AGENDA

Rogue Valley Metropolitan Planning Organization

Technical Advisory Committee

Date: *Wednesday, December 14, 2016*

Time: *1:30 p.m.*

Location: *Jefferson Conference Room, RVCOG 155 N. 1st Street, Central Point*

Transit: served by RVTD Route #40

Phone: *Ryan MacLaren, RVCOG, 541-423-1338*

RVMPO website : www.rvmpo.org

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1. **Call to Order/Introductions/Review Agenda** ..... **Mike Kuntz, Chair**

2. **Review/Approve Summary Minutes** (Attachment #1) ..... **Chair**

3. **Public Comment** (Items not on the Agenda) ..... **Chair**

Action Items:

4. **Alternative Measures 2015 Benchmark Analyses, Tech Memo #1: Methodologies** ..... **Andrea Napoli**

Background: The RVMPO is currently updating the Regional Transportation Plan and therefore will be conducting an Alternative Measures Benchmark Analysis. This agenda item is to review and approve Tech Memo #1: Methodologies for the 2015 Benchmark Analysis. In addition to the proposed methodologies, a brief background will be provided.

Attachment: #2 – Memo, Tech Memo #1: Methodologies

Action Requested: Approve Tech Memo #1: Methodologies.

5. **Phoenix Urban Reserve Concept……Dick Converse**

Background: Using a TGM grant, RVCOG staff has been working with the City of Phoenix to complete concept plans for contiguous Future Growth Areas PH-5 and PH-5. Five scenarios have been reduced to three based on preliminary analysis conducted by the ODOT Transportation and Analysis Unit (TPAU). TPAU then conducted a more detailed analysis of the three scenarios and has released a draft technical memorandum outlining its findings.

Attachment: #3 – Draft Concept Plans (on MPO Website because of file size.)
https://www.rvmpo.org/images/studies/Phoenix_URCP/PH-5_Concept_Plan_First_DraftFR.pdf

#4 – Draft RVMPO Policy Letter of Concurrence
#5 – Draft TPAU Analysis

Action Requested: Forward comments to Policy Committee.

Discussion Items:

6. Discretionary Funding Application Presentations……**Andrea Napoli / Applicants**

Background: This is a workshop-style session to review and present applications. In this agenda item each applicant may present their project for brief committee discussion. If during the discussion, the applicant and the TAC agree that some minor changes to the application are appropriate, applicant has until noon Friday, Dec. 16th, 2016 to submit revised application to RVCOG. Applicants please limit presentation material to 5 minutes.

Attachment: #6 – Tech Memo #1: Methodologies; applications (with maps, photos, etc.) will be available electronically at the meeting. Applications will also be available on the RVMPO website at https://www.rvmpo.org/index.php/2019-2021projectsolicitation

Action Requested: None. Information only.

7. MPO Planning Update ..... **Karl Welzenbach**

OMPAC update**.**

8. Public Comment..... **Chair**

9. Other Business / Local Business ..... **Chair**

Opportunity for RVMPO member jurisdictions to talk about transportation planning projects.

10. Adjournment ..... **Chair**

- The next regularly scheduled RVMPO TAC Committee meeting: Wednesday, January 11, at 1:30 p.m. in the Jefferson Conference Room, RVCOG, Central Point.
- The next RVMPO Policy Committee meeting is scheduled for January 24, at 2:00 p.m. in the Jefferson Conference Room, RVCOG, Central Point.
- The next RVMPO PAC meeting is scheduled for Tuesday, January 17, at 5:30 p.m. in the Jefferson Conference Room, RVCOG, Central Point.

SUMMARY MINUTES

Rogue Valley Metropolitan Planning Organization
Technical Advisory Committee

October 12, 2016

The following people were in attendance:

RVMPO Technical Advisory Committee

Voting Members in Attendance:

Alex Georgevitch	Medford
Mike Kuntz, Chairman	Jackson County
Jon Sullivan, Vice Chairman	RVTD
Kelly Madding	Jackson County
Kyle Kearns	Medford
Paige Townsend	RVTD
Tom Humphrey	City of Central Point
Kelli Sparkman	ODOT
Rob Miller	Eagle Point
Ian Horlacher	ODOT
Karl Johnson	Ashland
Matt Brinkley	Phoenix
Josh LeBombard	DLCD

Others

Mike Montero	Montero & Assoc.

RVCOG Staff
Karl Welzenbach, Dan Moore, Andrea Napoli, Bunny Lincoln, Nikki Hart-Brinkley

1. Call to Order / Introductions
The Chairman called the meeting to order at 1:35 p.m. Those present introduced themselves.

2. Review/Approve Minutes

On a motion by Kelli Sparkman seconded by Paige Townsend, the minutes of the previous meeting were approved as corrected by unanimous voice vote.

3. Public Comment
No public comment was forthcoming.

Action Items:

4. Regional Plan / Transportation Improvement Program (TIP)
Dan Moore shared that the TAC is being asked to make recommendations to the Policy Committee on the proposed RTP/TIP amendments. The 21-day public comment period and public hearing will

be advertised on or before October 5th in the Medford Tribune, and information is currently available on the RVMPO website.

A. Amendment to RTP & TIP: *I-5: Medford Viaduct Protective Right of Way Purchase*

Description: This property is currently bare ground. The owner is preparing to construct a large multi- story apartment building off of Almond Street within very close proximity to the existing bridge structure. It is likely that at a minimum, ODOT will widen the structure to add shoulders, although additional widening could also occur. Even the most minimal widening will require acquisition of this property. Early acquisition is desired so the Department will not have to remove a new building and relocate numerous tenants at a substantially increased cost. The Department has already reached out to the developer and city officials.
Project: 920
AQ Status: Exempt (Table 2, Safety)
FFY: 2015-18

Total = $1,000,000. Land Purchase. Federal funding, with ODOT match.

The members discussed the fact that the market value is less than the amount being requested. The ODOT process is not uncommon, and past practice has been to buy an entire property, and then sell whatever portion is not used in a particular project. RVTD and the MPO submitted letters of support for the proposed housing development.

On a motion by Alex Georgevitch, seconded by Ian Horlacher, the amendment to the RTP & TIP: *I-5: Medford Viaduct Protective Right of Way Purchase* was unanimously recommended to the Policy Committee for approval. Paige Townsend abstained.

Information Item(s)

5. Scenario Viewer Demonstration

Nikki Hart-Brinkley gave an overview of the Viewer, how it would allow the public to review community design options, and how they would affect the public as it moves in/around the Valley. The Viewer is crafted to Rogue Valley data, although it is available throughout the State, and is designed to cover projects that have already been approved. As different scenarios are studied by the user, all the categories automatically change to reflect the impacts/changes that would occur, if implemented. Comments can be submitted to the RVCOG for consideration. The RTP data will be added to the Viewer before the website goes "live". The Committee members suggested that the explanatory verbiage for some of the results should be redone to be more relatable/understandable by the general public. The Viewer will be presented to the PAC for their input, and the TAC will then be asked if this reflects the direction that the RTP should go. The timing for going "live" with the site is unknown at this point.

6. Place Type Update

Nikki Hart-Brinkley reminded the TAC that Place Types, originally introduced to the RVMPO during the Strategic Assessment process, are used to quantify neighborhood characteristics by the role that they play in the region, proximity to destinations, and availability of various travel options. Ms. Hart-Brinkley presented Place Type maps, developed by ODOT, of the base (2017) and horizon year (2042) land use assumptions (by TAZ) for the 2042 RTP, and explained some of the details on how the maps are created and utilized. The MPO jurisdictions were encouraged to review their current TAZ, and, as a result, the data is being adjusted to reflect that new input.

DLCD is willing to host an interactive site for people to access the maps.

The following links provide Place Type maps described above:

http://www.oregon.gov/ODOT/TD/TP/Pages/ORPlaceTypes.aspx?ptv=RVMPO-2017
http://www.oregon.gov/ODOT/TD/TP/Pages/ORPlaceTypes.aspx?ptv=RVMPO-2042

The following links provide more information on Place Types.

http://www.oregon.gov/ODOT/TD/OSTI/Pages/scenario_planning.aspx#s3
http://www.oregon.gov/ODOT/TD/TP/ORPlaceTypes/PlaceType_Flyer.pdf

7. MPO Planning Update

- The TAZ data is going out for final agency approval, and will be used in the new model. Confidentiality agreements will need to be signed for jurisdictions to review the employment statistics.
- The RVTD Master Plan Scope of Work is being compiled. The Plan is expected to go through in spring, 2018. Members of the RVTD TAC and PAC will be chosen. New modeling tools and will be used in the screening process. The Plan will be adopted by the RVTD Board of Directors. Jurisdictions will be interacting with the District to improve their plans for transit facilities. The Master Plan horizon is being designed to coordinate with the 2042 RTP.
- Dan Moore shared a memo from DLCD on Policy Approaches to Integrating and Improving Metropolitan Planning Requirements in the Transportation Planning Rules (Greenhouse Gas reduction targets). He further explained the ongoing process for setting Greenhouse Gas targets for MPO's statewide.
- Andrea Napoli has begun working on Alternative Measures for the RTP updates.

8. Public Comment

None received.

9. Other Business / Local Business

- Mike Montero shared that the RNG station is open. and State officials were here to tour the facility, as well as talking about other potential locations for additional stations.
- Paige Townsend spoke about the rule making process for two communities to be chosen for a grant to allow an exception to the UGB process.
- Tom Humphrey spoke about upcoming improvements planned for Pine Street.
- The Jackson County RTP is moving ahead again. A round about is now planned for the Hwy. 140, Foothill Road intersection.

10. Adjournment

The meeting was adjourned at 2:35 p.m.

Scheduled Meetings:

• RVMPO TAC	Wed., Nov. 9, 2016	1:30 PM
• RVMPO Policy	Tues., Oct. 25, 2016	2:00 PM
• RVMPO PAC	Tues., Nov. 15, 2016	5:30 PM

Attachment 2
(Agenda Item 4)

Rogue Valley
Metropolitan Planning Organization

Regional Transportation Planning

Ashland • Central Point • Eagle Point • Jacksonville • Medford • Phoenix •Talent • White City
Jackson County • Rogue Valley Transportation District • Oregon Department of Transportation

DATE: **December 7, 2016**

TO: **RVMPO Technical Advisory Committee**

FROM: **Andrea Napoli, AICP, Senior Planner**

SUBJECT: **Technical Memorandum #1: Alternative Measures Analysis Methodologies**

Background

In 2001, the Land Conservation and Development Commission approved seven (7) Alternative Measures adopted by the RVMPO in place of the Vehicle Miles Traveled (VMT) reduction standard contained in the state Transportation Planning Rule (TPR). It is important to note that at the time the Alternative Measures were developed by the MPO and approved by LCDC, the RVMPO was made up of Phoenix, Medford, Central Point, and Jackson County. This has raised questions concerning the baseline (year 2000) Alternative Measures percentages from which 5-year benchmarks were established (approximately 10% increase every 5 years), and how this relates to the present-day RVMPO planning area. The RVMPO expanded in 2002 to include Ashland, Talent, and Jacksonville, and in 2012 to include Eagle Point.

The RVMPO completed an analysis of the 2005 benchmarks in 2007/2008, and an analysis of the 2010 benchmarks in 2014/2015. Both were based on the larger MPO. For reference, the benchmarks and results of each analysis can be found in Table 1 on the following page.

2015 Benchmark Analysis Objective

The purpose of this project is to conduct an analysis of the seven adopted Alternative Measures to determine the region's progress in meeting the 2015 benchmark targets. This will be done by building upon the work completed in the previous benchmark analysis by utilizing methods used at that time and those recommended in the June 2015 Alternative Measures Update Final Report. It is expected that areas of the Alternative Measures may be proposed for modification as part of this project.

This document (Technical Memorandum #1) describes the proposed methodologies and the data needed for analyzing the seven Alternative Measures listed below:

1. Measure 1 - Transit and Bike/Pedestrian Mode Share
2. Measure 2 - % Dwelling Units (DUs) within ¼ mile walk to 30 minute Transit Service
3. Measure 3 - % Collectors/Arterials with Bike Facilities
4. Measure 4 - % Collectors/ Arterials in Activity Centers with Sidewalks
5. Measure 5 - % New Dwelling Units (DUs) in Activity Centers
6. Measure 6 - % New Employment in Activity Centers
7. Measure 7 - Alternative Transportation Funding

Table 1: Alternative Measures Benchmarks, 2007 & 2014 Analysis Results

Measure	Baseline 2000	Benchmark 2005	Measured 2007	Benchmark 2010	Measured 2014	Benchmark 2015	Measured 2017	Target 2020
Measure 1: Transit and Bicycle/Pedestrian Mode Share	% daily trips Transit: 1.0 Bike/Ped: 8.2	% daily trips Transit: 1.0 Bike/Ped: 8.2	% daily trips Transit: 0.9 Bike/Ped: 7.3	% daily trips Transit: 1.6 Bike/Ped: 8.4	% daily trips Transit: 1.45 Bike/Ped: 8.2	% daily trips Transit: 2.2 Bike/Ped: 9.8	% daily trips Transit: tbd Bike/Ped: tbd	% daily trips Transit: 3.0 Bike/Ped: 11
Measure 2: % Dwelling Units w/in ¼ mile walk to 30-min Transit Service	12%	20%	34%	30%	36%	40%	TBD	50%
Measure 3: % Collectors / Arterials w/ Bicycle Facilities	21%	28%	37%	37%	54%	48%	TBD	60%
Measure 4: % Collectors / Arterials in Activity Centers w/ Sidewalks	47%	50%	55%	56%	30%	64%	TBD	75%
Measure 5: % New Dwelling Units in Activity Centers	0%	9%	10%	26%	22%	41%	TBD	49%
Measure 6: % New Employment in Activity Centers	0%	9%	17%	23%	12%	36%	TBD	44%
Measure 7: Alternative Transportation Funding	N/A	$950,000	$1.4 Million	$2.5 Million	$3.2 Million	$4.3 Million	TBD	$6.4 Million

2015 Benchmark Analysis
Proposed Methodologies for Analyzing Alternative Measures

Proposed methodologies reflect those used in the 2010 benchmark analysis and include TAC/TPAU recommendations made at that time.

Measure 1: Transit and Bicycle/Pedestrian Mode Share

Mode share to be determined by utilizing data output from RVMPOv4.2 travel demand model and American Community Survey (ACS) 5-year data for "Journey to Work" for Medford Urbanized Area.

Measure 2: Percent of Dwelling Units Within ¼ Mile Walk of 30-Minute Transit Service

Collect data from Jackson County Assessor tax codes for taxlots to determine total of non-vacant housing within RVMPO in 2016. Use GIS to determine total dwelling units in the RVMPO area compared to those dwelling units that are within ¼ mile of the 30-minute transit service.

Measure 3: Percentage of Collectors/Arterials with Bicycle Facilities

Use GIS to determine the total linear feet of collectors and arterial roadways within the RVMPO. Determine the presence of bike facilities on MPO collectors and arterials using Jackson County GIS data, inventories from jurisdictions, completed urban roadway upgrade projects, Google Maps (satellite photos), and windshield surveys (as necessary). Compare total linear feet of collectors/arterials to those with bike facilities to determine percentage. Also provide total linear feet of muli-use paths as supplemental information using information from jurisdictions.

For this analysis, the definition of bike facilities includes:

- shoulders 4-ft in width, or greater;
- striped bike lanes 4-ft in width, or greater;
- multi-use paths (only as additional information).

This is consistent with the 2010 benchmark analysis, but differs from the 2005 benchmark analysis which used: 4-ft shoulders with bike signage painted on street; 5-ft shoulders with bike signage painted on street; 4-ft shoulders with bike signage painted on street and a posted road sign; and unmarked 4-ft + (plus) shoulder.

Measure 4: Percentage of Collectors and Arterials in Activity Centers With Sidewalks

For purposes of this entire analysis - not just this specific measure – an "Activity Center" is defined as:

- Development that contributes to achieving mixed-use, pedestrian friendly development
- Neighborhood commercial and employment centers, parks and schools
- Downtown areas / central business districts
- Established TOD areas that clearly contribute to achieving mixed-use, pedestrian friendly development *(note per DLCD: the Southeast Medford TOD is quite large and includes*

some areas where the planned development is unlikely to contribute to mixed-use, pedestrian-friendly development.)

- Development that is vertically or horizontally mixed-use

Note that for the 2010 benchmark analysis, Activity Centers were revised to reflect the above definition per the request of the TAC and as described in 2005 DLCD correspondence. This definition will continue to be used for the 2015 analysis. The 2005 benchmark analysis used the following definition: *a transit-oriented development, an activity area, and/or a downtown/central business district* – which resulted in much smaller Activity Center areas. The 2000 baseline Activity Centers were based on the smaller MPO configuration at that time (Medford, Phoenix, Central Point).

GIS will be utilized to determine the total linear feet of collectors (both directions) and arterial roadways in Activity Centers within the RVMPO and then analyzed to determine the presence of sidewalks. This will be done using existing GIS data from the 2014 analysis, inventories from jurisdictions, Google StreetView, and windshield surveys (as necessary). A review of urban roadway upgrade projects noted in Measure #3 applies to this measure as well.

See *Map 1: Activity Centers for 2010 and 2015 Benchmark Analyses* on Page 5.

Measure 5: Percentage of New Dwelling Units in Activity Centers

Measurements here will be determined by researching building permits and comparing the ratio between new dwelling units in Activity Centers and total new dwelling units in the MPO area from 2000 to 2016. Per DLCD for this analysis, eligibly criteria (established in 2008) are listed below and will be analyzed in sets.

Types of eligible DU's: Continue apartments, SFD's, duplexes, triplexes, four-plexes. Add mobile home parks and manufactured homes.

Table 2: Measure 5 Criteria Sets

Set 1:	% New DU's in Activity Centers
Set 2:	% New DU's in AC @ 10 units/acre density
Set 3:	% New DU's in AC @ 10 units/acre density
	w/in 1/4 mile 20,000sf retail center
	complete ped network btwn DU and retail

Measure 6: Percentage of New Employment in Activity Centers

Measurements here will be estimated by collecting tax lot data from the Jackson County Assessor's Office and identifying new employment within Activity Centers and new employment for the entire RVMPO from 2000 to 2016. Employment ratios from the 2003 Medford TSP will be used to calculate the number of employees based on square footage, and

the resulting percentages will represent a ratio of new employment in Activity Centers as compared with total new employment in the RVMPO. Per DLCD, criteria established in 2008 will be analyzed in sets as shown in Table 3 on the following page.

Table 3: Measure 6 Criteria Sets

Set 1:	% New Emp. in Activity Center
Set 2:	% New Emp. in Activity Center
	Building Fronts Street (front entrance & no parking btwn bld and street)
Set 3:	% New Emp. in Activity Center
	w/in .25 mile of 10 DU's/acre density w/ complete ped network btwn emp. and res.
Set 4:	% New Emp. in Activity Center
	Includes vertical mix of uses
Set 5:	All Critieria Combined

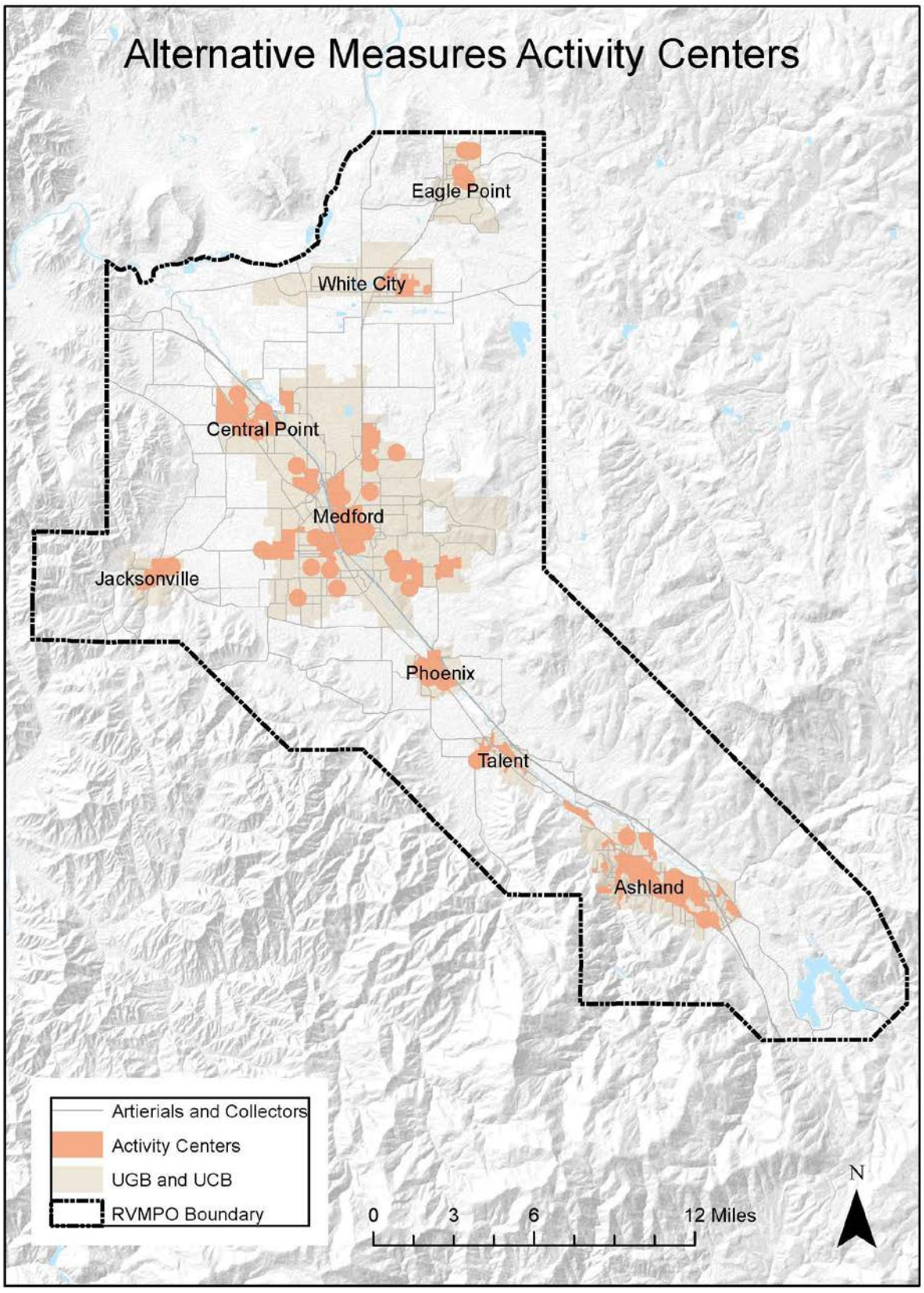
Measure 7: Alternative Transportation Funding

This measure represents funding committed to transit or bicycle/pedestrian/TOD projects. The 5-year benchmarks as shown in Table 1 are intended to represent half of the RVMPO's established accumulation of discretionary Surface Transportation Program (STP/STBG) funding, and were based on the best financial forecasts available at the time the measure was adopted (2001). RVMPO will use amounts provided to RVTD from for FFY's 2010-2014 for this 2015 benchmark analysis. RVTD will provide information on projects and activities funded with the STP dollars, in addition to providing a status on the funding priorities established in 2001, listed below.

Table 4: STP Transit Funding Priorities

Measure 7: STP Funding Priorities, 2001		**2010 Status**
Central Point	RVTD will increase service on Route 40 (Central Point) to 30 minute headways and provide service to the TOD site when feasible.	• Route 40 has 30 minute headways (~$315,000 investment annually) • Service to the TOD site is not feasible at this time
Medford	RVTD will serve the Southeast Plan Area (Medford TOD) when feasible.	• Service to the SE Plan Area is not feasible at this time
Phoenix	RVTD will improve transit stops within Phoenix.	• RVTD is working with Phoenix Urban Renewal on transit improvements
	RVTD will explore ways to improve Hwy 99 (Main Street) pedestrian crossing to a northbound transit stop, and in the interim, will provide shuttle service for this purpose.	
Jackson County	RVTD will increase transit service to White City (unincorporated Jackson County).	

Map 1: Activity Centers for 2010 and 2015 Benchmark Analyses



Attachment 4
(Agenda Item 5)

Rogue Valley
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XXX XX, 2017

Jamie McLeod, City Manager
City of Phoenix
P.O. Box 330
Phoenix, OR 97535

RE: RVMPO Comments on Future Growth Areas PH-5 and PH-10

Dear Jamie,

Pursuant to the Regional Plan requirement that cities prepare conceptual plans in collaboration with the Rogue Valley Metropolitan Planning Organization (RVMPO), both the Technical Advisory Committee (TAC) and the Policy Committee reviewed conceptual plans prepared for Future Growth Areas PH-5 and TA-10. The scope of conceptual plan review is defined in Regional Plan Performance Indicators 2.7 and 2.8.

Performance Indicator 2.7 requires that transportation plans are prepared in collaboration with the RVMPO. Phoenix submitted its plans to the TAC for review at its December 14, 2016 meeting. The Policy Committee reviewed the plans at its January 24, 2017, meeting, and provides the following comments.

Performance Indicator 2.7.1 requires that plans identify a general network of regionally significant arterials under local jurisdiction, transit corridors, bike and pedestrian paths, and associated projects to provide mobility throughout the region. All scenarios include a network of higher-order streets connecting to North Phoenix Road and Fern Valley Road. An RVTD transit stop is proposed in PH-5 that will be reached from Fern Valley Road. The transportation plans appear to have no significant impact on the regional transportation system. ODOT's Transportation Analysis Unit reviewed three scenarios and concluded that there were no capacity or queuing issues in the I-5 interchange area. The report acknowledges that traffic growth will be substantial, but the reconstructed North Phoenix Road from OR99 to Grove Road and the I-5 interchange are projected to still operate acceptably through 2038.

Performance Indicator 2.8 requires the same collaboration as for 2.7. Performance Indicator 2.81 requires conceptual plans to demonstrate how the density requirements of Section 2.5 will be met. Phoenix's target density is 6.6 units per gross acre through 2035, increasing to 7.6 units per acre thereafter. Using a mix of low-, medium-, and high-density residential zoning, the targets will be met. The city's high density residential designation permits up to 26 units per acres, which will balance the lower densities.

Performance Indicator 2.8.4 requires mixed use/pedestrian friendly areas, which are described in Section 2.6 of the Regional Plan. Section 6 requires compliance with two of the 2020 benchmarks in the Regional Transportation Plan; Alternative Measure 5 targets residential densities and Alternative Measure 6 establishes standards for mixed-use employment. The 2020 Regional Transportation Plan Alternative Measures that require 49 percent of new

residential development to be at a density of 10 or more units per acre will be feasibly met through development in the proposed residential zones in PH-5 and PH-10. Alternative Measure 6 establishes a 2020 benchmark of 44 percent of new commercial and industrial development either including a vertical mix of uses (e.g., residential uses on upper floors with employment uses on the first floors) or being located within one-quarter mile of residential area having a density of 10 or more units per acre. Phoenix is also investigating options to increase densities and commercial development in the present UGB to reduce required densities in PH-5 and PH-10.

The Policy Committee finds that the conceptual plans create no barrier to inter-jurisdictional connectivity and are consistent with other Regional Plan performance indicators. These comments are provided to affirm that Phoenix followed the requirements of the Regional Plan to prepare its conceptual plans in collaboration with the RVMPO.

Sincerely,

Michael G. Quilty, Chair
RVMPO Policy Committee

STATE OF OREGON **INTEROFFICE MEMO**

Department of Transportation
Transportation Development Division
Mill Creek Office Park
555 13th Street NE Suite 2
Salem, Oregon 97301-4178
(503) 986-3367 FAX (503) 986-4174

File Code:

Date: December 1, 2016

TO: **Dick Converse RVCOG,**

FROM: **Kaamil Tayyab, Transportation Analyst**
Peter Schuytema P.E., Senior Transportation Analyst
Transportation Planning Analysis Unit

SUBJECT: **DRAFT: 2038 Traffic Impact Study Technical Memorandum #3 –No Build and Concepts 2, 3, and 4**

The City of Phoenix is addressing the urban reserve areas PH-5 and PH-10 that were the result of the Regional Problem Solving process. The purpose of this memo is to present the analysis findings for the 2038 future year for the no-build and Concepts 2, 3 and 4 for the Phoenix Urban Reserve Areas (URAs). Concept plans for land use and transportation for the urban reserve areas, PH5 and PH-10 were developed as the basis for further land use and transportation planning for the east side transportation corridor through Phoenix.

This analysis is intended to compare and contrast the future no-build and three combined land use and transportation network concepts and identify the impacts and benefits to the surrounding transportation system.

While the no-build scenario would add more congestion at major intersections and slower traffic movement through the intersections within the region, the reconstructed North Phoenix Road from OR99 to Grove Road and the I5 interchange are projected to still operate acceptably through 2038. Most congestion would be located on North Phoenix Road between Grove and Barnett Roads in the unimproved two-lane section. The concepts do not significantly degrade the operation of the interchange area and are projected to work acceptably in the study area through 2038. This assumes that the actual developments are consistent with the assumed scope and size of future development in the concept plans.

BACKGROUND

The RVMPO v3.1 (Rogue Valley Metropolitan Planning Organization) regional transportation model was used for the Phoenix Urban Reserve Analysis project. Transportation models are a combination of mathematical equations and relationships using locally-provided existing housing and employment information to project future traffic conditions. These future traffic conditions are placed on a network which is similar to the actual roadway network. An individual model run was created for each concept. These runs were compared together on a relative basis (proportions and percent) rather than using the actual volumes reported on each segment or "link" to find the differences between them. The actual model volumes cannot be directly used because the model is solely mathematical relationships and needs to be tied to actual traffic volumes.

The current 2038 RVMPO v3.1 model was modified to include the new North Phoenix Road diverging diamond interchange (DDI) that has recently been constructed. This was done keep consistency with the future year and the Phoenix Transportation System Plan. . The current 2038 model also includes the added interstate crossing of the South Stage Road extension as an future financially constrained project. The South Stage Road extension and the DDI are assumed in all concepts.

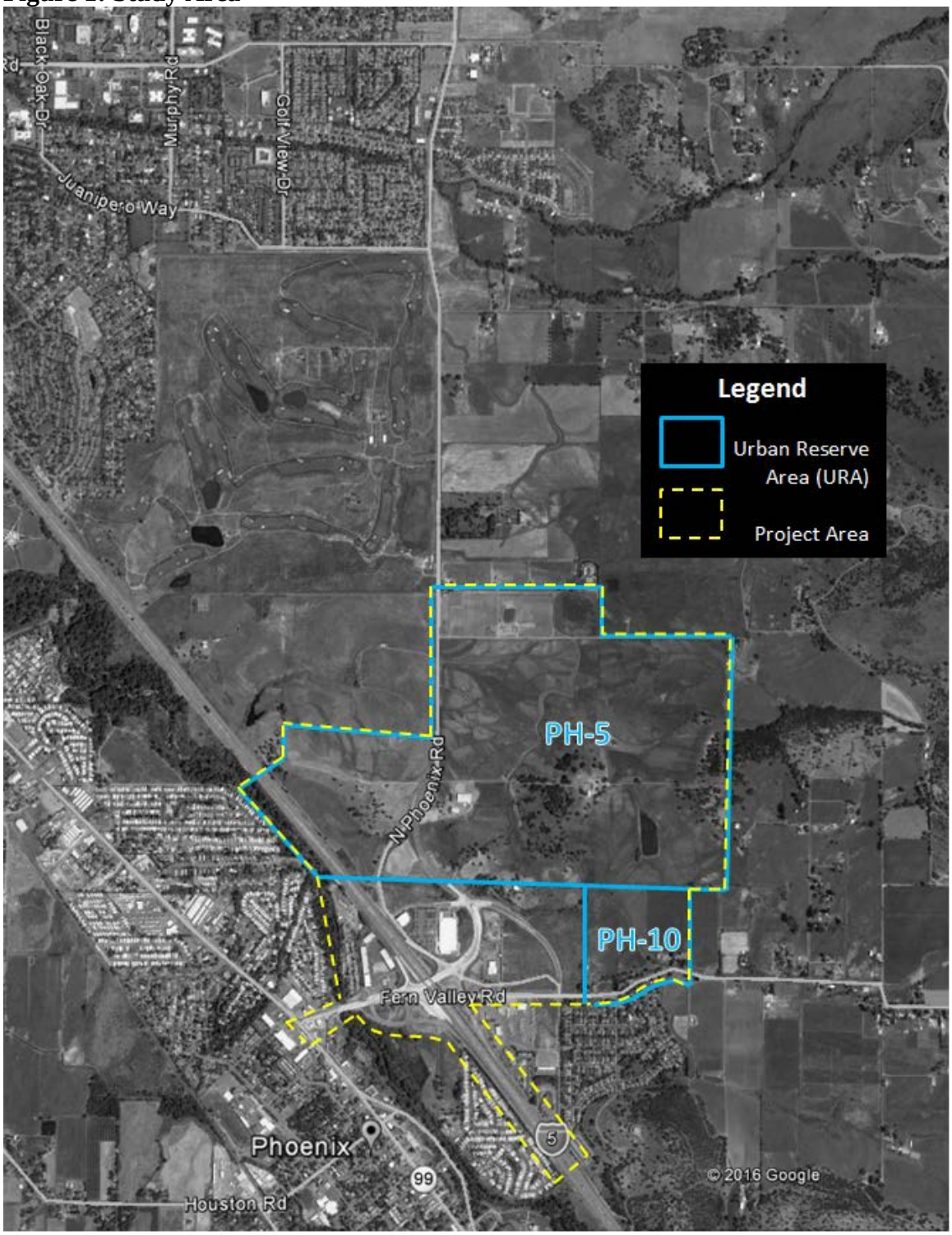
Transit is implicitly included as all of the concepts and the no-build have the current Rogue Valley Transit District (RVTD) routes as part of the RVMPO model. However, the urban reserve areas are likely outside of the accessible-to-transit region around the nearest route down OR 99, and will not have any significant impact in the results. While RVTD has indicated in the past that they would like a route on North Phoenix Road, there is no current or projected funding for such an extension of the system. Even if a route was included, transit impacts have a typical impact of only a few percent which will not result in a noticeable difference.

STUDY AREA

The study area includes the urban reserve areas, PH-5 and PH-10 in the city of Phoenix. These areas are located on the east side of I-5 and directly affect nearby intersections on OR 99 and North Phoenix Road. Figure 1 illustrates the study area. Existing intersections within the study area that are directly affected by the proposed changes to PH-5 and PH-10 were analyzed according to the ODOT Analysis Procedure Manual (APM).

The future 2038 conditions include the post-construction of the Fern Valley Interchange versions of these intersections in addition to others as needed within the reserve areas. A field investigation was conducted to verify components of the new construction such as turn lane configurations, storage bay lengths, bike lane widths, and crosswalks.

Figure 1: Study Area



CONCEPT DESCRIPTIONS

Of the five initial land use and roadway concepts for PH-5 and PH-10, three concepts were chosen in addition to the no-build alternative out of the screening-level analysis. A roadway network and basic descriptions of the employment and housing information were provided by the City of Phoenix. A revised transportation analysis zone structure and land use translated into employment and households were created for the concepts. Each concept was run as an independent model to determine the effect of the new proposed land uses on the existing and future roadway network. Each of the concept plans contains additional households and employment locations above and beyond the no-build.

All alternatives include the Fern Valley DDI, the South Stage Road extension, and generally share the same roadway network. Appendix A illustrates each of the three concepts along with basic descriptions.

Concept 2

Concept 2 contains the second highest employment addition with mostly office employment. It contains the highest residential addition comprised mostly of low-density housing. This concept does not have any mixed-use additions. Concept 2 shares the same amount of open space and light industrial areas as Concept 4. It offers commercial land comparable to Concept 4.

Concept 3

Concept 3 contains the highest employment addition with mostly light industry employment. It contains the least addition of residential areas which are comprised mostly of low-density housing. This concept has the most mixed-use areas and open space. There is no addition of commercial land use in this concept.

Concept 4

Concept 4 contains the least amount of employment addition which is mostly office employment. It has the second highest addition of residential areas which are mostly low-density housing but also has the most high-density residential areas as compared to the other concepts. This concept contains mix-use areas second to Concept 3. Concept 4 adds the same amount of open space as Concept 2. Of the three, this concept offers the most commercial space. Concept 4 also has a slightly different roadway network with a few less connections on the eastern edge.

No- Build

The no-build alternative is evaluated and documented to provide a basis of comparison with the build alternatives. The no-build means the proposed land use concepts would not be built. Routine maintenance would be continued and short-term minor safety improvement that support continued operation of the existing facilities would occur.

TRAFFIC VOLUME DEVELOPMENT

Projections of future traffic congestion were created using available traffic counts and related 2038 volumes mostly gathered from the recent 2013 Phoenix Transportation System Plan (TSP) for consistency. These assumptions about what will develop and where it will be developed provide the basis for the analysis for each concept.

The desired residential/employment mixes and densities from the City of Phoenix were combined with the concept maps to determine the model transportation analysis zone (TAZ) data. Spreadsheets detailing the TAZ data creation are in Appendix A. The TAZ data was used to modify the draft concepts to form the final concepts that were run in the RVMPO model. Model volume plots and NCHRP Report 255/765 post-processing methodologies were used to determine 2038 future volumes for the no-build and each scenario from the 2013 existing year volumes. Model select-links were used to help determine turning movements at all of the intersections. Because of the size and scope of the post-processing worksheets, they are not included in the appendices as they do not fit into a print format, but are available upon request. All concept volumes were balanced between intersections as appropriate such as between ramp terminals or where local connections would be unlikely. Most of the road network in the PH-5/10 area is not balanced as there are a number of loading points and future driveways/local roadways that would cause the traffic volumes at both ends of a particular roadway section to be significantly different. The resulting 2038 volume figures for the no-build and the concepts are shown in Appendix B.

TRAFFIC ANALYSIS

Due to the complexity of the network analyzed, the volume-to-capacity (v/c) ratio and Level of Service (LOS) for signalized and unsignalized intersections was analyzed using PTV Vistro (Version 4). A v/c is the ratio of the volume to traffic on a road segment or at an intersection compared to the available capacity of that road segment or intersection. A v/c of 1.0 represents an intersection that is at capacity—it cannot efficiently handle additional traffic. A v/c greater than 1.0 is over-capacity and indicates severe congestion. In order to improve a v/c ratio, either the volume needs to be reduced or the capacity increased.

For this study, the v/c ratio as well as 95^{th} percentile queues were collected from the Vistro outputs and assembled into Appendix C for each study area intersection in each

concept. The concept analysis initially assumed basic lane configurations and traffic control. For some of the intersections, Appendix C contains "mitigation options" for defining how the network needs to be look like for each of the concepts. The analysis of the freeway segments and the Exit 24 on/off ramps for each concept was calculated using Highway Capacity Software (HCS) 2010 as described in the APM. Outputs from the HCS 2010 software can be found in Appendix D.

ANALYSIS RESULTS

Concept Network Approach

Each of the concepts started with the same network assumptions of two lanes and two-way stop control at intersections for new roadways. The first section of Appendix C contains a map illustrating the roadway network naming. Existing roadways and intersections started with the no-build conditions. Each intersection was compared with ODOT's Highway Design Manual 0.85 design v/c or the City's volume-to-capacity 0.90 standards or City of Medford's LOS D standard (North Phoenix & Barnett Road only) as applicable.

Volumes were compared with ODOT's left and right turn lane criteria for unstopped approaches (See Appendix E) and a turn lane was added if the criterion was exceeded. Left and right turn lanes on unstopped approaches are for removing potential conflicts to increase safety such as reducing rear-end collisions. Turn lanes on stopped approaches were added for capacity purposes or to reduce queue lengths and added only where thought to relatively beneficial. For intersections that still exceeded the v/c standards, ODOT's Average Daily Traffic Preliminary Signal Warrants (PSW) were investigated (Appendix F) and a variety of intersection control changes were analyzed such as all-way stop control, roundabouts, and signals. All-way stop control (four-way stop) was found not to be sufficient to bring any of the over-standard intersections into compliance. Note that meeting a PSW does not mean that a signal will be installed as the appropriate field investigations, analysis, and approval processes by the appropriate jurisdiction still need to be performed. For the purpose of this analysis, these are only used for identifying need for a potential change in traffic control from the base conditions. All traffic signal timing is generic and optimized for the future volumes. Table 1 shows the overall improvements that are needed to support each concept.

Generally, the same intersections were flagged for improvements in each concept with most being on North Phoenix Road. Concept 2 has the least amount of improvement locations (13) while Concept 3 & 4 have the most (17). The rest of the local roadway network in the urban reserve areas will work at the base condition level with a few exceptions: a left turn lane at Breckinridge St, left turn lanes at the "Main & Western" roadway intersection, and a left turn lane at the Breckinridge & "South Connector" intersection. Note that in Concept 4, there is no significant difference in the v/c's overall to the lesser amount of network ("Eastern" missing between the South and Middle Connector roadways) compared to Concept 2 or 3.

Most of the substantial traffic issues in the concepts are concentrated at the North Phoenix and "Main" and South Stage intersections. Both intersections meet PSWs and have natural v/c ratios for a two-way stop with turn lanes well exceeding 2.0 with some reaching six to seven times capacity. This operational issue lines up with the near to over-capacity North Phoenix Road findings in the *Screening Level Analysis Technical Memorandum*. Either a partial two-lane roundabout or a traffic signal would need to be added at these locations, however for proper traffic flow and operation one option should be chosen for all locations rather than mixing them. Table 2 has results for both types at both intersections.

Table 1: Overall Concept Network Improvement Needs

Location	Roadway Network Improvement	Need	C2	C3	C4
N. Phoenix Rd & Grove Rd	Add dual WB left turn lane	Intersection over HDM 0.85 v/c		X	X
N. Phoenix Rd & Old N. Phoenix Rd	Add NB left turn lane	Meets left turn criteria	X	X	X
	Add SB right turn lane	Meets right turn criteria			X
N. Phoenix Rd & Main	Add NB & SB left turn lanes	Meets left turn criteria	X	X	X
	Add NB right turn lane	Meets right turn criteria	X	X	X
	Add traffic signal or partial two-lane roundabout	Intersection over City 0.90 v/c standard	X	X	X
	Widen Main between N. Phoenix & Western to two lanes per direction	Intersection over City 0.90 v/c standard		X	X
	Widen North Phoenix Road to two lanes per direction from Grove Road to South Stage Road	Intersection over City 0.90 v/c standard	X[1]	X	X
N. Phoenix Rd & Campbell Rd	Add SB left turn lane	Meets left turn criteria	X	X	X
N. Phoenix Rd & South Stage Rd	Add NB left turn lane	Meets left turn criteria	X	X	X
	Add SB right turn lane	Meets right turn criteria	X	X	X
	Add EB left turn lane	Intersection over City 0.90 v/c standard	X	X	X
	Add traffic signal or partial two-lane roundabout	Intersection over City 0.90 v/c standard	X	X	X
N. Phoenix & Barnett Rd	Add SB through lane	Intersection over Medford LOS D standard	X	X	X
Fern Valley Rd &	Add EB left turn lane	Meets left turn criteria	X	X	X

Breckinridge St					
Main & Western	Add EB & WB left turn lanes	Meets left turn criteria	X	X	X
	Add single lane roundabout or traffic signal	Intersection over City 0.90 v/c standard		X	
Breckinridge St & South Connector	Add SB left turn lane	Meets left turn criteria		X	X

[1]Concept 2 only requires two lanes in each direction from Grove to Main.

Roundabouts likely will work better than traffic signals if the area remains less dense over the study period as higher-speed signalized intersections in relatively isolated locations can be a source of rear-end crashes as drivers may not expect them. Roundabouts will also work well in the urbanized future as they can be used for U-turns especially if medians and other access management measures are in place. The roundabouts have v/c ratios well under the operational standards and the accepted 0.80-0.85 upper threshold for good operation.

Also, it appears that additional lanes are not necessary on North Phoenix Road through 2038 if roundabouts are used. A roundabout at North Phoenix & "Main" would need two lanes in the southbound direction (functioning as a left and a through-right lane) and extra right turn lanes for the heavy westbound to northbound and northbound to eastbound movements.

A traffic signal at North Phoenix & "Main" would need dual left turn lanes on the southbound and westbound approaches, a single left turn lane on the northbound and eastbound approaches, and a right turn lane for the northbound to eastbound movement which will have a large footprint. In addition, to accommodate the dual left turn lanes, all concepts require two lanes in each direction on North Phoenix Road from just north of Grove Road to north of "Main". Also, "Main" between North Phoenix Road and "Western" will need to be widened to a five-lane cross-section to accommodate necessary dual left turns to and from the east intersection leg. The combination of these will result in v/c's around 0.80 for all concepts which will work through 2038.

In Concept 2, at the South Stage intersection, a roundabout would need an extra northbound though lane while a traffic signal would need a northbound dual left turn lane and other separated turn lanes on the other approaches. The northbound dual left turn lane would require about a quarter-mile of westbound South Stage Road to be widened to act as the receiving lane for this movement. A traffic signal with this configuration would have a v/c ratio of 0.82. Judging from the signalized v/c ratios, additional through lanes will be necessary on North Phoenix Road not too long beyond 2038. This will vary depending in the speed and actual intensity of the future urban development.

In Concept 3 and 4, the roundabout has the same configuration and a similar v/c at 0.74 - 0.75, however the traffic signal option will require two lanes in each direction to be extended from "Main" to north of South Stage Road on North Phoenix Road to stay

under the 0.90 standard. A dual left turn lane and companion widening on South Stage Road is not needed with these two concepts, however.

Concept 3 has enough extra traffic in it to potentially need an improvement at the "Main & Western" intersection. This intersection volume is ether equal to or just below the PSW levels so it technically meets in 2038. Otherwise, the two-way stop control intersection is at 0.92 so it could work through the horizon year. Either a single lane roundabout or a traffic signal could work at this location but the exact configuration will be very dependent on the actual development patterns and uses in the study area.

The intersection of North Phoenix & Barnett Road is an issue for all concepts as shown in Table 3. The eastbound to northbound left turn movement would need a dual left turn lane to allow this intersection to meet the City of Medford LOS D standard. However, this movement is a no-build issue and is not directly impacted by the Phoenix URA effort, so no improvement is proposed for this approach. Extending the two existing southbound lanes south of Barnett some distance (least a quarter mile to maintain reasonable lane balance; otherwise traffic will favor one lane and the benefit of the second lane will not be realized) does improve the overall intersection delay to less than the no-build and is reflected in the table results. Also, this intersection is the only one flagged by the existing year crash analysis that is not substantially changed or impacted by the Fern Valley Interchange project. Since this is a high speed intersection (45 mph on North Phoenix) some of the rear-end crash problem could be addressed by adding advance flashing beacons and/or warning systems which could drop crashes 8-13%.

Intersection Analysis

Table 2 shows the resulting LOS and v/c ratios for the no-build and the improved concepts for comparison. Both North Phoenix Road intersections at "Main" and South Stage Road are shown in the table as signalized and unsignalized (roundabout) options. In the no-build everything is under standards except for the unsignalized North Phoenix & South Stage Road intersection and the Medford-controlled North Phoenix & Barnett Road intersection.

Table 2: 2038 Intersection Analysis[1]

Intersection	Critical Movement	2038 No-Build		Concept 2		Concept 3		Concept 4	
		LOS	v/c Ratio	LOS	v/c Ratio	LOS	v/c Ratio	LOS	v/c Ratio
Signalized									
N Phoenix Rd & OR 99		C	0.52	B	0.60	B	0.59	B	0.60
Bolz Rd & OR 99		B	0.45	B	0.50	B	0.50	B	0.51
N Phoenix Rd & Luman Rd		B	0.62	B	0.67	B	0.68	B	0.69
I-5 NB Crossover		B	0.32	B	0.47	B	0.49	B	0.49

I-5 SB Crossover		B	0.36	B	0.41	B	0.42	B	0.43
RT from NB off Ramp		C	0.31	B	0.43	B	0.44	B	0.45
RT from SB off Ramp		C	0.56	C	0.53	C	0.54	C	0.53
N Phoenix Rd & Grove Rd		C	0.54	E	0.79	D	0.77	D	0.74
N Phoenix Rd & Main[2]				C	0.77	C	0.81	D	0.81
N Phoenix Rd & South Stage[2]				C	0.82	B	0.78	B	0.78
N Phoenix Rd & Barnett Rd		**F**	1.03	**F**	0.88	**F**	0.78	**F**	0.81
Main & Western						B	0.77		
Unsignalized									
N Phoenix Rd & Bolz Rd	WBT	C	0.71	C	0.77	C	0.77	C	0.78
N Phoenix Rd & Campbell Rd	WBL	C	0.02	F	0.31	E	0.28	E	0.29
Fern Valley Rd & Breckinridge Dr	EBT	A	0.07	B					
	EBL			B	0.24				
	NBL					D	0.35	C	0.28
Fern Valley Rd & Grove Rd	SBL	B	0.28	B	0.43	B	0.58	B	0.50
N Phoenix Rd & South Stage Rd[2]	EBL	F	**1.06**						
	NBT			C	0.74	C	0.74		
	SBT							C	0.75
Fern Valley Rd & Eastern Rd	SBL			A	0.01	A	0.01	A	0.01
N Phoenix Rd & Old N Phoenix Rd	NBL			D	0.17	D	0.16	D	0.19
Old N Phoenix Rd & Kirk Rd	WBL			A	0.02	A	0.02	A	0.02
N Phoenix Rd & Main[2]	WBR			B	0.57	B	0.55	B	0.56
Campbell Rd & Western	NBL			B	0.14	B	0.13	B	0.11
Campbell Rd & Breckinridge Dr	NBL			A	0.09	A	0.13	B	0.09
Campbell Rd & Eastern	NBL			A	0.03	A	0.03	A	0.09
Main & Western	NBL			F	0.69			F	0.77
	EBL (roundabout)					B	0.66		
Breckinridge Dr & South Connector	WBL			A	0.04	B	0.16	B	0.11
Breckinridge Dr &Western	EBR			A	0.07	A	0.06	A	0.04
Breckinridge Dr & Middle Connector	WBL			A	0.03	A	0.03	A	0.03
Breckinridge Dr & Main	EBL			A	0.07	A	0.10	A	0.10

Breckinridge Dr & North Connector	WBR			A	0.02	A	0.05	A	0.02
Eastern & South Connector	EBL			A	0.01	A	0.01		
Eastern & Middle Connector	EBL			A	0.03	A	0.06		
Eastern & North Connector	EBL			A	0.03	A	0.06	A	0.10

[1]Black-shaded cells indicate that either the ODOT HDM v/c's for the interchange (0.75), other roadways (0.85), the City of Phoenix v/c (0.90), Jackson County (0.95), or the City of Medford LOS (D) standards were exceeded.
[2]Both North Phoenix & Main and South Stage intersections are shown in Table 3 as a signalized intersection and a partial two-lane roundabout as both were deemed to work for the concepts.

The areas west of I5 and the I5 interchange in all concepts are all well under the ODOT and City v/c standards. The v/c's between the concepts in these areas appear so only vary by 0.02 or less, so all can be considered to be the same. There are some differences between the no-build and concepts with small changes to the west of I5 to larger changes on the fringes of the urban reserve zones, but all v/c's remain significantly below standards. All of the concepts have essentially the same operation so all of them should work acceptably through 2038 assuming that actual developments reasonably follow the concept plan assumptions.

Freeway Analysis

The merge/diverge and segment analysis of the I5 freeway was calculated using Highway Capacity Software (HCM 2010 methods) as described in the APM. Table 3 summarizes the volume to capacity ratios (v/c ratios) for the freeway segments in the study area. None of the I5 no-build sections exceed the 0.85 Oregon Highway Plan v/c target for 2038.

The concepts do not have a large effect on I5 except on the northbound on-ramp as the v/c increases about 0.08 which does exceed the Highway Design Manual 0.75 design v/c guideline probably due to the outflow of employment trips from Phoenix to central/north Medford or further north. Concept 2 is slightly less than Concept 3 or 4 but the change is not significant. This change is consistent with the findings of the Fern Valley Interchange analysis which indicated that not much could be done to address this other a future I5 widening project to three lanes and/or ramp widening. The northbound off-ramp also exceeds 0.75 but it is unchanged from the no-build. Since both northbound ramps are less than the OHP "need" target of 0.85, there is not much to trigger a future improvement at this location other than to occasionally monitor the segment operation.

Table 3: 2038 I5 Merge/Diverge/Segment Volume –to- Capacity Ratios

Segment	V/C Ratio[1]			
	No-build	Concept 2	Concept 3	Concept 4
I5 NB On-ramp	0.69	**0.76**	**0.77**	**0.77**

I5 NB Off-ramp	0.80	**0.80**	**0.80**	**0.80**
I5 SB On-ramp	0.52	0.54	0.54	0.54
I5 SB Off-ramp	0.57	0.62	0.63	0.63
I5 NB north of interchange	0.67	0.73	0.74	0.73
I5 NB between ramps	0.56	0.57	0.57	0.56
I5 NB south of Interchange	0.71	0.71	0.71	0.72
I5 SB north of interchange	0.50	0.55	0.56	0.55
I5 SB between ramps	0.39	0.40	0.40	0.40
I5 SB south of Interchange	0.51	0.53	0.53	0.53

[1]Black-shaded cells indicate that the HDM design v/c guideline has been exceeded.

Future 2038 95th Percentile Queues

Table 4 shows the future 2038 95th percentile queue lengths for significant intersections in the study area. This includes all existing signalized intersections and "improved" future intersections that are projected to have enough traffic to warrant additional turning lanes and traffic control are shown in Table 1. Generally, added turn lanes were assumed to have the typical 100' length for an urban area. The exceptions are at the North Phoenix Road intersections of "Main" and South Stage because of the higher volumes present which have a 200' length.

From I5 west, the concepts do not cause any queuing issues beyond the future no-build. At OR99 & Bolz Rd and on North Phoenix & Luman Road the adjacent through lane queue is projected to block access to the left turn lane at this locations, however this does not appear to be a significant issue. At the North Phoenix & Grove Road intersection, Concept 2 is the only one to exceed the provided storage by 25-100 feet per approach, but this appears to be an isolated case and not cause issues at adjacent intersections.

Most of the queuing issues are at the North Phoenix & "Main" and South Stage Road intersections. The biggest issue at the "Main" intersection is the length of the westbound queue approaching North Phoenix Road. This section of roadway serves as the main route in and out of the development area. Even with two lanes westbound assumed and a dual left turn lane, this queue is predicted to extend almost all the way back to the "Main & Western" intersection. Access to this section of roadway will be difficult so some sort of median and access control is recommended between North Phoenix and "Western". At South Stage Road all of the concepts on at least one approach predict that the available storage will be exceeded. The differences are smaller with a roundabout than with a traffic signal as a roundabout is operating under yield control while a signal requires vehicles to stop. On Concept 2, the larger northbound and southbound queues point to the need to expand this section of North Phoenix not too far after 2038 (Concept 3 and 4 already assume a widened North Phoenix Road at this intersection).

Like with the intersection analysis, the intersection of North Phoenix & Barnett Road is an issue in the no-build and the concepts. The addition of extending the four-lane section south some distance is reflected in the concept's reduction of the northbound and

southbound queues. Most of the queueing is on the over-capacity eastbound approach, but until an additional turn lane is added by the City of Medford as an improvement not-related to the Phoenix URA this queue will remain.

Table 4: 2038 Future 95th Percentile Queues

Intersection	Dir	Available Storage (ft)	Concept Queues (ft)			
			No-build	2	3	4
N Phoenix Rd & OR99	NB	200	**225**	100	100	100
	EB	100	50	50	50	50
	WB	200	150	175	200	200
OR99 & Bolz Rd	NB	100	**125**	**125**	**125**	**150**
	EB	n/a[1]	100	125	125	125
	SB	275	150	125	125	150
N Phoenix Rd & Luman Rd	NB	n/a[1]	50	50	50	50
	EB	50	**200**	**225**	**225**	**225**
	SB	n/a[1]	75	50	50	50
	WB	150	125	150	150	150
I5 NB Crossover	EB	n/a[1]	100	150	175	175
	WB	n/a[1]	100	175	175	175
I5 SB Crossover	EB	n/a[1]	125	150	150	150
	WB	n/a[1]	125	150	150	150
N Phoenix Rd & Grove Rd	NB	600	225	525	450	400
	EB	175	75	**225**	150	125
	SB	425	225	**550**	350	350
	WB	625	225	**650**	250	225
N Phoenix Rd & Old N Phoenix	NB	100		25	25	25
	EB	n/a[1]		75	50	75
N Phoenix Rd & Main (Roundabout/Signal)	NB	200		75/175	75/200	75/**225**
	EB	100		25/50	25/25	25/75
	SB	200		75/200	75/150	100/**225**
	WB	100		100/**425**	100/**400**	100/**500**
N Phoenix Rd & Campbell Rd	SB	100		25	25	25
	WB	n/a[1]		150	100	100
N Phoenix Rd & South Stage Rd	NB	200		200/**550**	175/**225**	175/200
	EB	100		100/100	**125**/50	**150**/**150**

(Roundabout/Signal)	SB	200		175/**225**	150/150	200/25
N Phoenix Rd & Barnett Rd	NB	100	**350**	**300**	**250**	**275**
	EB	500	**1600**	**1600**	**1775**	**1475**
	SB	225	**575**	225	200	200
	WB	100	**275**	**225**	**275**	**175**
Fern Valley Rd & Grove Rd	NB	n/a[1]	25	50	50	50
	EB	n/a[1]	25	25	25	25
	SB	200	50	75	100	75
	WB	n/a[1]	25	50	75	75
Fern Valley Rd & Breckinridge St	NB	n/a[1]	25	25	50	50
	EB	525	25	50	25	25
	SB	n/a[1]		25	25	25
Main & Western[2]	NB	n/a[1]		125	200/50/100	150
	EB	100		25	25/**150**/200	25
	SB	n/a[1]		25	25/25/25	25
	WB	100		25	25/50/75	25
Breckinridge St & South Connector	SB	100		25	25	25
	WB	n/a[1]		25	25	25

[1]No separate turn lane available, so storage extends to full block.
[2]Main & Western for Concept 3 is shown as a unsignalized intersection, a roundabout and a signal in (unsignalized/roundabout/signalized) format.
[3]Black-shaded (or bolded) cells indicate that the queues exceed the length of the provided turn storage or that the queue in the adjacent lane blocks off vehicles from accessing the turn storage.

MULTIMODAL

Qualitative MMLOS

The qualitative multimodal assessment methodology (QMA) is based on work completed by David Evans and Associates and follows the concepts of the full MMLOS in the 2010 Highway Capacity Manual (HCM). A subjective rating of "Excellent/Good/Fair/Poor" is applied to a roadway segment or intersection based on its characteristics. This generalized process allows for an accurate representation of the roadway network to be produced without the intense data collection required by the full HCM MMLOS. Bicycle, Pedestrian and Transit facilities are largely influenced by adjacent modes. Each of the rankings takes into account many aspects of the mode. Each looks at a different combination of available facilities, width of the facility, vehicular travel speeds, number of vehicular lanes, and many more. Because there are no current transit lines that run along the east side of I-5, all transit in this area is considered poor. Table 5 below presents an update of the multimodal analysis to reflect the recent and planned improvements in the study area and Table 6 reflects likely conditions in the concepts. Appendix G shows the background data used to come up with the final ratings.

The recent improvements to the intersections of North Phoenix Road and Bolz Road at OR 99 provide benefits for several modes of travel along OR 99. Pedestrian crossings and safety have been enhanced by new striping and added sidewalks and ramps. The addition of a bus pullout has improved the transit and auto on OR 99 in this area. The changes in lane configuration have also improved operations and alleviated some previous safety concerns at North Phoenix Road.

Bicycle Facilities

Bike facilities in the study area are inconsistent. Facilities on realigned North Phoenix Road, Fern Valley Road, and Grove Road are accommodated by 6-foot-wide shoulders. Bikes are also accommodated on the DDI by 6-foot shoulders designated by pavement markings for bike travel and a protected multi-use path between the I-5 northbound and southbound ramps. South Phoenix Road, south of Grove and Fern Valley Road has a marked 4-foot wide shoulder to accommodate bicycles. Along Fern Valley Road, from Pear Tree Lane to South Phoenix Road also has a 4-foot shoulder. Bikes traveling on the shoulders adjacent to traffic use the same travel patters as vehicular traffic.

Campbell Road, east of North Phoenix Road and the future expansion of South Stage Road, west of North Phoenix Road will have 6-foot shoulders to accommodate bicycles. North Phoenix Road from Grove Road to Barnett Road currently has 3-foot paved shoulders. All three concepts will likely have bike lanes installed as appropriate.

In the tables, for bicycle accommodations, “Good” denotes paved shoulder with markings. Locations with paved shoulders but no markings are denoted as “Fair” and areas with narrow or no shoulder are marked as “Poor.” At intersections the number of lanes as well as control type was considered.

Pedestrian Facilities

The recent interchange improvements have also led to the improvement of pedestrian facility in parts of the study area. The addition of crosswalks, sidewalks, new pavement, and pavement markings are rated as “Good” in Table 4. There is also a mixed-use path with buffers between the I-5 southbound and northbound ramps that allows pedestrians to travel safely. Areas that do have sidewalk but the pavement is in poor condition are rated as “Fair.” Areas that do not have any sidewalk are denoted as “Poor.”

Campbell Road, east of North Phoenix Road and the future expansion of South Stage Road, west of North Phoenix Road will have sidewalks to accommodate pedestrians. All Concepts will have sidewalks installed as appropriate.

Transit Facilities

Rogue Valley Transportation District (RVTD) is currently the provider of public transportation in Phoenix. The only route that runs through the study area is Route 10 and it runs along OR99. Where both transit and pedestrian facilities are available along OR99 within the study area, a score of "Good" was given. The rest of the study area was given a "Poor" due to the fact that there are no transit lines or facilities available on the network. If a transit line was offered on North Phoenix Road, most of the concept areas (especially the residential areas) would still be outside of the normally accepted quarter-mile walk to transit tolerance which would still give a "Poor" rating .

Auto Facilities

Recent improvements to the interchange and relatively low v/c ratios, with few safety concerns, leads to high overall scores for the auto facilities in Table 4. North Phoenix Road at Barnett Road has been flagged for crashes and has a high v/c ratio. For this reason, this intersection has been rated as "Poor."

Table 5: Multimodal Assessment - No-Build

Location	Travel Mode			
	Bicycle	Pedestrian	Transit	Auto
Segments along OR 99				
Bolz Rd to N. Phoenix Rd.	Poor	Good	Good	Good
Cherry Ln to N. Phoenix Rd.	Poor	Good	Good	Fair
Segments along North Phoenix Road				
OR99 to Luman Rd	Poor	Good	Poor	Fair
Luman Rd to I-5 SB Ramps	Good	Good	Poor	Good
I-5 SB Ramps to I-5 NB Ramps	Good	Good	Poor	Good
I-5 NB Ramps to Grove Rd	Good	Good	Poor	Good
Grove Rd to Barnett Rd	Fair	Poor	Poor	Good
Campbell Rd east of N. Phoenix Rd	Good	Good	Poor	Good
S. Stage Rd west of N. Phoenix Rd	Good	Good	Poor	Good
Grove Rd west of N. Phoenix Rd	Good	Good	Poor	Good
Grove Rd east of N. Phoenix Rd	Good	Good	Poor	Good
Segments along Fern Valley Road				
Pear Tree Ln to S. Phoenix Rd	Fair	Fair	Poor	Good
S. Phoenix Rd to Breckinridge Dr	Fair	Fair	Poor	Good
Intersections				
OR99 & Bolz Rd	Poor	Good	Poor	Good

OR99 & N. Phoenix Rd	Poor	Good	Good	Good
N. Phoenix Rd & Bolz Rd	Poor	Good	Good	Good
N. Phoenix Rd & Luman Rd	Good	Good	Poor	Good
N. Phoenix Rd & I5 SB Ramps	Good	Good	Poor	Good
N. Phoenix Rd & I5 NB Ramps	Good	Good	Poor	Good
N. Phoenix Rd at Grove Rd	Good	Good	Poor	Good
N. Phoenix Rd & Barnett Rd	Good	Good	Poor	Poor
S. Phoenix Rd & Fern Valley Rd	Good	Good	Poor	Good
Fern Valley Rd & Breckinridge Dr	Poor	Fair	Poor	Good
I-5 NB Crossover	Good	Good	Poor	Good
I-5 SB Crossover	Good	Good	Poor	Good

Table 6: Multimodal Assessment - Concepts

Location	Travel Mode			
	Bicycle	**Pedestrian**	**Transit**	**Auto**
Segments along OR 99				
W Bolz Rd to N. Phoenix Rd.	Poor	Good	Good	Good
Cherry Ln to N. Phoenix Rd.	Poor	Good	Good	Fair
Segments along North Phoenix Road				
OR99 to Luman Rd	Poor	Good	Poor	Fair
Luman Rd to I-5 SB Ramps	Good	Good	Poor	Good
I-5 SB Ramps to I-5 NB Ramps	Good	Good	Poor	Good
I-5 NB Ramps to Grove Rd	Good	Good	Poor	Good
Grove Rd to Barnett Rd	Good	Good	Poor	Good
Campbell Rd east of N. Phoenix Rd	Good	Good	Poor	Good
S. Stage Rd west of N. Phoenix Rd	Good	Good	Poor	Good
Grove Rd west of N. Phoenix Rd	Good	Good	Poor	Good
Grove Rd east of N. Phoenix Rd	Good	Good	Poor	Good
Segments along Fern Valley Road				
Pear Tree Ln to Grove Rd	Fair	Fair	Poor	Good
Grove Rd to Breckinridge Dr	Good	Good	Poor	Good
Breckinridge Dr to Eastern Rd	Good	Good	Poor	Good
Intersections				
OR99 & W Bolz Rd	Poor	Good	Poor	Good
OR99 & N. Phoenix Rd	Poor	Good	Good	Good

N. Phoenix Rd & E Bolz Rd	Poor	Good	Good	Good
N. Phoenix Rd & Luman Rd	Good	Good	Poor	Good
N. Phoenix Rd & I5 SB Ramps	Good	Good	Poor	Good
N. Phoenix Rd & I5 NB Ramps	Good	Good	Poor	Good
N. Phoenix Rd at Grove Rd	Good	Good	Poor	Good
N. Phoenix Rd & Barnett Rd	Good	Good	Poor	Poor
Grove Rd & Fern Valley Rd	Good	Good	Poor	Good
Fern Valley Rd & Breckinridge Dr	Good	Good	Poor	Good
I-5 NB Crossover	Good	Good	Poor	Good
I-5 SB Crossover	Good	Good	Poor	Good

SUMMARY

With the no-build alternative, projected future traffic volumes in the project area would increase over time, resulting in more traffic congestion in the area. By 2038, average daily traffic is projected to grow substantially, resulting in much heavier traffic congestion than the current conditions. There would be more congestion at major intersections and slower traffic movement through the intersections within the region, however the reconstructed North Phoenix Road from OR99 to Grove Road and the I5 interchange are projected to still operate acceptably through 2038. Most congestion would be located on North Phoenix Road between Grove and Barnett Roads in the unimproved two-lane section.

All of the concepts are projected to work acceptably in the study area through 2038. This is dependent on whether the actual developments are consistent with the assumed scope and size of future development in the concept plans. Below are some findings from the analysis:

- There is no capacity or queuing issues caused by the concepts in the I5 interchange area.
- Concept 2 requires a lesser amount of network improvements through 2038 to support the land use than Concept 3 or 4.
- Concept 3 requires the most substantial network improvements.
- The slightly reduced network in Concept 4 does not have any significant negative effect when compared to the other concepts.
- Either roundabouts or traffic signals will work at the highest volume North Phoenix Road intersections at “Main” and South Stage Road.

- The use of roundabouts will delay widening North Phoenix Road to two-lanes in each direction though 2038.
- The use of traffic signals on North Phoenix Road will require North Phoenix Road from Grove Road to South Stage Road to be widened to two-lanes in each direction.
- In order to support the future volumes, the section of "Main" between North Phoenix Road and "Western" is required to be a four/five-lane section.

If you have any questions, please contact Kaamil Tayyab at 503-986-3367 or Peter Schuytema at 503-986-4110.

cc: Dan Dorrell, Region 3 Traffic
Don Morehouse, Region 3 Planning
Matt Brinkley, City of Phoenix
Laurel Samson, City of Phoenix (consultant)

Attachment 6
(Agenda Item 6)

Rogue Valley
Metropolitan Planning Organization

Regional Transportation Planning

Ashland • Central Point • Eagle Point • Jacksonville • Medford • Phoenix •Talent • White City
Jackson County • Rogue Valley Transportation District • Oregon Department of Transportation

DATE: **December 7, 2016**
TO: **Technical Advisory Committee**
FROM: **Andrea Napoli, AICP, Senior Planner**
SUBJECT: **TAC Workshop - Project Presentations, Discretionary Funds**

All applications filed by the deadline (Friday, December 2, 2016) will be available on the RVMPO website, here: https://www.rvmpo.org/index.php/2019-2021projectsolicitation. Purposes of this workshop are to provide an informal application review process and make sure applications are complete. Applicants will present their projects and, with the TAC's agreement, will be able to amend applications to address questions raised or to provide clarity. The TAC must agree to the general content of the change(s). All changes must be filed with RVCOG by noon Friday, December 16, 2016.

TABLE 1: Projects Submitted by Jurisdiction

Jurisdiction	Project Name	STBG Funds Requested	CMAQ Funds Requested
Ashland	Ashland Chip Seal	$0	$816,081
Central Point	W. Pine Street Reconstruction, Glenn Way to Brandon Avenue	$1,844,153	$1,500,000
Eagle Point	S. Royal Avenue Improvements, Design & ROW	$177,000	$355,000
Jackson Co.	Expo Parking Lot Paving	$0	$559,873
Jackson Co.	Foothill Road, Delta Waters to Dry Creek	$1,255,652	$1,255,652
Jackson Co.	Bear Creek Greenway, Hwy 140 Shared Use Path	$0	$776,164
Medford	Foothill Road, Cedar Links to Delta Waters	$2,200,000	$1,240,000
RVTD	Bus Replacement, 1998 Diesel Fleet to CNG	$0	$1,150,000
RVTD	Trip Reduction Program, Indv. Marketing	$0	$120,000
	Total:	$5,476,805	$7,772,770

Available Federal Funds

RVMPO has funds available in three timeframes as shown in Table 2. These are estimates and may change.

TABLE 2: Available Federal Funds

FFY	2019	2020	2021	***Total** by fund*
CMAQ	$1,080,427*	$1,080,427*	$1,080,427*	$3,241,281
STBG	$971,015**	$984,609**	$998,393**	$2,954,017
***Total** by year*	**$2,051,442**	**$2,065,036**	**$2,078,820**	**$6,195,298**

**Balance after accounting for $682,216 in CMAQ funding shortfall from 2015-18 CMAQ project programming timeframe (-$227,405 per year). **Reflects half STBG allocation to RVTD.*

Schedule for Funding Decisions

A detailed schedule is in the instructions packet which is available on the RVMPO website (https://www.rvmpo.org/images/Instructions_Sept2016SA.pdf). Staff will evaluate projects and present results to the TAC for discussion at the January, 11 TAC meeting. At that time, the TAC is expected to make its funding recommendations to the Policy Committee.