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Transportation Development Division**  
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**TO: James Feldman, Region 2**

**FROM: Katie Brown EIT, Transportation Analyst/Modeler  
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Transportation Planning Analysis Unit**

**SUBJECT: Hwy OR 99W South Corvallis Facility Plan  
Methodology and Assumptions Memorandum**

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This memorandum documents the methodology and key assumptions to be used in generating the existing, future, and alternative conditions analyses for the Project. The Oregon Department of Transportation (ODOT) [Analysis Procedures Manual](#) (APM) will guide the methodologies and assumptions for this analysis.

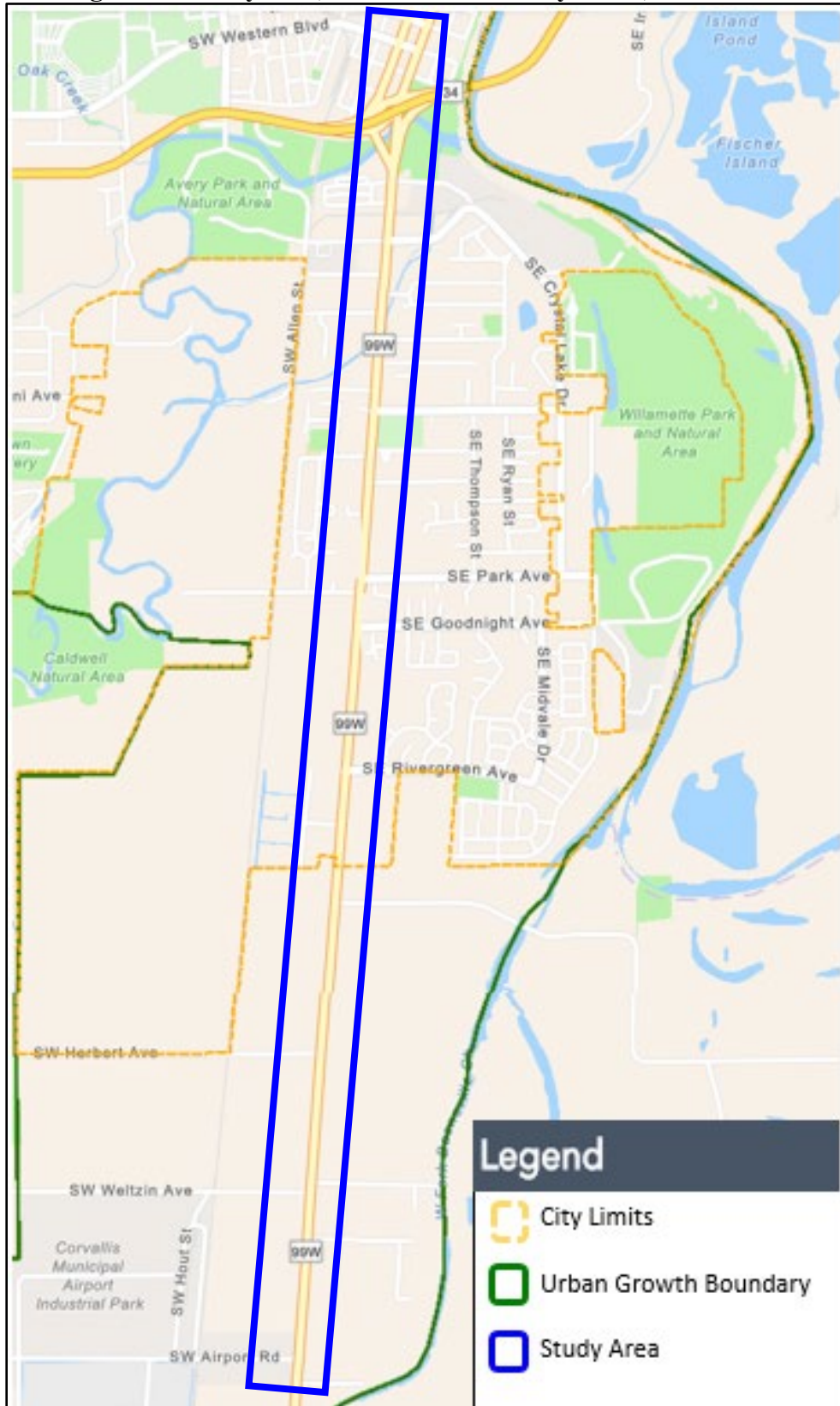
### **Project Purpose and Area**

The primary purpose of this Project is to make the OR 99W corridor a more safe, comfortable, and attractive place to walk and bike while also addressing traffic operations, mobility, and access. The recently completed Transportation System Plans (TSP) for the city and county cite this Project as a high and medium priority Project, respectively. The consultant is to develop a facility plan that addresses the OR 99W highway corridor, in the Corvallis area, from SW Western Boulevard at the north to the City of Corvallis urban growth boundary at the south, see project extent in Figure 1.

Objectives for the project include:

- Safety for all modes using or crossing OR 99W, including Safe Routes to School;
- Improved comfort and aesthetics for pedestrians and bicyclists along and crossing the corridor;
- Address driveway, intersection, and corridor traffic access, operations, and mobility;
- Robust public involvement including stakeholders and interested parties from the City and County, the freight industry, and emergency services providers;
- Evaluate potential OR 99W alternatives that match the corridor vision, meet project goals, and align with the urban context of each unique segment; and,
- Identify and evaluate existing and potential US 20/OR 34 interchange ramp locations on OR 99W to improve walking and biking safety and circulation in concert with the development of the alternatives for the OR 99W corridor.

Figure 1 – Study area, South Corvallis City limits, UGB limits



**Study Intersections**

TPAU will perform vehicular operations analysis of the Project Area transportation system and identify existing deficiencies, as determined by the Task 3 Final Performance-Based Design Decision Framework. All analyses must focus on evening commute period conditions, unless otherwise discussed and agreed to by the Project Management Team (PMT). Intersection vehicular operational analysis, regardless of jurisdiction, must include the following:

- Volume-to-Capacity ratio
- Level-of-service
- Delay
- 95th percentile queuing (not simulation-based)

Study intersections have been limited from the originally planned list due to traffic count availability. The intersections excluded did not have historical counts available and due to the COVID-19 pandemic, taking new counts would not be representative of normal traffic patterns or volumes (see section on Volume Development that follows). Study intersections are shown in Table 1.

**Table 1 – Study Intersections Listed in Contract**

<b>Intersection</b>	<b>Full Turn movement available</b>	<b>Turn Movements will require Estimation</b>	<b>Not included as study intersection</b>
SW 4th St. at SW Western Blvd	●		
SW 3 <sup>rd</sup> St. at SW Western Blvd	●		
SW 4 <sup>th</sup> St. at SW B Ave			●
SW 3 <sup>rd</sup> St. at SW B Ave			●
SW Twin Oaks Cir / SE Chapman Pl at OR 99W		●	
SW Avery Ave. / Crystal Lake Dr at OR 99W	●		
SE Bridgeway Ave at OR 99W			●
SE Lilly Ave at OR 99W			●
SE Alexander Ave at OR 99W	●		
SE Viewmont Ave at OR 99W			●
SW Tunison Ave at OR 99W			●
SW Richland Ave at OR 99W			●
SE Park Ave at OR 99W	●		
SW Wake Robin Ave at OR 99W	●		
SE Goodnight Ave at OR 99W	●		
SE Rivergreen Ave at OR 99W	●		
SE Kiger Island Dr at OR 99W		●	
SW Airport Ave at OR 99W		●	

In order to develop turn movement volumes necessary for the analysis where only historical link based counts were available, several steps will be taken.

- The only turn movement counts available at SW 4<sup>th</sup> Street / SW Western Boulevard were from 2013 which is outside of the time range that is normally acceptable. The 2013 counts from SW 3rd Street / SW Western Boulevard were acquired to provide a comparison of volumes and turn movements to the 2017 counts at that location, to consider when creating turn movements at SW 4<sup>th</sup> St / SW Western Boulevard based on the 2013 turn movement counts and 2019 segment counts.
- In order to estimate turn movements at the intersection of OR 99W with SW Twin Oaks Circle / SE Chapman Place, the Institute of Transportation Engineering (ITE) Trip Generation Manual will be used to estimate trips on the side streets. The ITE Manual publishes current state-of-the practice entering and exiting vehicle trips by land use accepted industry wide. These values will be used to infer volumes generated by adjacent establishments (First Alternative Co-op, Papa's Pizza, and Corvallis Sports Park).
- At the south end of the study area, the two intersections of SE Kiger Island Drive and SW Airport Avenue with OR 99W will use the directional split demonstrated at the intersection of SE Rivergreen Avenue: 49% northbound and 51% southbound. The east and west legs of these two intersections will assume a 50/50 split given no directional information is available to develop an alternative assumption.
- Alternatives analysis will use forecasts from the intersections where historic counts were available, and tube counts for link level analysis where appropriate. If alternatives need analysis requiring pedestrian, bicycle, or turn movement volume data at additional locations for which counts were not available, estimation of volumes ranges for pedestrians, bicyclists, turn movements and side street volumes will need to be made using engineering judgement, with Region 2 Traffic approval, and comparing to both a higher and lower estimate of volumes towards defining an acceptable operational range.

## **Volume Development**

### **2020 Base Year Volumes**

Due to the abnormal traffic patterns caused by the COVID-19 pandemic, taking new counts would not be representative of normal traffic conditions. The traffic volumes are not only reduced relative to 2019 volumes, but also the origin/destination patterns are atypical. This is caused by a variety of governor mandated closures of locations such as schools and restaurants, as well as teleworking being much more prevalent. Specific to the study area,

- Oregon State University (OSU) is conducting classes primarily on-line;
- Lincoln Elementary School is not holding on site classes; and
- Reduced activity related to outdoor sports and traditional larger gatherings in nearby parks (Avery Park, Crystal Lake Park, and Willamette Park)

For that reason, the most recent historical counts available were obtained from several sources. The counts will be seasonally and historically adjusted to create 2020 base year volumes. Counts from Quality Counts were in 5 minute time intervals with the following vehicle classification:

- Cars (FHWA classes 1-3)
- Heavy vehicles (FHWA classes 4-13)
- Bicycles
- Pedestrians

Counts at three intersection were obtained from a Goodnight Residential Development Transportation Impact Analysis (TIA). These counts were taken in March 2020 while OSU was in session and prior to COVID-19 transportation impacts. The TIA data were in 15 minute time intervals with the following vehicle classifications:

- Cars (FHWA classes 1-3)
- Medium trucks (FHWA classes 4-7)
- Articulated trucks (FHWA classes 8-13)
- Bicycles on Road
- Bicycles on Crosswalk
- Pedestrians

Bicyclist and pedestrian camera counts at the four marked pedestrian Rectangular Rapid Flashing Beacon (RRFB) crossings within the study area were desired, but were not able to be acquired at this time.

The peak hour for the study area is 4:45 pm - 5:45 pm with a commuter trend. The peak hour was determined through an analysis of existing historical counts along OR 99W within the study area. Of the 18 counts reviewed, seven had a peak hour beginning at 4:45 pm, five had a peak hour beginning 15 minutes earlier at 4:30 pm, three had a peak period beginning half an hour earlier at 4:15 pm, two had a peak period beginning 15 minutes later at 5:00 pm, and there was one outlier with a peak period at 2:15 pm. The peak period was chosen not only because it aligns with the majority of the analyzed counts, but also because it captures the majority of the peak period for most of the counts. It also aligns with the peak hour chosen for the Goodnight TIA.

The intersection turn movement traffic count details are shown in Table 2.

**Table 2: Intersection Turn Movement Traffic Counts in the Study Area**

<b>Intersection</b>	<b>Count Date</b>	<b>Count Duration</b>	<b>Count Type</b>	<b>Source</b>
SW 4 <sup>th</sup> St / SW Western Blvd	2/12/2013	4-6 pm	Video	Quality Counts
SW 3 <sup>rd</sup> St / SW Western Blvd	2/12/2013	4-6 pm	Video	Quality Counts
	5/31/2017	3-6 pm	Video	Quality Counts
OR 99W / SW Avery Ave & Crystal Lake Dr	5/31/2017	3-6 pm	Video	Quality Counts
	6/1/2017	6-9 am	Video	Quality Counts
OR 99W / Alexander Ave	5/31/2017	3-6 pm	Video	Quality Counts
	6/1/2017	6-9 am	Video	Quality Counts
OR 99W / SE Park Ave	5/31/2017	3-6 pm	Video	Quality Counts
	3/4/2020	7-9 am, 4-6 pm	Video	Goodnight TIA
OR 99W / SW Wake Robin Ave	3/4/2020	7-9 am, 4-6 pm	Video	Goodnight TIA
OR 99W / SE Goodnight Ave	3/4/2020	7-9 am, 4-6 pm	Video	Goodnight TIA
OR 99W / SE Rivergreen Ave	5/31/2017	3-6 pm	Video	Quality Counts

The study area segment traffic counts are identified in Table 3. The segment counts in Table 3 differ from the intersection counts in Table 2 in that only traffic volume data is available without the additional turn movement information.

Table 3: Segment Traffic Counts in the Study Area

Segment	Count Date	Count Duration	Count Type	Source
SW 4 <sup>th</sup> St north of SW Western Blvd	5/15/2019	24 hours	Video no Pedestrians	ODOT
SW 4 <sup>th</sup> St north of SW Western Blvd	5/15/2019	24 hours	Video no Pedestrians	ODOT
SW 3 <sup>rd</sup> St north of SW Western Blvd	5/15/2019	24 hours	Video no Pedestrians	ODOT
SW 3 <sup>rd</sup> St south of SW Western Blvd	5/15/2019	48 hours	Tube	ODOT
SW 4th (SB OR 99W) to WB 34/20	5/6/2019	48 hours	Tube	ODOT
WB OR 34 to SB OR 99W	9/10/2018	48 hours	Tube	ODOT
OR 99W between OR 34 ramps, on Mary's River Bridge	5/6/2019	48 hours	Tube	ODOT
SB SW 4 <sup>th</sup> St on to OR 99W	5/13/2019	48 hours	Tube	ODOT
EB 20/34 to NB 3 <sup>rd</sup> /OR 99W	9/10/2018	48 hours	Tube	ODOT
NB OR 99W to EB OR 34/20	5/6/2019	48 hours	Tube	ODOT
SW Avery Ave 0.2 miles west of OR 99W	10/25/2016	24 hours	Tube	ODOT
OR 99W north of Avery Ave/Crystal Lake Dr	5/7/2019	48 hours	Tube	ODOT
OR 99W south of Avery Ave/Crystal Lake Dr	5/7/2019	48 hours	Tube	ODOT
OR 99W south of Mayberry Ave	5/15/2019	24 hours	Tube	ODOT
OR 99W north of SE Viewmont Ave	5/7/2019	48 hours	Tube	ODOT
OR 99W south of SE Goodnight Ave	5/7/2019	48 hours	Tube	ODOT
SE Goodnight Ave east of OR 99W	8/8/2017	48 hours	Tube	ODOT
OR 99W North of SE Kiger Island Dr	5/7/2019	48 hours	Tube	ODOT
SE Kiger Island Dr east of OR 99W	8/8/2017	48 hours	Tube	ODOT
OR 99W south of SW Airport Ave	5/7/2019	48 hours	Tube	ODOT

### **Seasonal Adjustment Factors**

The counts that will be used in this analysis will be adjusted to the 30<sup>th</sup> highest hour conditions (30HV) pm peak hour volumes using seasonal factors. There is no ATR within the study area, so the on-site ATR method is not an option.

Because the characteristics change along the OR 99W corridor, distinct segments will be identified with an appropriate seasonal factor for each. All segments have a commuter weekday traffic trend with an Oregon Highway Plan (OHP) classification of regional highway; however, the area type, number of lanes and Average Annual Daily Traffic (AADT) vary. The 2019 Transportation Volume Tables AADT volumes for the project area along Pacific Highway West No. 91 (SW 2<sup>nd</sup> St/SW 3<sup>rd</sup> St/OR 99W) range from a low volume of 5,800 vpd (vehicles per day) at the south end of the study area to a high volume of 25,600 vpd just north of SW Avery Avenue/Crystal Lake Drive. There are stretches of the corridor with two through lanes, four through lanes, and a couplet with three lanes in each direction. The segmentation will be delineated as identified in Table 4.

**Table 4 – Study Segments and Seasonal Factor Type to be Used**

<b>Segment</b>	<b>OR 99W Lanes</b>	<b>AADT from 2019 TVT tables</b>	<b>Comparable ATR Characteristic Entry</b>	<b>Seasonal Trend Method</b>
1. Couplets	3 lanes single direction	12,700-14,300		●
2. Interchange Ramps (OR 99W OR 34 and US 20)	1 lane	2,200-3,100		●
3. South end of couplet to north of Alexander Ave	4 lanes	24,100-25,600	●	
4. Alexander Ave to Goodnight Ave	4 lanes	21,700-19,600		●
5. Goodnight Ave to Kiger Island Dr	4 lanes	11,700		●
6. Kiger Island Dr to south extent of study area	2 lanes	5,800-8,200		●

The processes used for the seasonal adjustment factors are detailed below.



**ATR Characteristic Table**

The ATR Characteristic Table is used when there is not an ATR available on-site to provide for the seasonal adjustment factor. It is a table that contains all the ATRs and some general characteristics that allow one to search for ATRs that are on roadways with similar characteristics.

Segment 3: South end of couplet to north of Alexander Avenue

After reviewing the ATR Characteristic Table, Salem Parkway ATR No. 24-022 (urbanized commuter weekday trends) will be used for the study area intersections from north of Alexander Avenue north to the south end of the couplet. The characteristics of this ATR are presented in Table 5 and the ATR Trend Summary in Table 6.

**Table 5: Salem Parkway ATR 24-022 Characteristics**

2019 SEASONAL TRAFFIC TREND	AREA TYPE	# OF LANES	WEEKLY TRAFFIC TREND	2019 AADT	OHP CLASSIFICATION	ATR NUMBER	COUNTY	HIGHWAY ROUTE, NAME, & LOCATION	MP	STATE HWY NUMBER
COM	URBANIZED	4	WEEKDAY	25300	REGIONAL HWY	24-022	MARION	OR99E, SALEM HIGHWAY, 0.87 MILE NORTH OF HYACINTH STREET N.E.	0.67	72

**Table 6: Salem Parkway ATR No. 24-022 Percent Average Weekday Traffic**

Count Month	2015	2016	2017	2018	2019
Peak Month August	111	<del>118</del>	110	111	<del>110</del>
May	104	<del>104</del>	108	108	<del>110</del>
June	109	<del>112</del>	111	111	<del>108</del>

As shown in Table 6, the percentage of Average Weekday Traffic (AWDT) values listed during the peak month, August, and count months, May and June, for the past five available years are reviewed to calculate the average. The highest and lowest values, shown as shaded, are dropped from this calculation. The average monthly factors are determined as follows:

- The average peak month (August) is:  $(111\% + 110\% + 111\%) / 3 = 111\%$ .
- The average for counts taken May 31/ June 1 is:  $((104 + 109) / 2 + (108 + 111) / 2 + (108 + 111) / 2) / 3 = 109\%$ .
- The average for count month May is:  $(104\% + 108\% + 108\%) / 3 = 107\%$ .
- The average for count month June is:  $(109\% + 111\% + 111\%) / 3 = 110\%$ .
- The August / May seasonal adjustment =  $111\% / 107\% = 1.04$ .
- The August / June seasonal adjustment =  $111\% / 110\% = 1.01$ .
- The August / May 31-June 1 seasonal adjustment =  $111\% / 109\% = 1.02$ .

Counts taken in early to mid-May on intersections north of Alexander Avenue to the south end of the couplet will to be seasonally adjusted by a factor of 1.04. Counts taken May 31/June 1 along this stretch will be seasonally adjusted by a factor of 1.02.

**Seasonal Trend Method**

The seasonal trend table (Table 7) is used when there is not an ATR nearby or in a representative area. This table provides one factor for each seasonal trend, created by averaging seasonal trend groupings from the ATR Characteristic Tale. The correct values are obtained by applying the appropriate factor for the month the count was taken for the commuter trend and extrapolating when the count did not occur on the 1<sup>st</sup> or 15<sup>th</sup> of the month. Note that the peak period for the commuter trend is the middle of June as shown in Table 7. Counts taken at other times will need to be factored as identified in Table 8.

**Table 7- 2019 Seasonal Trend Table**

TREND	1-Jan	15-Jan	1-Feb	15-Feb	1-Mar	15-Mar	1-Apr	15-Apr	1-May	15-May	1-Jun	15-Jun
COMMUTER	1.159784	1.162443	1.195429	1.228415	1.163004	1.097593	1.070404	1.043215	1.037359	1.031503	1.015751	1

TREND	1-Jul	15-Jul	1-Aug	15-Aug	1-Sep	15-Sep	1-Oct	15-Oct	1-Nov	15-Nov	1-Dec	15-Dec
COMMUTER	1.012288	1.024575	1.01646	1.008344	1.018484	1.028624	1.027628	1.026631	1.062342	1.098053	1.119644	1.141235

**Table 8 – Seasonal Factors**

Count Date	Seasonal Factor
2/12/2013	1.22
3/4/2020	1.15
5/6/2019	1.04
5/7/2019	1.04
5/13/2019	1.03
5/15/2019	1.03
5/31/2017	1.02
6/1/2017	1.02
8/8/2017	1.01
9/10/2018	1.02
10/25/2016	1.05

**Historical year adjustment**

In addition to adjusting count volumes seasonally, it is necessary to adjust them to the base year of 2020. The Future Volume Table (FVT) is used to calculate a historical factor. When a travel demand model (TDM) is available, the FVT indicates that the historical trend should be replaced by the model growth rate (future year divided by base year). Since a TDM is available for Corvallis Area MPO (CALM Version 3.001), the growth factors that will be applied to existing historical counts to equate them to the 2020 base year were developed from individual model links, and are listed in Table 9 and Table 10.

**Table 9 – Growth Factors for Intersection Historic Counts**

<b>Intersection</b>	<b>Count Date</b>	<b>Leg</b>	<b>Growth Factor</b>
SW 4 <sup>th</sup> St / SW Western Blvd	2/12/13	North	1.08
		South	1.10
		East	1.11
		West	1.07
SW 3 <sup>rd</sup> St / SW Western Blvd	2/12/13	North	1.10
		South	1.11
		East	1.07
		West	1.04
SW 3 <sup>rd</sup> St / SW Western Blvd	5/31/17	North	1.04
		South	1.05
		East	1.06
		West	1.02
OR 99W / SW Avery Ave & Crystal Lake Dr	5/31/17 & 6/1/17	North	1.06
		South	1.07
		East	1.14
		West	1.08
OR 99W / Alexander Ave	5/31/17 & 6/1/17	North	1.06
		South	1.09
		East	0.99
		West	1.00
OR 99W / SE Park Ave	5/31/17	North	1.06
		South	1.10
		East	1.03
OR 99W / SE Park Ave	3/4/20	Count taken in 2020	1.00
OR 99W / SW Wake Robin Ave	3/4/20	Count taken in 2020	1.00
OR 99W / SE Goodnight Ave	3/4/20	Count taken in 2020	1.00
OR 99W / SE Rivergreen Ave	5/31/17	North	1.15
		South	1.22
		East	1.31

**Table 10 – Growth Factors for Segment Historic Counts**

<b>Segment</b>	<b>Count Date</b>	<b>Growth Factor</b>
SW 4th St North of SW Western Blvd	5/15/2019	1.01
SW 4th St South of SW Western Blvd	5/15/2019	1.01
SW 3rd St North of SW Western Blvd	5/15/2019	1.01
SW 3rd St South of SW Western Blvd	5/15/2019	1.02
SW 4th (SB OR 99W) to WB 34/20	5/6/2019	1.02
WB OR 34 to SB OR 99W	9/10/2018	1.04
OR 99W between OR 34 ramps, on Mary's River Bridge	5/6/2019	1.02
SB SW 4th St on to OR 99W	5/13/2019	1.02
EB 20/34 to 3rd (NB OR 99W)	9/10/2018	1.00
NB OR 99W to EB 34/20	5/6/2019	1.03
SW Avery Ave 0.2 miles west of OR 99W	10/25/2016	1.10
OR 99W north of Avery Ave/Crystal Lake Dr	5/7/2019	1.02
OR 99W south of Avery Ave/Crystal Lake Dr	5/7/2019	1.02
OR 99W S. of Mayberry	5/15/2019	1.02
OR 99W north of SE Viewmont Ave	5/7/2019	1.03
OR 99W south of SE Goodnight Ave	5/7/2019	1.06
SE Goodnight Ave east of OR 99W	8/8/2017	1.02
OR 99W north SE Kiger Island Dr	5/7/2019	1.05
SE Kiger Island Dr east of OR 99W	8/8/2017	1.00
OR 99W south of SW Airport Ave	5/7/2019	1.01

The historical and seasonal factors that have been developed in this section will be applied to the count volumes and then the segments will be balanced to create the existing volumes.

## **Future Year Volume Development**

Since a travel demand model (TDM) is available for Corvallis Area MPO, CALM Version 3.001, it is the recommended method for forecasting future volumes. A model run request will be made for the model base year of 2010 and future year of 2040 link volumes. Model volumes cannot be used directly in analysis and must be post-processed in accordance with NCHRP Report 765/255 methods to apply the relative differences in between the model scenarios to the current volumes to create the future volumes; this will be done for PM peak. The overall post processing steps are:

- Load current volumes into future network
- Compute annual growth rate for each link
- Adjust link volumes, using link annual growth rate, from the model base year (2010) to the count year (2020)
- Since design future year and model future year are the same, 2040, no adjustment of future year will be needed.
- Calculate the delta between future year link volumes calculated by both the difference and growth method, and choose which to use for each link:
  - If delta  $\leq$  15% use growth method for future link volume
  - If delta  $>$  15% use difference method for future link volume
- Balance inflow and outflow for each intersection, splitting any difference between the inflow and outflow
- Create turn movements with the TurnsW32 software at each intersection with input of model turn percentages from approach select links, 2040 forecast link inflow and outflow; output of movement estimates for intersection.
- Balance output from TurnsW32 to provide balanced 2040 volumes.

## **Traffic Analysis**

### **Intersection Operational Standards**

The study area falls within the Corvallis Area MPO (CAMPO) boundaries and the state jurisdiction operational standards used will be guided by Table 6 of the Amended 2011 Oregon Highway Plan (OHP) and Table 10-2 of the HDM (Highway Design Manual). The volume-to-capacity (V/C) ratio is used as a standard measure of intersection operations. The OHP and HDM provide different targets that are used for different purposes. The OHP mobility targets assist in the planning phase and help determine future system deficiencies so are used for current conditions as well as future no-build scenario. The HDM V/C's are used to develop a future year design life option that addresses stated future deficiencies, so are used to compare alternatives. Each roadway classification will be compared to its appropriate standard from the OHP and HDM. Table 11 shows the OHP and HDM V/C Ratio Targets. Because OR 99W is a Regional Highway, the HDM V/C target is not impacted by whether the facility is a Freight Route. However, a Freight Route designation does reduce the OHP V/C target.

**Table 11: State V/C Ratio Targets**

Roadway	V/C Targets	
	OHP <i>Current conditions, Future No-Build</i>	HDM <i>Alternatives</i>
Regional Highways (MPO)	0.95	0.85
District/Local Interest Roads (MPO)	0.95	0.85
Freight Route on a regional or District Highway (MPO)	0.90	N/A

The City of Corvallis 2018 TSP, Chapter 6 identifies the mobility standard for facilities under City jurisdiction to be a maximum v/c ratio of 0.85. For signalized intersections, the combined intersection v/c ratio (not individual legs) must comply with the standard. For unsignalized intersections, all movements serving 20 vehicles per hour or more must comply with the standard. The Benton County 2018 TSP, Chapter 4 indicates that two-way stop and yield controlled intersections under County jurisdiction must operate with a v/c ratio not higher than 0.90.

Since all of the study intersections are on ODOT facilities, the ODOT v/c standards apply. At signalized intersections where V/C targets differ by legs, the more restrictive of the volume to capacity ratios in the table shall apply. However, at unsignalized intersections, the appropriate standards will need to be applied to each leg individually per standard required by jurisdictional responsibility. The OHP has ODOT V/C considerations under Action 1.F.1 applying to the stopped non-state approaches. As stated in the OHP, meeting the targets in Table 11 “for the state highway approaches indicates that state mobility targets are being met. In order to maintain safe operation of the intersection, non-state highway approaches are expected to meet or not to exceed the volume to capacity ratios for District/Local Interest Roads” in Table 11.

**Table 12: City and County V/C Ratio Standards**

Roadway	V/C
<b>City of Corvallis</b>	
OR 99W at SE Park Ave	0.85
OR 99W at SW Wake Robin Ave	
OR 99W at SE Goodnight Ave	
<b>Benton County</b>	
OR 99W at Kiger Island Dr	0.90
OR 99W at Airport Ave	

### **Analysis Parameters**

Parameters for traffic analysis will be gathered using varying sources and methodologies. Data will be gathered via aerial photos as well as site visits. Table 13 lists some of the possible sources that will be used on specific parameters.

**Table 13: Analysis Parameters**

<b>Parameter</b>	<b>Description</b>	<b>Source</b>
Intersection/Roadway Geometry	Number of lanes, lane configurations, cross-sectional information	Aerial photos, field measurements, ODOT databases
Operational Data	Posted speeds, intersection control, parking, transit	Oregon digital video log, straight line charts, GIS data, aerial photos, field observation
Peak Hour Factor	PHF	Calculated from counts
Traffic Volumes	AADT, DHV, K & D-factors, truck percentages	Calculated from counts
Traffic Operations	V/C, LOS	HCM 6 <sup>th</sup> Edition Methodologies
Queuing	95 <sup>th</sup> percentile	SIDRA

### **Operational Analysis**

Existing 2020 conditions, future year 2040 conditions, and potential traffic solutions will be analyzed using the SIDRA traffic analysis software programs, following HCM 6<sup>th</sup> Edition procedures, and consistent with the APM. Analysis will be for 30HV or PM peak hour.

TPAU's analysis will include intersections. Volume-to-capacity (V/C) ratios will be manually calculated for signalized intersections per APM version 2. Analysis results will be compared to the operational standards as shown in Table 11 and Table 12. SIDRA will be used to evaluate all of, but not limited to, the following: corridor delays, route travel times, speed, number of stops, and 95<sup>th</sup> percentile queues.

### **Freight Analysis**

For 2020, 2040, and for potential traffic solutions TPAU will identify issues with truck freight movements on identified freight routes; including congestion and roadway geometrics for analyzed locations and corridors.

If you have any questions please contact  
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