



From: Tyler Deke <tdeke@bendoregon.gov>

Sent: Thursday, March 5, 2020 9:45 AM

To: AYASH Sam <Sam.H.AYASH@odot.state.or.us>; SCHUYTEMA Peter L <Peter.L.SCHUYTEMA@odot.state.or.us>; Chris Doty <Chris.Doty@deschutes.org>

Subject: BRM - Hunnell Rd scenario

Importance: High

In 2016, a model scenario was developed to assess the impacts of improving and extending Hunnell Road north of Cooley Rd (see attachment). That scenario was developed in the Bend MPO model. I believe Deschutes County has a CIP project that will complete at least some of part of that improvement, and I think they would like model data as they move into the project development process. We could replicate that scenario in the Bend Redmond model.

Before we create that scenario, I think it would be good to check in and make sure we understand what is needed and when. My schedule is open this afternoon from 2-3 and 3:30-5. Do you have 20-30 minutes during either of those times for a conf call?

Please let me know, and I'll send a calendar invitation and a conf phone number.

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Tyler Deke
Bend Metropolitan Planning Organization
709 NW Wall Street, Suite 102
Bend, OR 97703
541-693-2113

REQUEST FOR TRAVEL DEMAND MODEL RUN

BACKGROUND

Travel demand models are used for transportation project development, transportation planning and land use planning. Models are adapted to represent the project/development characteristics and report on the areas affected by the project. Project data is used to update transportation networks and related land use changes. From the time all appropriate data have been received, a typical modeling request takes two to three weeks to complete. The time leading up to the actual model run can take nearly as much time. Therefore, using this request form as a guide to making a request for a model run should greatly reduce the time required to assemble the information needed to start the model run. Requesting agencies should be prepared to discuss details related to their model run request. This may take place as a phone call or a meeting, depending on the complexity of the request.

ISSUES

1. Multiple agencies rely on TPAU for model runs, so there will inevitably be scheduling conflicts. Multiple requests received very close to each other will delay the turnaround time for some projects. When workload is high, requests are prioritized and completed in as timely a manner as possible.
2. Before the model run preparation can begin, detailed and complete information is needed from the requesting agency/firm. This form is designed to collect the following:
 - The project opening year and design year;
 - The project impact area to be included in model run outputs;
 - Socioeconomic changes (employment changes, housing developments, new retail development, etc.) in the project area to be included in model runs;
 - Detailed descriptions of project alternatives to be tested; and
 - A list of other projects to be included in the networks with the project being analyzed.

Please submit requests to:

Brian Dunn
Transportation Planning Analysis Unit
555 13th St. NE, Suite 2
Salem, OR 97301
503.986.4103
Brian.G.Dunn@odot.state.or.us

Submittal of a request using this form is the first step. An agency contact person will follow-up this request with a phone call or meeting as necessary to obtain further detail. This request form serves as the formal documentation for a model run and will be filed as public record. All model parameters changed for a run must be documented and described in detail.

To: Brian Dunn, Sam Ayash

Cc: Tyler Deke, Joel McCarroll, David Knitowski, Jim Bryant

Requesting Agency or Firm: ODOT TPAU

Date of Request: 09/21/2016

Contact Person: Peter Schuytema

Address: 555 13th St NE, Salem, OR 97301-4178

Email: peter.l.schuytema@odot.state.or.us

Phone number: 503-986-4110

ODOT Requests: EA to charge 17PF004-071-P20

Outside ODOT Requests: Please provide billing information if different from above contact information.

Name of Model: Bend MPO

Year(s) Requesting Model Output: 2030

Provide the name and a brief description of the Project using output from the travel demand model:

Hunnell Road Extension - Evaluation of an extension of Hunnell Rd to help inform future legislative wish-lists and a potential add-on for upcoming developments.

Provide a brief description of purpose, goals and objectives of the model run. Briefly describe how model results will be used. What questions do you seek to answer using this information?

Determine the relative potential impacts of a Hunnell Road extension on the assumed future growth around Cooley Road, specifically Cooley, Old Bend-Redmond Hwy, US20 and US97. Also, US97 north of Cooley Road will be assumed to have a median with right-in-right-out movements in the build Hunnell scenario. This will be based on the BMPO "Scenario 2031: MTP Pk Hr" from Request039 (Sept 2012).

Requestor should become familiar with the model used for analysis. Familiarity should include areas such as model base year, future year, zone structure, network structure and attributes. ODOT will provide a GIS layer or PDF with the TAZ structure, link structure and attributes. All model settings requested must be specified in terms of the model. Street names, addresses and physical landmarks are not sufficient to identify location of changes.

Requestor must provide a complete and detailed description of the changes to be made for the model run, including changes to the network (capacity, speed, new lanes, new or deleted links, etc.) and land use data (employment, population). Changes to land use must include a narrative detailing supportive assumptions associated with such changes. For large changes to land use assumptions, please refer to the Modeling Procedures Manual for Land Use Changes: <http://www.oregon.gov/ODOT/TD/TP/docs/reports/mpmluc.pdf>

Note that travel models provide only generalized travel forecasts because they are based on generalized land use patterns and transportation networks. Since models do not represent individual land uses, driveways or neighborhood-scale streets, the forecasts produced are not sensitive to these specific land use and transportation characteristics.

It is inappropriate to use raw model outputs as the basis for transportation and land use decisions that require consideration of detailed transportation and land use characteristics. Therefore, post-processing of model outputs to account for the influence of specific transportation and land use characteristics is mandatory. Methods used for post-processing must conform to specifications provided within the ODOT Analysis Procedures Manual (http://www.oregon.gov/ODOT/TD/TP/TAPM.shtml#Analysis_Procedures_Manual).

Changes to Network

Changes to Existing Network Attributes

1. Provide brief description of actual change on the street being modeled and the expected effect of such a change.
2. Identify the network links to be changed using “From Node - To Node” or link ID. Specify what attribute(s) is to be changed and what the change is.
3. Provide a map illustrating location and reference to description of changes.

Note: If a large number of network changes or several model runs are being requested, submit information using a spreadsheet listing out individual projects. A map illustrating the requested network changes should also be provided for each run separately. Note that separate networks exist for roads, transit and walk.

Model Changes to be Made: Network Attributes

Project w/ brief description	Network Action: - change link attribute - new link (include map)	Link ID (Fnode-Tnode)	Change Attribute: - speed - lanes - FC - Signal - Other?	Project Number (1, 2, 3)
Hunnell Extension	Change link attribute	1905 - 2755	vdf = 6	
		2770 - 2755	vdf = 6	
		2452 - 2770	vdf = 5	
		2755 - 2770	vdf = 5	
		8004 - 2770	vdf = 5	

Projects Included in Scenario

Scenario Number	Projects Included	Notes:
1	e.g. 1,2,3,4,10,13	
2	e.g. 1,2,9,13	

Additions/Deletions to Existing Network

1. Provide brief description of actual change on the street being modeled.
2. Identify the addition/deletion to be made to network. Include attributes of new links and nodes.
3. Provide a map illustrating the location and nature of changes to be made. Clearly identify where new links are connected to original network.
4. Review nearby connectors and how they relate to the altered network. Identify necessary changes to connectors.

Note: If a large number of network changes or several model runs are being requested, submit information using a spreadsheet listing out individual projects. Separate maps illustrating the requested network changes should be provided for each scenario separately. Note that separate networks exist for road, transit and walk.

Model Changes to be Made: Network Attributes

Project w/ brief description	Network Action: - delete link - add new link - change connector	Network Attributes: - speed - lanes - FC - Signal?	Project Number (1, 2, 3)
Hunnell Extension	Delete Link 2756 - 2755		
	Add Link 2756 – 2770 / 2770-2756	2 lanes, 45 mph, Capacity 750, vdf = 5 for 2756-2770 direction	
	Add Connector 126 – 2756 / 2756 - 126	25 mph, Capacity 9999	
	Add Link 2756 – 2410 / 2410-2756	2 lanes, 45 mph, Capacity 750	
	Add Connector 104 -2410 / 2410 - 104	25 mph, Capacity 9999	
US97 Median (right-in-right-outs)	Add Turn Restrictions @1333	Prohibit turns: 1694-1333-2758 2758-1333-1516	
	Add Turn Restrictions @1516	Prohibit turns: 1333-1516-104 104-1516-2380 122-1516-1333 2380-1516-122 122-1516-104 104-1516-122	
	Add Turn Restrictions @2380	Prohibit turns: 107-2380-1516 1874-2380-107	

Changes to Transportation Analysis Zone Land Use Data

Land use data refers to population and employment data. Future population must conform to official state forecasts prepared by the Office of Economic Analysis, DAS for analysis conducted for planning purposes. Note that industry categories vary by model and employment must be associated with the appropriate industry.

TAZ (*provide TAZ number or map of location*):

Population:*

Increase/decrease population by:

Increase/decrease households by:

Employment:*

Increase/decrease employment by:

For industry category:

Will these changes require any TAZs to be split to accurately represent travel patterns?

Yes ☐ No ☒

If so, please identify which TAZ(s) by number and supply a map illustrating desired change.

Will these changes require relocation of centroid connectors?

Yes ☐ No ☒

If so, please identify which TAZ(s) centroid connector by number and provide a map illustrating desired change.

**Employment and population must be balanced within the model area. This means trip attractions are balanced to trip production for home-based trip purposes. When evaluating effects of large changes to employment, assumptions regarding the location of households providing workers and expected decreases in employment in other TAZs should be clearly specified. When evaluating effects of large changes to population, assumptions regarding the location of jobs should be clearly identified.*

Other changes to be made for model run:

[illegible]

Output Requested from Model Run Request:

Menu of Standard ODOT Travel Demand Model Outputs				
Select Output Format				
Shape File		PDF file	Time of Day	<input checked="" type="checkbox"/> Peak Hour <input type="checkbox"/> Daily
<input type="checkbox"/>		<input type="checkbox"/>	Link Volume– link text only	
NA		<input type="checkbox"/>	Link Volume– bandwidths with link text	
<input type="checkbox"/>		<input type="checkbox"/>	Select Link Volume	
<input type="checkbox"/>		<input type="checkbox"/>	Select Zone Volume	
<input type="checkbox"/>		<input type="checkbox"/>	Demand to Capacity Ratio	
<input type="checkbox"/>		<input type="checkbox"/>	Absolute Volume Difference– link text only	
<input type="checkbox"/>		<input type="checkbox"/>	Relative Volume Difference - link text only	
NA		<input type="checkbox"/>	Absolute Volume Difference– bandwidths with link text	
NA		<input type="checkbox"/>	Relative Volume Difference– bandwidths with link text	
<input type="checkbox"/>		<input type="checkbox"/>	Other:	
<input type="checkbox"/>	X	<input type="checkbox"/>	Other: Databank only (I will produce my own outputs)	

Definitions:

- Link Volume – The peak hour (or daily if requested) traffic using each link (street) for a requested area or for the entire model network.
- Select Link or Zone Volume (also called “flow bundles” by ptv-VISUM) – Represents the traffic using a given link or zone or group of links or zones. They graphically represent the origins and destinations of select links and/or zones and display all of the travel patterns associated with the selected locations. These are typically used to apply trip rates (like ITE trip generation) to the network, or to better understand an area and the users.
- Demand to Capacity Ratio – This is a ratio of the model volume (usually hourly volume, although daily can be requested) to the model capacity. In the future years the volume on a given link may be greater than the volume that could pass through that point in an hour, due to great congestion on the network and the principles behind travel demand models. For this reason the word demand is used not volume, as the model volume might be greater than the actual volume (by definition the volume to capacity ratio must never be greater than 1). The capacity is the model capacity, which represents a mid street capacity. Facility type and speed go into determining this capacity. Note that the model capacity is not a saturation flow; the model capacity needs to account for the capacity reductions due to intersections. The measure of demand to capacity is – model volume / model capacity – given for a requested area.

- Volume Difference, Absolute & Relative – Absolute Volume difference is the subtraction of the volume that results from the model run requested verses a reference (or base) run, usually the finically constrained future year run, but it can be any reference case desired by the requestor. Relative volume would be the percentage change from the requested run and the reference run specified by the requestor.
- O & D Matrix – The full Origin – Destination Matrix that the model uses to assign trips to the network can be requested. TPAU will also help with Aggregated O & D Matrices to the district level, which can be plotted graphically along with select links or zones. If desired, TPAU will work with the requestor to help answer traffic flow questions that require O & D matrices or District-to-District plotting.
- Bandwidths – The link volume can be represented graphically with a bar whose thickness is directly related to the volume of the link, meaning that the larger the volume the thicker the bar.

Internal Use Only – TPAU Model Run Documentation and Organization Info

Model Name: _____ Project Name: _____ Model Run(s) Number: _____

Date Reviewed by MPO: _____ Date Received by TPAU: _____

Date Accepted by TPAU as Final/Complete Request: _____

Date Request Completed: _____

TPAU Analyst(s): _____ MPO/Region Cc'd? _____