

CHAPTER 10

FUTURE CONDITIONS

INTRODUCTION

Performance measures in this chapter are forecasts of future travel conditions—specifically traffic congestion. The forecasts are estimates produced by the Southern Oregon Activity Based Model (SOABM) travel demand model. The model, computer software that performs a series of calculations, is based on information the RVMPO obtained about future population and employment. Estimates of the numbers of people, jobs and their locations within the region are critical to the model. Also, the transportation network itself is represented in the model. The current system, including numbers of lanes, locations of intersections, signals, turn lanes and lane widths all can be significant to traffic flow and road capacity. Future conditions for all of these factors are estimated in consultation with local, state and federal agencies and governments, and are incorporated into the model for specific future years.

10.1 TRAVEL DEMAND MODELING

POPULATION ESTIMATES

Population forecasts provide the foundation for land use and transportation planning. In 2013 the state approved legislation (HB 2253) assigning coordinated population forecasting to the Population Research Center (PRC) at Portland State University (PSU). The legislation created the Oregon Population Forecast Program which is now responsible for developing county and urban growth boundary (UGB) level population forecasts for all Oregon counties (with the exception of the Portland Metropolitan region counties) and incorporated cities. The program develops coordinated forecasts with a 50-year forecast horizon at least once every four years. Forecasts are released in three groups based on defined regions. PSU released forecasts for Jackson County in 2018.

Table 10.1.1: Jackson County Coordinated Population Forecasts, 2018-2045

| Forecasts for Total Population | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|
| Area / Year | 2018 | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 |
| Jackson County | 219,270 | 224,980 | 235,066 | 246,611 | 257,256 | 266,910 | 275,829 |
| Ashland UGB | 21,501 | 21,788 | 22,539 | 23,196 | 23,544 | 23,630 | 23,617 |
| Butte Falls UGB | 419 | 412 | 420 | 427 | 434 | 440 | 446 |
| Central Point UGB | 19,101 | 19,714 | 21,035 | 22,920 | 24,815 | 26,707 | 28,553 |
| Eagle Point UGB | 9,188 | 9,515 | 10,034 | 11,159 | 12,298 | 13,444 | 14,575 |
| Gold Hill UGB | 1,234 | 1,238 | 1,274 | 1,307 | 1,338 | 1,366 | 1,392 |
| Jacksonville UGB | 2,985 | 3,056 | 3,199 | 3,483 | 3,767 | 4,044 | 4,311 |
| Medford UGB | 82,566 | 84,966 | 88,985 | 94,210 | 99,640 | 105,225 | 110,950 |
| Phoenix UGB | 4,861 | 4,896 | 5,051 | 5,331 | 5,591 | 5,826 | 6,063 |
| Rogue River UGB | 2,846 | 2,891 | 2,958 | 3,114 | 3,258 | 3,389 | 3,521 |
| Shady Cove UGB | 3,288 | 3,338 | 3,463 | 3,749 | 3,995 | 4,213 | 4,422 |
| Talent UGB | 6,416 | 6,489 | 6,796 | 7,314 | 7,743 | 8,142 | 8,551 |
| Outside UGB Area | 64,865 | 66,676 | 69,314 | 70,402 | 70,835 | 70,483 | 69,428 |
| Final Population Forecasts prepared by: Population Research Center, Portland State University, June 30th, 2018. | | | | | | | |
| Final forecasts represent populations as of July 1 of each year | | | | | | | |

The PSU forecasts assume that growth rates will decrease over time in Jackson County. The rationale for that assumption is described in detail in the Jackson County Coordinated Population Forecast report by PSU. The key reasons relate to in-migration rates and birth and death rates. Table 10.1.2 shows population change by period for the UGB's.

EMPLOYMENT FORECASTS

Unlike the population forecasts, there are no statewide employment forecasting requirements. The Oregon Employment Department prepares 10-year employment forecasts that RVMPO member jurisdictions use as a starting point in determining employment growth in their communities. Jurisdictions can choose to use the data provided by the RVMPO or provide their own employment data to be included in the model.

The employment estimates for 2017, as shown in Tables 10.1.2 and 10.1.3, were developed by using the model baseline data for 2017 provided by ODOT's Transportation Planning Analysis Unit.

Table 10.1.2: RVMPO Employment by Jurisdiction, 2017

| GEOGRAPHY | 2017 EMPLOYMENT TOTAL | PERCENTAGE OF OVERALL EMPLOYMENT |
|---------------|-----------------------|----------------------------------|
| ASHLAND | 10193 | 12.4% |
| CENTRAL POINT | 5049 | 6.1% |
| EAGLE POINT | 1390 | 1.7% |
| JACKSONVILLE | 923 | 1.1% |
| MEDFORD | 51255 | 62.2% |
| OTHER RVMPO | 11279 | 13.7% |
| PHOENIX | 1211 | 1.5% |
| TALENT | 1107 | 1.3% |
| | | |
| RVMPO | 82407 | 100.00 |

Source: 2017 data from TPAU

Table 10.1.3: RVMPO Employment by Sector, 2017

| SECTOR | 2017 | PERCENTAGE OF EMPLOYMENT |
|-------------|-------|--------------------------|
| SERVICE | 47937 | 58.17 |
| INDUSTRY | 12241 | 14.85 |
| RETAIL | 15958 | 19.36 |
| OTHER | 6271 | 7.61 |
| | | |
| ALL SECTORS | 82407 | 100 |

Source: 2017 data from TPAU

RVMPO Model

The model itself, the information and running the software, is a cooperative project between RVMPO and ODOT's Transportation Planning and Analysis Unit. This chapter looks at some of the results, or outputs, of the model – the answers the model provides to question about road capacity, congestion and delays.

The model provides answers on a regional level for a variety of analyses. Beyond the generalized, region-scale outputs that are reported in this chapter, and in the Air Quality Conformity Determination, the RVMPO utilizes the recently developed Southern Oregon Activity Based Model (SOABM) is the foundation for more detailed analyses that jurisdictions, developers and project managers conduct to estimate fine-grained conditions such as: How much traffic will be generated by a particular development, what road will be affected and to what extent?; How much traffic can be accommodated at a particular location and what happens to traffic conditions if a lane is added, or access points changed?; How large does a facility such as a freeway interchange have to be in terms of number of lanes and their length to accommodate future anticipated traffic?

For this RTP update, the model was used to evaluate the performance of the transportation system in future years, given the plan's forecasts for growth. Results are described in the following sections.

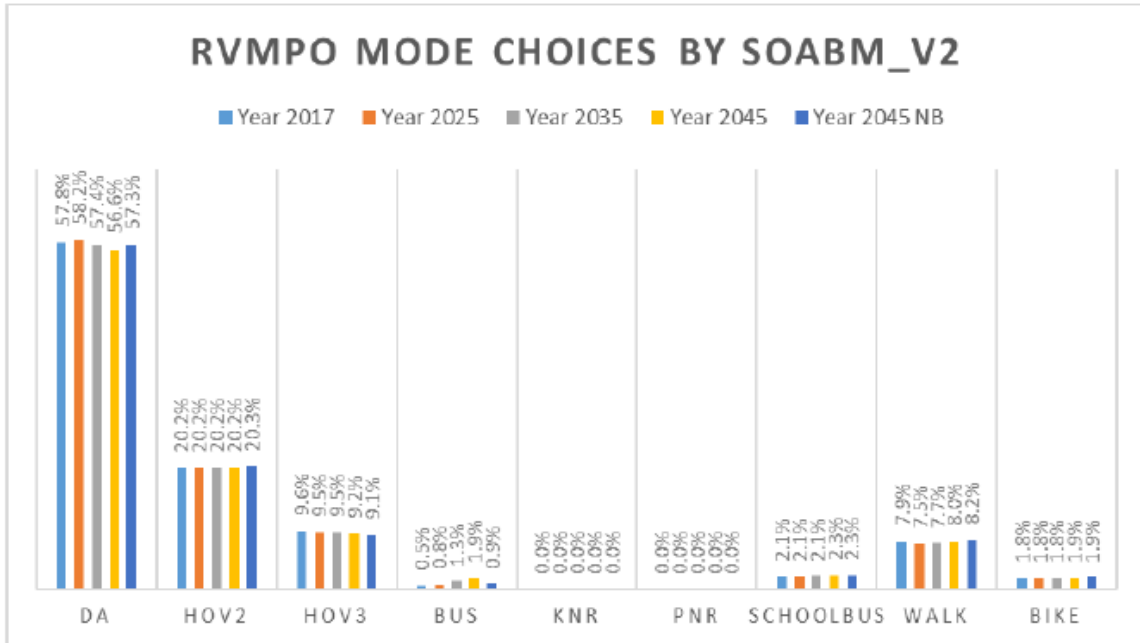
MODE SHARE

Table 10.1.4 shows the number of person trips and the mode choices utilized for those trips for the model years 2017, 2025, 2035, and 2045 according to the SOABM. The trips are sorted by nine different trip types: Drive Alone, High Occupancy Vehicle - 2 passengers, High Occupancy Vehicle – 3 passengers, Bus, Kiss-n-Ride, Park-n-Ride, School Bus, Walk, and Bike. In 2017, auto trips accounted for 87.6% of the mode share, transit 0.5%, and bicycling and walking 9.7%. In 2045, auto trips will make up 86% of the mode of travel (down by 1.6% from 2017). Transit's share of the region's travel mode will increase to 1.9% by 2045. Bike/Ped mode share is projected to increase to 10.1% by 2045.

Table 10.1.4: Travel Person Trips and Mode Choices

| All Person Trips | DA | HOV2 | HOV3 | BUS | KnR | PnR | SCHOOLBUS | WALK | BIKE | Total |
|------------------|---------|---------|--------|--------|------|------|-----------|--------|--------|-----------|
| Year 2017 | 470,693 | 164,862 | 78,374 | 4,402 | 214 | 85 | 16,776 | 64,747 | 14,651 | 814,804 |
| Year 2025 | 516,947 | 179,392 | 84,577 | 6,671 | 127 | 89 | 18,784 | 66,467 | 15,879 | 888,933 |
| Year 2035 | 566,599 | 199,212 | 93,699 | 13,134 | 229 | 131 | 21,118 | 75,634 | 18,112 | 987,868 |
| Year 2045 | 609,080 | 217,390 | 98,971 | 20,272 | 158 | 137 | 24,381 | 85,755 | 20,051 | 1,076,195 |
| Year 2045 NB | 617,396 | 218,980 | 97,744 | 9,757 | 154 | 96 | 24,636 | 88,041 | 20,837 | 1,077,641 |
| Mode Choices | DA | HOV2 | HOV3 | BUS | KnR | PnR | SCHOOLBUS | WALK | BIKE | Total |
| Year 2017 | 57.8% | 20.2% | 9.6% | 0.5% | 0.0% | 0.0% | 2.1% | 7.9% | 1.8% | 100.0% |
| Year 2025 | 58.2% | 20.2% | 9.5% | 0.8% | 0.0% | 0.0% | 2.1% | 7.5% | 1.8% | 100.0% |
| Year 2035 | 57.4% | 20.2% | 9.5% | 1.3% | 0.0% | 0.0% | 2.1% | 7.7% | 1.8% | 100.0% |
| Year 2045 | 56.6% | 20.2% | 9.2% | 1.9% | 0.0% | 0.0% | 2.3% | 8.0% | 1.9% | 100.0% |
| Year 2045 NB | 57.3% | 20.3% | 9.1% | 0.9% | 0.0% | 0.0% | 2.3% | 8.2% | 1.9% | 100.0% |

Figure 10.1.1: 2017 & 2045 Mode Share



FUTURE CONGESTION

Generally, travel demand modeling shows that the region can expect congestion to increase. Table 10.1.5 below shows conditions throughout the RVMPO at four points in the future.

Table 10.1.5 Future Conditions

| SOABM_v2 RTP2021-2045 RVMPO System-wide Evaluation Measures | | | | | |
|--|-------------------|-------------|-------------|-------------|-----------------|
| Scenario | Reference 2017 | RTP 2025 | RTP 2035 | RTP 2045 | NoBuild 2045 |
| Total Lane Miles | 2,811 | 2,823 | 2,834 | 2,840 | 2,823 |
| P.M. Peak Hour Speed (mph) | 32 | 32 | 31 | 30 | 31 |
| PM Peak Hour VMT | 275,291 | 295,476 | 332,476 | 358,497 | 358,768 |
| P.M. Peak Hour VHT | 8,612 | 9,330 | 10,711 | 11,762 | 11,690 |
| Congested Lanes Miles | 4.7 | 4.7 | 7.2 | 9.6 | 10.6 |
| % of Congestion | 0.2% | 0.2% | 0.3% | 0.3% | 0.4% |
| Daily Bus Mode Split | 0.6% | 0.8% | 1.4% | 1.9% | 0.9% |

As Table 10.1.5 shows, with implementation of the 2045 RTP the total of congested lane-miles will increase from 4.7 lane miles today to 9.6 lane miles in 2045. If the RTP projects were not pursued (the No Build Scenario) congested lane miles would increase to 10.6.

CONGESTED ROADS

Travel conditions on several key roads were examined with the model. Results on Table 10.1.6 and 10.1.7 show estimated 2017 and future conditions (2045). Travel conditions expressed are peak hour conditions, which are calculated to be typical conditions a motorist is likely to encounter at the late afternoon-early evening hours – the time of the greatest amount of travel in the RVMPO region. The numbers in the columns in these two tables are the number of lane miles on a particular road that are at the traffic volume ranges indicated in the first column.

Congestion is expressed as a ratio of travel demand, or number of vehicle trips to roadway capacity available to accommodate vehicles. High congestion indicates too many vehicles attempting to travel on the segment of road, causing delay. The estimates report peak hour travel - travel at certain hours in the day, generally mid-afternoon in the Rogue Valley. (Peak hour varies from region to region, dependent on conditions such as shift changes and school hours.) Congestion on the roads shown on these tables can lead to delays on intersecting roads as well.

Table 10.1.6 Model-estimated Demand/Capacity Ratios for Selected Corridors, 2017

| 2017 Reference PM Peak Hour Lane Miles in 8 Corridors | | | | | | | | |
|---|-------------|-----------|---------------------|---------------|-----------|------------|--------------|---------------|
| Demand/Capacity Ratios | Foothill Rd | Hwy 238 | Hwy 62 / Old Hwy 62 | Hwy 62 Bypass | Hwy 99 | I-5 | N Phoenix Rd | Table Rock Rd |
| 0 – 0.59 | 11.721 | 18.641 | 41.605 | 8.496 | 85.119 | 89.338 | 10.798 | 20.414 |
| 0.59 – 0.69 | 0.073 | 0 | 0.314 | 0 | 0.018 | 19.034 | 0 | 0 |
| 0.69 – 0.79 | 0 | 0 | 2.075 | 0 | 0 | 4.978 | 0 | 0.083 |
| 0.79 – 0.89 | 0 | 0 | 0.843 | 0 | 0 | 0 | 0 | 0 |
| 0.89 – 0.99 | 0 | 0 | 0.123 | 0 | 0 | 0 | 0 | 0 |
| 0.99 – 9.99 | 0.168 | 0 | 0.084 | 0 | 0 | 0 | 0 | 0 |
| No Congestion | 12 | 19 | 44 | 8 | 85 | 113 | 11 | 20 |
| Congestion | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| High Congestion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Lane Miles | 12 | 19 | 45 | 8 | 85 | 113 | 11 | 20 |

Table 10.1.7: Model-estimated Demand/Capacity Ratios for Selected Corridors, 2045

| 2045 RTP2021-2045 PM Peak Hour Lane Miles in 8-Corridors | | | | | | | | |
|--|-------------|-----------|---------------------|---------------|-----------|------------|--------------|---------------|
| Demand/Capacity Ratios | Foothill Rd | Hwy 238 | Hwy 62 / Old Hwy 62 | Hwy 62 Bypass | Hwy 99 | I-5 | N Phoenix Rd | Table Rock Rd |
| 0.0 - 0.59 | 16.503 | 18.669 | 36.746 | 17.14 | 83.186 | 72.436 | 6.936 | 22.292 |
| 0.60 - 0.69 | 0.651 | 0 | 4.8 | 0 | 0.19 | 16.916 | 1.573 | 0.096 |
| 0.70 - 0.79 | 0 | 0 | 0.276 | 0 | 0.012 | 14.158 | 1.01 | 0 |
| 0.80 - 0.89 | 0 | 0 | 0.121 | 0 | 0 | 9.854 | 1.025 | 0.083 |
| 0.90 - 0.99 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0.171 | 0 |
| > 1.0 | 0 | 0 | 0.207 | 0.275 | 0 | 0 | 0.085 | 0 |
| No Congestion | 17 | 19 | 42 | 17 | 83 | 104 | 10 | 22 |
| Congestion | 0 | 0 | 1 | 0 | 0 | 10 | 1 | 0 |
| High Congestion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Lane Miles | 17 | 19 | 43 | 17 | 83 | 113 | 11 | 22 |

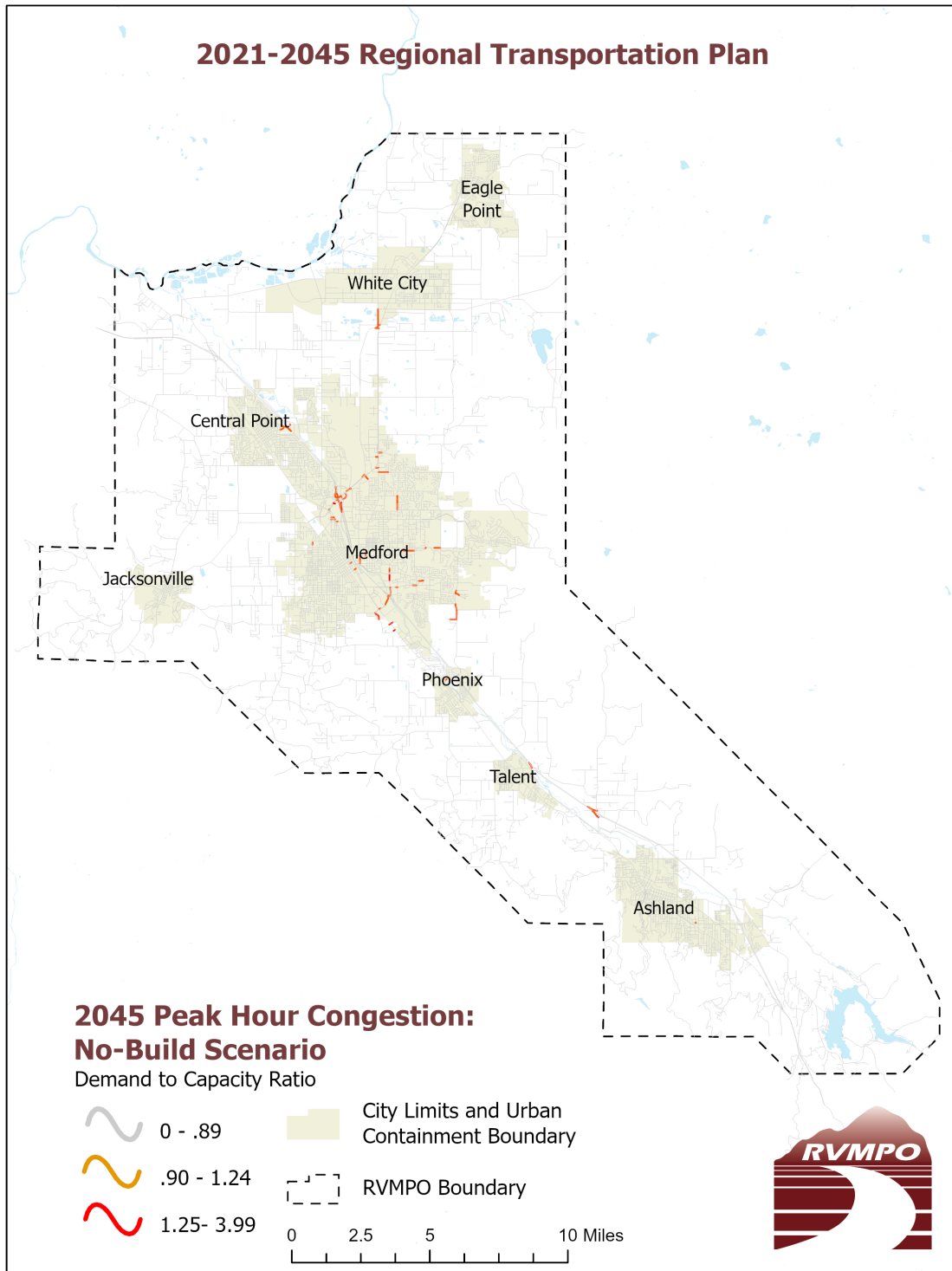
CONGESTION MAPS

Maps 10.1.1 and 10.1.2 on the following pages indicate locations where the RVMPO travel demand model estimates potential for congestion in future years. The maps show the difference between the “no-build” and “build” scenarios.

Rather than showing with absolute certainty future congested conditions, these maps indicate the locations most vulnerable to traffic pressures. The futures shown here are far from certain because RVMPO jurisdictions are in agreement that additional funds will need to be identified for projects not yet in the plan. Beyond that, there are

projects being planned, but are not included in this analysis because RTP projects must be financially constrained, as described in *Chapter 9: Financial Plan*.

Map 10.1.1: 2045 Peak Hour Congestion – No Build



Map 10.1.2: 2045 Peak Hour Congestion - Build

