



MEETING AGENDA

TUALATIN PLANNING COMMISSION

November 15, 2012; 6:30 p.m.
POLICE TRAINING ROOM
8650 SW TUALATIN RD
TUALATIN, OR 97062

1. **CALL TO ORDER & ROLL CALL**
Members: Mike Riley, Chair, Alan Aplin, Bill Beers, Jeff DeHaan, Nic Herriges, Cameron Grile, and Steve Klingerman

Staff: Aquilla Hurd-Ravich, Planning Manager; Kaaren Hofmann, Engineering Manager
2. **APPROVAL OF MINUTES**
3. **COMMUNICATION FROM THE PUBLIC (NOT ON THE AGENDA)**
Limited to 3 minutes
4. **ACTION ITEMS**
 - A. TSP: Boones Ferry Road & 65th Avenue Refinement Areas
5. **COMMUNICATION FROM CITY STAFF**
6. **FUTURE ACTION ITEMS**
7. **ANNOUNCEMENTS/PLANNING COMMISSION COMMUNICATION**
8. **ADJOURNMENT**



STAFF REPORT

CITY OF TUALATIN

TO: Tualatin Planning Commission Members

THROUGH: Aquilla Hurd-Ravich, Planning Manager

FROM: Dayna Webb, Project Engineer
Kaaren Hofmann, Engineering Manager

DATE: 11/15/2012

SUBJECT: TSP: Boones Ferry Road & 65th Avenue Refinement Areas

ISSUE BEFORE TPC:

Provide a recommendation on the Boones Ferry Road & 65th Avenue Refinement Areas.

RECOMMENDATION:

Staff recommends that the Planning Commission weigh in and provide a recommendation on the Boones Ferry Road and 65th Avenue Refinement Areas.

EXECUTIVE SUMMARY:

At their November 1st meeting, the Transportation Task Force was asked to do the following:

1. Consider and give final direction on the low build scenario (this includes all of the projects accepted by the Task Force in previous meetings but does not include Boones Ferry bridge widening or 65th bridge extension);
2. Review and consider the city-wide traffic analysis conducted since the September 20th Task Force meeting; and
3. Give direction on the Boones Ferry Road and 65th Avenue Refinement Areas.

At the meeting, the Transportation Task Force was able to reach consensus for the Low Build Scenario. Then the consultants gave a presentation of the city-wide traffic analysis, as detailed in Attachment A. Following that, the Task Force discussed the remaining refinement areas of Boones Ferry Road Expansion and the 65th Avenue Extension. They were not able to reach consensus, a summary of the meeting is provided as Attachment B. The Task Force conclusions were:

- **Low Build Scenario:**

- Consensus with removal of the traffic calming on Tualatin Road

- **65th Ave Extension:**

- 5 red signs
- 1 yellow sign
- 7 green signs but with 3 people proposing amendments – refinement area

discussion in the long-term and the removal of “65th Ave” from the title of the refinement area

- **Boones Ferry Road Expansion**

- 4 red signs
- 2 yellow signs
- 8 green signs

TPARK reviewed and commented on these Refinement Areas at their last meeting. The TPARK & TPC recommendations will be forwarded, along with the results of the Transportation Task Force discussion, to the City Council. The City Council will review and comment on these Refinement Areas at their November 26th meeting.

Attachments: A. City-Wide Traffic Analysis Results for Roadway Capacity
 B. Task Force Meeting Summary November 1st DRAFT



Technical Memorandum

City-Wide Traffic Analysis Results for Roadway Capacity Scenarios

PREPARED FOR: Tualatin Transportation System Plan
Project Management Team

PREPARED BY: Theresa Carr, CH2M HILL
Alan Snook, DKS & Associates
Mat Dolata, DKS & Associates

COPIES: Terra Lingley, CH2M HILL
Eryn Deeming Kehe, JLA

DATE: October 17, 2012

This memorandum highlights traffic analysis findings for six roadway infrastructure scenarios prepared for Tualatin's Transportation System Plan (TSP). The purpose is to provide information about the benefits and tradeoffs of various capacity projects being considered in the TSP, with a focus on a possible extension of 65th Avenue to the north and the possible widening of Boones Ferry Road north of Martinazzi. Both of these projects center on a crossing of the Tualatin River: the 65th Avenue extension would be a new crossing, and the Boones Ferry Road widening would be a widening of an existing crossing. This memorandum provides information to support decision makers and the community with finalizing TSP recommendations (fall of 2012). The analysis centers on mobility/access, one of the TSP's seven evaluation categories. The other evaluation categories are: safety, vibrant community, equity, economy, health and the environment, and ability to be implemented.

Information is organized into four sections: (1) project scenarios, which includes descriptions of the six scenarios analyzed; (2) results, which highlights the intersection operations, traffic volumes, and travel time changes associated with each scenario; (3) conclusions and recommendations; and (4) next steps.

Project Scenarios

What follows are descriptions of the six scenarios evaluated in this memo, and a description of the three components of the traffic analysis: (1) intersection level of service, (2) traffic volume shifts, and (3) travel times. Each of these three components reveals something different about overall system performance: from what it feels like to live near a major roadway capacity project, to how much time drivers spend waiting to proceed through an intersection, to what effect a project can have on the total amount of time it takes a driver to cross town.

Six scenarios were analyzed:

1. **Existing conditions.** An existing conditions analysis takes into account what drivers experience *today*. It is based on traffic counts collected in October 2011 throughout the City, site visits to

verify intersection geometry and land uses, and observed and recorded travel times (also from fall 2011). Existing conditions lay a solid foundation on which to compare all future scenarios.

2. **Future “no build.”** This scenario takes into account the projected growth in population and employment in Tualatin and elsewhere over the next 20+ years (Year 2035), assuming the transportation network will remain the same. The only transportation projects are included in this scenario are those with funding and a subset of projects on Metro’s fiscally-constrained Regional Transportation Plan (RTP), such as the extension of 124th Avenue south of Tualatin-Sherwood Road. This scenario allows us to consider what congestion concerns might arise in the future.
3. **Future “low build.”¹** The future “low build” scenario begins with the assumption that there will be “no build” and then adds in those projects that the Tualatin Task Force (TTF) agreed to unanimously during the evaluation and refinement area analysis meetings (May through August 2012). A list of projects included in the “low build” scenario is included below. This scenario does not include any changes to 65th Avenue or Boones Ferry Road north of Martinazzi Avenue.
4. **Future “low build” with 65th Avenue extension.** This scenario begins with the “low build” option and then adds an extension of 65th Avenue to the north, from Nyberg Road to the vicinity of Childs Road north of the Tualatin River. This option was analyzed with the assumption that the existing three-lane cross section of 65th Avenue between Nyberg Road and Sagert Street would be retained and the northerly extension would transition to a two-lane cross section over the river, continuing as a two-or three-lane roadway towards Lakeview Boulevard.
5. **Future “low build” with Boones Ferry Road widening.** This scenario begins with the “low build” option and then adds a widening of Boones Ferry Road to five lanes north of Martinazzi Avenue. The existing cross section of three lanes would be retained through Tualatin’s downtown core.
6. **Future “low build” with 65th extension and Boones Ferry Road widening.** This scenario begins with the “low build” option and then adds a widening of Boones Ferry Road to five lanes north of Martinazzi Avenue and an extension of 65th Avenue to the north, from Nyberg Road to the vicinity of Childs Road north of the Tualatin River. This scenario is a combination of Scenarios 4 and 5.

The traffic analysis for each of these scenarios relies on both the traffic counts collected during the fall of 2011 and Metro’s regional travel demand model. For each of the scenarios analyzed, major infrastructure improvements were:

- (1) Coded into the Metro regional travel demand model;
- (2) Post-processed to be calibrated to traffic counts taken for the TSP; and
- (3) Analyzed in the Synchro operational analysis software at an intersection-specific scale.

¹ The “low-build” scenario assumes the following projects:

- Tualatin-Sherwood Road as a five lane facility (throughout Tualatin, including widening of Sherwood segment as per Regional Transportation Plan)
- Boones Ferry Road as a three lane facility for entire length
- Herman Road as a two lane facility from Teton Ave to Tualatin Road
- Tualatin Road as a "30 mph" roadway
- Signal at Teton Avenue/Tualatin Road
- Teton Avenue as a three lane road from Herman Road to Avery Street

Intersection Level of Service

An analysis of intersection-level traffic operations helps to understand the driver experience of waiting at specific intersections along the network. The wait can be long, frustrating, and—in some cases—unsafe when traffic volumes are high, when there is a mix of different types of users (e.g., railroad trains, freight trucks, bicycles), or when there are multiple approaches and traffic movements. To mitigate this, traffic engineers work to keep intersection performance within certain congestion thresholds or mobility standards. Mobility standards can vary depending on where the intersection is located, who owns (and therefore controls) it, and its main purpose.

Depending on the location, roadways and intersections are owned and operated by one of three jurisdictions: (1) City of Tualatin, (2) Washington County, or (3) the Oregon Department of Transportation (ODOT). These jurisdictions measure traffic operations in different ways – either by level of service (LOS) or by volume-to-capacity (v/c). These terms are defined below:

- Level of service (LOS): A “report card” rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay has become excessive and demand has exceeded capacity. This condition is typically evident in cars waiting through more than one signal cycle to get through an intersection.
- Volume-to-capacity (v/c) ratio: This measure is a range and represents how full an intersection is with vehicles. The ratio is similar to a percentage, for example, if a glass of water were 75 percent full, it would have a v/c ratio of 0.75. A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 1.00, congestion increases and performance is reduced. If an intersection reports v/c higher than 1.0, it indicates that volumes are higher than capacity.

The City of Tualatin uses a LOS standard; depending on intersection type, the acceptable standard is either LOS D or LOS E. Washington County and ODOT use a v/c standard, which compares traffic volumes to intersection capacity. Both agencies define the acceptable mobility standard at or under a 0.99 v/c.

The next section of this memorandum compares intersection-level performance with congestion thresholds at these intersections:

1. Along Tualatin-Sherwood Road
 - a. Tualatin-Sherwood Road/124th Avenue
 - b. Tualatin-Sherwood Road/Boones Ferry Road
 - c. Tualatin-Sherwood Road/Martinazzi Avenue
2. Along Boones Ferry Road
 - a. Boones Ferry Road/Tualatin-Sherwood Road
 - b. Boones Ferry Road/Tualatin Road
 - c. Boones Ferry Road/Martinazzi Avenue
 - d. Boones Ferry Road/Lower Boones Ferry Road
3. Along 65th Avenue
 - a. 65th Avenue/Sagert Street
 - b. 65th Avenue/Borland Road
 - c. 65th Avenue/Nyberg Road

Shifts in Traffic Volumes from One Roadway to Another

Coding infrastructure improvements into Metro’s travel demand model—Step 1 of the analysis process outlined at the top of this page—will provide key outputs that will be helpful in understanding the major trends of specific infrastructure projects. One of those trends is traffic volume shifts. Volume shifts provide an understanding of the scale of activity both at new connections and at the existing connections that are “relieved” by a new one. For example, when a new roadway is added to the network, volume shift diagrams help illustrate the number of trips that involve the new roadway, and—of those trips—how many are new trips versus those that have been diverted from elsewhere in the system. This analysis is only relevant to Scenarios 4-6, as these are the scenarios which introduce one or both of the river crossing projects that could affect traffic routing. Further, volume shifts were only recorded for these key roadways:

- Tualatin Road
- Herman Road
- 99W
- I-5
- Boones Ferry Road
- Tualatin-Sherwood Road
- Martinazzi Avenue
- Sagert Street
- Borland Road
- 65th Avenue
- Nyberg Road

Travel Time

Travel time is one of the most intuitive measures of traffic performance. Drivers know the amount of time it takes to get from one place to another, and the extent to which congestion can change travel times. What follows is a comparison of travel times, for each scenario, between these key north-south and east-west destination pairs:

- Boones Ferry Road
 - Tualatin High School to Bridgeport Village
 - Tualatin High School to Nyberg Interchange
- Tualatin Road
 - 115th/Tualatin to Bridgeport Village
 - 115th/Tualatin to Nyberg Interchange
- Tualatin-Sherwood Road (TSR)
 - TSR/Cipole Road to Bridgeport Village
 - TSR/Cipole Road to Nyberg Interchange
- Borland Road and 65th Avenue
 - Bridgeport Elementary School to Nyberg Interchange
 - Sagert/65th to Bridgeport Village

Travel Times

In addition to intersection and daily volume profiles, the project team collected corridor data related to travel times and speeds during the p.m. peak period. These travel times are recorded in Table 1 below. As can be seen, it takes between 9 and 10 minutes to drive north-south through Tualatin on Boones Ferry Road, and between 11 and 13 minutes to drive east-west through the City on Tualatin-Sherwood Road. These current travel times are compared to various future scenarios in the pages that follow.

TABLE 1
 Existing (2011) P.M. Peak Period (4:00 p.m. to 6:00 p.m.) Travel Time Data

Corridor	From	To	Average Travel Time
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	10 min, 20 sec
	Bridgeport Village	Tualatin High School	9 min, 10 sec
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	7 min, 25 sec
	Nyberg Interchange	Tualatin High School	7 min, 5 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	8 min, 35 sec
	Bridgeport Village	115th Avenue	8 min, 30 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	8 minutes
	Nyberg Interchange	115th Avenue	8 min, 40 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	11 min, 40 sec
	Bridgeport Village	Cipole Road	13 minutes
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	8 min, 40 sec
	Nyberg Interchange	Cipole Road	10 min, 10 sec
SW Borland Road / 65 th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 10 sec
	Nyberg Interchange	Bridgeport Elementary	2 min, 20 sec
SW Borland Road / 65 th Ave	Bridgeport Elementary	Bridgeport Village	9 min, 10 sec
	Bridgeport Village	Bridgeport Elementary	8 min, 25 sec

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

NOTE: All travel times are rounded to the nearest 5 seconds

Scenario 2: Future “No Build” (2035)

Traffic Operations

By 2035, there will be much more congestion throughout the network in Tualatin, both along Tualatin-Sherwood Road (intersection with Teton Road, Boones Ferry Road, and Martinazzi Avenue), along Boones Ferry Road (intersections with Lower Boones Ferry Road, Martinazzi Avenue, Tualatin-Sherwood Road, Sagert Road, and Avery Street), along Teton Avenue (intersections with Tualatin Road, Tualatin-Sherwood Road, and Avery Street), and along 65th Avenue (intersections with Borland Road and Sagert Street). Operations are illustrated in Figure 2 below.

Travel Times

Travel times are summarized in Table 2 for the future (Year 2035) “no build” scenario. Travel times in the north-south direction would increase over existing conditions substantially, from between 9 and 10 minutes to between 12 and 15 minutes. Travel time increases would be more dramatic in the east-west direction: from between 11 and 13 minutes to approximately 17 minutes. Table 2 shows the travel time differences between the future no build and existing conditions. In most instances travel times increase by at least one minute. Some locations travel times increase by over 4 minutes – for example between Tualatin High School and Bridgeport Village, between 115th Avenue and Bridgeport Village, and between Bridgeport Village and Cipole Road. One destination pairing (Bridgeport Village to Bridgeport Elementary) saw a travel time increase of 6 minutes.

Figure 2. Intersection Operations, Future (2035) "No Build" Conditions

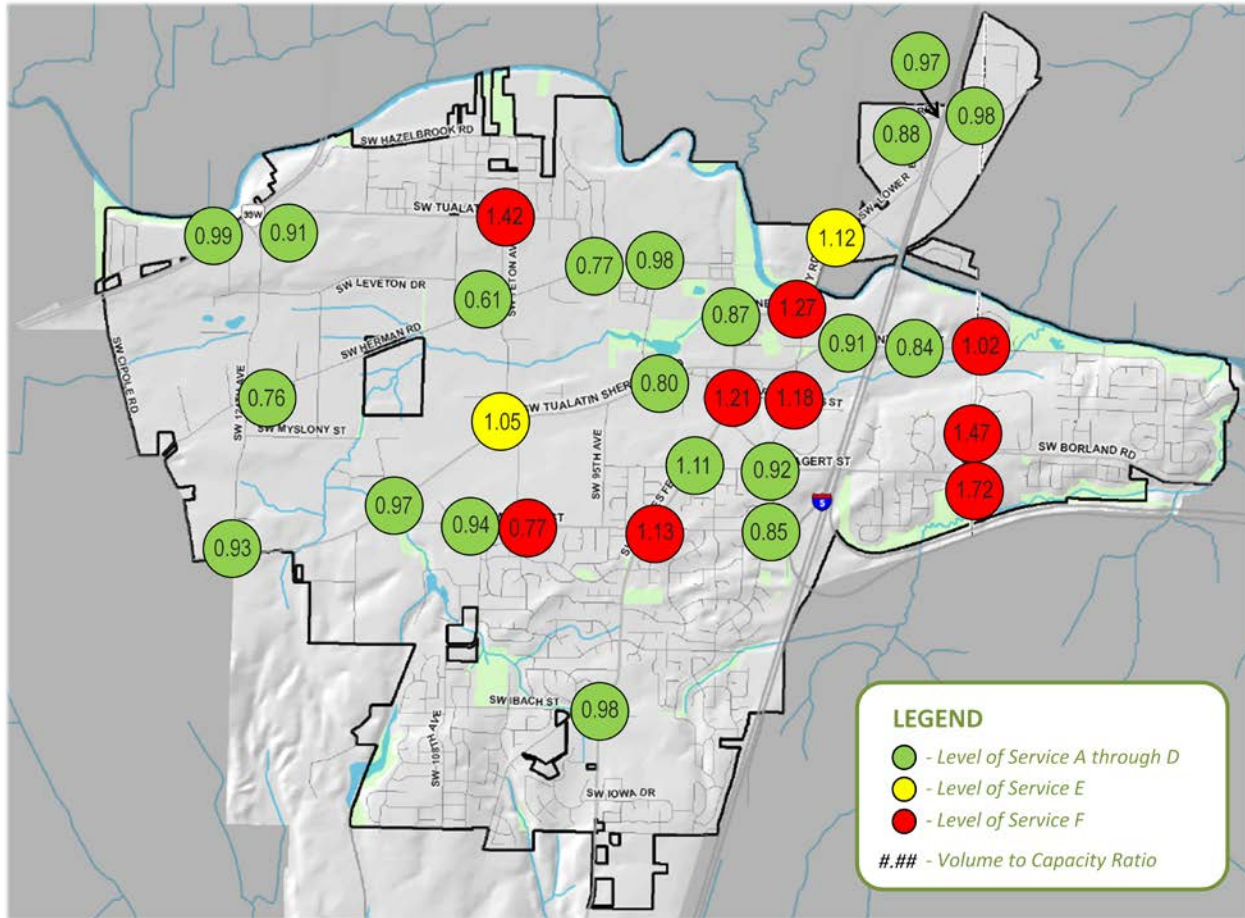


TABLE 2
 Future (2035) "No Build" P.M. Peak Period (4:00 p.m. to 6:00 p.m.) Travel Time Data

Corridor	From	To	Average Travel Time	Difference from Existing Conditions
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	15 min, 5 sec	+4 min, 45 sec
	Bridgeport Village	Tualatin High School	12 min, 10 sec	+3 min
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	9 min, 40 sec	+2 min, 15 sec
	Nyberg Interchange	Tualatin High School	8 min, 10 sec	+1 min, 5 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	13 minutes	+4 min, 25 sec
	Bridgeport Village	115th Avenue	11 min, 40 sec	+3 min, 10 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	10 min, 35 sec	+2 min, 35 sec
	Nyberg Interchange	115th Avenue	10 min, 25 sec	+1 min, 45 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	17 minutes	+5 min, 20 sec
	Bridgeport Village	Cipole Road	17 min, 20 sec	+4min, 20 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	11 minutes 35 sec	+2min, 55 sec
	Nyberg Interchange	Cipole Road	11 min, 50 sec	+1 min, 45 sec
SW Borland Road / 65 th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	+15 sec
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	+1 min, 10 sec
SW Borland Road / 65 th Ave	Bridgeport Elementary	Bridgeport Village	12 min, 55 sec	+3 min, 45 sec
	Bridgeport Village	Bridgeport Elementary	14 min, 25 sec	+6 min

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

NOTE: All travel times are rounded to the nearest 5 seconds

Scenario 3: Future “Low Build”

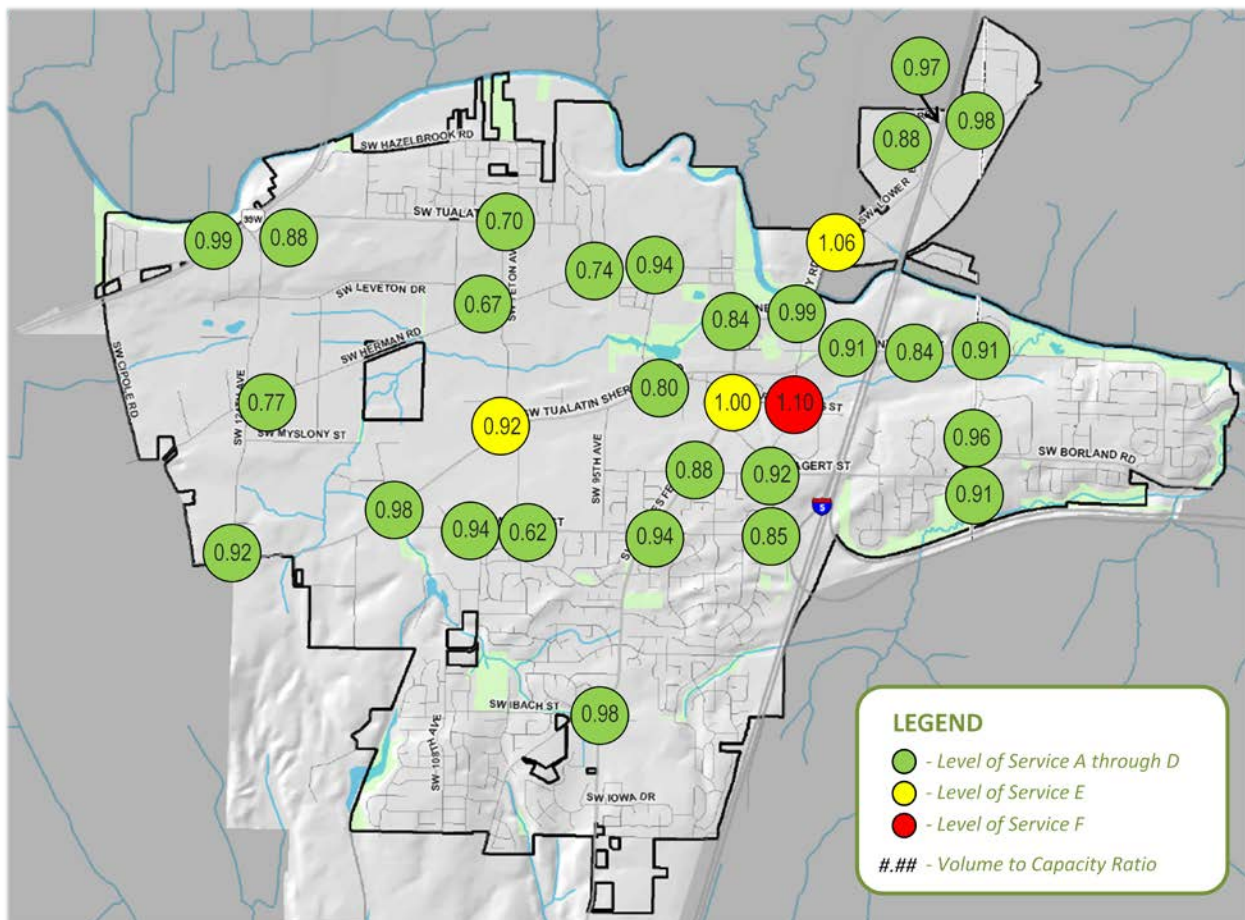
Traffic Operations

As described above, the future “low build” scenario serves as a starting point that represents all of the roadway infrastructure projects agreed to by the Task Force, Planning Commission, Tualatin Parks Advisory Committee, and City Council through the project evaluation and refinement area evaluation phases of the TSP. These include widening Tualatin-Sherwood Road between Cipole and Teton Roads, widening Teton Road to three lanes, and other intersection-specific treatments.

Raw outputs from the traffic model Synchro (as shown in Appendix A) indicate that up to ten study intersections have a v/c higher than 1.0 and/or LOS of F. However, intersections can be optimized to improve performance through one or more of these treatments:

- Signal timing adjustments
- Adding a turn lane in one or two directions (such as an eastbound left-turn lane)
- Restriping an approach lane to allow turn movements from two lanes instead of one
- Restricting a driveway approach to right-in, right-out (only used if traffic volumes entering facility are very low)

Figure 3. Intersection Operations, Future (2035) “Low Build”



With adjustments, traffic operations can improve. As shown in Figure 3, three intersections would operate with v/c at or higher than 1.0; two of these (Boones Ferry Road/Lower Boones Ferry Road and Boones Ferry Road/Tualatin-Sherwood Road) would operate at an LOS E and one (Boones Ferry Road

and Martinazzi Avenue) operates at an LOS F. One additional intersection (Tualatin-Sherwood Road and Teton Avenue) would operate at an LOS E, but meets Washington County standards with a v/c of 0.92.

Travel Times

Travel times are summarized in Table 3 for the future (Year 2035) “low build” scenario.

TABLE 3
Future (2035) “Low Build” P.M. Peak Period (4:00 a.m. to 6:00 p.m.) Travel Time Data

Corridor	From	To	Average Travel Time	Difference from Future No Build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	15 min, 5 sec	No difference
	Bridgeport Village	Tualatin High School	12 min, 10 sec	No difference
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	9 min, 40 sec	No difference
	Nyberg Interchange	Tualatin High School	8 min, 10 sec	No difference
SW Tualatin Road	115th Avenue	Bridgeport Village	13 min, 30 sec	+30 sec
	Bridgeport Village	115th Avenue	12 minutes	+20 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	10 min, 55 sec	+20 sec
	Nyberg Interchange	115th Avenue	10 min, 50 sec	+25 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	17 minutes	No difference
	Bridgeport Village	Cipole Road	17 min, 25 sec	+5 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	11 min, 35 sec	No difference
	Nyberg Interchange	Cipole Road	12 minutes	+10 sec
SW Borland Road / 65 th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	No difference
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
SW Borland Road / 65 th Ave	Bridgeport Elementary	Bridgeport Village	12 min, 50 sec	-5 sec
	Bridgeport Village	Bridgeport Elementary	14 min, 25 sec	No difference

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

NOTE: All travel times are rounded to the nearest 5 seconds

Travel times in the north-south direction would not change from the “no build” condition, and would increase slightly over the “no build” condition in the east-west direction.

Scenario 4: Future “Low Build” with 65th Avenue Extension

Traffic Operations

Scenario 4 is the future “low build” (Scenario 3) with the extension of 65th Avenue to the north over the Tualatin River. Under this scenario, the cross section of 65th Avenue would remain three lanes between Nyberg Road and Sagert Street and then transition to two lanes south of Sagert Street. The northerly extension would involve three lanes transitioning to a two-lane bridge over the Tualatin River, connecting with 65th Avenue in Rivergrove in the vicinity of Childs Road.

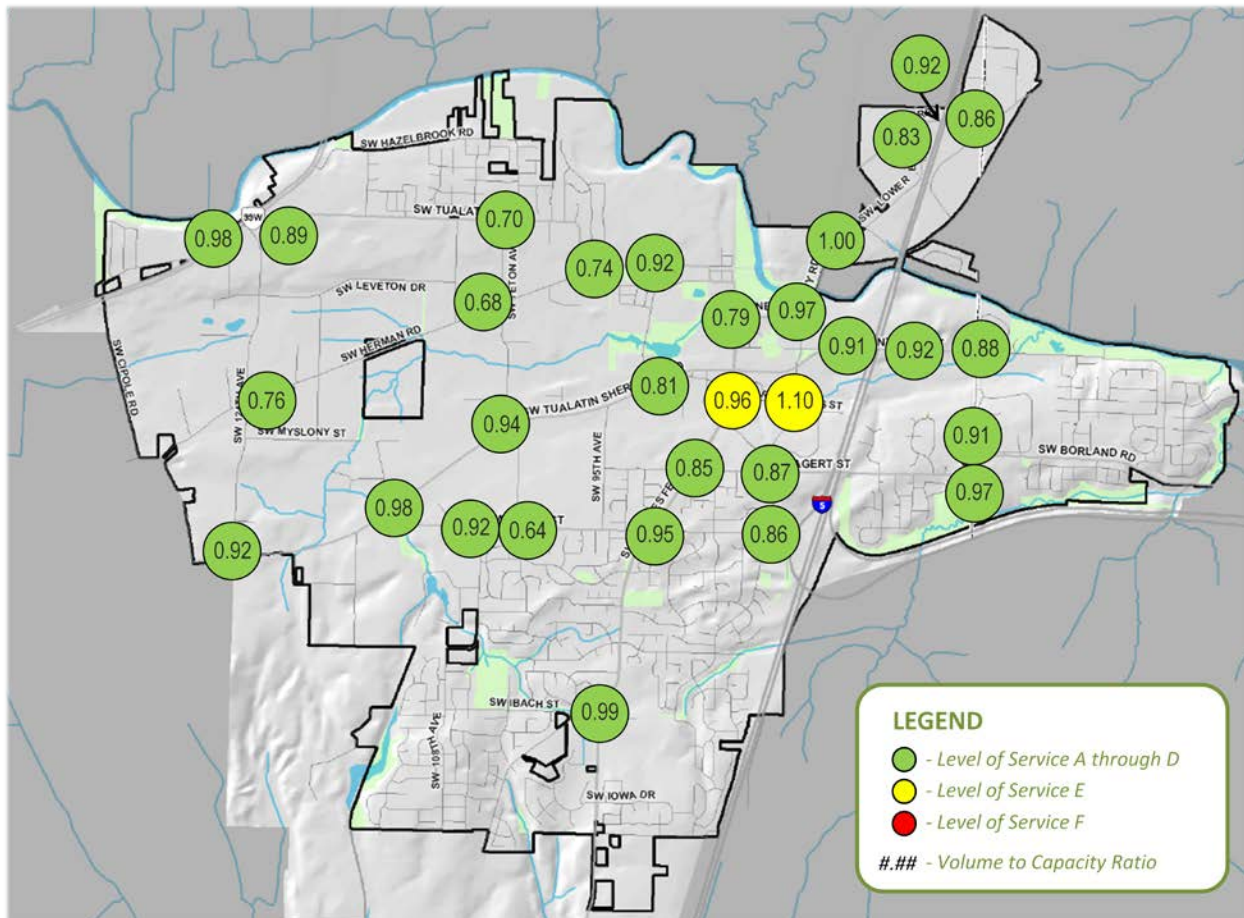
Raw outputs from the traffic model Synchro, as shown in Appendix A, indicate that up to 10 study intersections would have a v/c higher than 1.0 and/or LOS of F. However, when optimized to improve performance, traffic operations would improve. Figure 4 illustrates the traffic operations at all study intersections. Those intersections which show an improvement over the “low build” scenario alone are highlighted in Table 4 below.

TABLE 4
 Future (2035) Operational Analysis Comparison between Scenario 3 and Scenario 4

	Scenario 3 ("Low Build")		Scenario 4 ("Low Build" with 65 th Extension)	
	LOS	V/C	LOS	V/C
I-5 NB Ramps and SW Lower Boones Ferry Road	D	0.98	C	0.86
I-5 SB Ramps and SW Lower Boones Ferry Road	D	0.97	D	0.92
SW 72 nd Avenue and Lower Boones Ferry Road and Bridgeport Road	D	0.88	D	0.83
SW Boones Ferry Road and SW Lower Boones Ferry Road	E	1.12	D	1.00
SW Tualatin Road and SW Boones Ferry Road	C	0.87	C	0.79
SW Boones Ferry Road and SW Tualatin-Sherwood Road	F	1.21	E	0.96

Scenario 4 shows only one intersection (Boones Ferry Road/Martinazzi Avenue) operating with v/c higher than 1.0, and one intersection (Boones Ferry Road/Lower Boones Ferry Road) operates at a v/c of a 1.0. No intersections would operate with an LOS F. Two intersections (Boones Ferry Road/Martinazzi Avenue and Boones Ferry Road/Tualatin-Sherwood Road) would operate at an LOS E. In this scenario, Boones Ferry Road/Tualatin-Sherwood Road would meet Washington County standards with a v/c of 0.96.

Figure 4. Intersection Operations, Future (2035) "Low Build" with 65th Avenue Extension



Traffic Volume Shifts

In this scenario, traffic volumes would shift to 65th Avenue and drivers would use the new crossing between Tualatin and Lake Oswego/Rivergrove. Moderate increases in traffic volumes would occur along 65th Avenue between Nyberg Street and Sagert Street and between Childs Road and Lakeview Boulevard. Minor increases in traffic would occur south of Sagert Street to Norwood Road, along Childs Road, along Sagert Street, and along Nyberg Road east of 65th Avenue. Traffic volumes would decrease along I-5 between the Lower Boones Ferry Road and Nyberg Road interchanges, which indicates that some drivers would take I-5 for short, local trips in this location. Minor to moderate traffic decreases would also occur on Boones Ferry Road between Lower Boones Ferry Road and Sagert Street and along Stafford Road.

Travel Times

Travel times are summarized in Table 5 below for the future (Year 2035) “low build” scenario with an extension of 65th Avenue over the Tualatin River.

TABLE 5
 Future (2035) “Low Build” with 65th Avenue Extension P.M. Peak Period (4:00 p.m. to 6:00 p.m.) Travel Time Data

Corridor	From	To	Average Travel Time	Difference from Future “No Build”
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	13 min, 40 sec	-1 min, 25 sec
	Bridgeport Village	Tualatin High School	11 min, 20 sec	-50 sec
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	10 min	+20sec
	Nyberg Interchange	Tualatin High School	8 min, 25 sec	+15 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	12 min, 20 sec	-40 sec
	Bridgeport Village	115th Avenue	11 min, 25 sec	-15 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	11 min, 10 sec	+35 sec
	Nyberg Interchange	115th Avenue	11 min	+35 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	16 min	-1 min
	Bridgeport Village	Cipole Road	16 min 25 sec	-55 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	12 min	+25 sec
	Nyberg Interchange	Cipole Road	12 min, 25 sec	+40 sec
SW Borland Road/65 th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	No difference
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
SW Borland Road/65 th Ave	Bridgeport Elementary	Bridgeport Village	10 min, 40 sec	-2 min, 15 sec
	Bridgeport Village	Bridgeport Elementary	12 min, 10 sec	-2 min, 15 sec

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

NOTE: All travel times have been rounded to the nearest 5 seconds

Travel times would decrease under this scenario by approximately 1 minute among various destination pairs. This difference is most notable for travel times extending through Tualatin either north-south or east-west. This is due to the fact that the main east-west pairing would actually extend northward along Boones Ferry Road and would benefit from the lower traffic volumes on Boones Ferry Road. In addition, however, travel times between Bridgeport Elementary School near Borland Road and 65th Avenue and Bridgeport Village would decrease by more than 2 minutes in both directions (northbound and southbound).

Another observation is that traffic diverts in this scenario from Tualatin-Sherwood Road to Sagert Street, as it becomes quicker to stay on Boones Ferry Road. This worsens conditions slightly along Sagert Street, as seen at both the Boones Ferry Road and 65th Avenue intersections. However, conditions improve slightly along Tualatin-Sherwood Road between Boones Ferry Road and 65th Avenue.

Traffic Volume Shifts

Widening this segment of Boones Ferry Road diverts trips from I-5 to Boones Ferry Road between the Lower Boones Ferry Road and Tualatin-Sherwood Road interchanges. Shifts are moderate on Boones Ferry Road between Tualatin Road and Lower Boones Ferry Road, and minor north and south of these intersections.

Travel Times

Travel times for Scenario 5 are highlighted in Table 6 below.

TABLE 6
Future (2035) “Low Build” with Boones Ferry Road Widening P.M. Peak Period (4:00 P.M. to 6:00 P.M.) Travel Time Data

Corridor	From	To	Average Travel Times	Difference from Future No Build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	13 min, 40 sec	-1 min, 25 sec
	Bridgeport Village	Tualatin HS	11 min, 30 sec	-40 sec
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	9 min, 40 sec	No difference
	Nyberg Interchange	Tualatin HS	8 min, 10 sec	No difference
SW Tualatin Road	115th Avenue	Bridgeport Village	12 min, 30 sec	-30 sec
	Bridgeport Village	115th Avenue	11 min, 20 sec	-20 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	10 min, 55 sec	+20 sec
	Nyberg Interchange	115th Avenue	10 min, 40 sec	+15 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	15 min, 50 sec	-1 min, 10 sec
	Bridgeport Village	Cipole Road	16 min, 40 sec	-40 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	11 min, 35 sec	No difference
	Nyberg Interchange	Cipole Road	12 minutes	+10 sec
SW Borland Road / 65 th Avenue	Bridgeport Elementary	Nyberg Interchange	3 min, 25 sec	+5 sec
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
SW Borland Road / 65 th Avenue	Bridgeport Elementary	Bridgeport Village	12 min, 10 sec	-45 sec
	Bridgeport Village	Bridgeport Elementary	13 min, 40 sec	-45 sec

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

NOTE: All travel times are rounded to the nearest 5 seconds

The travel time savings associated with this scenario are similar to what is seen under Scenario 4 (“low build” with 65th Avenue extension), with the notable exception of travel times between Bridgeport Elementary School in the vicinity of 65th Avenue / Borland Road and Bridgeport Village. Scenario 4 sees a travel time savings of over 2 minutes due to the extension of 65th Avenue whereas Scenario 5 sees a 45 second travel time increase. Other destination pairings, such as Tualatin High School/ Bridgeport Village, and Cipole Road/Bridgeport Village, see over a 1 minute travel time savings due to the widening of Boones Ferry Road.

Scenario 6: Future “Low Build” with 65th Avenue Extension and Boones Ferry Road Widening

Traffic Operations

Scenario 6 illustrates traffic operations when both Boones Ferry Road is widened north of Martinazzi Avenue and when 65th Avenue is extended northward over the Tualatin River. Raw outputs from the Synchro model show that up to nine intersections operate at a v/c of 1.0 or an LOS of F. However, by implementing such mitigations as signal timing modifications, restriping, and turn pockets at intersections, operations can be improved so that only two intersections (Martinazzi/Tualatin-Sherwood Road and Martinazzi/Boones Ferry Road) would continue to operate within failing conditions. In addition, operations would be much improved at several intersections under this scenario, as shown in the table below.

Although the operations improvements at the intersection of Boones Ferry Road and Tualatin-Sherwood Road would be slight, they would bring the intersection within the 0.99 v/c threshold and are thus reported here. Under this scenario, there would be substantial improvements at the intersection of Boones Ferry Road and Lower Boones Ferry Road and at the intersection of I-5 and Lower Boones Ferry Road, with better mobility from a combination of additional capacity along Boones Ferry Road and an alternate route east of I-5.

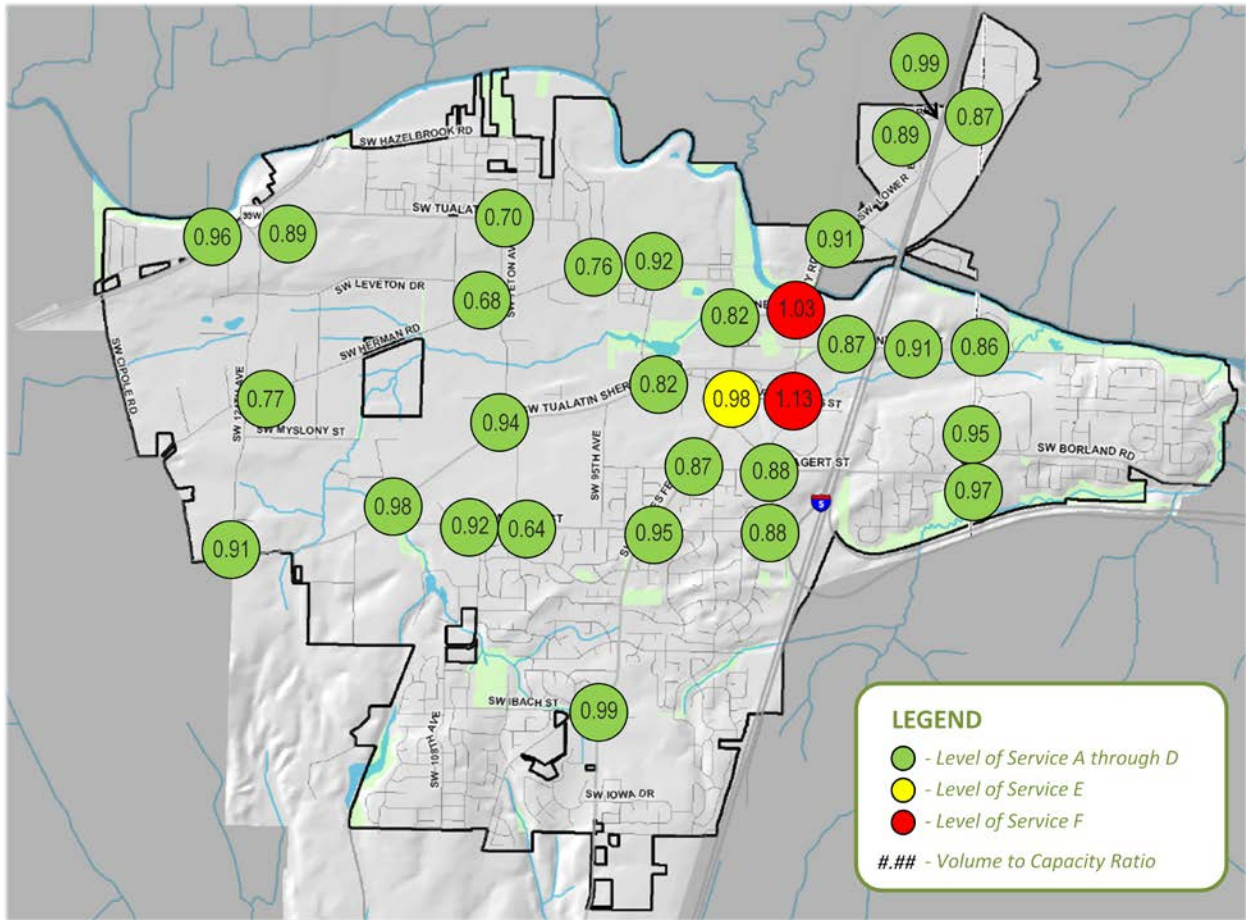
TABLE 7
 Future (2035) Operational Analysis Comparison between Scenario 3 and Scenario 6

	Scenario 3 ("Low Build")		Scenario 6 ("Low Build" with 65 th Extension and Boones Ferry Road Widening)	
	LOS	V/C	LOS	V/C
Boones Ferry/Tualatin-Sherwood Road	E	1.0	E	0.98
I-5 SB Ramps and Nyberg Road	D	0.91	C	0.87
Boones Ferry Road / Lower Boones Ferry Road	E	1.06	C	0.91
I-5 NB Ramps and Lower Boones Ferry Road	D	0.98	C	0.87
Martinazzi/Sagert	D	0.92	D	0.88
65 th /Nyberg	C	0.91	C	0.86

Traffic Volume Shifts

Traffic volumes shift to 65th Avenue under this scenario, though with fewer shifts than under Scenario 4. Moderate increases in traffic volumes would occur along 65th Avenue between Nyberg Street and Sagert Street and between Childs Road and Lakeview Boulevard. Minor increases would continue south of Sagert Street to Norwood Road, along Childs Road, along Sagert Street, and along Nyberg Road east of 65th Avenue. Traffic volumes would decrease along I-5 between the Lower Boones Ferry Road and Nyberg Road interchanges, which indicates that some drivers would take I-5 for short, local trips in this location. Unlike Scenario 4, minor increases would occur on Boones Ferry Road between Lower Boones Ferry Road and Sagert Street, due to the extra capacity along that corridor.

Figure 6. Intersection Operations, Future (2035) “Low Build” with 65th Avenue Extension and Boones Ferry Road Widening



Travel Times

Travel times are summarized in Table 8 below for the future (Year 2035) “low build” scenario with an extension of 65th Avenue over the Tualatin River and a widening of Boones Ferry Road north of Martinazzi.

TABLE 8
 Future (2035) “Low Build” with 65th Avenue Extension and Boones Ferry Road Widening P.M. Peak Period
 (4:00 P.M. to 6:00 P.M.) Travel Time Data

Corridor	From	To	Average Travel Times	Difference from Future No Build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	12 min, 35 sec	-2 min, 30 sec
	Bridgeport Village	Tualatin High School	10 min, 35 sec	-1 min, 35 sec
SW Boones Ferry Road	Tualatin High School	Nyberg Interchange	9 min, 50 sec	+10 sec
	Nyberg Interchange	Tualatin High School	8 min, 25 sec	+15 sec
SW Tualatin Road	115th Avenue	Bridgeport Village	11 min, 30 sec	-1 min, 30 sec
	Bridgeport Village	115th Avenue	10 min, 55 sec	-45 sec
SW Tualatin Road	115th Avenue	Nyberg Interchange	11 minutes	+25 sec
	Nyberg Interchange	115th Avenue	10 min, 55 sec	+30 sec
SW Tualatin-Sherwood Road	Cipole Road	Bridgeport Village	14 min, 55 sec	-2 min, 5 sec
	Bridgeport Village	Cipole Road	15 min, 40 sec	-1 min, 40 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	11 min, 50 sec	+15 sec
	Nyberg Interchange	Cipole Road	12 min, 20 sec	+30 sec
SW Borland Road / 65 th	Bridgeport Elementary	Nyberg Interchange	3 min, 30 sec	+10 sec

TABLE 8
 Future (2035) “Low Build” with 65th Avenue Extension and Boones Ferry Road Widening P.M. Peak Period
 (4:00 P.M. to 6:00 P.M.) Travel Time Data

Corridor	From	To	Average Travel Times	Difference from Future No Build
Avenue	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
SW Borland Road / 65 th Avenue	Bridgeport Elementary	Bridgeport Village	10 min, 25 sec	-2 min, 30 sec
	Bridgeport Village	Bridgeport Elementary	11 min, 50 sec	-2 min, 35 sec

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

NOTE: All travel times are rounded to the nearest 5 seconds

Travel time decreases under this scenario would be dramatic for some destination pairings. Between Tualatin High School and Bridgeport Village and between Bridgeport Elementary School and Bridgeport Village, for example, there are travel time savings of greater than 2 minutes. For traffic to and from the west (Tualatin Road, Cipole Road, 115th Avenue), there would be a travel time savings greater than a minute.

Conclusions

Looking at the six scenarios as a whole, we see that Tualatin is somewhat congested now, and becomes very congested in the future. The main roadways of Tualatin-Sherwood Road, Boones Ferry Road, 65th Avenue, Teton Avenue, and SW Avery Street bear the burden of this congestion, as observed in both intersection operations and travel times. In some locations, it is expected to take 6 minutes longer to travel across town than it does today.

The “low build” scenario does a fair job of mitigating intersection level problems. Adding signals, restriping lanes, and adding turn pockets by themselves can move cars more quickly through any given intersection but travel times show that conditions on the roadway sections between intersections remain congested. “Low build” travel times are no different than those seen under future no build.

Scenario 4, which combines the “low build” projects with the 65th Avenue extension, improves both intersection conditions and travel times. Travel time savings are seen for cross-town trips in both the north/south and east/west direction, but are most dramatic in the vicinity of 65th Avenue (between Bridgeport Elementary School and Bridgeport Village), where travel time reductions are in excess of two minutes.

Scenario 5, which combines the “low build” with widening Boones Ferry Road north of Martinazzi, displays similar travel time benefits to Scenario 4 except for this last pairing, which is purely a benefit of the 65th Avenue extension. Scenario 5 maintains much of the intersection level operations as under the “low build” and improves conditions at the Boones Ferry Road/Lower Boones Ferry Road intersection through additional capacity. Conditions at the Boones Ferry Road/Martinazzi Avenue intersection are worsened because this is the location that the roadway transitions back to its existing three lane section.

Scenario 6 intersection operations show that more traffic flows along Boones Ferry Road, but that capacity projects at Boones Ferry Road / Lower Boones Ferry Road accommodate some of this traffic. Operations from Scenario 6 are improved along sections of Tualatin-Sherwood Road, Boones Ferry Road, and along 65th Avenue. Of concern for Scenario 6 are the two Martinazzi intersections (Boones Ferry Road and Tualatin-Sherwood Road) which experience worsened traffic congestion in the afternoon rush hour. When intersection conditions are considered in combination with travel time savings, Scenario 6 benefits Tualatin more than any other scenario. Travel time savings in the north/south and east/west

directions are in excess of 2 minutes (Tualatin High School/Bridgeport Village, Cipole Road/Bridgeport Village, Bridgeport Elementary School/Bridgeport Village).

Next Steps

The Tualatin TSP is available in draft form as all project, program, and policy recommendations have been identified apart from the two river crossings described in this memorandum. At its next meeting, the Transportation Task Force will use the traffic analysis results to make a recommendation on which, if any, river crossing projects should be included in the TSP. This recommendation will then be taken into consideration by the Tualatin Planning Commission, Tualatin Parks Advisory Committee, and City Council as they begin deliberations on the TSP package as a whole.

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Appendix A: Traffic Operations and Travel Times Data

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APPENDIX A
PM Peak Hour Intersection Traffic Operations by Scenario (Without Intersection Mitigations)

Intersection	Jurisdiction	Minimum Standard	2011	2011	2035	2035	2035	2035	2035	2035	2035	2035	2035	
			LOS	V/C	No-Build LOS	No-Build V/C	Low-Build w/out 65 th LOS	Low-Build w/out 65 th V/C	Low-Build w/out 65 th & w/BFR widened LOS	Low-Build w/o 65 th & w/BFR widened V/C	Low-Build w/2-lane 65th LOS	Low-Build w/2-lane 65 th V/C	Low-Build with 2- lane 65 th & w/BFR widened LOS	Low-Build with 2- lane 65 th & w/BFR widened V/C
<i>Signalized</i>														
SW 124th Ave & Hwy 99W	ODOT	0.99	C	0.69	D	0.99	D	0.99	D	0.97	D	0.98	D	0.96
SW 124th Ave & SW Tualatin Rd	Tualatin	D	B	0.66	C	0.91	C	0.88	C	0.88	C	0.89	C	0.89
SW 124th Ave & SW Herman Rd	Tualatin	D	C	0.53	C	0.76	C	0.77	C	0.77	C	0.76	C	0.77
SW 124th Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	C	0.90	C	0.93	C	0.92	C	0.92	C	0.92	C	0.91
SW Avery St & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	B	0.71	D	0.97	D	0.98	D	0.98	D	0.98	D	0.98
SW Teton Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.79	E	1.05	E	1.05	E	1.05	E	1.07	E	1.06
SW 90th Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	C	0.60	C	0.80	C	0.80	C	0.80	D	0.81	D	0.82
SW Boones Ferry Rd & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.93	F	1.21	F	1.19	F	1.17	F	1.18	F	1.18
SW Martinazzi Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.94	F	1.18	F	1.17	F	1.15	F	1.23	F	1.19
I-5 SB Ramps & SW Nyberg Rd	ODOT	0.99	D	0.79	D	0.91	D	0.91	D	0.86	C	0.91	C	0.87
I-5 NB Ramps & SW Nyberg Rd	ODOT	0.99	B	0.68	C	0.84	C	0.84	C	0.85	C	0.92	C	0.91
SW 65th Ave & SW Borland Rd	Wash. Co.	0.99	D	0.93	F	1.47	F	1.47	F	1.47	F	1.54	F	1.52
SW Teton Ave & SW Herman Rd	Tualatin	D	C	0.65	B	0.61	C	0.67	C	0.67	C	0.68	C	0.68
SW Tualatin Rd & SW Herman Rd	Tualatin	D	B	0.59	B	0.77	B	0.74	B	0.77	B	0.74	B	0.76
SW 90th Ave & SW Tualatin Rd	Tualatin	D	B	0.75	D	0.98	C	0.94	C	0.94	C	0.92	C	0.92
SW Tualatin Rd & SW Boones Ferry Rd	Wash. Co.	0.99	B	0.62	C	0.87	C	0.84	C	0.89	C	0.79	C	0.82
SW Martinazzi Ave & SW Boones Ferry Rd	Wash. Co.	0.99	D	0.89	F	1.27	F	1.27	F	1.24	F	1.20	F	1.18
SW Boones Ferry Rd & SW Lower Boones Ferry Rd	ODOT	0.99	C	0.76	E	1.12	E	1.12	D	1.05	D	1.00	C	0.91
SW 72nd Ave & Lower Boones Ferry Rd & Bridgeport Rd	Wash. Co.	0.99	C	0.66	D	0.88	D	0.88	D	0.89	D	0.83	D	0.89
I-5 SB Ramps & SW Lower Boones Ferry Rd	ODOT	0.99	C	0.75	D	0.97	D	0.97	D	1.03	D	0.92	D	0.99
I-5 NB Ramps & SW Lower Boones Ferry Rd	ODOT	0.99	B	0.74	D	0.98	D	0.98	D	1.00	C	0.86	C	0.87
SW Boones Ferry Rd & SW Avery St	Wash. Co.	0.99	C	0.87	F	1.13	F	1.13	F	1.20	F	1.17	F	1.17
SW Boones Ferry Rd & SW Sagert St	Wash. Co.	0.99	C	0.75	E	1.11	E	1.11	F	1.13	E	1.09	E	1.07
SW Boones Ferry Rd & SW Ibach St	Wash. Co.	0.99	B	0.70	D	0.98	D	0.98	D	0.98	D	0.99	D	0.99
SW 105th Ave & SW Avery St ²	Tualatin	E	C	0.28	C	0.94	C	0.94	C	0.94	C	0.92	C	0.92
SW Martinazzi Ave & SW Sagert St ³	Tualatin	E	F	0.95	D	0.92	D	0.92	D	0.93	D	0.87	D	0.88
SW 65 th Ave & SW Nyberg Rd	Wash. Co.	0.99	B	0.79	D	1.02	D	1.02	D	1.02	F	1.50	F	1.41

² Existing Conditions operations evaluated with minor street stop control.

³ Existing Conditions operations evaluated with minor street stop control. HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the three lanes (one dedicated to each movement) are combined into two: through-right and through-left lanes. Because of this approximation, actual performance may be slightly better than reported above.

APPENDIX A
PM Peak Hour Intersection Traffic Operations by Scenario (Without Intersection Mitigations)

Intersection	Jurisdiction	Minimum Standard	2011	2011	2035	2035	2035	2035	2035	2035	2035	2035	2035	2035
			LOS	V/C	No-Build LOS	No-Build V/C	Low-Build w/out 65 th LOS	Low-Build w/out 65 th V/C	Low-Build w/out 65 th & w/BFR widened LOS	Low-Build w/o 65 th & w/BFR widened V/C	Low-Build w/2-lane 65th LOS	Low-Build w/2-lane 65 th V/C	Low-Build with 2-lane 65 th & w/BFR widened LOS	Low-Build with 2-lane 65 th & w/BFR widened V/C
<i>All-way Stop-control</i>														
SW Martinazzi Ave & SW Avery St*	Tualatin	E	B	0.55	D	0.85	D	0.85	D	0.83	D	0.86	D	0.88
SW Teton Ave & SW Avery St*	Tualatin	E	C	0.40	F	0.77	F	0.77	F	0.77	F	0.76	F	0.76
SW 65th Ave & SW Sagert St*⁴	Wash. Co.	0.99	F	0.98	F	1.72	F	1.72	F	1.72	F	1.87	F	1.87
<i>Minor Street Stop-control*</i>														
SW Teton Ave & SW Tualatin Rd	Tualatin	E	F	0.98	F	1.42	B**	0.70**	B**	0.70**	B**	0.70**	B**	0.70**

SOURCE: Consultant Team

*LOS and V/C reported for highest delay movement.

**Evaluated as a traffic signal. Assumes construction of traffic signal.

BOLD and highlighted dark grey text indicates meet minimum performance standard is not met

⁴ HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the dedicated southbound left turn lane and through lane are combined, due to the relatively small volume on the left turn movement. Because of this approximation, actual performance may be slightly better than reported above.

APPENDIX A
PM Peak Hour Intersection Traffic Operations by Scenario (With Mitigations)

Intersection	Jurisdiction	Minimum Standard	2011	2011	2035	2035	2035	2035	2035	2035	2035	2035	2035	2035	Mitigation (identified for Low-Build Scenario w/65 th Avenue, unless noted otherwise)
			LOS	V/C	No-Build LOS	No-Build V/C	Low-Build LOS	Low-Build V/C	Low-Build w/BFR widened LOS	Low-Build w/BFR widened V/C	Low-Build (w/2-lane 65 th) LOS	Low-Build (w/2-lane 65 th) V/C	Low-Build 2-lane 65 th & w/BFR widened LOS	Low-Build 2-lane 65 th & w/BFR widened V/C	
<i>Signalized</i>															
SW 124th Ave & Hwy 99W	ODOT	0.99	C	0.69	D	0.99	D	0.99	D	0.97	D	0.98	D	0.96	
SW 124th Ave & SW Tualatin Rd	Tualatin	D	B	0.66	C	0.91	C	0.88	C	0.88	C	0.89	C	0.89	
SW 124th Ave & SW Herman Rd	Tualatin	D	C	0.53	C	0.76	C	0.77	C	0.77	C	0.76	C	0.77	
SW 124th Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	C	0.90	C	0.93	C	0.92	C	0.92	C	0.92	C	0.91	
SW Avery St & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	B	0.71	D	0.97	D	0.98	D	0.98	D	0.98	D	0.98	
SW Teton Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.79	E	0.92	E	0.92	E	0.92	D	0.94	D	0.94	Signal Adjustments (Timing and Phasing)
SW 90th Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	C	0.60	C	0.80	C	0.80	C	0.80	D	0.81	D	0.82	
SW Boones Ferry Rd & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.93	E	1.02	E	1.00	E	1.00	E	0.96	E	0.98	EBR, WBR, SBL pockets & Signal Adjustments
SW Martinazzi Ave & SW Tualatin-Sherwood Rd	Wash. Co.	0.99	D	0.94	E	1.11	F	1.10	F	1.08	E	1.10	F	1.13	EBT, NBR pocket, WBR prohibited & Signal Adjustments
I-5 SB Ramps & SW Nyberg Rd	ODOT	0.99	D	0.79	D	0.91	D	0.91	D	0.86	C	0.91	C	0.87	
I-5 NB Ramps & SW Nyberg Rd	ODOT	0.99	B	0.68	C	0.84	C	0.84	C	0.85	C	0.92	C	0.91	
SW 65th Ave & SW Borland Rd	Wash. Co.	0.99	D	0.93	D	0.96	D	0.96	D	0.99	C	0.91	D	0.95	NBR, WBL pocket & Signal Adjustments. Alternative access for EB approach (closed)
SW Teton Ave & SW Herman Rd	Tualatin	D	C	0.65	B	0.61	C	0.67	C	0.67	C	0.68	C	0.68	
SW Tualatin Rd & SW Herman Rd	Tualatin	D	B	0.59	B	0.77	B	0.74	B	0.77	B	0.74	B	0.76	
SW 90th Ave & SW Tualatin Rd	Tualatin	D	B	0.75	D	0.98	C	0.94	C	0.94	C	0.92	C	0.92	
SW Tualatin Rd & SW Boones Ferry Rd	Wash. Co.	0.99	B	0.62	C	0.87	C	0.84	C	0.89	C	0.79	C	0.82	
SW Martinazzi Ave & SW Boones Ferry Rd	Wash. Co.	0.99	D	0.89	D	0.99	D	0.99	E	1.08	D	0.97	F	1.03	Widen BFR east to create 2 EB entry lanes. Alternative access for SB approach (closed.) Restripe lanes & Signal adjustments.
SW Boones Ferry Rd & SW Lower Boones Ferry Rd	ODOT	0.99	C	0.76	E	1.06	E	1.06	D	1.02	D	1.00	C	0.91	RIRO on EB approach including prohibiting NBL.
SW 72nd Ave & Lower Boones Ferry Rd & Bridgeport Rd	Wash. Co.	0.99	C	0.66	D	0.88	D	0.88	D	0.89	D	0.83	D	0.89	
I-5 SB Ramps & SW Lower Boones Ferry Rd	ODOT	0.99	C	0.75	D	0.97	D	0.97	D	0.98	D	0.92	D	0.99	
I-5 NB Ramps & SW Lower Boones Ferry Rd	ODOT	0.99	B	0.74	D	0.98	D	0.98	D	0.96	C	0.86	C	0.87	
SW Boones Ferry Rd & SW Avery St	Wash. Co.	0.99	C	0.87	D	0.94	D	0.94	D	0.94	D	0.95	D	0.95	EBR, SBR pockets & Signal Adjustments (Timing and Phasing)
SW Boones Ferry Rd & SW Sagert St	Wash. Co.	0.99	C	0.75	D	0.88	D	0.88	D	0.93	D	0.85	D	0.87	NBR pocket & Signal Adjustments (Timing and Phasing)
SW Boones Ferry Rd & SW Ibach St	Wash. Co.	0.99	B	0.70	D	0.98	D	0.98	D	0.98	D	0.99	D	0.99	
SW 105th Ave & SW Avery St ⁵	Tualatin	E	C	0.28	C	0.94	C	0.94	C	0.94	C	0.92	C	0.92	
SW Martinazzi Ave & SW Sagert St ⁶	Tualatin	E	F	0.95	D	0.92	D	0.92	D	0.92	D	0.87	D	0.88	

⁵ Existing Conditions operations evaluated with minor street stop control.

APPENDIX A
PM Peak Hour Intersection Traffic Operations by Scenario (With Mitigations)

Intersection	Jurisdiction	Minimum Standard	2011	2011	2035	2035	2035	2035	2035	2035	2035	2035	2035	2035	Mitigation (identified for Low-Build Scenario w/65 th Avenue, unless noted otherwise)
			LOS	V/C	No-Build LOS	No-Build V/C	Low-Build LOS	Low-Build V/C	Low-Build w/BFR widened LOS	Low-Build w/BFR widened V/C	Low-Build (w/2-lane 65 th) LOS	Low-Build (w/2-lane 65 th) V/C	Low-Build 2-lane 65 th & w/BFR widened LOS	Low-Build 2 lane 65 th & w/BFR widened V/C	
SW 65 th Ave & SW Nyberg Rd	Wash. Co	0.99	B	0.79	C	0.91	C	0.91	C	0.92	C	0.88	C	0.86	Signal timing adjustments.
<i>All-way Stop-control</i>															
SW Martinazzi Ave & SW Avery St*	Tualatin	E	B	0.55	D	0.85	D	0.85	D	0.83	D	0.86	D	0.88	
SW Teton Ave & SW Avery St*	Tualatin	E	C	0.40	F	0.77	B**	0.62**	B**	0.62**	B**	0.64**	B**	0.64**	Traffic Signal
SW 65th Ave & SW Sagert St* ⁷	Wash. Co.	0.99	F	0.98	D**	0.91**	D**	0.91**	D**	0.97**	D**	0.97**	D**	0.97**	Traffic Signal & Restripe (NBL, EBL). Alternate access for WB approach (closed)
<i>Minor Street Stop-control*</i>															
SW Teton Ave & SW Tualatin Rd	Tualatin	E	F	0.98	F	1.42	B**	0.70**	B**	0.70**	B**	0.70**	B**	0.70**	Traffic Signal (assumed in Low-Build)

SOURCE: Consultant Team

*LOS and V/C reported for highest delay movement.

**Evaluated as a traffic signal. Assumes construction of traffic signal.

BOLD and highlighted dark grey text indicates meet minimum performance standard is not met

⁶ Existing Conditions operations evaluated with minor street stop control. HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the three lanes (one dedicated to each movement) are combined into two: through-right and through-left lanes. Because of this approximation, actual performance may be slightly better than reported above.

⁷ HCM Methodology does not account for a three-lane approach for an all way stop (as exists for the southbound approach.) To estimate LOS and V/C for the intersection the dedicated southbound left turn lane and through lane are combined, due to the relatively small volume on the left turn movement. Because of this approximation, actual performance may be slightly better than reported above.

2035 PM Peak Travel Time Comparison by Scenario (minutes)

Corridor	From	To	Existing (2011)	No-Build (2035)	Low-Build	Low-Build w/ Boones Ferry Rd. Widening	Low-Build w/ 65 th Extension	Low-Build w/65 th Extension & Boones Ferry Rd. Widening
SW Boones Ferry Road	Tualatin HS	Bridgeport Village	10.3	15.1	15.1	13.7	13.7	12.6
	Bridgeport Village	Tualatin HS	9.2	12.2	12.2	11.5	11.3	10.6
SW Boones Ferry Road	Tualatin HS	Nyberg Interchange	7.4	9.7	9.7	9.7	10.0	9.8
	Nyberg Interchange	Tualatin HS	7.1	8.2	8.2	8.2	8.4	8.4
SW Tualatin Road	115th Ave	Bridgeport Village	8.6	13.0	13.5	12.5	12.3	11.5
	Bridgeport Village	115th Ave	8.5	11.7	12.0	11.3	11.4	10.9
SW Tualatin Road	115th Ave	Nyberg Interchange	8.0	10.6	10.9	10.9	11.2	11.0
	Nyberg Interchange	115th Ave	8.7	10.4	10.8	10.7	11.0	10.9
SW Tualatin-Sherwood Road	Cipole Rd	Bridgeport Village	11.7	17.0	17.0	15.8	16.0	14.9
	Bridgeport Village	Cipole Rd	13.0	17.3	17.4	16.7	16.4	15.7
SW Tualatin-Sherwood Road	Cipole Rd	Nyberg Interchange	8.7	11.6	11.6	11.6	12.0	11.8
	Nyberg Interchange	Cipole Rd	10.1	11.8	12.0	12.0	12.4	12.3
SW Borland Road / 65 th Ave	Bridgeport Elementary	Nyberg Interchange	3.1	3.3	3.3	3.4	3.3	3.5
	Nyberg Interchange	Bridgeport Elementary	2.3	3.5	3.5	3.5	3.5	3.5
SW Borland Road / 65 th Ave	Bridgeport Elementary	Bridgeport Village	9.2	12.9	12.8	12.2	10.7	10.4
	Bridgeport Village	Bridgeport Elementary	8.4	14.4	14.4	13.7	12.2	11.8

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)

2035 PM Peak Travel Time Comparison by Scenario (Percent Change Relative to No-Build Scenario)

Corridor	From	To	Low-Build	Low-Build w/ Boones Ferry Rd. Widening	Low-Build w/ 65 th Extension	Low-Build w/ 65 th Extension & w/ Boones Ferry Rd. Widening
SW Boones Ferry Road	Tualatin HS	Bridgeport Village	0%	-10%	-9%	-16%
	Bridgeport Village	Tualatin HS	0%	-5%	-8%	-13%
SW Boones Ferry Road	Tualatin HS	Nyberg Interchange	0%	0%	3%	1%
	Nyberg Interchange	Tualatin HS	0%	0%	3%	2%
SW Tualatin Road	115th Ave	Bridgeport Village	3%	-4%	-5%	-12%
	Bridgeport Village	115th Ave	2%	-3%	-3%	-7%
SW Tualatin Road	115th Ave	Nyberg Interchange	3%	3%	6%	4%
	Nyberg Interchange	115th Ave	4%	3%	6%	5%
SW Tualatin-Sherwood Road	Cipole Rd	Bridgeport Village	0%	-7%	-6%	-13%
	Bridgeport Village	Cipole Rd	1%	-4%	-5%	-9%
SW Tualatin-Sherwood Road	Cipole Rd	Nyberg Interchange	0%	0%	4%	2%
	Nyberg Interchange	Cipole Rd	2%	1%	4%	4%
SW Borland Road / 65 th Ave	Bridgeport Elementary	Nyberg Interchange	0%	1%	0%	4%
	Nyberg Interchange	Bridgeport Elementary	0%	0%	1%	0%
SW Borland Road / 65 th Ave	Bridgeport Elementary	Bridgeport Village	0%	-5%	-16%	-19%
	Bridgeport Village	Bridgeport Elementary	0%	-5%	-15%	-18%

SOURCE: All Traffic Data, November 2011 (Existing), Metro Travel Demand Forecast Model (2035)



City of Tualatin

**Tualatin Transportation Task Force
DRAFT Meeting #16 Summary
November 1, 2012, 5:00-7:00pm
Tualatin Police Department
8650 SW Tualatin Road
Tualatin, OR 97062**

Committee Members Present

Alan Aplin – *TPAC Rep.*
Bill Beers – *TPAC Rep.*
Bruce Andrus-Hughes – *Parks Advisory*
Charlie Benson – *Citizen Rep.*
Nic Herriges – *Alt. Citizen Rep.*
Nancy Kraushaar – *Citizen Rep.*
Candice Kelly – *Alt. Tualatin Tomorrow Rep.*
Cheryl Dorman – *Tualatin Chamber of Commerce*
Deena Platman – *Metro*
Joelle Davis – *City Councilor*
Jan Guinta – *Alt. CIO Rep.*
Kelly Betteridge – *TriMet*
John Howorth – *Alt. Citizen Rep.*
Monique Beikman – *City Councilor*

Steve L. Kelley – *Washington County*
Wade Brooksby – *City Councilor*
Travis Evans – *Citizen Rep.*
Ray Phelps – *Business Rep.*

Committee Members Absent

Allen Goodall – *Business Rep.*
Amanda Hoffman – *City of Wilsonville*
Bethany Wurtz – *Tualatin Tomorrow Rep.*
Brian Barker – *TVF&R*
Gail Hardinger – *Alt. Business Rep.*
Karen Buehrig – *Clackamas County*

Julia Hajduk – *City of Sherwood*
Judith Gray – *City of Tigard*
Lidwien Rahman – *ODOT*
Mike Riley – *CIO Rep.*
Ryan Boyle – *Citizen Rep.*

Public in Attendance

25 members of the public signed in

Staff, Project Team and Special Guests

Alice Rouyer – *City of Tualatin*
Ben Bryant – *City of Tualatin*
Dayna Webb – *City of Tualatin*
Kaaren Hofmann – *City of Tualatin*
Aquilla Hurd-Ravich – *City of Tualatin*
Cindy Hahn – *City of Tualatin*

Theresa Carr – *CH2M Hill*
Terra Lingley – *CH2M Hill*
Alan Snook – *DKS Associates*
Eryn Kehe – *JLA Public Involvement*
Sam Beresky – *JLA Public Involvement*

TRANSPORTATION TASK FORCE MEETING #16

Eryn welcomed the group and thanked them for their attendance and participation over the past year. She let them know that the meeting would be the 16th and final meeting of the Task Force. Eryn said that the goal of the meeting was to reach consensus on the draft TSP, the 65th extension and the expansion of Boones Ferry Road. If consensus is not reached, Task Force member's

positions will be noted and decision will be made by City Council with feedback from the Planning Commission and Tualatin Parks Advisory Committee.

COMMUNICATION FROM THE PUBLIC

Rivergrove Mayor, Heather Kibbey, said that she represents the citizens of Rivergrove to the Task Force. She said that Rivergrove is one of the closest neighbors to Tualatin and that Rivergrove always tries to be neighborly. She let the group know that the bridge at 65th does not comply with the Federal floodway laws stating that FEMA has twice increased the floodway over the last five years so that it now encompasses the entire width of Rivergrove. Rivergrove is empathetic to the traffic issues in Tualatin, so they included an alternative in their presentation submitted to the Task Force. She mentioned that the bridge was included as a placeholder 10 years ago which led to the option being discussed this time around. She urged the Task Force to not recommend it to be built as it will just lead to revisiting the topic in another 10 years.

Joel Libien stated that he lives in the Rosewood Neighborhood of Lake Oswego. He said that the neighborhood does not want to absorb the extra noise, safety issues and other negative aspects of hundreds of new cars an hour through the area. It will increase through-traffic in the area.

Don Nichols said that he lives near 65th and stated that if a bridge goes through, traffic signals will need to be placed at other intersections, which could slow traffic down. In addition the new traffic would be too close to on-ramps, potentially blocking emergency vehicles. The project will create an additional mess, hazard and will block driveways.

Kathy Newcomb said that the priorities of the Task Force should be to reduce congestion by providing a transit loop, providing transit on Tualatin-Sherwood Road, and a Park and Ride on 99W.

GENERAL ITEMS

Accept Meeting #15 Summary

- *The summary was approved by all green signs of those who chose to vote.*

Announcements

Cindy Hahn provided a brief Linking Tualatin update (handout). She mentioned that the schedule has been extended to match the progress of Metro's SW Corridor project and will continue through June 2013. In the near term, they will work to incorporate the SW Corridor plan language into Linking Tualatin and to integrate the Linking Tualatin projects into the TSP. In early 2013, the team will conduct outreach, participate in and reflect the results of the Job Access Mobility Institute work and refine the transit ready place recommendations.

Alice Rouyer thanked the Task Force for their year of commitment in connection to the Linking Tualatin and the TSP process. She said that Tualatin is now viewed as a leader in the SW Corridor project. We've identified that Tualatin is vastly underserved by transit, and a gap in access to jobs. Metro has taken notice and our voices have been heard. TriMet will begin a service enhancement study within the next year and we are excited about that. She asked the Task Force of a show of hands of members would be interested in remaining involved in Linking Tualatin. Most Task Force members raised their hands.

OVERVIEW OF TRAFFIC ANALYSIS PRESENTATION

Theresa, Alan, and Terra gave a brief overview presentation about the process, the draft TSP, and traffic analysis in regards to the 65th Ave extension and the expansion of Boones Ferry Road. The

PowerPoint included:

- Where we are in the process (schedule)
- What happens to projects after adoption? (graphic)
 - Short Range Projects
 - Medium Range Projects
 - Long Range Projects
- Transportation System Plan Timeline (graphic)
- Progress since our September 20th meeting:
 - Decided on "Low Build" scenario
 - Additional travel time results requested for scenarios:
 - No-build
 - Low build
 - Low build + 65th Ave (2 lane)
 - Low build + Boones Ferry Road widening
 - Low build + 65th Ave (2 lane) + BFR widening
- Tabled decisions on:
 - 65th Ave extension
 - Boones Ferry Road widening
- Bicycle/Pedestrian Element (map)
- Transit Element (maps)
- Major Corridors and Intersections (map)
- Future Potential Improvements (map)
- What We are Looking for Tonight (graphic)
- No-build Operations (Level of Service graphic)
- No-build Travel Times (graphic)
- Low Build Operations (Level of Service graphic)
- Low Build Travel Times (graphic)
- Low Build + 65th Ave Extension Volume shifts (map)
- Low Build + 65th Ave Extension Operations (Level of Service graphic)
- Low Build + 65th Ave Extension Travel Times (graphic)
- Low Build + Boones Ferry Road Widening Volume Shifts (map)
- Low Build + Boones Ferry Road Widening Operations (Level of Service graphic)
- Low Build + Boones Ferry Road Widening Travel Times (graphic)
- Low Build + 65th Ave + BFR Widening Volume Shifts (map)
- Low Build + 65th Ave + BFR Widening Operations (Level of Service graphic)
- Low Build + 65th Ave + BFR Widening Travel Times (graphic)
- How Do These Projects Pencil Out? Cost vs. Benefit Perspective
 - 65th:
 - \$50.9million potential 20 year benefit
 - BFR:
 - \$22.7 potential 20 year benefit
 - 65th + BFR Widening
 - \$69.9 million potential 20 year benefit
- Summary of Operations and Travel Time Findings
 - Tualatin becomes very congested in the future
 - Low Build does a fair job of mitigating intersection operations, but minor travel time changes
 - 65th Ave extension pulls traffic from BFR and enhances that travel time
 - BFR widening helps enhance travel times, but creates some intersection issues

- downtown
 - Combination of 65th Ave and BFR widening enhances travel times in North Tualatin, but has similar downtown intersection issues
- Technical Team Recommendations
 - In addition to the Low Build projects, include:
 - BFR widening project from Martinazzi to Lower BFR
 - 65th Ave extension as a refinement plan project
 - Establish and acknowledge the need for improvements and connectivity in the area
 - Acknowledge the need to work collaboratively with surrounding jurisdictions
 - Identify a project area that goes into deeper planning analysis to determine details
 - What happens if I hold up my STOP sign?
 - Project is recommended to not be included in the TSP
 - Does not preclude project from being considered in future TSP updates
 - Does not preserve the potential right-of-way
 - What happens if I hold up my GO sign?
 - Project is recommended to be included in the TSP
 - Preserves potential right-of-way when new development comes to the table
 - Additional study/coordination is necessary
 - It will take a while for these projects to be built

Draft TSP Acceptance Discussion

Eryn led a discussion about the Low Build draft TSP, as presented, without a 65th Avenue extension or a Boones Ferry Road widening. Eryn pointed out that after the Task Force, the draft TSP will move on to TPAC and the City Council for final approval.

General Discussion Included:

- There was a general discussion about the proposal of traffic calming on Tualatin Road and a signal at Teton Ave. Alan mentioned that slower speeds could be achieved, with about the same success, with a traffic signal or traffic calming. It was pointed out that it is Washington County policy to not include traffic calming on a collector street. It was also pointed out that traffic signals are usually only installed when the intersection meets certain warrants and that a traffic signal does not always work as a way to slow traffic. The lack of safe turns at the intersection was used to illustrate the need for a traffic signal. There was a motion to exclude traffic calming on Tualatin Road from the draft TSP, and only include a traffic signal at Herman Road. This motion was accepted by full consensus of the group.

Eryn asked the Task Force to vote on the Low Build draft TSP (including the amendment to exclude traffic calming on Tualatin Road), without a 65th extension or Boones Ferry Road expansion and without traffic calming on Tualatin Road.

- *15 green signs – full support of the Task Force.*

Roundtable and Discussion about 65th and Boones Ferry Road

Theresa Carr presented the technical team's recommendation to the Task Force as follows.

In addition to the Low Build projects, include:

- Boones Ferry Road widening project from Martinazzi to Lower Boones Ferry Road

- 65th Ave extension as a refinement plan project
 - Establish and acknowledge the need for improvements and connectivity in the area
 - Acknowledge the need to work collaboratively with surrounding jurisdictions
 - Identify a project area that goes into deeper planning analysis to determine details

Eryn asked each member of the group to share their thoughts about the technical team recommendation.

Fourteen members, those who represent interests within the City of Tualatin (non-Agency members), shared a position on the recommendation. Statements from Task Force Members Included:

- Agree with the technical team, but supports the placement of 65th as a long-term project after a discussion with all involved agencies and municipalities, not a very long-term project.
- Supportive of Boones Ferry, and leaning towards agreement with the recommendation on 65th, but wanted to know if the recommendation would be seen as a compromise by Rivergrove.
 - There was a resounding “No” heard from the Rivergrove citizens in the audience.
- Support both projects.
- Against the 65th extension, support Boones Ferry Road expansion.
- The travel times are focused on automobile travel times. There are benefits to other modes of travel. The refinement area discussion of the 65th Ave extension should not be delayed by being planned as a long-term project because there could be benefits to bike and pedestrian circulation over the Tualatin River at 65th.
 - Theresa clarified that the suggested refinement area is a short-term recommendation.
- Does not like the draft TSP as a businessperson. It doesn’t do enough to alleviate traffic congestion, but as a member of the Task Force; supports the technical team recommendation.
- The data leaves out the impacts to communities. Against the 65th Ave extension and unsure of the expansion of Boones Ferry Road.
- Like the projects that have been brought forth. We need to listen to the community but we are all also frustrated with the traffic in Tualatin.
- No options should be taken off the list; we need all the options we can have.
- Opposed to both 65th Ave and Boones Ferry Road expansion. We don’t know what the future will look like; other modes might be more prominent in the future.
- Opposed to both recommendations.
- Overall, the draft TSP does not deal with the North/South problem west of I-5. Opposed to the Boones Ferry Road expansion as it makes already congested intersections worse. Would like to keep 65th on the table as an option as it shows some potential.
- Traffic is an issue now, and there are not many projects proposed to improve it. It is a regional problem; a western bypass would solve the problems in Tualatin. Preserving Right-of-Way is important. Keeping I-5 flowing is important. Would like to see what the Hall extension would do. We need to reduce travel times. Support a 65th extension and Boones Ferry expansion.
- 65th should not be used as a name for the project. The project should be listed as a N/S connection on the eastside of Tualatin. Like the recommendation but not using 65th in the

title. The refinement area should be more general to the need in this area, and non-specific about the exact location.

Eryn tallied the votes from the discussion:

65th Ave Extension:

- *5 red signs*
- *1 yellow sign*
- *7 green signs but with 3 people proposing amendments – refinement area discussion in the long-term and the removal of “65th Ave” from the title of the refinement area.*

Boones Ferry Road Expansion:

- *4 red signs*
- *2 yellow signs*
- *8 green signs*

COMMUNICATION FROM THE PUBLIC

Ken Dorsey, a resident of Tualatin, mentioned that he had met with 120 of his neighbors about the Transportation System Plan. None of his neighbors new about the process, he said that the City did not do a very good job involving the public.

James (last name not given) let the group know that he has been in Tualatin since 1954. He said that the committee is forcing their problems onto another community if the 65th Ave Bridge is built. He questioned the projected cost of \$22 million as being too low.

Sheri Richards, the City Manager of Rivergrove, let the Task Force know that the City of Rivergrove passed an ordinance restricting new structures in the flood plain. She also cautioned the Task Force from stating that it will probably never get funded. Surprise funding sources can appear, making construction possible in very little time. She said that Rivergrove is 100% residential and does not want the associated traffic that would come from a 65th street extension. She pointed out that the intersection at McEwen is already overwhelmed and a light will be needed if the extension is built, adding cost to the project.

Daniel Boher mentioned that he lives right next to the proposed project on 65th and had been contacted by Kaaren Hofmann from the City of Tualatin. He asked why Kaaren would not identify the five properties that would be taken if the bridge is built.

- Theresa said that the use of five properties was an assumption only used for cost estimate purposes; no specific properties had been identified.

Larry Barrett, former mayor of Rivergrove, mentioned that is difficult to get consensus on anything. He asked the Task Force to consider their neighbors to the north before considering any projects that will impact them.

Kathy Newcomb said that there are many opportunities if the focus is on improving transit. She pointed out that transit along Tualatin-Sherwood Road should include bus pullouts. Tualatin-Sherwood Road is part of the proposed transit loop.

NEXT MEETING:

This was the final Task Force meeting. Alice thanked the group again for their hard work and dedication. She hopes that they will stay involved. The project team will continue to communicate the review schedule of the draft TSP as it moves forward.

Meeting adjourned.