were adopted to be consistent with the land use vision for the 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 6-year EMME travel demand model platform (MP6), including trip generation, where broad categorical trip rates are derived from the regional household travel surveys conducted by the Puget Sound Regional Council.

A significant improvement to this Concurrency Update Report is the incorporation of pedestrian crossing factors in the analysis; this factor was not considered in the past due to lack of pedestrian data. Pedestrian crossings often reduce the green time available to certain vehicle movements, particularly right turns. Pedestrian impact was calculated based on the total number of pedestrians crossing during the PM peak hour. It is expressed as added V/C ratios

on top of the values calculated using the previous methodology. The added V/C ratios fall in the range from 0 (no pedestrian crossing observed) to 0.22 (the highest pedestrian volumes observed at locations such as the Bellevue Way NE/NE 8th St and 108th Ave NE/NE 4th St intersections). This methodology will be further refined in the next update.

The vehicle V/C analysis methodology is based on the Highway Capacity Manual (HCM) 2010, consistent with those in the past updates. The manual provides procedures to analyze intersection operation conditions. Assumptions include:

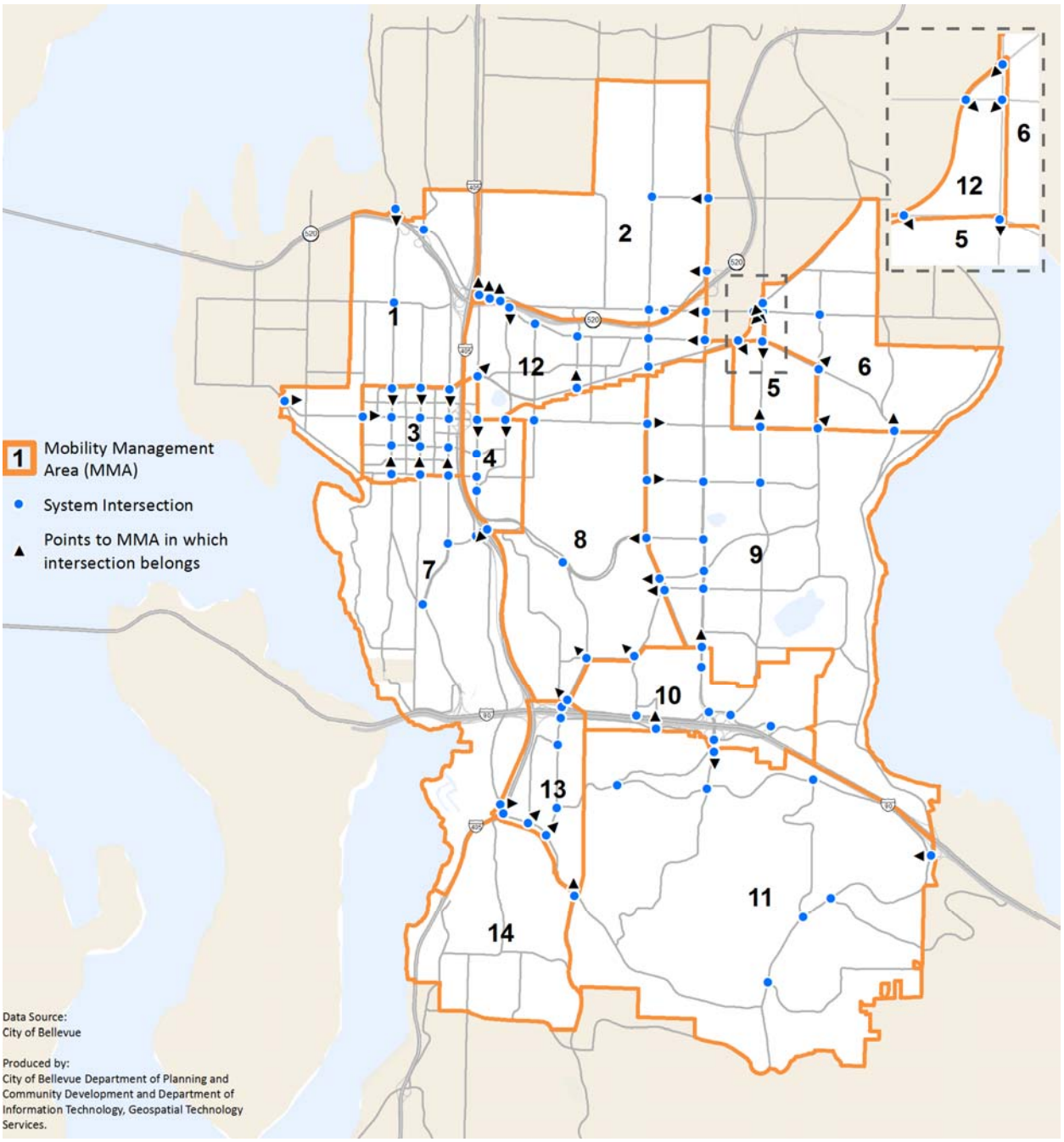
- Per the City's Traffic Standards Code (Chapter 14.10), traffic volumes are averaged over a two-hour period from 4 PM to 6 PM, which generally represents the most congested traffic conditions.
- V/C ratios are calculated at each individual system intersection. The average V/C ratio for all system intersections 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.

Because the analysis results represent average traffic conditions over a two-hour period from 4 PM to 6 PM, it is conceivable that travelers may experience worse traffic congestion than reported herein for short durations depending on the time of day and/or day of the week.

MMA Boundaries

Per the City's Traffic Standards Code, the city is divided into 14 MMAs. The MMA boundaries are shown in Figure 2.

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 2016. The existing land use information was extracted from the King County Tax Assessor's file as of December 31, 2016. Table 2 provides an MMA-level summary of the existing 2016 land use. The land use permit tracking system (AMANDA) is the source of new development approved by the City. The approved development data were processed by the Planning and Community Development Department. Permitted development represents the new increment of land use for concurrency testing. Table 3 lists major development approved as of the end of 2016. 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 more than 804,000 gross square feet (GSF) of Office, 32,400 GSF of Retail, and about 90,700 GSF of Other (institutional, industrial and hotel) spaces. In addition, 3,309 new multifamily dwelling units and 74 new single family homes with valid building permits are also included. Most of the approved development fall into two MMAs: Downtown and BelRed/Northup. 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 2016 Existing Land Use Summary

MMA	Subarea	Commercial (sqft)			Dwelling Units	
		Office	Retail	Others	MF	SF
1	North Bellevue	1,466,693	223,565	368,069	2,180	2,177
2	Bridle Trails	704,420	430,806	499,258	3,252	1,690
3	Downtown	10,798,328	3,967,590	2,903,968	9,473	-
4	Wilburton	1,285,632	688,749	1,008,980	605	76
5	Crossroads	153,921	604,780	216,189	3,499	50
6	Northeast Bellevue	426,995	14,393	478,408	255	3,312
7	South Bellevue	1,129,714	254,153	1,222,325	1,999	2,603
8	Richards Valley	212,432	76,782	278,049	3,523	2,491
9	East Bellevue	554,018	456,987	1,154,069	2,514	6,788
10	Eastgate	4,024,326	489,082	1,927,589	654	240
11	Southeast Bellevue	140,261	126,164	938,060	1,017	8,341
12	BelRed/Northup	2,557,564	2,443,385	3,701,426	841	1
13	Factoria	1,467,633	856,218	434,491	1,188	337
14	Newport Hills	10,439	96,830	167,315	472	2,670
Total		24,932,376	10,729,484	15,298,196	31,472	30,776

Source: King County Tax Assessor's Office as of December, 2016

Table 3 Approved Major Development as of December 31, 2016

Development Name	TAZ	MMA	Office (sqft)	Retail (sqft)	Others (sqft)	MF (units)
Park East Townhomes	61	1	-	-	458	8
888 Bellevue Tower	41	3	7,488	937	5,550	157
Alamo Manhattan B2	19	3	-	10,338	-	162
Bellevue Vuecrest - Residential Tower	8	3	-	-	-	137
Centre 425 - Tower(415 Bellevue Office)	30	3	307,414	(6,888)	7,581	-
ELEV8	36	3	-	82,964	-	797
Evergreen Plaza Apartments	26	3	(1,062)	1,069	-	154
Marriott AC Hotel	27	3	6,660	(615)	91,977	-
Metro 112 Phase II	25	3	-	-	-	57
One88 Bellevue Way NE	18	3	-	-	-	143
AutoNation Ford Bellevue: Showroom	213	4	20,657	-	-	-
Westridge Apartments	99	4	260	-	984	31
Breva Townhomes	86	5	-	-	(9,872)	29
Crossroads Village and Crossroads Senior Living	87	5	-	(62,315)	-	361
Viscaia Townhomes	88	5	-	-	-	15
IHS Transition Center Classroom Addition	646	6	-	-	8,625	-
Richard Bennett Elementary School replacement	92	6	-	-	54,538	-
East Main Station	134	7	-	-	12,378	(17)
Seattle Boat Newport	142	7	6,521	-	2,241	-
South Bellevue Station	126	7	2,124	-	11,218	-
Kelsey Creek Center - Building E	103	9	3,828	1,898	-	-
Sammamish High School	102	9	-	-	8,100	-
Tillicum Middle School replacement	108	9	-	-	91,150	-
Humane Society	114	10	51,160	-	(5,834)	-
Crossroads Bible Church Additions and Alterations	157	11	-	-	17,602	-
The Peak and Belvedere subdivisions	163	11	-	-	-	-
Aegis at Overlake	69	12	-	-	-	72
Fred Meyer	205	12	-	10,800	-	-
Hyde Square Apartments	83	12	(4,112)	(61,382)	1,246	618
Spring District	323	12	451,125	44,249	(224,160)	503
Vida and GIS Townhomes	201	12	-	-	-	57
Factoria Village Shopping Center	229	13	-	11,441	-	-
Windward Factoria Townhomes	228	13	-	-	-	24
Total			**852,063**	**32,496**	**73,782**	**3,308**

Source: City of Bellevue Planning & Community Development Department & Development Services Department

Table 4 Approved Development Aggregated by MMA (As of December 31, 2016)

MMA	Subarea	Office (sqft)	Retail (sqft)	Others (sqft)	MF (units)	SF (units)
1	North Bellevue	90	-	458	8	1
2	Birdle Trails	-	-	11,000	-	-
3	Downtown Bellevue	320,500	82,666	105,108	1,607	-
4	Wilburton	20,917	-	984	31	-
5	Crossroads	-	(62,315)	(9,872)	405	-
6	Northeast Bellevue	-	-	63,163	-	2
7	South Bellevue	9,725	-	25,837	(16)	9
8	Richards Valley	-	-	-	-	3
9	East Bellevue	4,308	1,898	100,224	-	8
10	Eastgate	54,205	4,062	(1,856)	-	-
11	Southeast Bellevue	-	1,000	18,572	-	32
12	BelRed/Northup	394,341	(6,333)	(222,914)	1,250	1
13	Factoria	-	11,441	-	24	5
14	Newport Hills	-	-	-	-	13
Total		**804,086**	**32,419**	**90,704**	**3,309**	**74**

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

Table 5 Existing Plus Approved Development for 2017 Concurrency Platform

MMA	Subarea	Office (sqft)	Retail (sqft)	Others (sqft)	MF (units)	SF (units)
1	North Bellevue	1,466,783	223,565	368,527	2,188	2,178
2	Bridle Trails	704,420	430,806	510,258	3,252	1,690
3	Downtown Bellevue	11,118,828	4,050,256	3,009,076	11,080	-
4	Wilburton	1,306,549	688,749	1,009,964	636	76
5	Crossroads	153,921	542,465	206,317	3,904	50
6	Northeast Bellevue	426,995	14,393	541,571	255	3,314
7	South Bellevue	1,139,439	254,153	1,248,162	1,983	2,612
8	Richards Valley	212,432	76,782	278,049	3,523	2,494
9	East Bellevue	558,326	458,885	1,254,293	2,514	6,796
10	Eastgate	4,078,531	493,144	1,925,733	654	240
11	Souteast Bellevue	140,261	127,164	956,632	1,017	8,373
12	BelRed/Northup	2,951,905	2,437,052	3,478,512	2,091	2
13	Factoria	1,467,633	867,659	434,491	1,212	342
14	Newport Hills	10,439	96,830	167,315	472	2,683
Total		**25,736,462**	**10,761,903**	**15,388,900**	**34,781**	**30,850**

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

Transportation Network

The adopted 2017-2023 CIP is the basis for identifying projects to be included in this analysis. The concurrency model network includes all fully funded projects that would be completed and in operation by 2022. These capacity projects include roadway widening, intersection signalization and channelization, and access improvements. I-90 auxiliary lanes between Eastgate and Issaquah funded by WSDOT is also included because it is expected to be completed by 2022. The East Link Light Rail scheduled for completion in 2023 is not included. The capacity project locations are shown in Figure 3. Major capacity projects are described in Table 6.

Traffic Counts

The latest PM peak two-hour average vehicle and pedestrian counts (mostly collected in spring, 2016) were used along with the 2016 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 2017 Concurrency Platform (MP6-R14) to account for model validation differences.

Figure 2 Capacity Projects Included in the 2017 Concurrency Platform Analysis

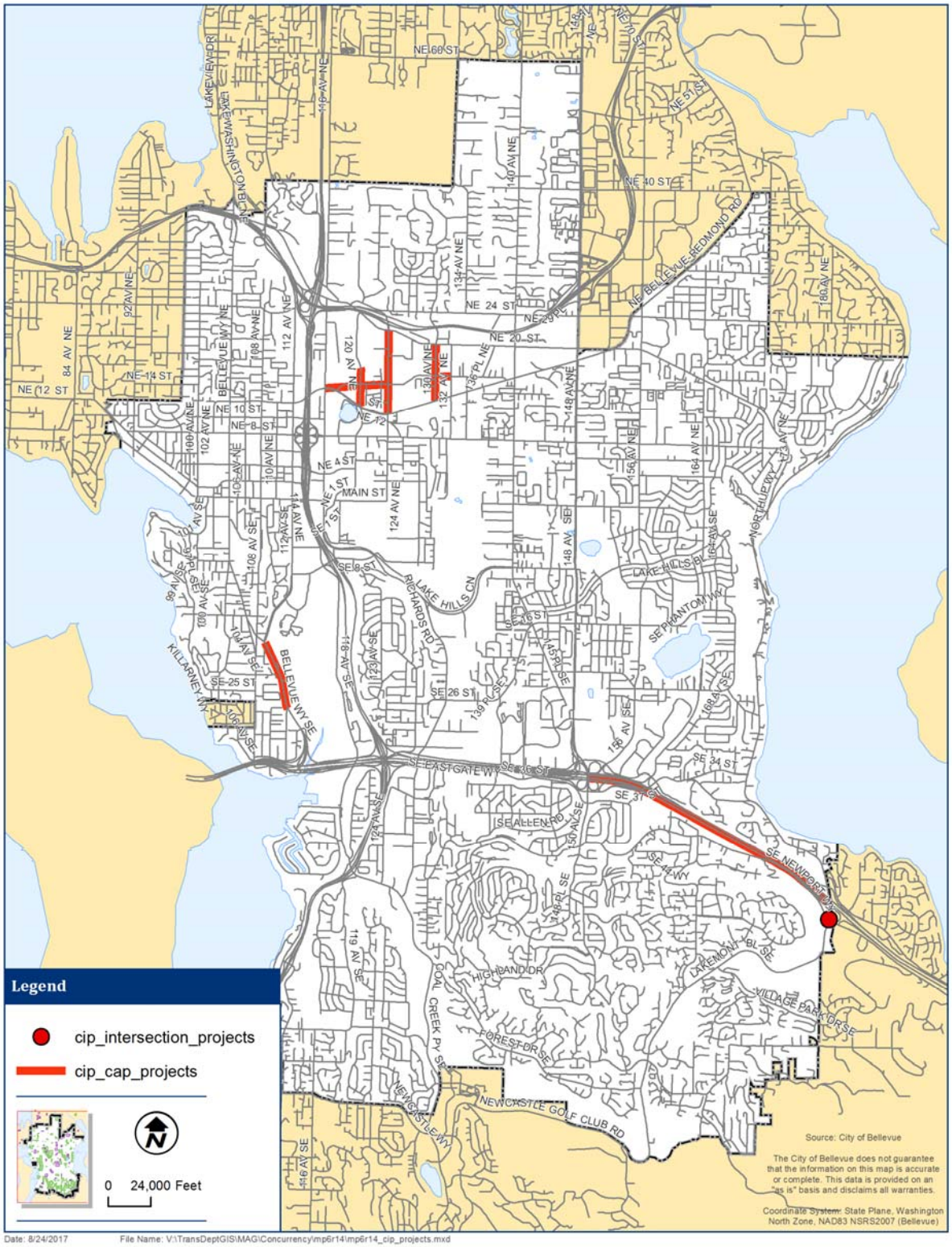


Table 6 Capacity Projects Included in the 2017 Concurrency Platform Analysis

CIP# or Sponsor	Project Name	Description
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-168	120th Avenue NE Improvements (Stage 3) - NE 12th Street to NE 16th Street	This project will extend the 120th Avenue NE widening from NE 12th Street to NE 16th 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. This stage of the project includes all intersection improvements at NE 12th 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 westbound travel lane, traffic signals at the 130th Avenue NE and 132nd Avenue NE.
R-184	Bellevue Way/ 112th Ave SE "Y" to I-90	Construct southbound HOV lane from South Bellevue Park & Ride and I-90 (funded by Sound Transit as part of the East Link project).
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, which will include travel lanes and turn lanes.
-	SE Newport Way/Lakemont Blvd. SE	Intersection lane usage redesignation and signal timing improvement
WSDOT	I-90 Auxiliary Lanes	Add an auxiliary lane each direction to I-90, eastbound from 150th Ave SE to Lakemont Blvd, westbound from SR 900 to Eastgate.

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		2016 Existing Condition				2017 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	0.62	0.23	0	3	0.63	0.22	0	3
2	Bridle Trails	0.80	4	0.68	0.12	1	3	0.67	0.13	1	3
3	Downtown	0.95	9	0.77	0.18	1	8	0.78	0.17	1	8
4	Wilburton	0.90	3	0.69	0.21	0	3	0.69	0.21	0	3
5	Crossroads	0.90	2	0.70	0.20	0	2	0.72	0.18	0	2
6	Northeast Bellevue	0.80	2	0.69	0.11	0	2	0.68	0.12	0	2
7	South Bellevue	0.85	4	0.66	0.19	0	4	0.68	0.17	0	4
8	Richards Valley	0.85	5	0.68	0.17	1	4	0.71	0.14	1	4
9	East Bellevue	0.85	5	0.81	0.04	3	2	0.82	0.03	4	1
10	Eastgate	0.90	4	0.68	0.22	1	3	0.65	0.25	1	3
11	Southeast Bellevue	0.80	3	0.60	0.20	1	2	0.57	0.23	1	2
12	BelRed/Northup	0.95	7	0.66	0.29	0	7	0.72	0.23	1	6
13	Factoria	0.95	5	0.83	0.12	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

Compared to past updates, the incorporation of pedestrian factors have resulted in higher V/C ratios for the MMAs with higher pedestrian activities such as Downtown and other activity centers including Crossroads, Eastgate, and Factoria. However, all MMAs still meet traffic standard under both existing conditions and the 2017 PC.

Under 2016 existing conditions, the V/C ratios for individual MMAs ranged from 0.60 (MMA 11 – SE Bellevue) to 0.83 (MMA 13 – Factoria). The average remaining capacity (the difference between calculated V/C ratio and V/C ratio standard) ranges from 0.04 (MMA 9 – East Bellevue) to 0.29 (MMA 12 – BelRed/Northup). Remaining capacity is the capacity available for accommodating future development before an MMA fails the concurrency standard. It is also an indicator of how close an MMA is to exceeding the V/C ratio threshold.

Under the 2017 Concurrency Platform with the funded capacity projects completed and approved development in place, the V/C ratios for individual MMAs range from 0.57 (MMA 11 - Southeast Bellevue) to 0.85 (Factoria).

Intersection Congestion Allowance 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 threshold*

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

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

Table 8 Intersection Analysis by MMA

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
69	Bellevue Way NE	NE 24th Street	0.65	Yes	0.64	Yes
74	Bellevue Way NE	Northup Way NE	0.62	Yes	0.63	Yes
78	108th Ave NE	Northup Way NE	0.63	Yes	0.63	Yes
93	Lk Washington B	NE 1st/NE 10 St.	0.58	Yes	0.60	Yes
Areawide			0.62	Yes	0.63	Yes

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
64	140th Ave NE	NE 24th Street	0.77	Barely	0.77	Barely
79	148th Ave NE	NE 40th Street	0.68	Yes	0.68	Yes
114	116th Ave NE	Northup Way NE	0.69	Yes	0.67	Yes
116	115th Place NE	Northup Way	0.58	Yes	0.63	Yes
118	Northup Way	NE 24th Street	0.49	Yes	0.48	Yes
123	140th Ave NE	NE 40th Street	-	-	-	-
188	148th Ave NE	NE 29th Place	1.00	No	0.99	No
189	NE 29th Place	NE 24th Street	0.44	Yes	0.45	Yes
Areawide			0.68	Yes	0.67	Yes

Note: Dashed mark indicates unsignalized intersection, which is not included in the calculations.

Table 8 Intersection Analysis by MMA, Cont'd

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
3	100th Ave NE	NE 8th Street	0.71	Yes	0.74	Yes
5	Bellevue Way NE	NE 12th Street	0.73	Yes	0.72	Yes
7	Bellevue Way NE	NE 8th Street	0.78	Yes	0.78	Yes
8	Bellevue Way NE	NE 4th Street	0.69	Yes	0.70	Yes
9	Bellevue Way	Main Street	0.74	Yes	0.74	Yes
20	108th Ave NE	NE 12th Street	0.48	Yes	0.48	Yes
21	108th Ave NE	NE 8th Street	0.78	Yes	0.78	Yes
22	108th Ave NE	NE 4th Street	0.81	Yes	0.81	Yes
24	108th Ave	Main Street	0.66	Yes	0.66	Yes
25	112th Ave NE	NE 12th Street	0.88	Yes	0.95	Barely
26	112th Ave NE	NE 8th Street	1.13	No	1.17	No
36	112th Ave	Main Street	0.79	Yes	0.80	Yes
72	112th Ave NE	NE 4th Street	0.68	Yes	0.70	Yes
Areawide			0.77	Yes	0.78	Yes

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
30	116th Ave NE	NE 8th Street	0.64	Yes	0.65	Yes
73	116th Ave	Main Street	0.62	Yes	0.61	Yes
131	116th Ave SE	SE 1st Street	0.69	Yes	0.71	Yes
139	116th Ave NE	NE 4th Street	0.81	Yes	0.84	Yes
233	120th Ave NE	NE 8th Street	0.69	Yes	0.68	Yes
Areawide			0.69	Yes	0.69	Yes

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
58	Bel-Red Rd	NE 20th Street	0.52	Yes	0.53	Yes
62	156th Ave NE	Northup Way	0.83	Yes	0.86	Barely
63	156th Ave NE	NE 8th Street	0.76	Yes	0.78	Yes
Areawide			0.70	Yes	0.72	Yes

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
75	164th Ave NE	NE 24th Street	0.61	Yes	0.61	Yes
76	164th Ave NE	Northup Way	0.68	Yes	0.67	Yes
87	164th Ave NE	NE 8th Street	0.78	Barely	0.78	Barely
111	Northup Way	NE 8th Street	-	-	-	-
Areawide			0.69	Yes	0.68	Yes

Table 8 Intersection Analysis by MMA Cont'd

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
14	112th Ave SE	Bellevue Way SE	0.68	Yes	0.70	Yes
89	112th Ave SE	SE 8th Street	0.55	Yes	0.56	Yes
102	118th Ave SE	SE 8th Street	0.85	Barely	0.84	Barely
219	I-405 NB Ramps	SE 8th Street	0.64	Yes	0.65	Yes
226	I-405 SB Ramps	SE 8th Street	0.57	Yes	0.64	Yes
Areawide V/C			0.66	Yes	0.68	Yes

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
35	124th Ave NE	NE 8th Street	0.72	Yes	0.73	Yes
43	140th Ave SE	SE 8th Street	0.75	Yes	0.76	Yes
44	145th Place SE	Lake Hills Blvd	0.59	Yes	0.60	Yes
45	145th Place SE	SE 16th Street	0.71	Yes	0.74	Yes
71	Lk Hills Connector	SE 8th St	0.89	No	0.91	No
82	Richards Rd	Kamber Rd	0.84	Barely	0.84	Barely
85	Richards Rd	SE 32nd Street	0.55	Yes	0.62	Yes
134	Richards Rd	Lk Hills Connector	0.56	Yes	0.58	Yes
280	139th Ave SE	Kamber Road	0.56	Yes	0.58	Yes
Areawide			0.68	Yes	0.71	Yes

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
41	140th Ave NE	NE 8th Street	0.84	Barely	0.86	No
42	140th Ave	Main Street	0.72	Yes	0.74	Yes
49	148th Ave NE	NE 8th Street	0.86	No	0.88	No
50	148th Ave	Main Street	0.93	No	0.93	No
51	148th Ave SE	Lake Hills Blvd	0.86	No	0.86	No
52	148th Ave SE	SE 16th Street	0.85	Barely	0.85	Barely
55	148th Ave SE	SE 24th Street	0.79	Yes	0.78	Yes
65	148th Ave SE	SE 8th Street	0.69	Yes	0.69	Yes
83	156th Ave	Main Street	0.78	Yes	0.78	Yes
Areawide			0.81	Yes	0.82	Yes

Table 8 Intersection Analysis by MMA Cont'd

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
56	148th Ave SE	SE 27th Street	0.67	Yes	0.66	Yes
86	156th Ave SE	SE Eastgate Way	0.54	Yes	0.38	Yes
92	161st Ave SE	SE Eastgate Way	0.44	Yes	0.45	Yes
101	150th Ave SE	SE Eastgate Way	0.84	Yes	0.77	Yes
171	142nd Ave SE	SE 36th Street	0.68	Yes	0.73	Yes
227	150th Ave SE	I-90 EB Off-Ram	0.98	No	0.97	No
272	139th Ave SE	SE Eastgate Way	0.36	Yes	0.36	Yes
Areawide			0.68	Yes	0.65	Yes

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
99	Somerset Blvd	SE Newport Way	0.61	Yes	0.60	Yes
133	150th Ave SE	SE Newport Way	0.98	No	0.98	No
174	150th Ave SE	SE 38th Street	0.78	Barely	0.78	Barely
218	Lakemont Blvd	SE 63rd St	0.38	Yes	0.34	Yes
228	Lakemont Blvd	SE Newport Way	0.77	Barely	0.58	Yes
242	164th Ave SE	Lakemont Blvd	0.42	Yes	0.34	Yes
257	164th Ave SE	SE Newport Way	0.39	Yes	0.31	Yes
274	Village Park Dr	Lakemont Blvd	0.33	Yes	0.30	Yes
Areawide			0.60	Yes	0.57	Yes

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
29	116th Ave NE	NE 12th Street	0.74	Yes	0.96	No
32	120th Ave NE	NE 12th Street	0.49	Yes	0.59	Yes
34	124th Ave NE	Bel-Red Rd	0.76	Yes	0.78	Yes
37	130th Ave NE	Bel-Red Rd	0.57	Yes	0.61	Yes
39	140th Ave NE	NE 20th Street	0.71	Yes	0.72	Yes
40	140th Ave NE	Bel-Red Rd	0.67	Yes	0.64	Yes
47	148th Ave NE	NE 20th Street	0.86	Yes	0.89	Yes
48	148th Ave NE	Bel-Red Rd	0.89	Yes	0.90	Yes
59	Bel-Red Rd	NE 24th Street	0.64	Yes	0.65	Yes
60	156th Ave NE	Bel-Red Rd	0.70	Yes	0.72	Yes
61	156th Ave NE	NE 24th Street	0.87	Yes	0.89	Yes
68	130th Ave NE	NE 20th Street	0.56	Yes	0.74	Yes
81	148th Ave NE	NE 24th Street	0.84	Yes	0.85	Yes
88	124th Ave NE	Northup Way NE	0.47	Yes	0.64	Yes
117	120th Ave NE	NE 20th Street	0.29	Yes	0.35	Yes
Areawide			0.66	Yes	0.72	Yes

Table 8 Intersection Analysis by MMA Cont'd

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

Intersection			2016 Existing Condition		2017 CP	
ID#	Cross Streets		V/C	Standard Met?	V/C	Standard Met?
13	Coal Creek Park	Forest Drive	0.76	Yes	0.78	Yes
13	Richards Rd	SE Eastgate Way	0.80	Yes	0.83	Yes
13	128th Ave SE/Ne	SE Newport Way	0.82	Yes	0.84	Yes
13	SE Newport Way	Coal Creek Parkway	0.70	Yes	0.68	Yes
13	128th Ave SE	SE 36th Street	1.00	No	0.99	No
13	I-405 NB Ramps	Coal Creek Parkway	0.53	Yes	0.54	Yes
13	I-405 SB Ramps	Coal Creek Parkway	0.86	Yes	0.93	Barely
13	128th Ave SE	SE 38th Place	1.07	No	1.07	No
13	124th Ave SE	Coal Creek Parkway	0.78	Yes	0.83	Yes
Areawide			0.83	Yes	0.85	Yes

Under 2016 existing conditions, the total number of intersections failing the MMA V/C standard test is 10. This is within the 56 maximum number of failing intersections allowed (congestion allowance) for all MMAs.

Under the 2017 CP, with the CIP completed and approved development in place, all MMAs meet their respective congestion allowance standards. Although the number of intersections failing the standard test is expected to increase from 10 to 12, this is still within the 56 intersections allowed. 9 intersections are expected to be within 0.05 of the V/C ratio standard threshold for the respective MMA. The City will continue to closely monitor the operation of these intersections in the future.

- North Bellevue (MMA 1): In 2016, all four system intersections met the standard. This is not expected to change under the 2017 CP.

- Bridle Trails (MMA 2): Compared to the 2016 report, the MMA V/C ratio increased noticeably due to higher than average pedestrian crossings at three of the intersections. However, very little change in traffic conditions is expected from 2016 to 2022. The number of intersections operating below the standard is expected to remain at one, which is within the congestion allowance.

- Downtown Bellevue (MMA 3): Due to heavy pedestrian activity, this MMA saw the greatest increase in V/C over the last reporting period. The analysis indicates that one intersection is operating below the standard threshold under existing conditions. One additional intersection is expected to approach the threshold under the 2017 CP. Although the overall MMA's V/C ratio is expected to increase noticeably in the next six years due to higher intensity of development activity, this is still within the traffic standard set for the MMA.

- Wilburton (MMA 4): All five system intersections met the standard in 2016. No major changes are expected under the 2017 CP.

- Crossroads (MMA 5): In 2016, all three system intersections met the standard. One intersection is expected to approach the MMA's V/C threshold under the 2017 CP.

- North-East Bellevue (MMA 6): All of the system intersections met the standard with one approaching the V/C threshold under existing conditions. No major change is expected under the 2017 CP.

- South Bellevue (MMA 7): All five system intersections met the standard in 2016 with one operating at the threshold. No major change is expected under the 2017 CP.

- Richards Valley (MMA 8): Very little change is projected from 2016 to 2022. The number of intersections operating below the standard is expected to remain at one, with one additional intersection operating near the standard threshold.

- East Bellevue (MMA 9): Of all the MMAs, this MMA has the smallest cushion between the calculated V/C and the standard thresholds. Under existing conditions, the MMA's average V/C ratio is 0.81 compared to the standard threshold of 0.85; the number of intersections exceeding the standard threshold is 3 compared to the congestion allowance of 5. Under the 2017 CP, one more intersection is projected to exceed the standard V/C threshold, bringing the total number of intersections below the standard to four. This meets the standard but should be closely monitored in future development reviews.

- Eastgate (MMA 10): Compared to the 2016 report, the MMA V/C ratio increased noticeably due to higher than average pedestrian crossings at some of the intersections. The number of intersections failing the V/C standard test is one under both existing conditions and 2017 CP. Under the 2017 CP, the completion of the auxiliary lane project on I-90 between Eastgate and Issaquah is projected to improve traffic operations in this MMA, particularly along Eastgate Way at 150th Ave SE and at 156th Ave SE.

- Southeast Bellevue (MMA 11): The number of intersections operating below the standard under both the 2016 existing condition and the 2017 CP is one. Under existing conditions, Lakemont Blvd at SE Newport Way is one of two intersections that "barely" meet the standard. With a low cost improvement to change the southbound left and through shared lane to an exclusive left turn lane, the intersection is expected to see significant improvement, resulting in a noticeably improved overall MMA V/C ratio.

- Bel-Red (MMA 12): Under the 2016 existing condition, all intersections met the standard. This MMA gets significant shares of both new development and new capacity projects. The completion of Spring Blvd Phase 1 is expected to improve traffic operations at some intersections. Compounded with additional development, it will also draw more traffic to some existing intersections. Consequently, one intersection is expected to fall below the standard under the 2017 CP. This is within the congestion allowance of seven.

- Factoria (MMA 13): Of all the MMAs, Factoria has the highest average V/C ratios under both existing conditions and 2017 CP. Under existing conditions, two intersections operate below the standard. This is expected to remain under the 2017 CP, but one more intersection is predicted to approach the threshold, or "barely" meet the standard. This is within the congestion allowance of five.

- Newport Hills (MMA 14): this MMA has no designated system intersections.

Figures 4 and 5 depict the system intersection analysis results for the 2016 existing condition and the 2017 Concurrency Platform. Intersections operating below the concurrency standard (with V/C ratios exceeding the respective MMA V/C threshold) 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 well within their respective MMA's concurrency standard.

Conclusion

The funded transportation projects are able to accommodate the increased demand associated with new development permitted through December 31, 2016. 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 2017 Concurrency Platform (2017 CP; model version MP6-R14) will be used as the background condition for project-level development review modeling until a new concurrency update is completed.

Figure 4 2016 Existing Condition (PM Peak) System Intersection Assessment

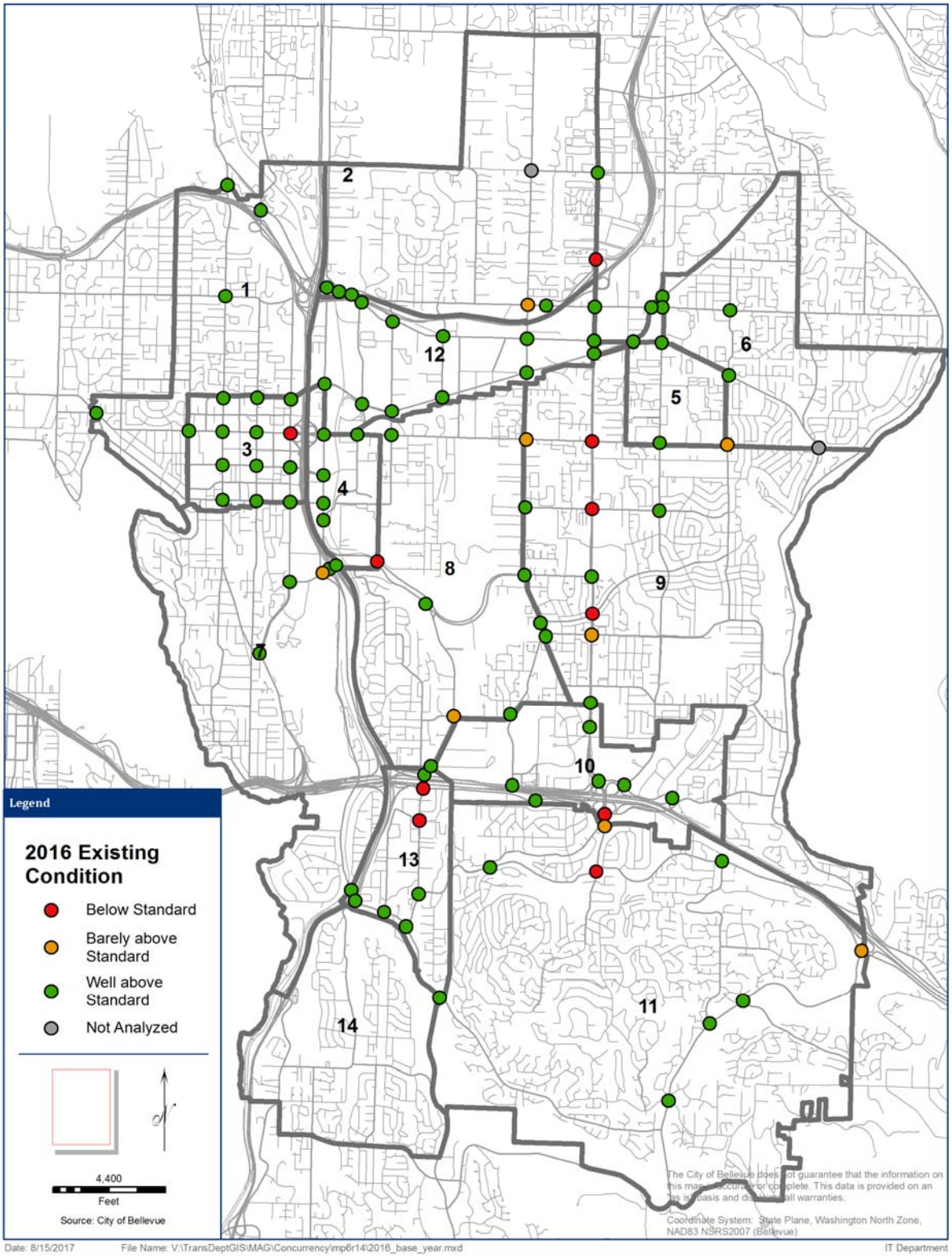
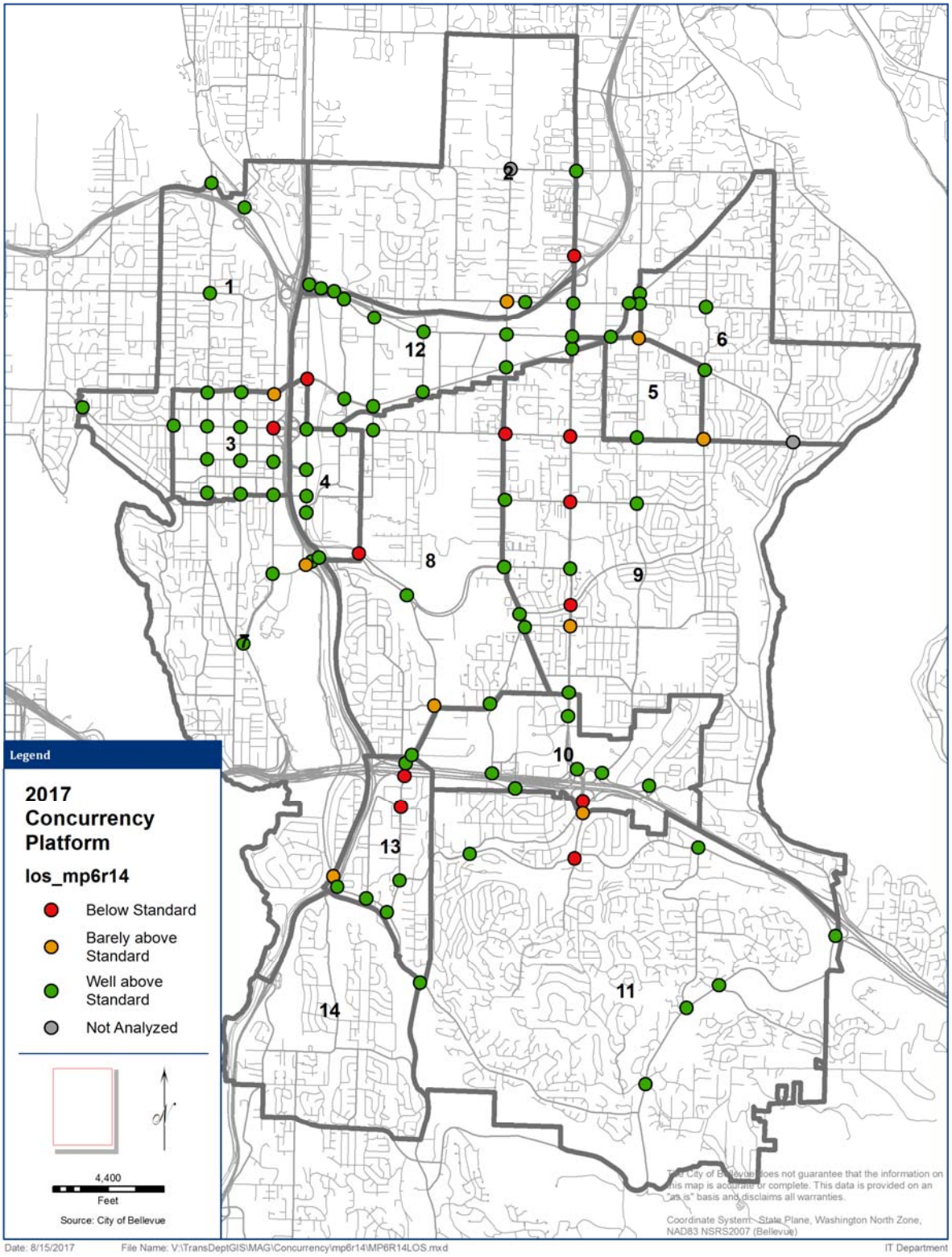


Figure 5 2017 CP (PM Peak) System Intersection Assessment



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 capacity improvement projects as adopted every two years by the Bellevue City Council.

Concurrency is a requirement of the Washington State's Growth Management Act (RCW 36.70A.070 (6), now or as hereafter amended) that the city must 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's 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 particular Mobility Management Area allowed to exceed the V/C ratio 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 performing 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 and anticipated future development patterns.

Model Platform MP6-R14 is the given model platform name and version where 6 represents 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 ratio threshold is exceeded. It is calculated by subtracting the modeled V/C ratio from the V/C ratio associated with a particular MMA concurrency standard.

System intersections means an intersection which 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 and the ability of the facility to support 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 that want to occupy the same travel space to get to their destination.

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