



City of Medford Transportation System Plan and Urban Growth Boundary Amendment



Technical Memorandum #4: Land Use Assumptions

Date: June 26, 2013 Project #: 10771
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City of Medford
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Project: City of Medford TSP/UGB Amendment
Subject: Land Use and Travel Forecasting Methodologies

This memorandum highlights the methodology used to develop future land use projections and travel demand forecasts for use in the City of Medford's Transportation System Plan update. This methodology reflects conditions associated with "build out" of the City's current Urban Growth Boundary.

Coordination of Land Use and Population Forecasts

This section summarizes the coordination between City, County, and State planning efforts that form the baseline for developing land use forecasts for use in the TSP.

COORDINATED POPULATION PROJECTIONS

Transportation System Plans within Oregon use coordinated population projections at the state, regional and local level. Each county works with the cities within its jurisdiction to allocate the county population between the urban and non-urban areas. Table 1 summarizes the coordinated population forecasts for the City of Medford and greater Jackson County.¹

¹ Based on the Population element of the Jackson County Comprehensive Plan, February 21, 2007.
<http://www.co.jackson.or.us>.

Table 1. Coordinated Population Forecast

Year	City of Medford Population	Jackson County Population
2006 (base year)	72,613	197,693
2010	82,941	214,621
2015	91,924	230,168
2020	100,981	246,031
2023 (without ISA)	106,009	255,197
2025	109,536	261,497
2028 (ISA build-out)	114,238	270,361
2030	117,516	276,437
2034 (planning horizon)	125,342	291,150

Per Table 1, the population in the City of Medford is expected to increase by nearly 55,000 persons between 2006 and 2034. These growth estimates reflect the expectation that Medford will continue to experience moderately high growth over the planning period that will require supporting infrastructure to accommodate increasing local and regional demand. Exhibit 1 illustrates the growth trends for the city and the county.

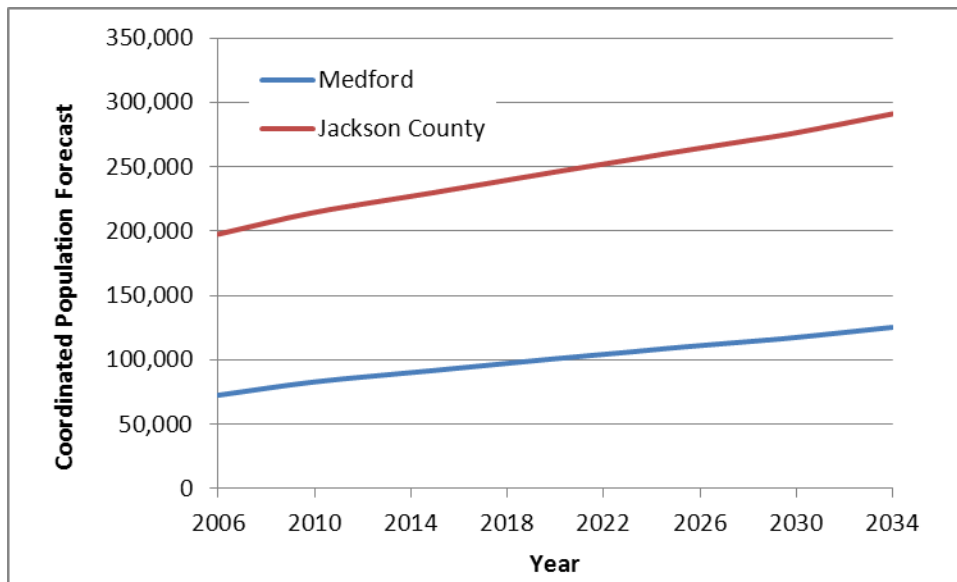


Exhibit 1. Jackson County and City of Medford population forecasts.

CONVERSION OF POPULATION ESTIMATES TO HOUSEHOLDS

Medford relies on the coordinated population forecasts to determine if its residential land supply is adequate to accommodate the future population projections. Portland State University assists with the allocation of statewide growth to each County. The projected population change within a County is allocated within its rural and urban areas. The conversion of population to households, by type, is informed by a variety of data sources, such as Census Data and the Buildable Lands Inventory.

The City’s Buildable Lands Inventory (BLI) was last updated in 2007 and assessed the suitability of lands to accommodate growth inclusive of available site constraints and service provisions within the existing

UGB. The BLI uses the current Comprehensive Plan designation of what density could be expected for each of the residential zoning categories within the City of Medford (urban low, medium, and high density: UR, UM, UH).

Based on this information, the city can calculate the future dwelling unit mix (percent single family versus multi-family) as well as the projected number of dwelling units, by type and by location within the city. The dwelling unit calculation for Medford is based on the *Housing Element* findings of an average of 2.45 people per household.

The City's review of the coordinated forecasts, the BLI and the *Housing Element* of the Comprehensive Plan indicates that the available residential land capacity will be depleted within the UGB by the year 2023. This is the same horizon year reflected in the City's existing Transportation System Plan. As such, the City's current Transportation System Plan provides the baseline assessment of the supporting transportation infrastructure needed to accommodate the existing land use designations.

INTERNAL STUDY AREAS

Given that the City only has a 11-year supply of residential lands within its current UGB, it is evaluating potential efficiency measures that can increase the land supply within its UGB commensurate with a 20-year need; these efficiency measures are consistent with Oregon Administrative Rule (OAR) 660-024-0050(4) and are intended to preserve rural lands. As part of this process, Medford is evaluating areas where residential densities could be increased and/or commercial lands can be added within the UGB in areas referred to as *Internal Study Areas*, or ISAs. The selection of ISAs will result in a legislative comprehensive plan map change process to serve a higher population within the existing UGB, lessening the amount of land needed external to the UGB to accommodate future population growth.

Through the ISA process, the City has determined that the existing UGB can serve residential demand through the year 2028 if all of the ISAs are adopted. However, it is unlikely that all of the ISA sites will be formally amended and through the ISA review process retain the initial density assumptions identified by staff. As such, some level of recalibration of the benefit of the ISA lands is expected. To accommodate 2034 population forecasts, a UGB amendment will be needed. The first phase of the TSP amendment is only based on identifying the needed infrastructure to support the increased density within the current UGB through the ISA process; potential UGB amendments will be evaluated during a later TSP phase.

TRAVEL DEMAND MODEL PROCESS

For the purposes of the TSP update, ODOT's Transportation Planning Analysis Unit (TPAU) is updating the regional travel demand forecasting model. This model is based, in part, on forecasts of household and employment growth within the existing UGB. The current ODOT TPAU Model for the City is referred to as RVMPOv3.

The following section describes the relationship between the land use forecasting process and the resultant travel forecasts.

Base Conditions

For the purposes of developing land use forecasts for a travel demand model, the city is geographically divided into Transportation Analysis Zones (TAZs). TAZs were established to group areas with similar land use patterns, access to the transportation system, and travel behavior characteristics. These zones often follow census tract boundaries but do not necessarily follow other boundaries such as parcel boundaries, city limits, or the UGB. Depending on the level and type of analysis needed in the future, the TAZ boundaries may need to be modified to provide further disaggregation.

The prior travel demand model, RVMPOv2, was used for air quality conformance at the regional level. Upon review of the model for application in the TSP effort, City staff noted that there were discrepancies in the population and employment allocations within specific TAZs. Specifically, the model applied more regional estimates suitable for an assessment of the overall MPO. The calibration process being applied to RVMPOv3 includes review at a much more detailed level that will allow us to better assess the needs of specific roadway segments and junctions for use in the City's transportation system planning.

To update the model land use assumptions, 2006 land use information by TAZ was prepared by the City for input into the model. Based on this information TPAU calibrated the base model to reflect 2006 travel patterns. Both the City and ODOT agree on its appropriateness for use in the TSP process.

Land use information within the RVMPOv3 travel demand model is based on the number of households and employees by TAZ. Within RVMPOv3, households are further divided into four sizes, four incomes, and four age classifications (64 combinations). Within individual TAZs, the household size ranges from 1 to 4+ persons per household with a regional average of 2.52 persons per household (note the slight 3% difference between the City's rate of 2.45 and ODOT's rate of 2.52 persons per household). Employees are described by a variety of employment classifications (such as retail, industrial, forestry, etc.) and are allocated based on the BLI, Economic Opportunities Analysis (EOA), and zoning.

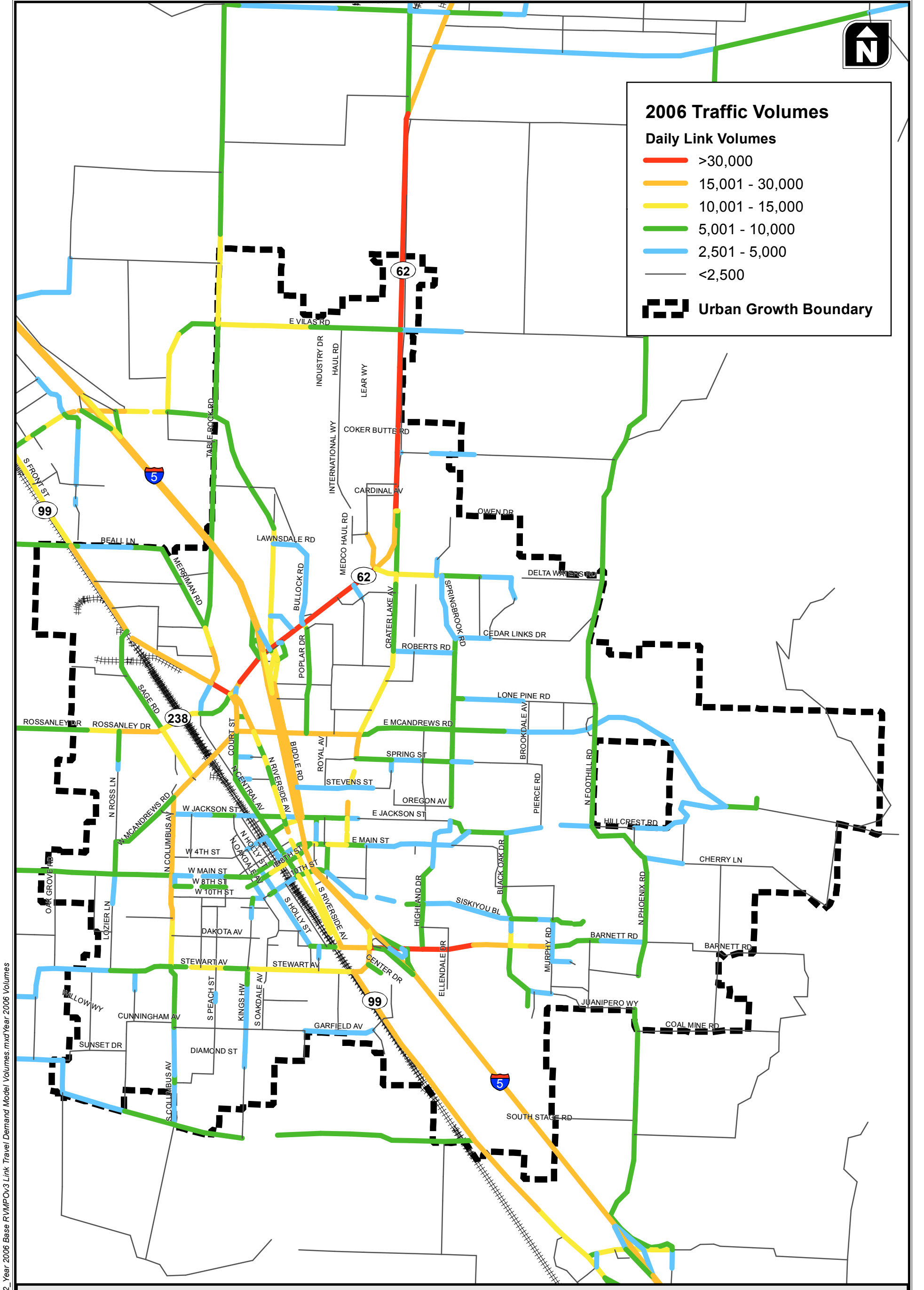
The TAZ allocation of households is verified against the coordinated population forecasts for consistency. This comparison shows 30,681 households in 2006 roughly equating to 76,032 persons. Based on the data presented in Table 1, the TAZ allocations assume a citywide household vacancy rate equating to a difference in population of approximately 4,000 persons.

Plots of the base year daily link volumes throughout the City are illustrated in Figure 1.

Future Inputs

Based on the forecasts from the 2006 base conditions, approximately 11,424 households can be added into the existing UGB if no internal efficiency measures are adopted; this results in a population increase of approximately 33,050 persons, for a population within the Medford UGB of 109,200 persons. It should be noted that this estimate does not account for vacancy rates within Medford which result in higher housing needs reflective of 2023 conditions.

It should also be noted that future household classifications (based on income, age, size) are assumed constant in the future as the base year (same as census data). This limitation is recognized, particularly for areas expected to change significantly, but better data is not available to support a different classification.



H:\projfiles\10771 - Medford TCMGIS\02 - Year 2006 Base RVMPOv3 Link Travel Demand Model Volumes.mxd Year 2006 Volumes



**Year 2006 Base RVMPOv3
Link Travel Demand Model Volumes**

**Figure
1**

Future Model Inputs (Internal Study Areas)

The City's efficiency measures show that there are 35 TAZs where density could be increased through comprehensive plan designation changes. These changes would allow for higher density and could enable the accommodation of 3,389 households (net) and 7,890 persons (net) within the UGB, accommodating a total City population of 117,100.

As noted previously, the dwelling unit forecasts do not account for vacancy rates. The City's *Housing Element* noted a predicted 5.5 percent vacancy rate when calculating the 20-year need (*Housing Element*, p. 52). This rate was applied to the number of additional dwelling units resulting from the ISAs (see above) to reduce them to occupied households for input into the travel demand forecasting model.

Plots of the Interim year 2028 daily link volumes are provided in Figure 2.

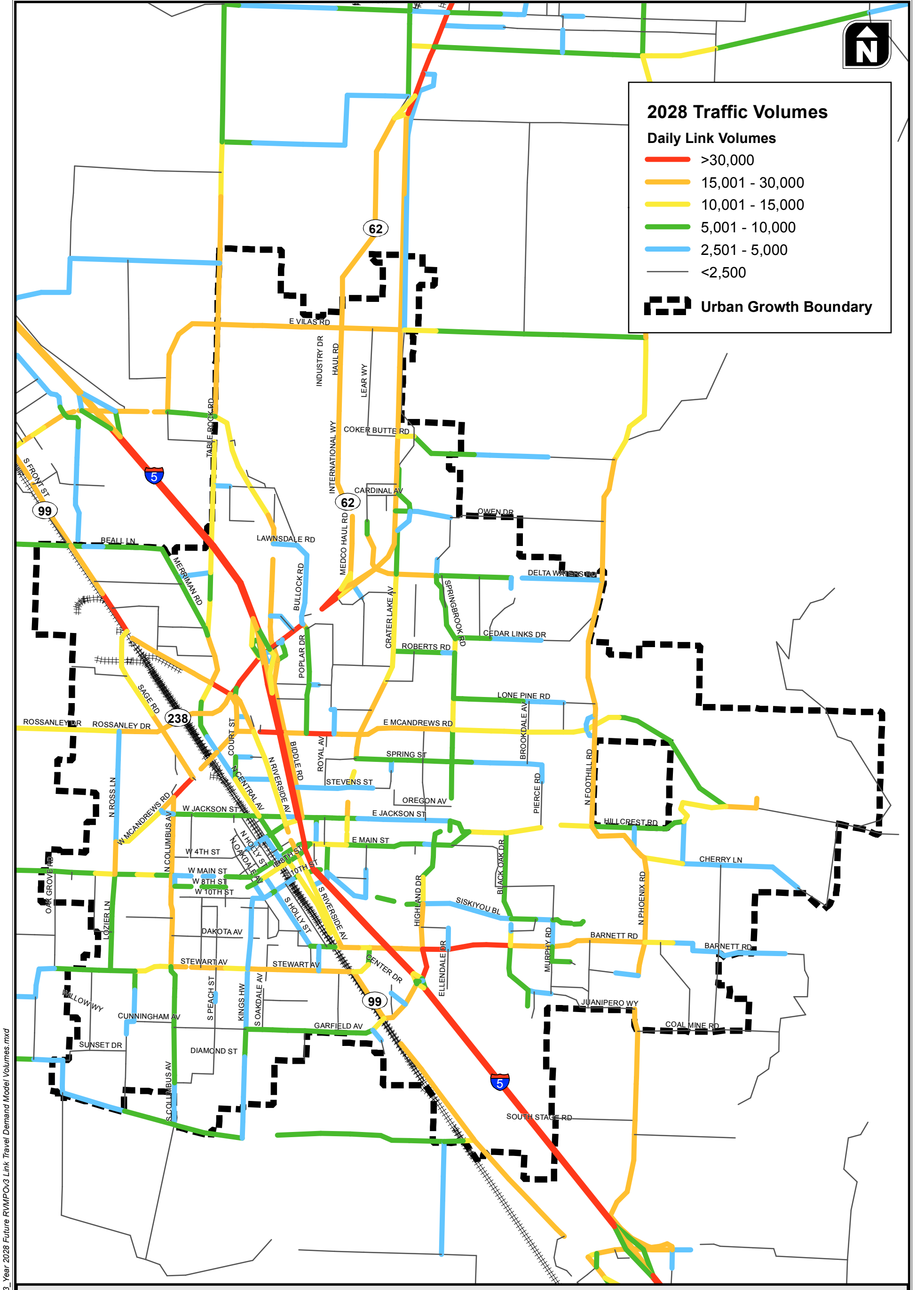
Future Model Inputs (External Study Areas)

As noted, the ISAs identified by the city will not be able to support the 20-year supply of land needed within the UGB. As such, land outside the UGB will need to be considered for inclusion within the UGB. These lands will be evaluated by a similar process as will be used to evaluate the ISAs previously identified once these potential expansion areas are identified and the specific needs following review of the suitability of ISAs is known.

FORECASTING SUMMARY

As summarized herein, the land use forecasting process applied maintains consistency between prior planning efforts conducted by the City. The land use forecasts rely on the findings from the Jackson County Population Element of its Comprehensive Plan, the City's Buildable Lands Inventory, and the City's *Population and Housing Element* of its Comprehensive Plan.

As review and validation of the travel demand model efforts were found to be acceptable by ODOT's Transportation Analysis and Planning Unit and the City of Medford they have been deemed suitable for application in the next phase of the City's Transportation System Plan Amendment, which will assess conditions through the 2028 horizon in support of the legislative zone change for the ISAs.



H:\projfiles\10771 - Medford TGM\GIS\03 - Year 2028 Future RVMPOv3 Link Travel Demand Model Volumes.mxd



**Year 2028 Future RVMPOv3
 Link Travel Demand Model Volumes**

**Figure
 2**