

DRAFT

Technical Memorandum 4

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FUTURE SYSTEM OPERATIONS

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IAMP 21

Interchange Area Management Plan for the  
Interstate-5 Exit 21 Interchange

October 30, 2014

Rev. December 1, 2014

Oregon Department of Transportation  
Region 3

# INTRODUCTION

This memorandum provides a summary of the future traffic conditions as they relate to Interstate 5 (I-5) Interchange 21 in Talent, Oregon. It covers future vehicular, freight, pedestrian, and bicyclist volumes; intersection operations; and safety for the area surrounding Interchange 21, which is referred to as the Area of Primary Impact (API). The memorandum was prepared as part of the development of an interchange area management plan (IAMP) for Interchange 21.

## FUTURE YEAR (2038) TRAFFIC CONDITIONS

The future year traffic analysis evaluates conditions for the year 2038, which is consistent with regional forecasting for the Rogue Valley. The analysis evaluates growth within the API based upon population and employment forecasts.

## FUTURE TRAFFIC VOLUME DEVELOPMENT

Future traffic volumes were developed using the Rogue Valley Metropolitan Planning Organization (RVMPO) travel demand model version 3.1, which is based upon regional long-range land use assumptions for the year 2038. The travel demand model is maintained by the Oregon Department of Transportation's (ODOT's) Transportation Planning Analysis Unit and includes a base year of 2006 and a future year of 2038. The base and future year travel demand models were used as the basis for comparison between existing and future conditions.

Turning movement traffic forecasts for intersections within the API were developed from the 2006 and 2038 model forecasts and existing year 2014 30th highest design hour volumes. Percentage changes in the base and future model volumes were calculated and applied to existing year 2014 30th highest design-hour volumes to develop future year 2038 design-hour volumes. Inbound and outbound links were post-processed, balanced, and then converted into turning movements at intersections, consistent with ODOT's Analysis Procedures Manual.

## FUTURE YEAR (2038) OPERATIONAL ANALYSIS

A future year 2038 analysis was prepared for study area intersection within the API using future traffic volumes developed using the previously described methodology. The following subsections summarize the results of that analysis.

### *Future Year (2038) Analysis Assumptions*

No major transportation improvements for the API area are currently included in the Statewide Transportation Improvement Program, 2013-2038 Regional Transportation Plan, or a City of Talent capital improvement program. Furthermore, no improvements funded by other means are currently planned for the API. As such, the future year analysis described in this memorandum assumed the same lane configurations as exist today. One exception to this is an assumption that the 4-lane section of West Valley View Road between OR 99 and Oak View Drive will be

1 widened to a 5-lane section when the property on the south side of West Valley  
 2 View Road between Mountain View Drive and OR 99 is developed. This will create a  
 3 continuous 5-lane section between the bridge over Bear Creek immediately west of  
 4 I-5 and OR 99. The City is currently updating its Transportation System Plan (TSP)  
 5 and is considering a 3-lane section scenario along West Valley View between I-5 and  
 6 OR 99. The evaluation of strategies for inclusion in the IAMP will consider this  
 7 scenario.

8 **Future Year (2038) Intersection Analysis**

9 Traffic analyses for the future year 2038 scenario were performed at API  
 10 intersections and for merge/diverge sections of I-5. Free-flow operations were  
 11 evaluated at I-5 ramps to and from West Valley View Road, as well as I-5 segments  
 12 upstream, downstream, and in-between the ramps under future year 2038 PM peak-  
 13 hour conditions. Results are summarized in Table 1.

14  
 15 **Table 1. Future Year 2038 PM Peak Hour Free-Flow Merge/Diverge Analysis Results**

Segment	V/C	LOS
I-5 NB freeway (south of off-ramp)	0.47	C
I-5 NB off-ramp diverge	0.47	B
I-5 NB freeway (in between on/off ramps)	0.42	B
I-5 NB freeway (north of on-ramp)	0.50	B
West Valley View Road to I-5 NB loop ramp merge	0.42	C
I-5 SB freeway (north of off-ramp)	0.61	C
I-5 SB off-ramp diverge	0.61	C
I-5 SB freeway (in between off/on ramps)	0.55	C
I-5 SB freeway (south of on-ramp)	0.57	C
West Valley View Road to I-5 SB ramp merge	0.55	C

16 Notes:  
 17 1. Data derived from 2010 Highway Capacity Manual output.  
 18 NB=northbound; SB=southbound; v/c=volume to capacity; LOS=level of service

19 The merge and diverge analysis for the design hour between 4:30 and 5:30 PM  
 20 shows that the freeway and the merge and diverge points associated with  
 21 Interchange 21 ramps are forecasted to operate well below the mobility standard of  
 22 0.80. During this period, the southbound direction continues to have the higher  
 23 directional flow on the freeway.

24 Future year 2038 traffic operations were evaluated at API intersections during the  
 25 PM peak hour. Results are summarized in Table 2. Refer to Figures 1 and 2 for  
 26 future intersection lane configurations/traffic control and traffic operations. The  
 27 results show that all API intersections are forecasted to operate within performance  
 28 standards and have available capacity.

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Table 2. Future Year 2038 PM Peak-Hour Traffic Operations

Intersection or Driveway Approach	Performance Standard		Movement	2038 PM Peak Hour	
	OHP <sup>1</sup>	City		V/C	LOS
OR 99 & W Valley View Road	0.90	D	Overall	0.53	B
Development Area 5 <sup>2</sup> & W Valley View Road	N.A.	D	NB L/T/R WBT	0.17 0.26	C A
Oak Valley View Road & W Valley View Road	N.A.	D	SB L/R WBT	0.02 0.27	B A
Mountain View Road & W Valley View Road	N.A.	D	NB L/R WBT	0.07 0.20	B A
Brammo (formerly Walmart) <sup>3</sup> & W Valley View Road	N.A.	D	Overall	0.42	B
Siskiyou View Road & W Valley View Road	N.A.	D	SB L/T/R WBT/R	0.07 0.41	C A
I-5 SB ramps & W Valley View Road	0.85	N.A.	SB L/T EBT	0.59 0.25	N.A.
I-5 NB ramps & W Valley View Road	0.85	N.A.	EB L/R SBT/R	0.29 0.26	N.A.
Suncrest Road & W Valley View Road	0.95	D	WB L/R NBT/R	0.04 0.03	A A

Notes:

- 1999 Oregon Highway Plan Policy 1F applies to existing and no-build conditions through the planning horizon.
  - Figures 1 and 2 show the location of Development Area 5. It is area 5 shown in Figure 7, Major Areas of Vacant and Developable Land in the Study Area, in Technical Memorandum 2, Existing Conditions. The evaluation of operations included a street intersection or driveway approach from Development Area 5 directly across from Talent Plaza and the Talent Plaza driveway approach.
  - Figures 1 and 2 show the location of Brammo, which occupies the former Walmart building. The evaluation of operations included the driveway approach from Brammo and the driveway approach from the Chevron service station directly across from Brammo.
- EB=eastbound; WB=westbound; NB=northbound; SB=southbound; L=left; T=through; R=right; v/c=volume to capacity; LOS=level of service

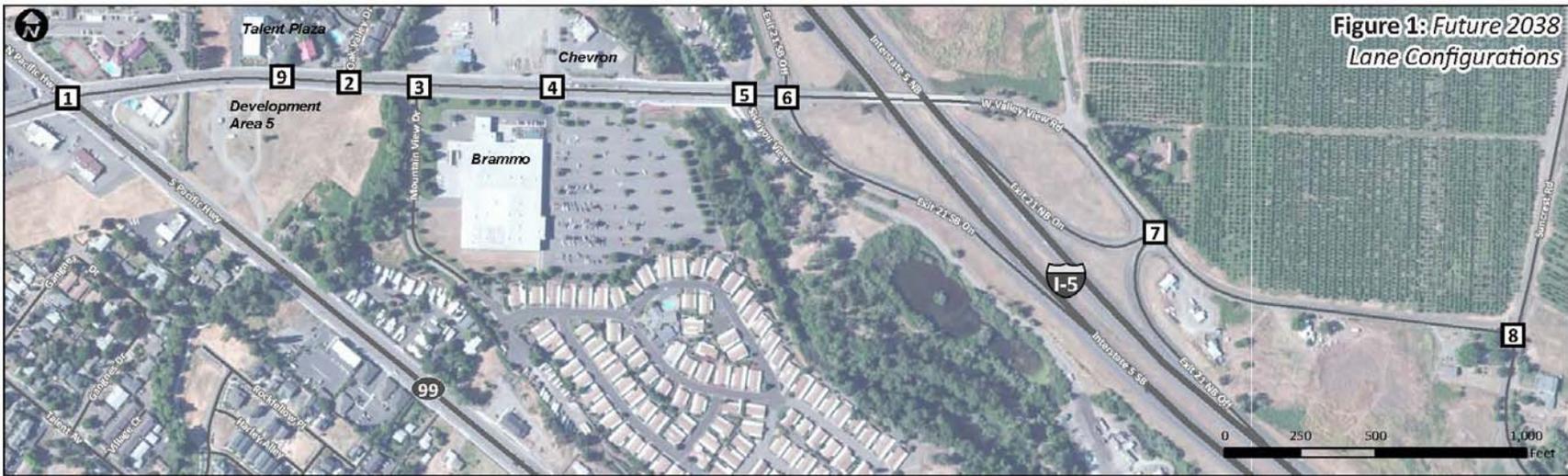
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### 13 **Queuing and Blocking**

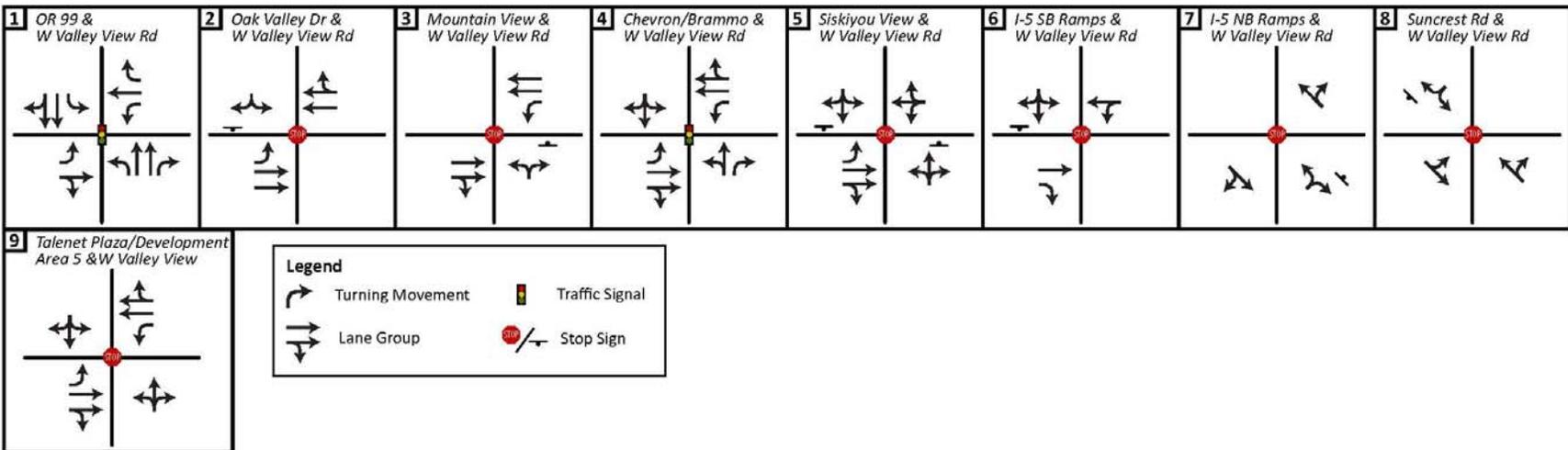
14 Queue lengths for future year 2038 conditions are reported as the 95th percentile  
 15 queue length. Queue lengths were derived at API intersections using SimTraffic. Five  
 16 simulations were run and averaged. Results of the analysis showed that no link  
 17 distances were exceeded under future conditions during the PM peak hour.

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Figure 1: Future 2038 Lane Configurations



Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aergrid, IGN, IGP, and the GIS User Community

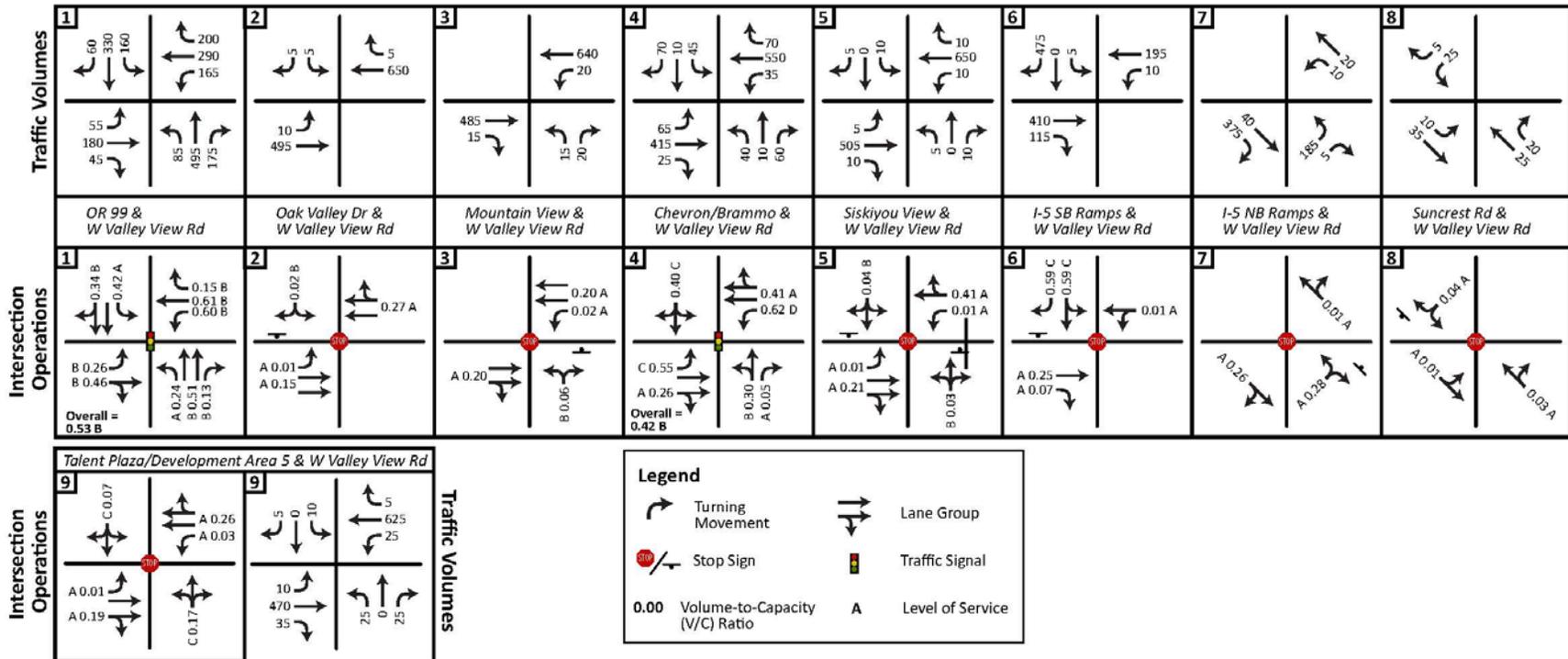


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Figure 2: Future 2038 Traffic Volumes and Operations

Source: Esri, InRoads, USDA, USGS, AeroX, GeoEye, Gettyimages, AeroGRID, IGN, IGP, and the GIS User Community



**Legend**

- Turning Movement
- Lane Group
- Stop Sign
- Traffic Signal
- Volume-to-Capacity (V/C) Ratio
- Level of Service

1 ***Freight Movements***

2 I-5 is a designated freight route and freight from I-5 accesses City of Talent  
3 businesses via West Valley View Road. No issues were identified with freight traffic  
4 under existing conditions, and this continues to be the case under future conditions.  
5 Land east of I-5 is mainly rural residential and agricultural and is not expected to  
6 change by the future year 2038. Most land west of I-5 is either developed for  
7 commercial uses or zoned for commercial uses and expected to develop accordingly.  
8 However, this is not expected to create any issues with freight traffic as a result of  
9 congestion, roadway geometrics, weight/height restrictions, or overall safety.

10 ***Non-Motorized Movements***

11 Pedestrian and bicycle facilities on West Valley View Road are complete west of I-5,  
12 but are limited east of I-5 where West Valley View Road becomes rural and changes  
13 jurisdiction from the City of Talent to Jackson County. Pedestrian and bicycle  
14 facilities east of I-5 are expected to stay the same under future year 2038 conditions,  
15 because development east of I-5 is expected to be limited and pedestrian and bike  
16 improvements are unlikely as a result. West of I-5, pedestrian and bicycle facilities  
17 are complete, but may undergo changes as a result of concepts being evaluated in  
18 the City's TSP update. These concepts seek to improve bike and pedestrian activity  
19 along West Valley View and provide better facilities to and from the Bear Creek  
20 Greenway.