



MEMORANDUM CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

FROM: Sherilyn Lombos, City Manager

DATE: November 26, 2012

SUBJECT: Work Session for November 26, 2012

- 1) **5:00 p.m. (60 min) – Transportation System Plan Discussion.** There are two remaining “refinement areas” that need a final decision about inclusion into the draft TSP (Boones Ferry Road and the extension of 65th). The technical team will present the additional citywide traffic analysis that was conducted as well as provide any information you need in order to make a decision. Attached is a memo and a PowerPoint that will be used.
- 2) **5:20 p.m. (45 min) – Basalt Creek Transportation Refinement Plan:** Attached is a memo along with a presentation that will be used in discussing this item. Representatives from DKS, the technical team working on this project will be at the work session.
- 3) **6:30 p.m. (20 min) – Update on Stafford Area Framework Planning.** Attached is a memo with information regarding recent activity having to do with future planning in the Stafford area.



MEMORANDUM

CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

THROUGH: Sherilyn Lombos, City Manager

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

DATE: 11/26/2012

SUBJECT: Transportation System Plan: Boones Ferry Road and 65th Avenue Refinement Areas

ISSUE BEFORE THE COUNCIL:

Provide a recommendation on the Transportation System Plan: 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 all projects, but requested removal of the traffic calming on Tualatin Road

- **65th Ave Extension:**

- Seven members in support
- One member with reservations
- Five members in opposition

- **Boones Ferry Road Expansion**

- Eight members in support

- Two with reservations
- Four in opposition

TPARK reviewed and commented on these Refinement Areas at their November 13th meeting. The Planning Commission reviewed and commented on these Refinement Areas at their November 15th meeting. The TPARK & TPC recommendations will be provided in the presentation, additionally the results of the Transportation Task Force discussion are attached.

RECOMMENDATION:

Staff requests that the City Council provide a recommendation on the Boones Ferry Road and 65th Avenue Refinement Areas so the draft Transportation System Plan can be finalized for submittal to the various reviewing agencies.

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



Technical Memorandum

City-Wide Traffic Analysis Results for Roadway Capacity Scenarios

PREPARED FOR: Tualatin Transportation System Plan
Project Management Team

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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

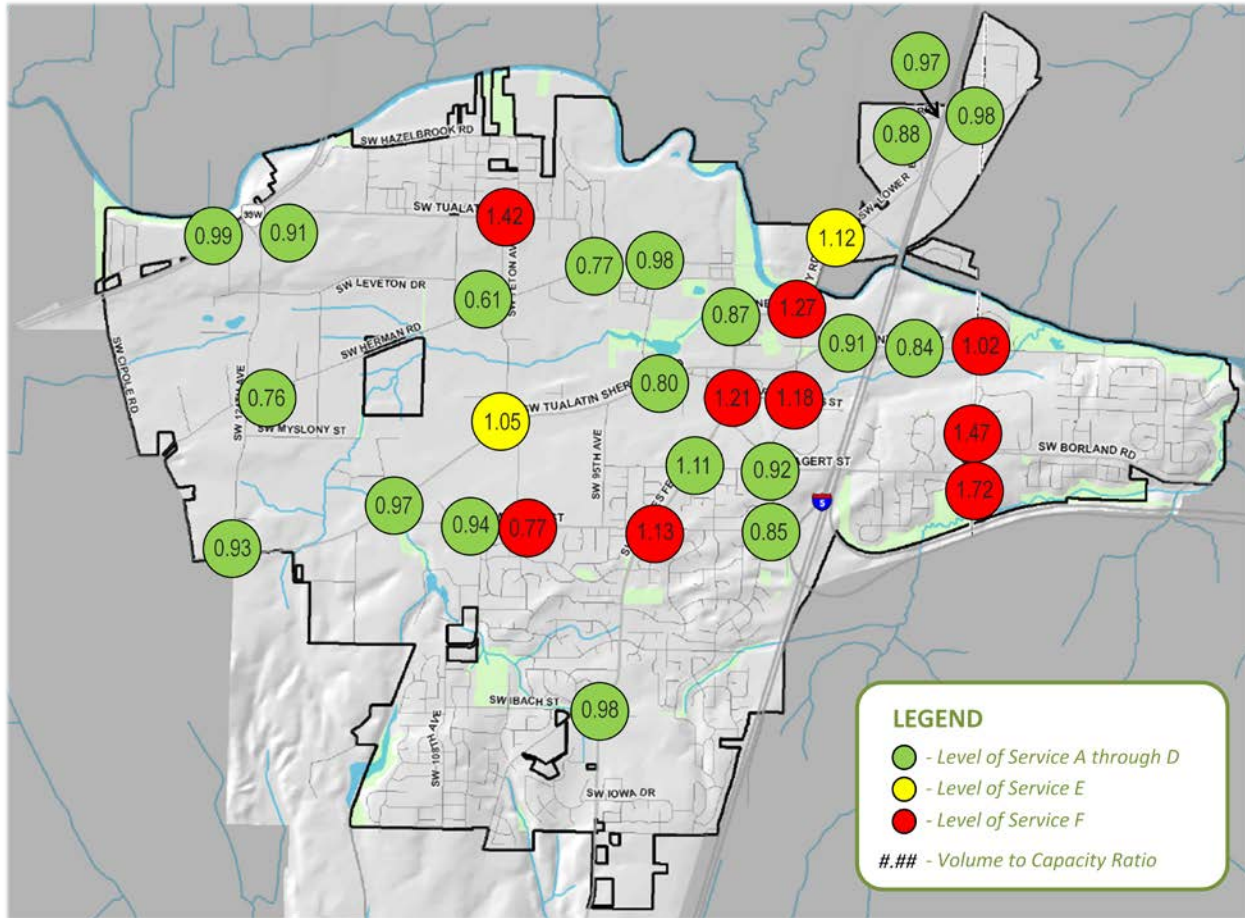


TABLE 2
 Future (2035) "No Build" P.M. Peak Period (4:00 p.m. to 6:00 p.m.) Travel Time Data

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	+4 min, 20 sec
SW Tualatin-Sherwood Road	Cipole Road	Nyberg Interchange	11 minutes 35 sec	+2 min, 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

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.

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.

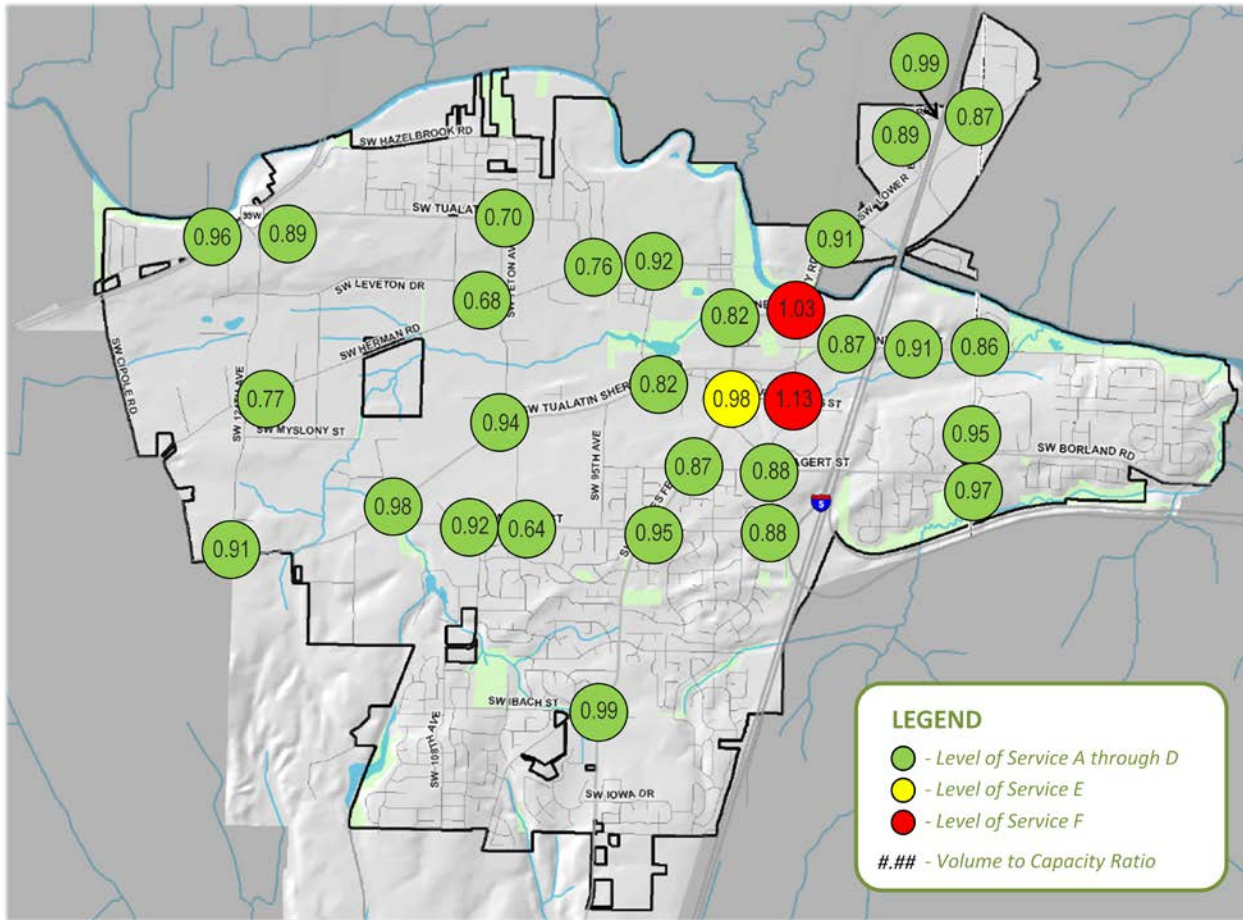
TABLE 7
 Future (2035) Operational Analysis Comparison between Scenario 3 and Scenario 6

	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.

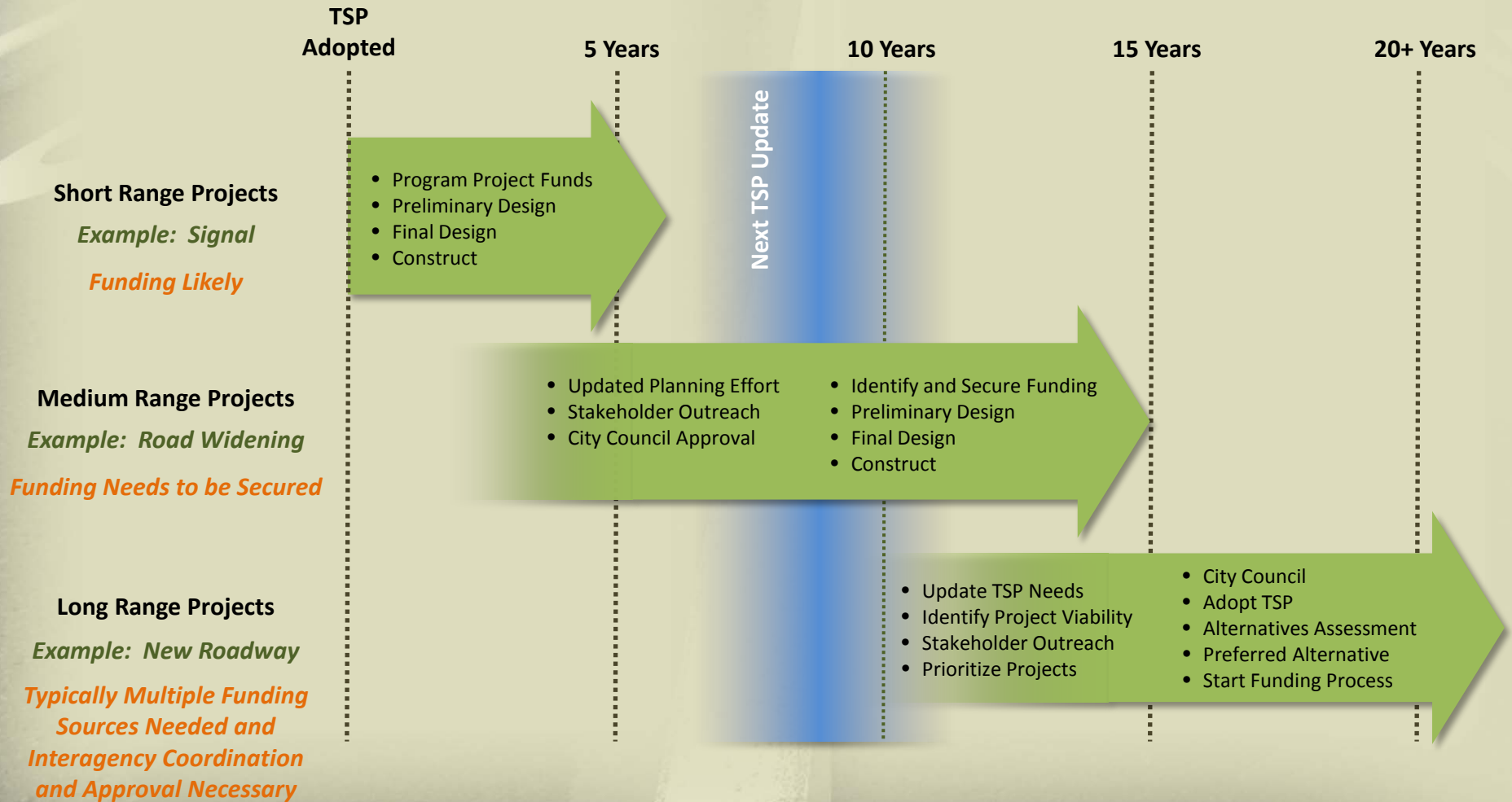
Meeting adjourned.



City of Tualatin
**Overview of
Traffic Analysis
Tualatin TSP**

Presentation to
Tualatin City Council
November 26, 2012

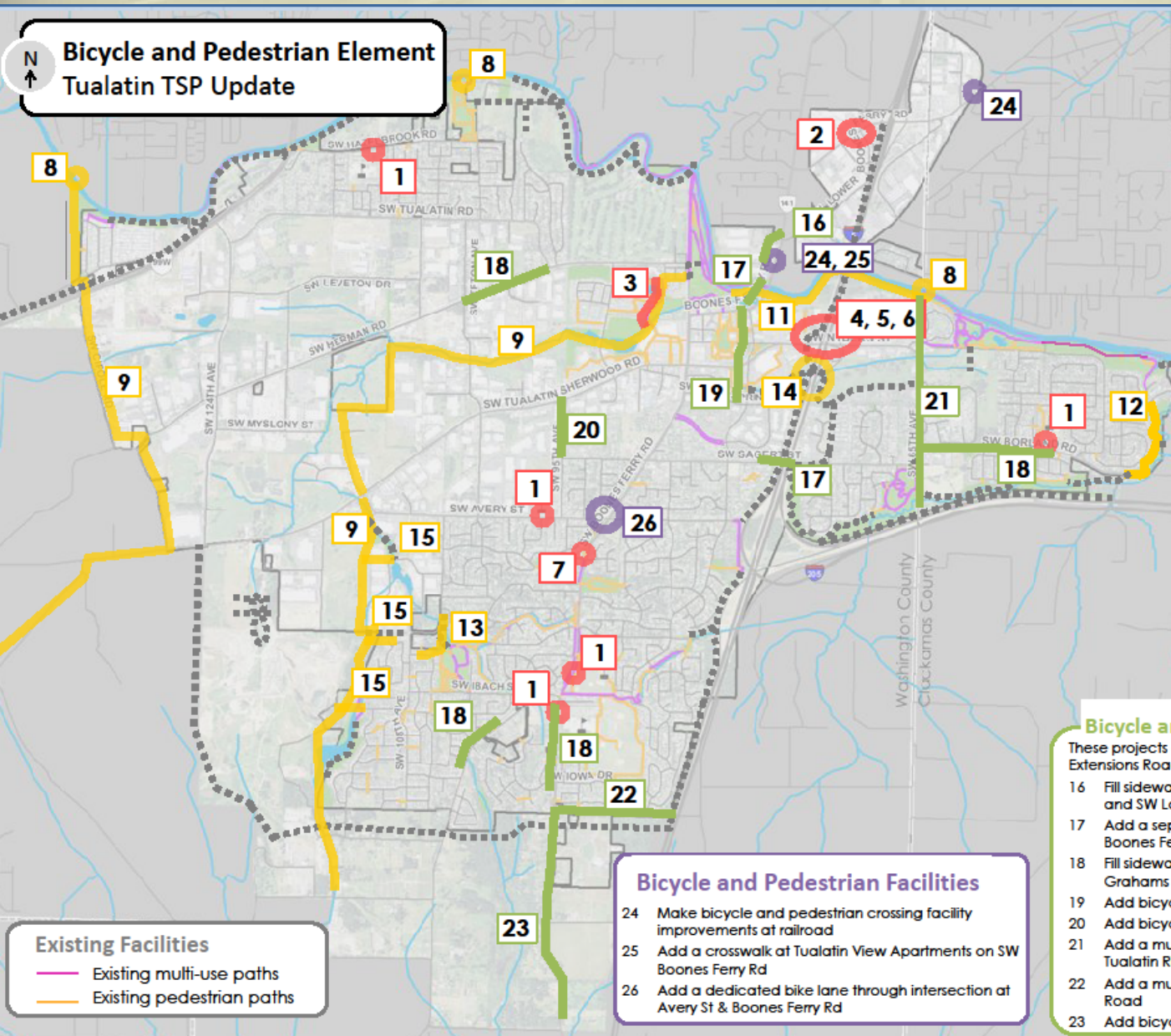
What happens to projects after adoption?



Bicycle/Pedestrian Element



Bicycle and Pedestrian Element Tualatin TSP Update



Safety Improvements

- 1 Add wayfinding signs for Safe Routes to School at all public schools
- 2 Add colored bike lanes on Bridgeport Road near Bridgeport Village
- 3 Upgrade bridge surface along the path behind the Haggen shopping center
- 4 Add a colored bike lane through the ramps at Nyberg Interchange
- 5 Add striping for the bicycle lane across the I-5 southbound off-ramp
- 6 Redesign bike lane on the east side of the Nyberg Interchange
- 7 Improve visibility and illumination at crosswalk at Siletz Dr & Boones Ferry Rd

Multi-Use Trails

- 8 Build bridges for pedestrian and bicycle access over the Tualatin River near Cipole Road, 108th Avenue, and 65th Avenue
- 9 Build the Tonquin Trail
- 10 Build multi-use paths from the previously adopted Tualatin Pedestrian, Bikeway, and Greenway Plans (indicated by dashed lines)
- 11 Build trail along Tualatin River from the Community Park, extend to Tualatin River Greenway
- 12 Fill gaps in the multi-use path as part of the Tualatin River Greenway
- 13 Add a trail on the east side of SW 105th Avenue, SWS Blake Street, and SW 108th Avenue through Ibach Park to accommodate bicyclists and pedestrians
- 14 Add I-5 multi-use undercrossing – connect to existing multi-use paths
- 15 Connect Tonquin trail with neighborhoods

Bicycle and Pedestrian Urban Upgrades

These projects are also included on the Urban Upgrades and Street Extensions Roadway Figure

- 16 Fill sidewalk gaps and add colored bicycle lanes at SW Boones Ferry and SW Lower Boones Ferry Roads
- 17 Add a separate bicycle and pedestrian bridge adjacent to SW Boones Ferry Road, add sidewalks to the SW Sager Street bridge
- 18 Fill sidewalk gaps on SW Boones Ferry Road, SW Borland Road, SW Grahams Ferry Road, and SW Herman Road
- 19 Add bicycle lanes on Martinazzi Avenue
- 20 Add bicycle lanes on SW 95th Avenue
- 21 Add a multi-use path along SW 65th Avenue between I-205 and the Tualatin River
- 22 Add a multi-use path (or sidewalks and bicycle lanes) on SW Norwood Road
- 23 Add bicycle lanes on Boones Ferry Rd to Day Rd

Bicycle and Pedestrian Facilities

- 24 Make bicycle and pedestrian crossing facility improvements at railroad
- 25 Add a crosswalk at Tualatin View Apartments on SW Boones Ferry Rd
- 26 Add a dedicated bike lane through intersection at Avery St & Boones Ferry Rd

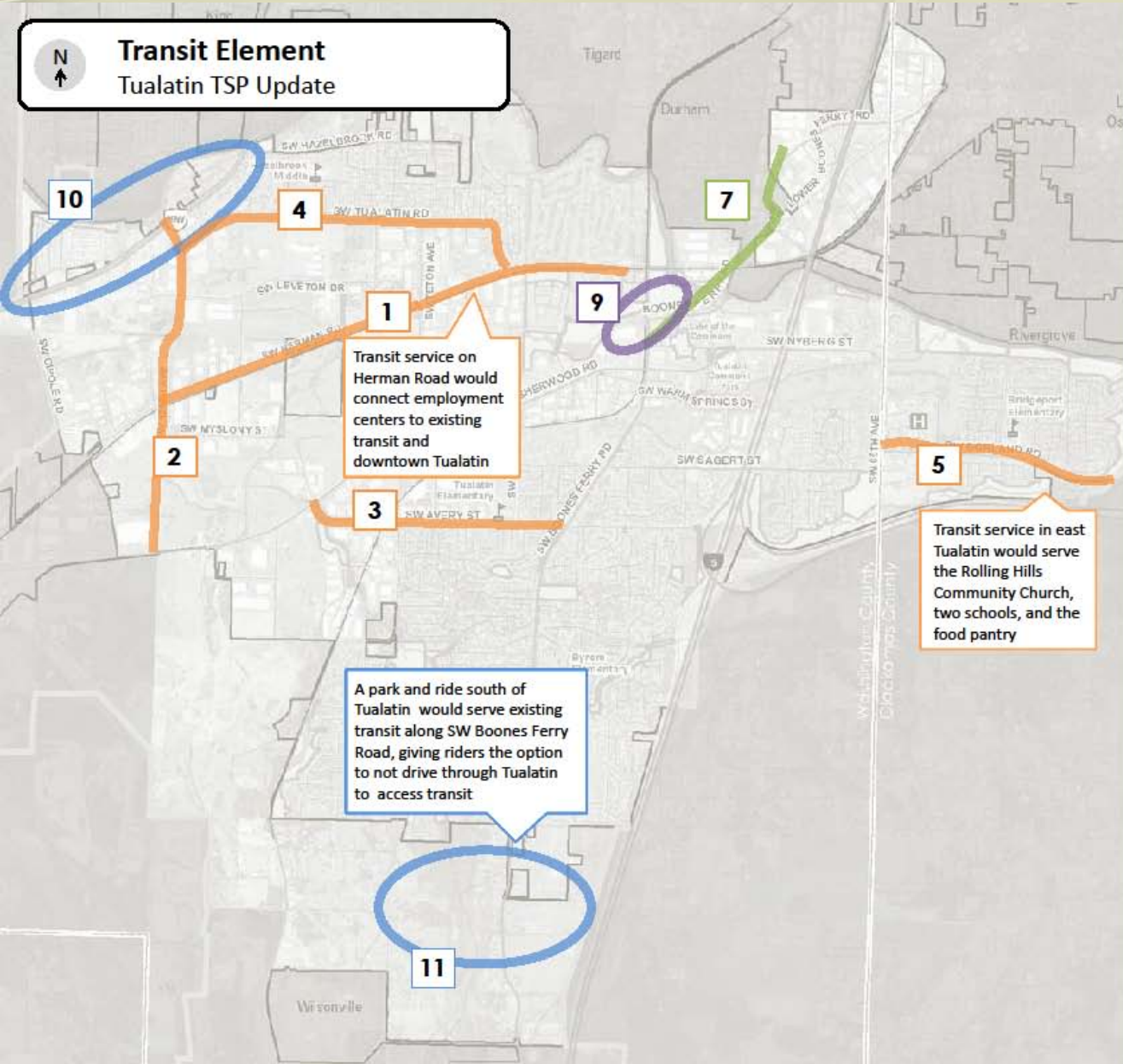
Existing Facilities

- Existing multi-use paths
- Existing pedestrian paths

Transit Element



Transit Element
Tualatin TSP Update



Transit service on Herman Road would connect employment centers to existing transit and downtown Tualatin

A park and ride south of Tualatin would serve existing transit along SW Boones Ferry Road, giving riders the option to not drive through Tualatin to access transit

Transit service in east Tualatin would serve the Rolling Hills Community Church, two schools, and the food pantry

Expansions of Fixed-Route Bus Transit Service

- 1 Provide bus transit service on Herman Rd
- 2 Provide bus transit service on 124th St
- 3 Provide bus transit service on Avery St
- 4 Provide bus transit service on Tualatin Rd between downtown Tualatin and 99W
- 5 Extend bus service further east in Tualatin
- 6 General - need extended service for all transit (not shown on map)

Expansions of the Shuttle Service

- 7 Provide a shuttle or trolley service between Bridgeport Village and Commons area, especially for weekend service
- 8 General - Create an on-call shuttle for industrial & manufacturing workers during the day - consider charging fares (not shown on map)

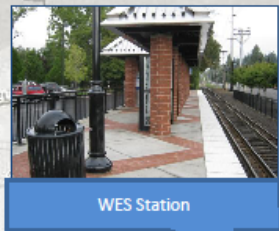
WES

- 9 Make the WES station a central focus of downtown and the main transit center. Improve pedestrian connectivity, transit-oriented development opportunities, and local transit connections

Expansions of the Park-and-ride System

- 10 Look for potential park-and-ride locations in west Tualatin
- 11 Look for potential park-and-ride locations south of Bridgeport Village (Wilsonville area)

Tualatin Shuttle



Legend

- Partial fixed route for Van 1
- ⋯ Potential future route as demand grows
- Employment centers served by shuttle (existing, potential)
- Residential centers served by shuttle
- 1** Directional for partial fixed routes

Note: Van 2 would retain a flexible, on-call route connecting residential areas with employment

DRAFT

The Tualatin shuttle runs weekdays in the morning and afternoon rush hours, connecting people coming from regional transit and residential areas to jobs in Tualatin's employment centers. Its operations are managed by the Tualatin Chamber of Commerce. At least one shuttle bus provides service from downtown Portland.

Proposed improvements to the shuttle service include:

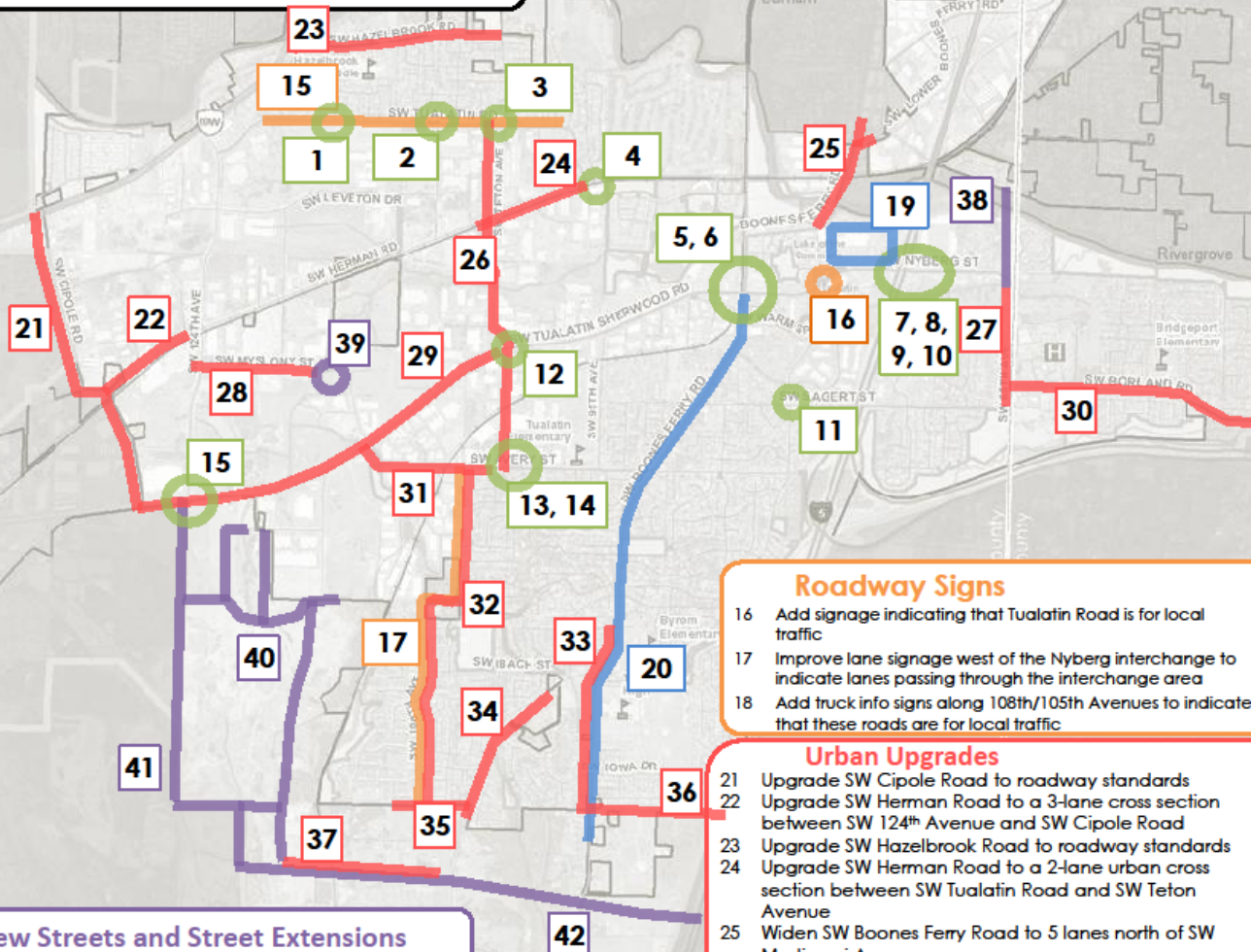
- ✓ Apply for funding to support a second shuttle in the afternoon, and to expand service hours
- ✓ Implement a partially fixed route for Van 1 that works in a counter-clockwise loop and serves the Tualatin Park and Ride and the downtown WES station every 30 minutes
- ✓ Print a route map and schedule, and display on board and at employment areas, station locations, and Chamber of Commerce
- ✓ Advertise service, on WES trains and bus routes serving Tualatin

Major Corridors and Intersections





Roadway Element Tualatin TSP Update



- ### New Streets and Street Extensions
- 38 Extend SW 65th Ave north over the Tualatin River
 - 39 Connect SW Myslony Street to SW 115th Avenue
 - 40 Build the roadways from the SW Concept Plan
 - 41 Extend SW 124th Avenue South
 - 42 Create an east-west connection across I-5

Note: All locations are approximate

- ### Roadway Signs
- 16 Add signage indicating that Tualatin Road is for local traffic
 - 17 Improve lane signage west of the Nyberg interchange to indicate lanes passing through the interchange area
 - 18 Add truck info signs along 108th/105th Avenues to indicate that these roads are for local traffic

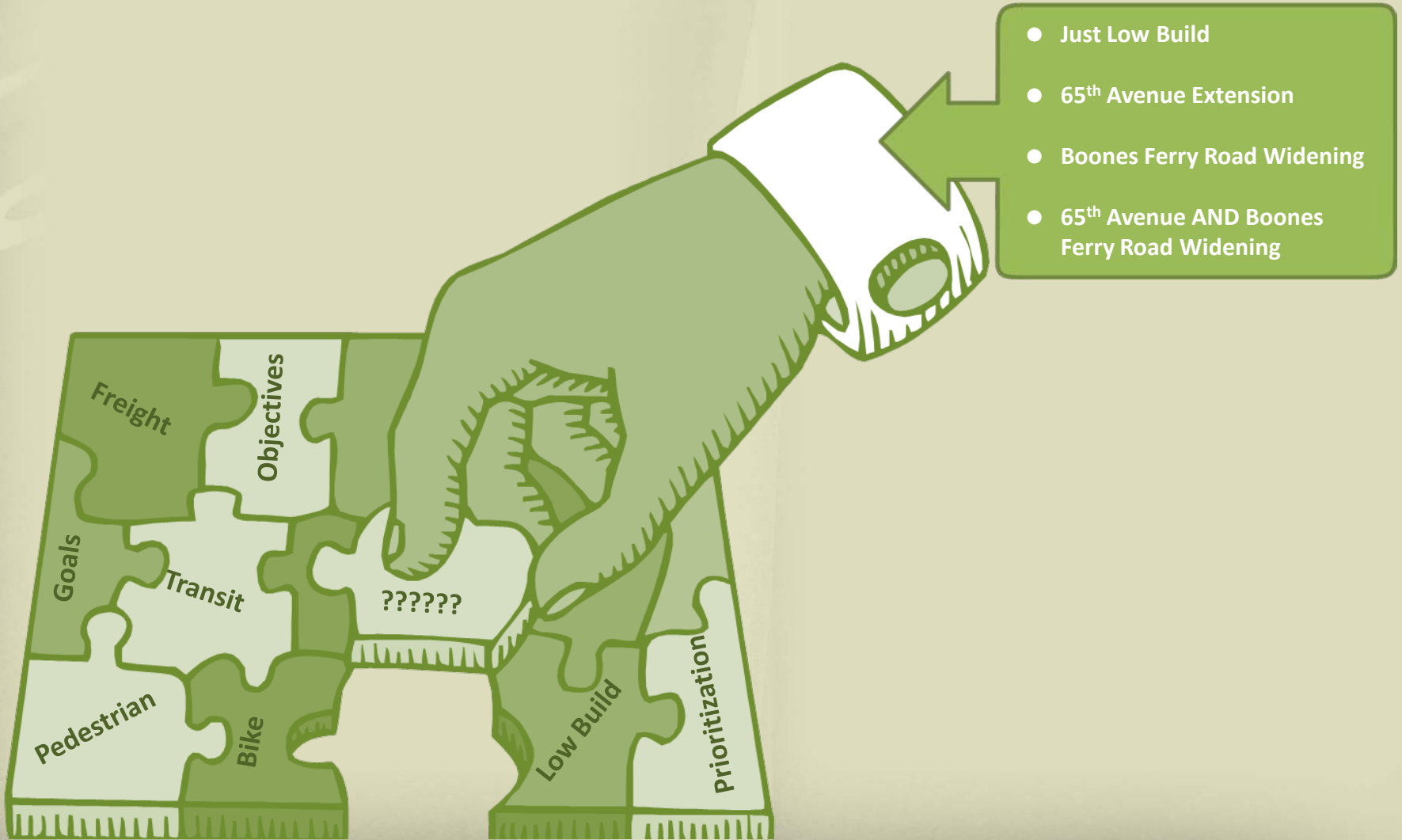
- ### Urban Upgrades
- 21 Upgrade SW Cipole Road to roadway standards
 - 22 Upgrade SW Herman Road to a 3-lane cross section between SW 124th Avenue and SW Cipole Road
 - 23 Upgrade SW Hazelbrook Road to roadway standards
 - 24 Upgrade SW Herman Road to a 2-lane urban cross section between SW Tualatin Road and SW Teton Avenue
 - 25 Widen SW Boones Ferry Road to 5 lanes north of SW Martinazzi Avenue
 - 26 Widen SW Teton Avenue to a 3-lane cross section
 - 27 Widen SW 65th Avenue to 3- or 5-lanes
 - 28 Upgrade SW Myslony Street to roadway standards
 - 29 Widen SW Tualatin-Sherwood Rd to 5 lanes between SW Teton Avenue and SW Cipole Road

- ### Intersection Improvements
- 1 Add signal at SW Tualatin Road and SW 115th Avenue
 - 2 Remove trees at intersection of SW Tualatin Road and SW 108th Avenue to improve sight distance
 - 3 Add signal at SW Tualatin Road and SW Teton Avenue
 - 4 Remove the free right turn at SW Tualatin Road at the intersection of SW Herman Road. Consider a roundabout
 - 5 Add an eastbound right turn lane on SW Tualatin-Sherwood Road at SW Boones Ferry Road
 - 6 Extend the southbound left turn pocket on SW Boones Ferry Road at SW Tualatin-Sherwood Road
 - 7 Move guardrail on southbound off ramp to improve sight distance
 - 8 Northbound I-5 on-ramp: reduce pedestrian island, add an additional lane
 - 9 Add signage at the northbound off ramp to discourage traffic getting off and then back onto I-5
 - 10 Redesign SW Nyberg Street and Fred Meyer intersection and improve pedestrian crossing. Add striping and a pedestrian island.
 - 11 Add a signal or roundabout at Sagert St and Martinazzi Ave
 - 12 Add a dedicated right turn lane on southbound SW Teton Avenue and SW Tualatin-Sherwood Road
 - 13 Improve intersection at SW Avery Street and SW Teton Avenue – add southbound right turn pocket
 - 14 Add a signal at SW Avery and SW Teton
 - 15 Add a right turn lane from westbound SW Tualatin-Sherwood Road to northbound SW 124th Avenue

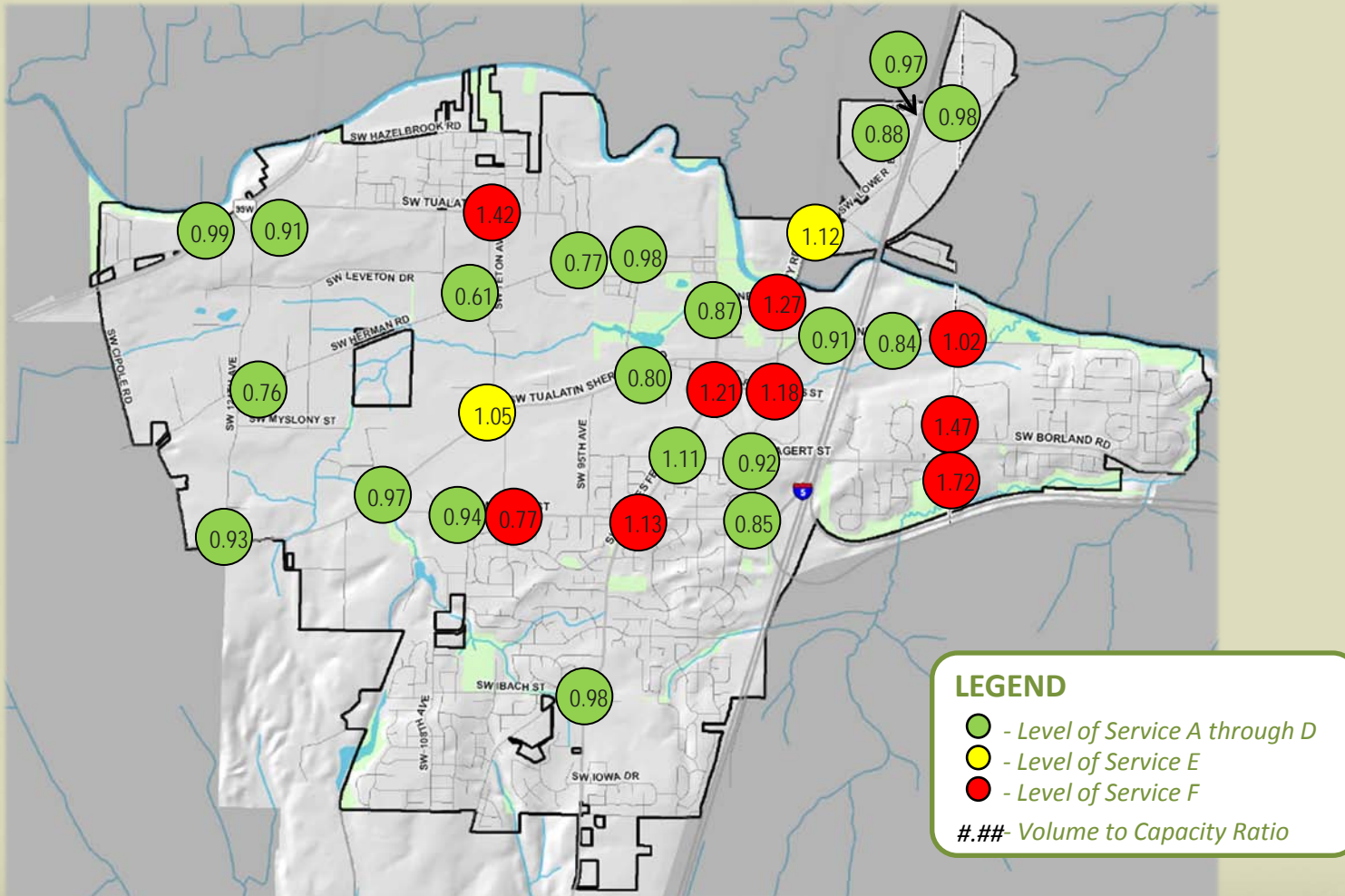
- ### Roadway Changes
- 19 Create a grid system near Kmart upon redevelopment with a connection to SW Seneca Street
 - 20 Add bus pullouts on SW Boones Ferry Road at existing bus stops where possible

- 30 Upgrade SW Borland Road to roadway standards
- 31 Add a center turn lane or median on SW Avery Street between SW Teton Avenue and SW Tualatin-Sherwood Road
- 32 Upgrade SW 105th/Blake Street/108th Avenues to roadway standards
- 33 Upgrade SW Boones Ferry Road to a 3 lane cross section throughout.
- 34 Upgrade Grahams Ferry Road to roadway standards
- 35 Upgrade SW Helenius Road to roadway standards
- 36 Upgrade SW Norwood Road to roadway standards
- 37 Upgrade SW Tonquin Road between SW Waldo Way and SW Grahams Ferry Road

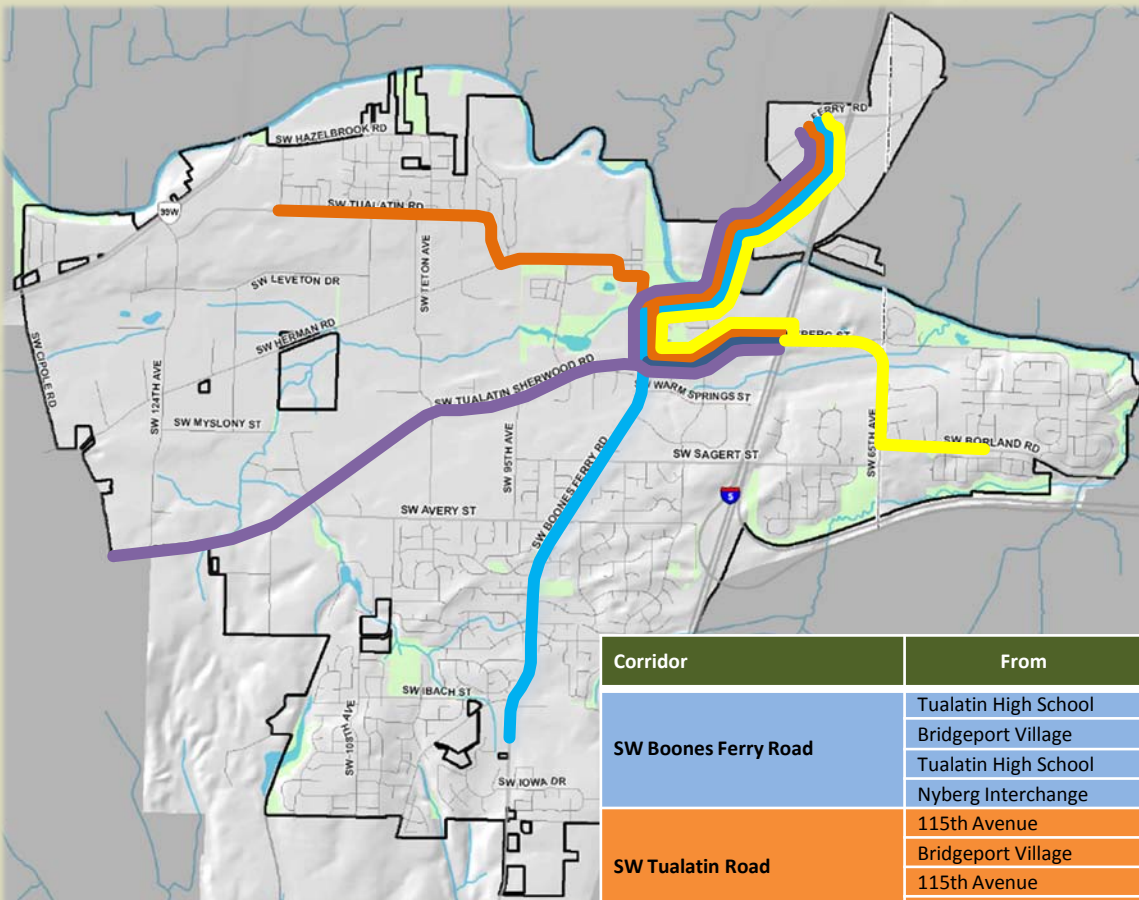
What we are looking for tonight



No-build Operations

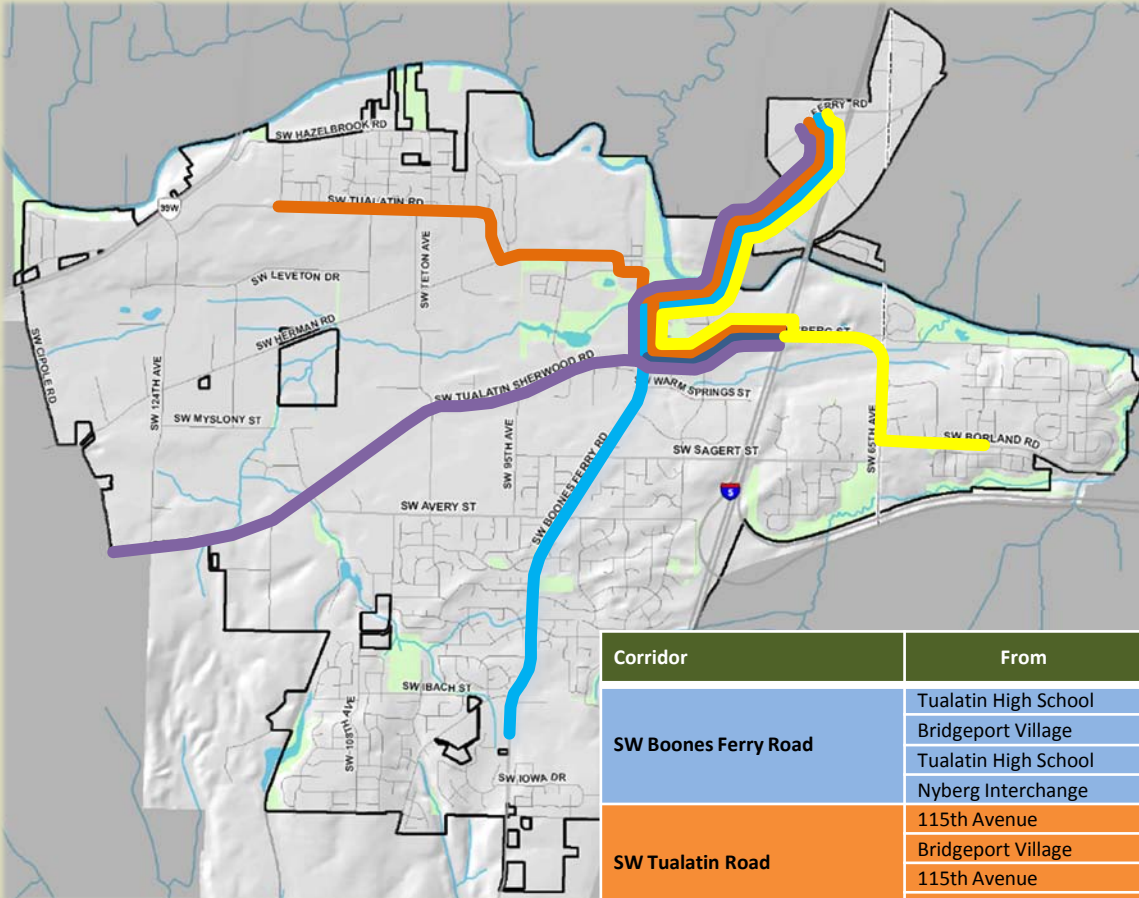


No-build Travel Times



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
	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
	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
	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 / 65th Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 20 sec	+15 sec
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	+1 min, 10 sec
	Bridgeport Elementary	Bridgeport Village	12 min, 55 sec	+3 min, 45 sec
	Bridgeport Village	Bridgeport Elementary	14 min, 25 sec	+6 min

Low Build Travel Times

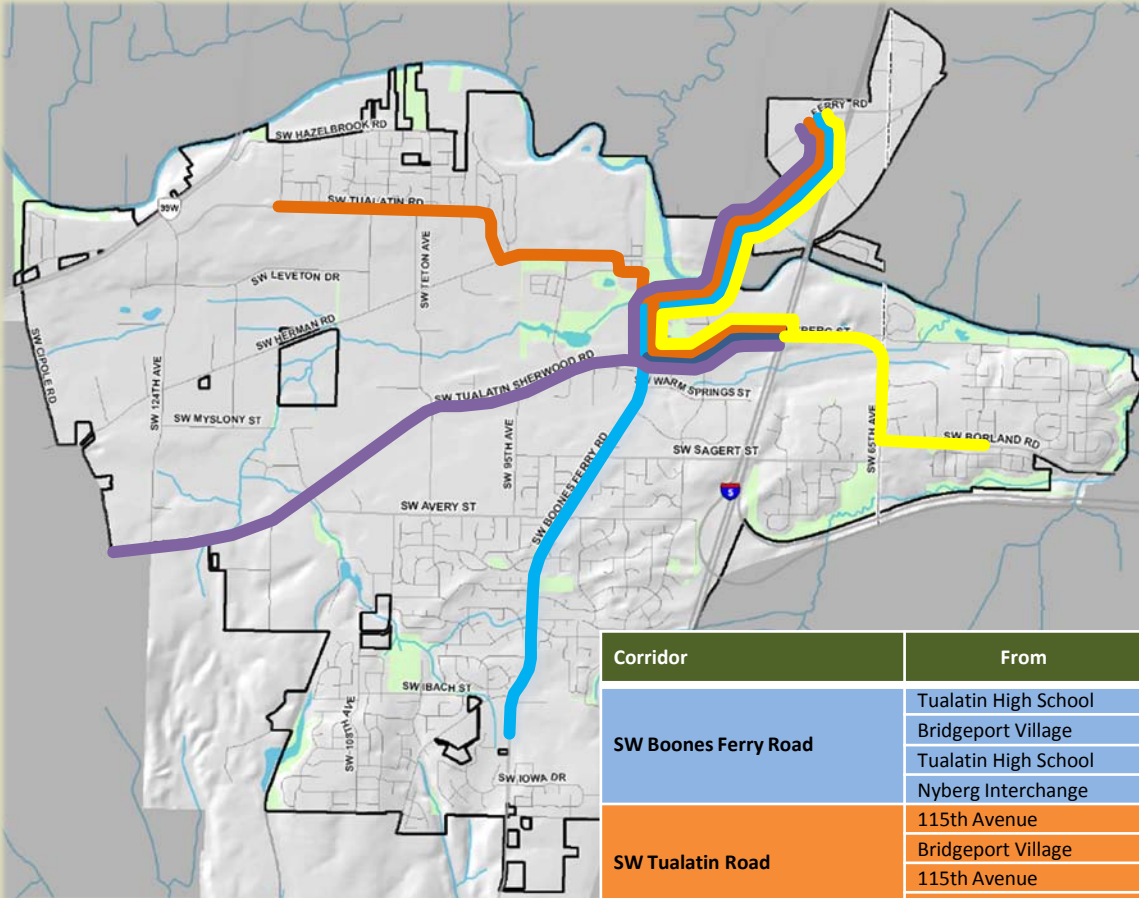


Corridor	From	To	Average Travel Time	Difference from Future No-build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	15 min, 5 sec	No difference
	Bridgeport Village	Tualatin High School	12 min, 10 sec	No difference
	Tualatin High School	Nyberg Interchange	9 min, 40 sec	No difference
	Nyberg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

Low Build + 65th Ave Extension Volume Shifts

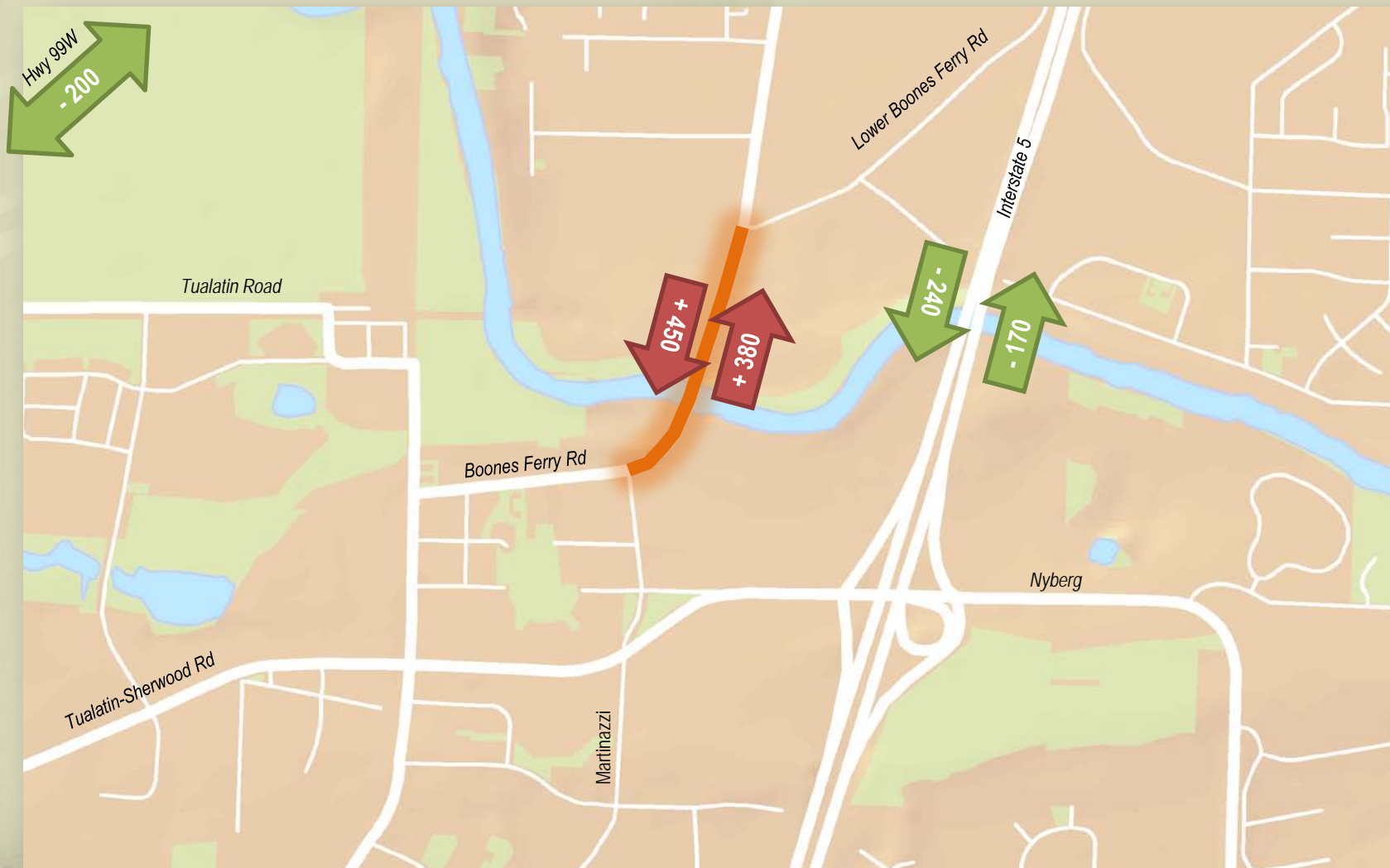


Low Build + 65th Ave Extension Travel Times

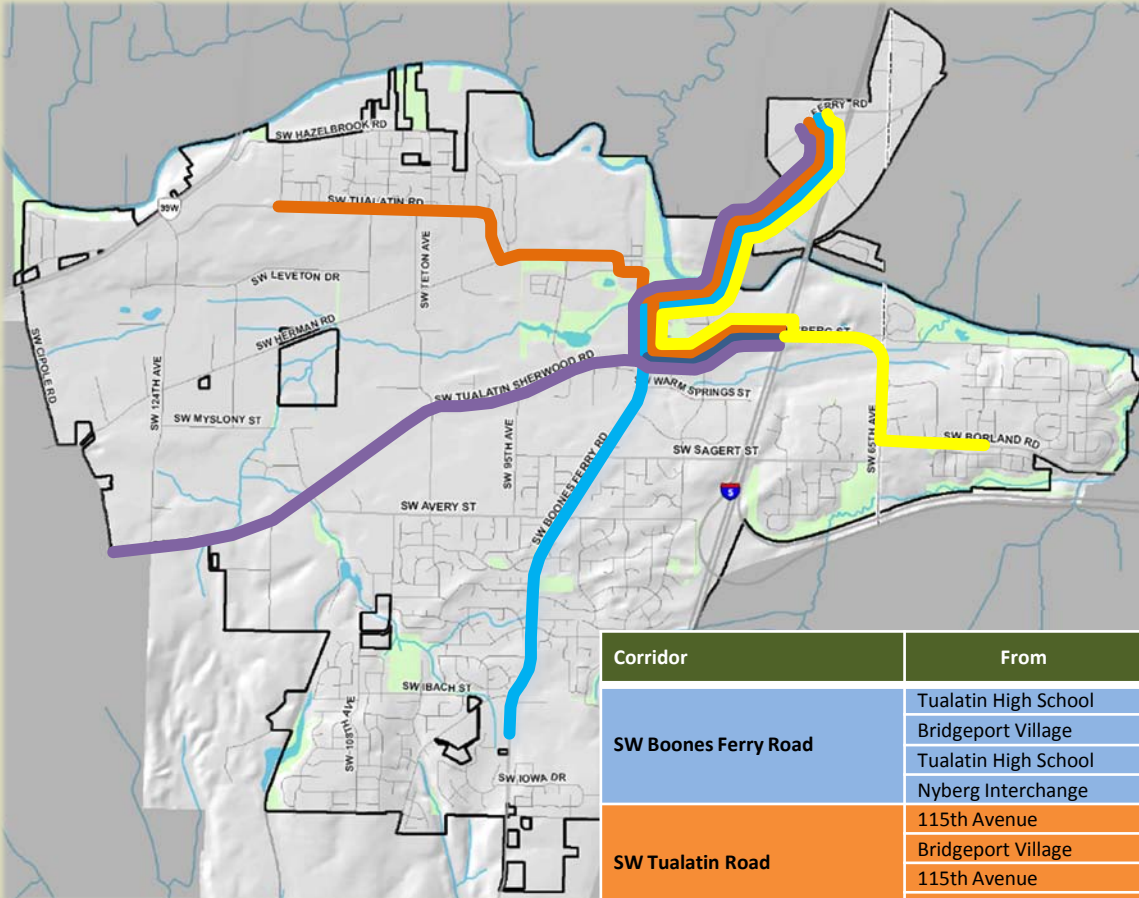


Corridor	From	To	Average Travel Time	Difference from Future No-build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	13 min, 40 sec	-1 min, 25 sec
	Bridgeport Village	Tualatin High School	11 min, 20 sec	-50 sec
	Tualatin High School	Nyberg Interchange	10 min	+20sec
	Nyberg Interchange	Tualatin 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
	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
	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
	Bridgeport Elementary	Bridgeport Village	10 min, 40 sec	-2 min, 15 sec
	Bridgeport Village	Bridgeport Elementary	12 min, 10 sec	-2 min, 15 sec

Low Build + Boones Ferry Road Widening Volume Shifts

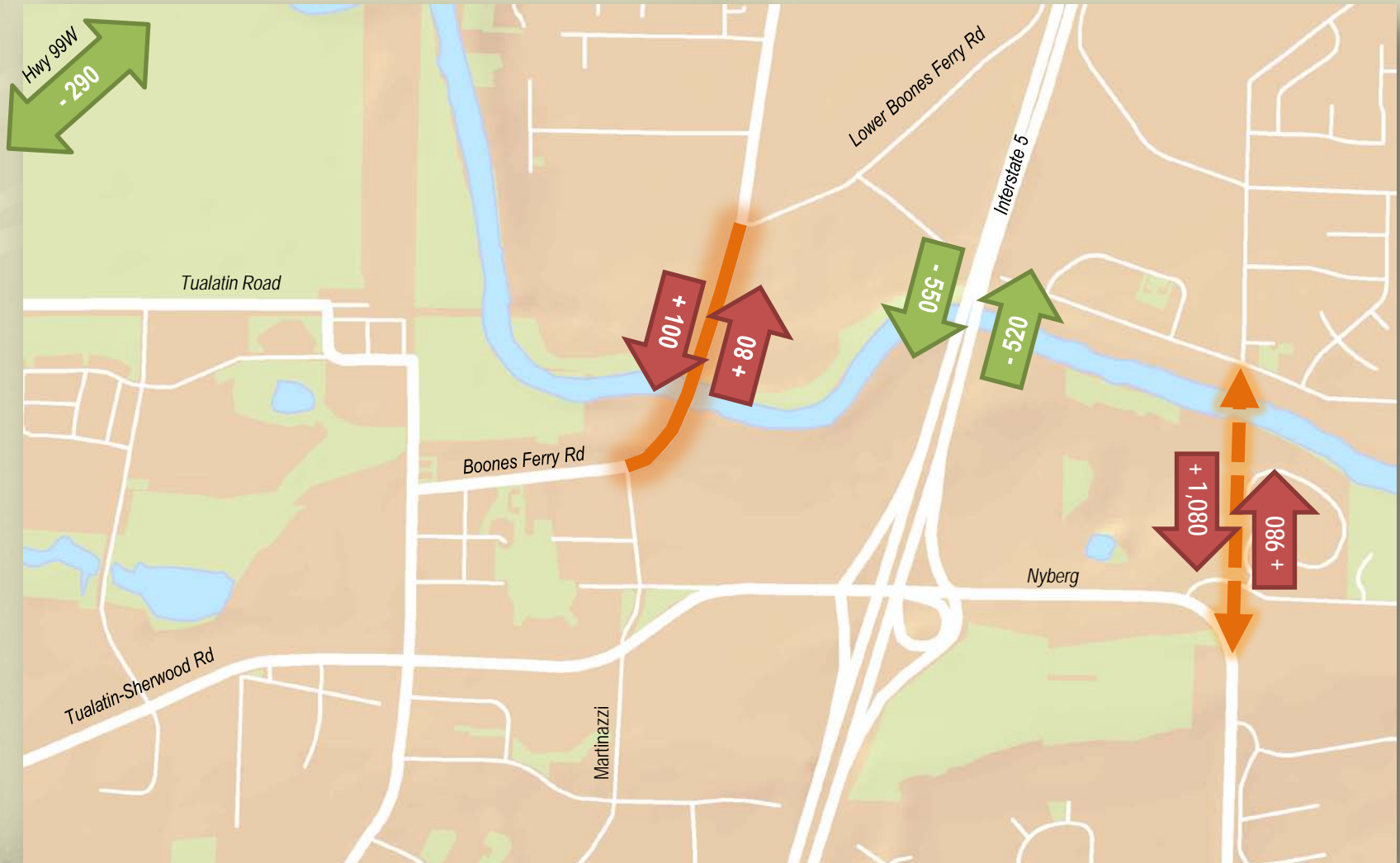


Low Build + Boones Ferry Road Widening Travel Times

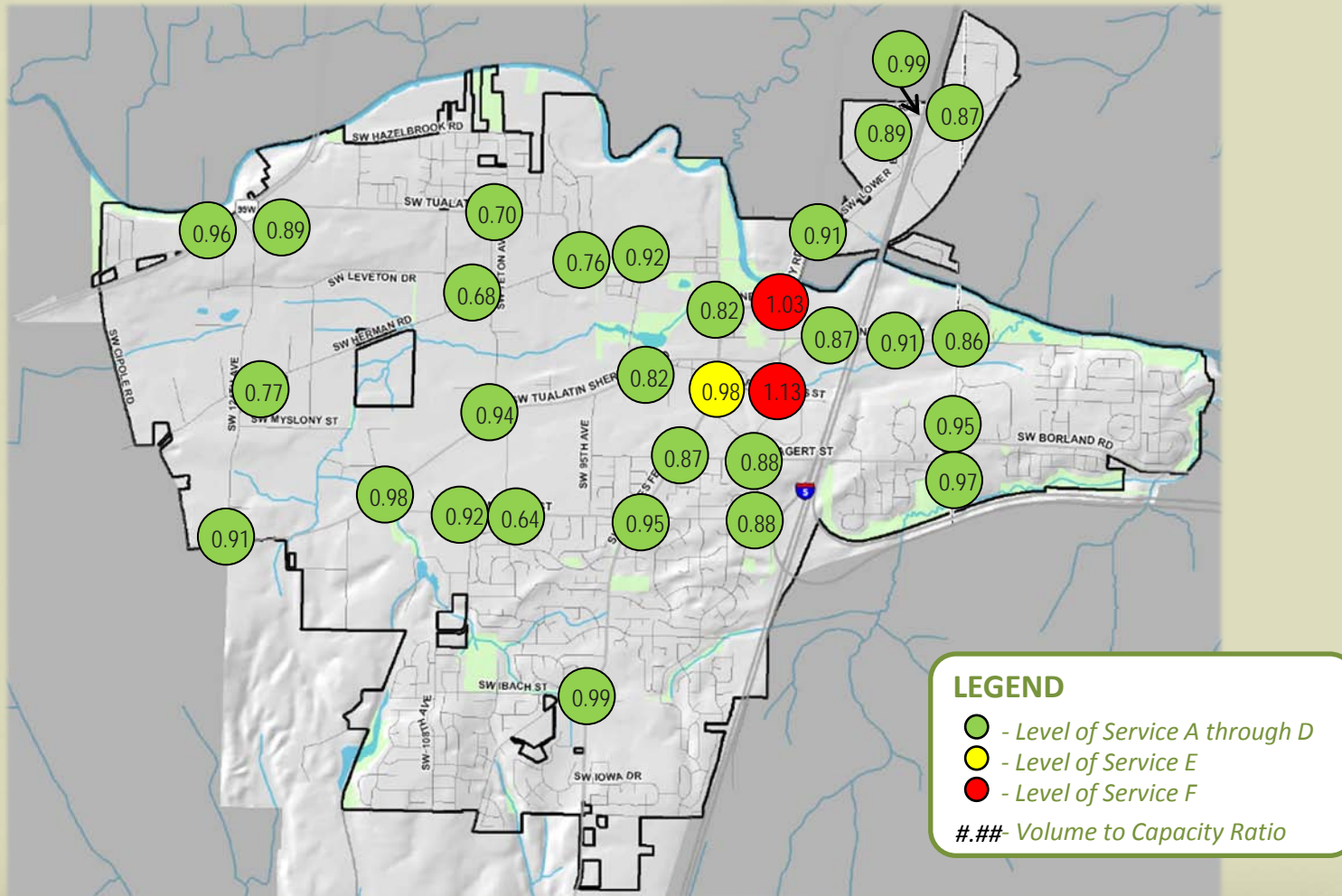


Corridor	From	To	Average Travel Time	Difference from Future No-build
SW Boones Ferry Road	Tualatin High School	Bridgeport Village	13 min, 40 sec	-1 min, 25 sec
	Bridgeport Village	Tualatin High School	11 min, 30 sec	-40 sec
	Tualatin High School	Nyberg Interchange	9 min, 40 sec	No difference
	Nyberg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

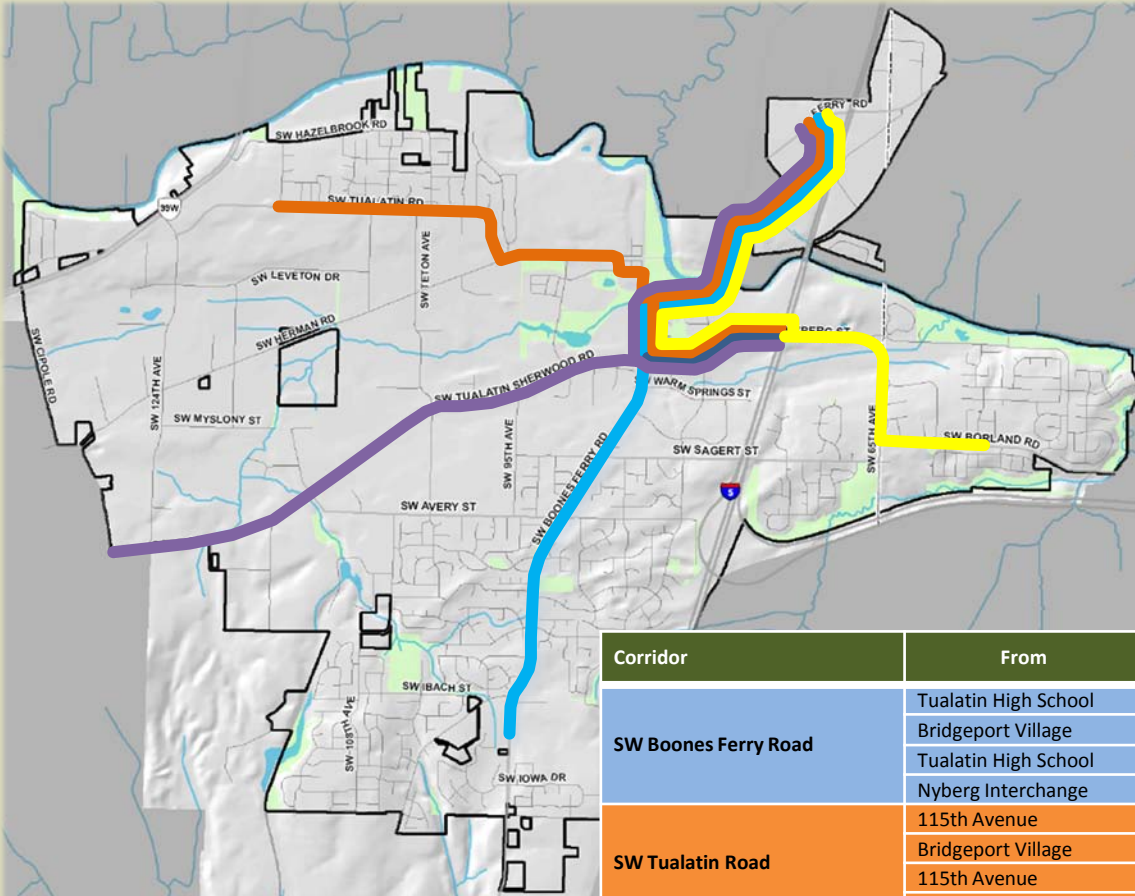
Low Build + 65th Ave + BFR Widening Volume Shifts



Low Build + 65th Ave + BFR Widening Operations



Low Build + 65th Ave + BFR Widening Travel Times



Corridor	From	To	Average Travel Time	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
	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
	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
	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 Ave	Bridgeport Elementary	Nyberg Interchange	3 min, 30 sec	+10 sec
	Nyberg Interchange	Bridgeport Elementary	3 min, 30 sec	No difference
	Bridgeport Elementary	Bridgeport Village	10 min, 25 sec	-2 min, 30 sec
	Bridgeport Village	Bridgeport Elementary	11 min, 50 sec	-2 min, 35 sec

How do these projects pencil out?

Cost vs. Benefit Perspective

65th Avenue Extension

AM/PM Peak VHT Saved
✓ 548 hours

Project cost
✓ \$22M

Potential 20 year benefit
✓ \$50.9M

Boones Ferry Rd Widening

AM/PM Peak VHT Saved
✓ 244 hours

Project cost
✓ \$17.8M

Potential 20 year benefit
✓ \$22.7M

65th Ave + BFR Widening

AM/PM Peak VHT Saved
✓ 752 hours

Project cost
✓ \$39.8M

Potential 20 year benefit
✓ \$69.9M

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 Avenue extension pulls traffic from Boones Ferry Road and enhances that travel time
- Boones Ferry Road widening helps enhance travel times, but creates some intersection issues in downtown
- Combination of 65th Avenue and Boones Ferry Road widening enhances travel times in North Tualatin, but has similar downtown intersection issues

Technical Team Recommendation

- In addition to the Low Build projects, include:
 - ① Include Boones Ferry Road widening project from Martinazzi to Lower Boones Ferry Road
 - ② Include 65th Avenue extension as a refinement plan project
 - Establishes and acknowledges the need for improvements and connectivity in the area
 - Acknowledges the need to work collaboratively with surrounding jurisdictions
 - Identifies a project area that goes into deeper planning analysis to determine details

Task Force Conclusions

- Consensus with all projects in the Low Build Scenario, but requested removal of the traffic calming on Tualatin Road
- 65th Avenue
 - Seven members in support
 - One member with reservations
 - Five members in opposition
- Boones Ferry Road Expansion
 - Eight members in support
 - Two members with reservations
 - Four members in opposition

TPARK Recommendation

- Consensus on the Low Build Scenario
- Opposed to SW 65th Avenue except as a bike/ped bridge
- Opposed to Boones Ferry Road Widening

Planning Commission Recommendation

- Consensus on the Low Build Scenario plus Boones Ferry Road Widening to be in the TSP
- Opposed to SW 65th Avenue extension

Next Steps

- December 28, 2012 - Notice provided to Metro & DLCDC on TSP Amendments
- January 8, 2012 - TPARK Recommendation on the TSP & associated code amendments
- January 17, 2013 - Planning Commission Recommendation on the TSP & associated code amendments
- February 11, 2013 - Council hearing on the TSP & associated code amendments



MEMORANDUM

CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

THROUGH: Sherilyn Lombos, City Manager

FROM: Ben Bryant, Management Analyst

DATE: 11/26/2012

SUBJECT: Basalt Creek Transportation Refinement Plan

ISSUE BEFORE THE COUNCIL:

1. Provide guidance to the Tualatin representatives on the Basalt Creek Policy Advisory Committee in preparation for the December 11, 2012 meeting. Mayor Ogden and Council President Beikman serve as Tualatin's representatives.

EXECUTIVE SUMMARY:

Policy Advisory Group Meeting

On December 11, the Basalt Creek Policy Advisory Committee is scheduled to meet and make a final recommendation on the preferred alignment for roadway improvements between the extension of SW 124th Avenue and the North Wilsonville I-5 interchange.

Conceptual Alignments

Last year, through a series of collaborative workshops with Tualatin's regional partners and various public outreach events, three concepts were created to improve the transportation network in the Basalt Creek area. These concepts include:

- Improve Existing Network Concept;
- Diagonal Alignment Network Concept; and,
- East-West Alignment Network Concept.

Public Outreach

These concepts, along with the evaluation of each, were shared with the community at numerous events, including the following:

- January 2012: CIO 5 Meeting
- February 2012: Victoria Woods Neighborhood Association Meeting
- April 2012: Online Open House for Major Streets Transportation Improvement Program
- May 2012: Open House
- June 2012: Basalt Creek Neighborhood Meeting
- August 2012: CIO 6 Meeting

The feedback was wide spread, as both support and concern was expressed for all of the

concepts. In general, the concerns revolve around property and traffic impacts and cost.

CIO 6 prepared a position statement which can be found in Attachment D.

"Hybrid" Concept

In an effort to assist the decision-makers in this process, the multi-jurisdictional technical team analyzed the public input and decided to evaluate a "hybrid" idea that came about which combined elements of the east-west alignment concept and the diagonal alignment concept. Specifically, it would entail a new limited access east-west arterial located south of Tonquin Road (similar to the east-west concept) which then would connect to the diagonal alignment option. This hybrid adds capacity west of Grahams Ferry Road, allows the existing roads to serve local traffic, and moves the road farther south. At the same time, it increases traffic demand at key intersections with Grahams Ferry Road and Boones Ferry Road, is more expensive than the other options, and causes greater impact to the environment.

For these reasons, the technical group decided not to move this forward as a viable option. However, Washington County wanted to make sure that they not only took into consideration the public comments received, but evaluated ideas to combine two of the options.

More information about the hybrid concept can be found in Attachment B.

Next Steps for Transportation Refinement Plan

The next Policy Advisory Committee meeting will be held on December 11th.

Once the Policy Advisory Committee recommends an alignment concept, staff will prepare an agreement to be approved by the elected bodies of each of the respective agencies in the fall of 2012. This will ensure that the agreed upon concept is incorporated into the necessary local and regional transportation system plans.

Next Steps for Land Use Concept Plan

Following a final alignment agreement, the Cities of Tualatin and Wilsonville will be able to begin land use concept planning.

Attachments: [A - PowerPoint Presentation](#)
 [B - Hybrid Concept](#)
 [C - Basalt Creek Transportation Executive Summary](#)
 [D - CIO 6 Basalt Creek Position Statement](#)

An aerial photograph of a suburban area. The image shows a mix of residential housing, green spaces with trees, and a large, dark pond on the right side. The overall scene is a typical suburban landscape with a grid-like street pattern.

Basalt Creek Transportation Refinement Plan

Tualatin City Council
November 26, 2012

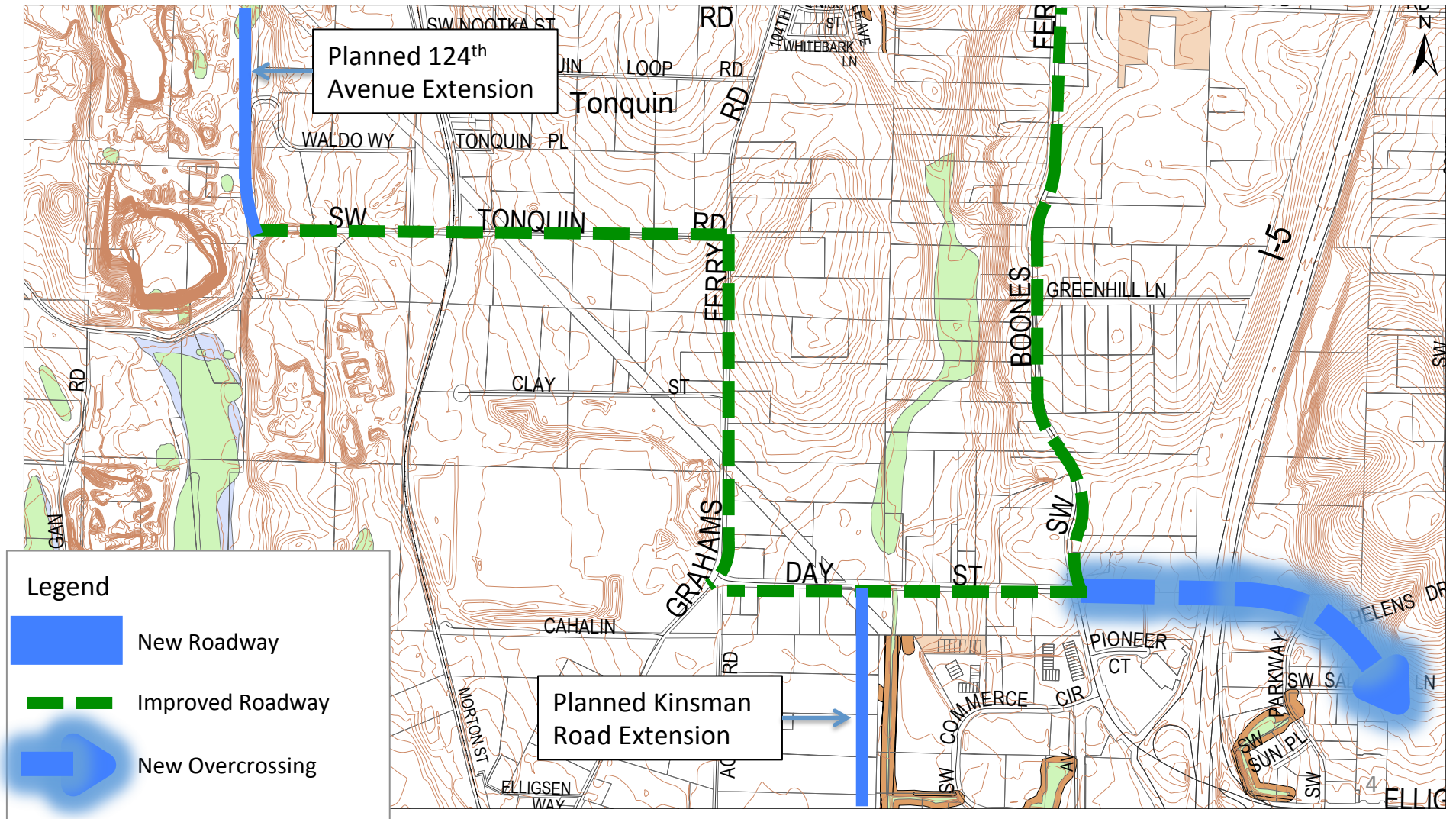
Why are we here tonight?

- What do we need from the Council?
- Presentation Outline
 - Project Overview
 - Evaluation of Concepts
 - The East-West Concept

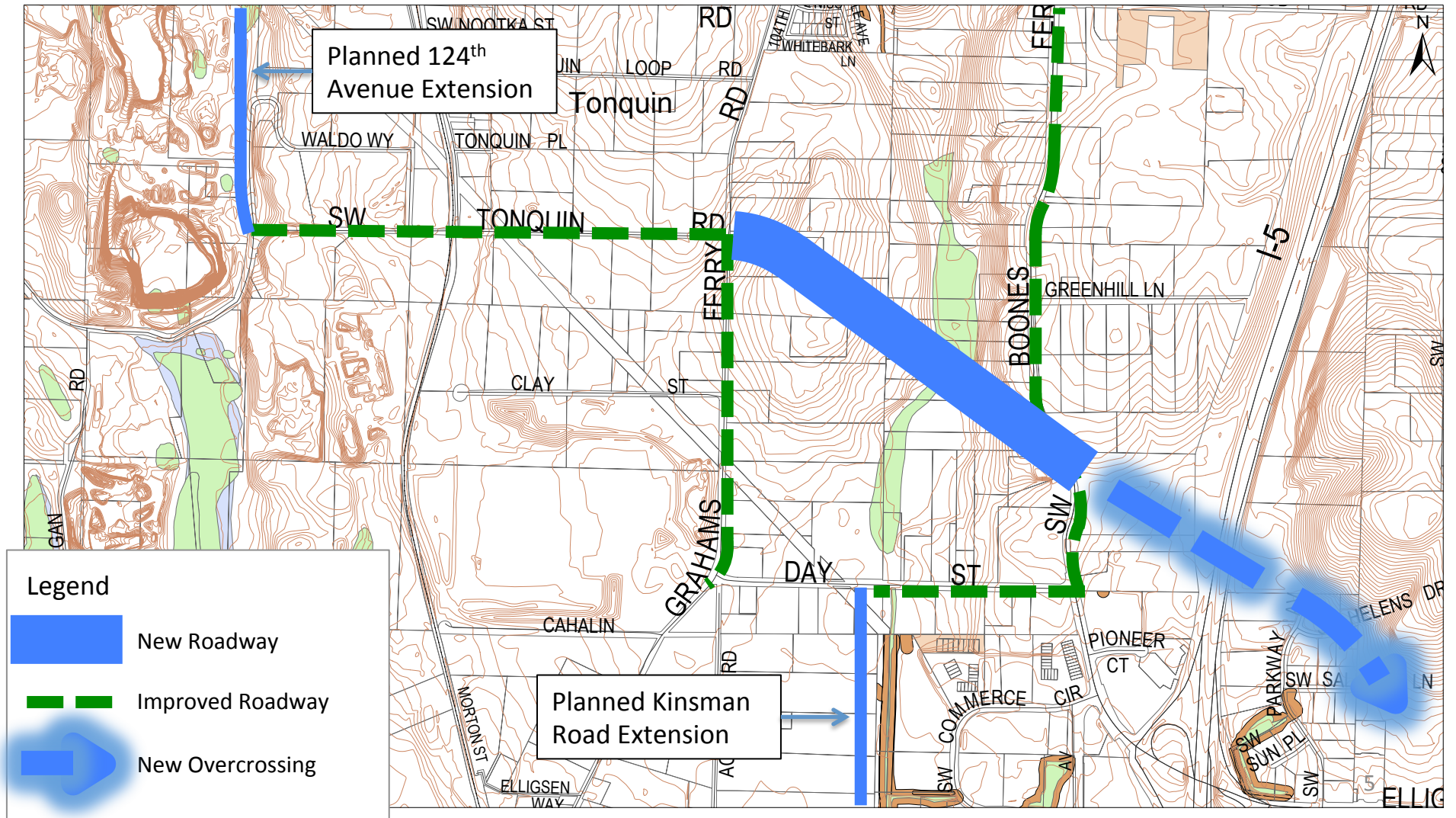
Public Outreach Summary

Meeting	Date
Boones Ferry Road Open House	September 2011
Project Newsletter Mailing Basalt/Boones Ferry/124 th Extension Open House	December 2011
Tualatin CIO	January 2012
Tualatin TSP Open House Boones Ferry Road neighbors meeting	February 2012
Basalt Project Newsletter Mailing Wilsonville Chamber of Commerce	April 2012
Interchange area business outreach (extra letters and phone calls)	April–May 2012
Basalt Open House Wilsonville TSP Open House	May 2012
Boones Ferry Road neighbors meeting (neighbor-hosted)	June 2012
CIO-6 Open House	August 2012
Basalt Policy Advisory Group meetings	September 2011 November 2011 April 2012

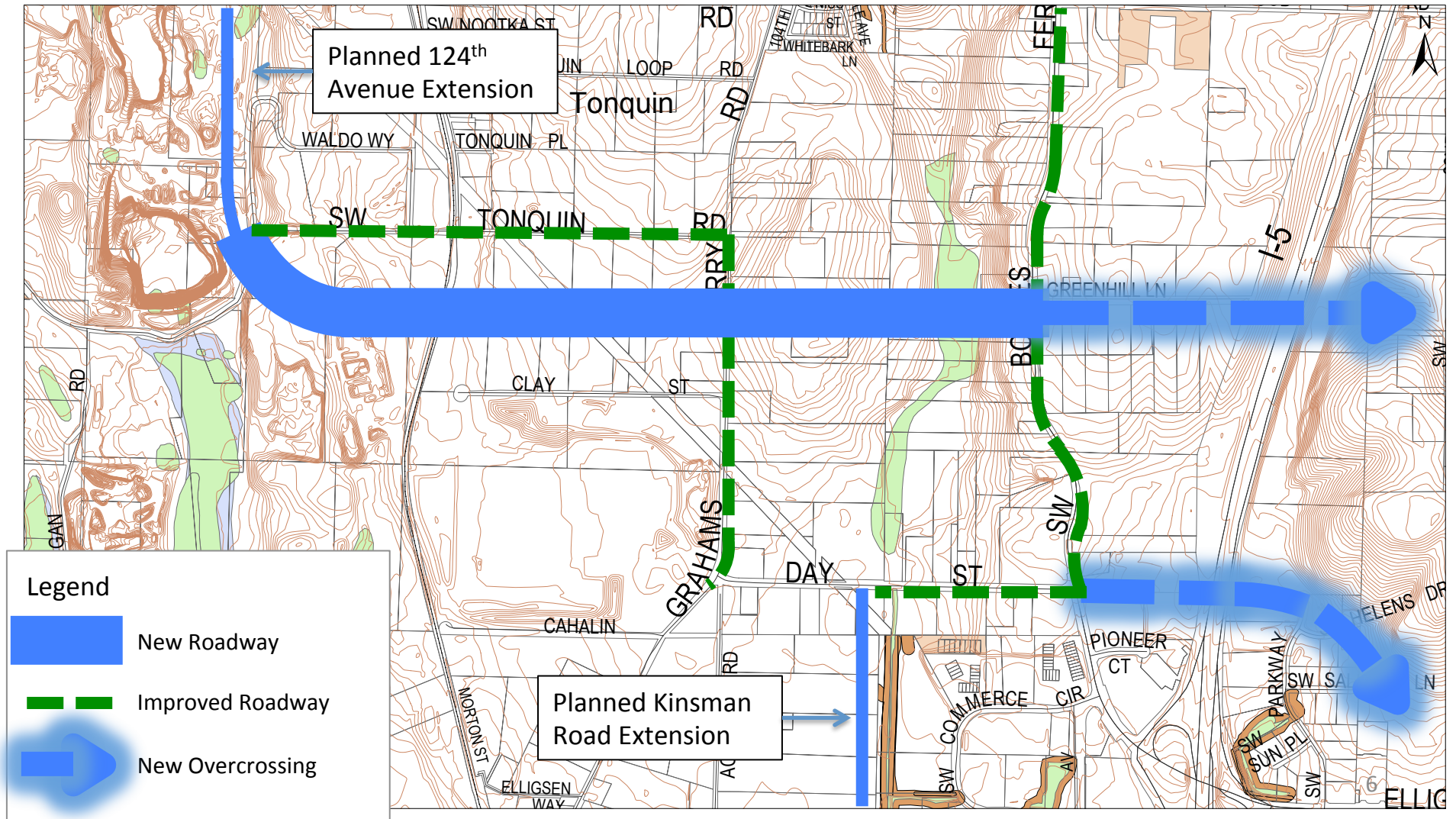
Overview: Improve Existing Concept



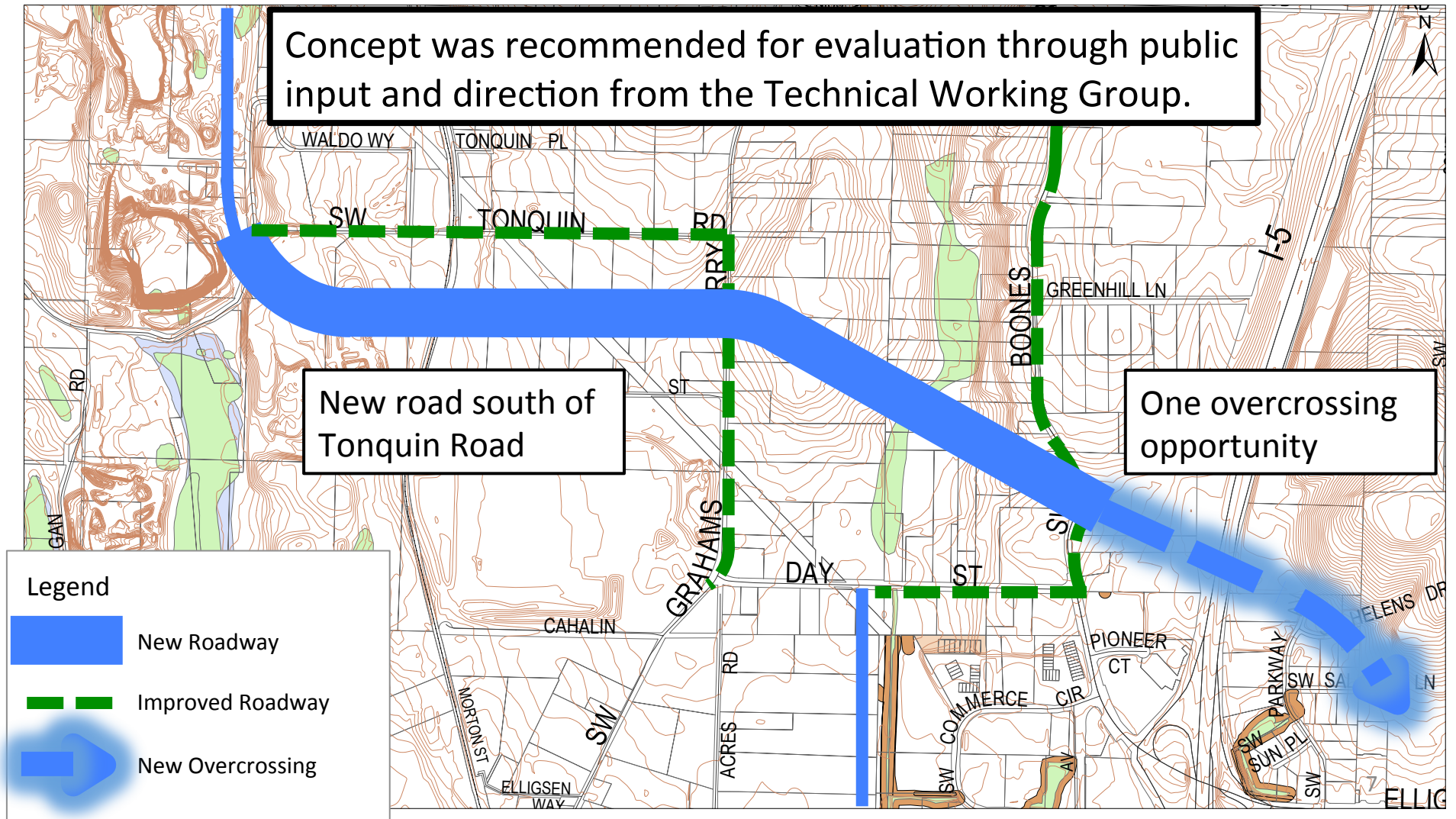
Overview: Diagonal Concept



Overview: East-West Concept



Additional Concept: Diagonal Hybrid



Evaluation Results

Evaluation Measure	Network Concepts			
	East-West	Diagonal Hybrid	Diagonal	Improve Existing
Network Cost	\$139M	\$149M	\$130M	\$82M
I-5 Connection Cost	\$72-82M*	\$34-44M	\$34-44M	\$34-44M
Ability to Phase	+	+	+	+
Supportive of Development	+	✓	✓	-
Environmental Impact	-	---	---	+
Consistency with RTP	+	+	+	✓
Traffic Operations	+	-**	-	---
Constructability	+	✓	✓	+

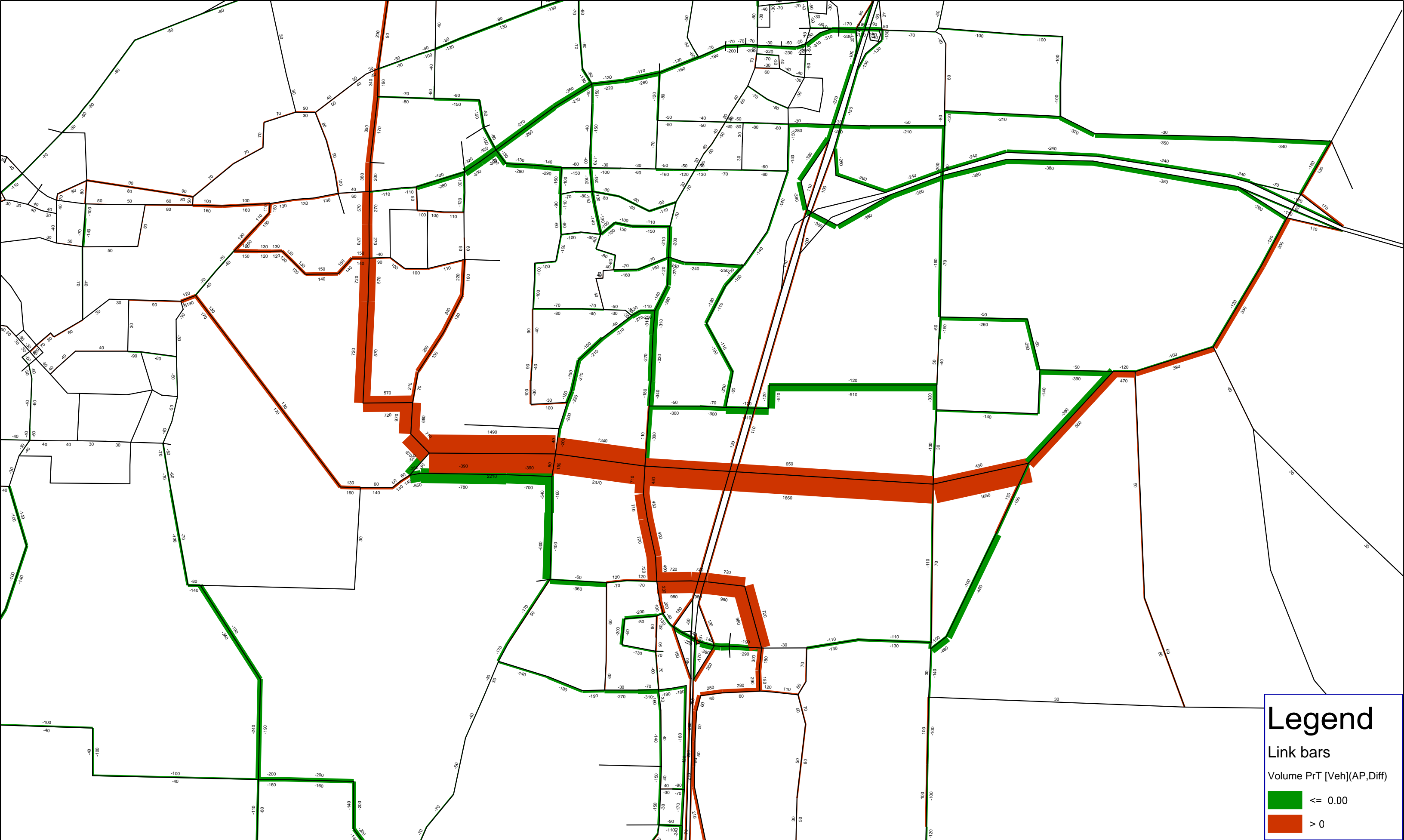
Sources: DKS Associates and Quincy Engineering, 2012

* East-West concept provides flexibility for a second overcrossing (\$38M)

** Diagonal Hybrid performs better than Diagonal, but fails to serve forecast demand

+ Performs well ✓ Performs adequately

- Does not perform well --- Performs poorly



Legend

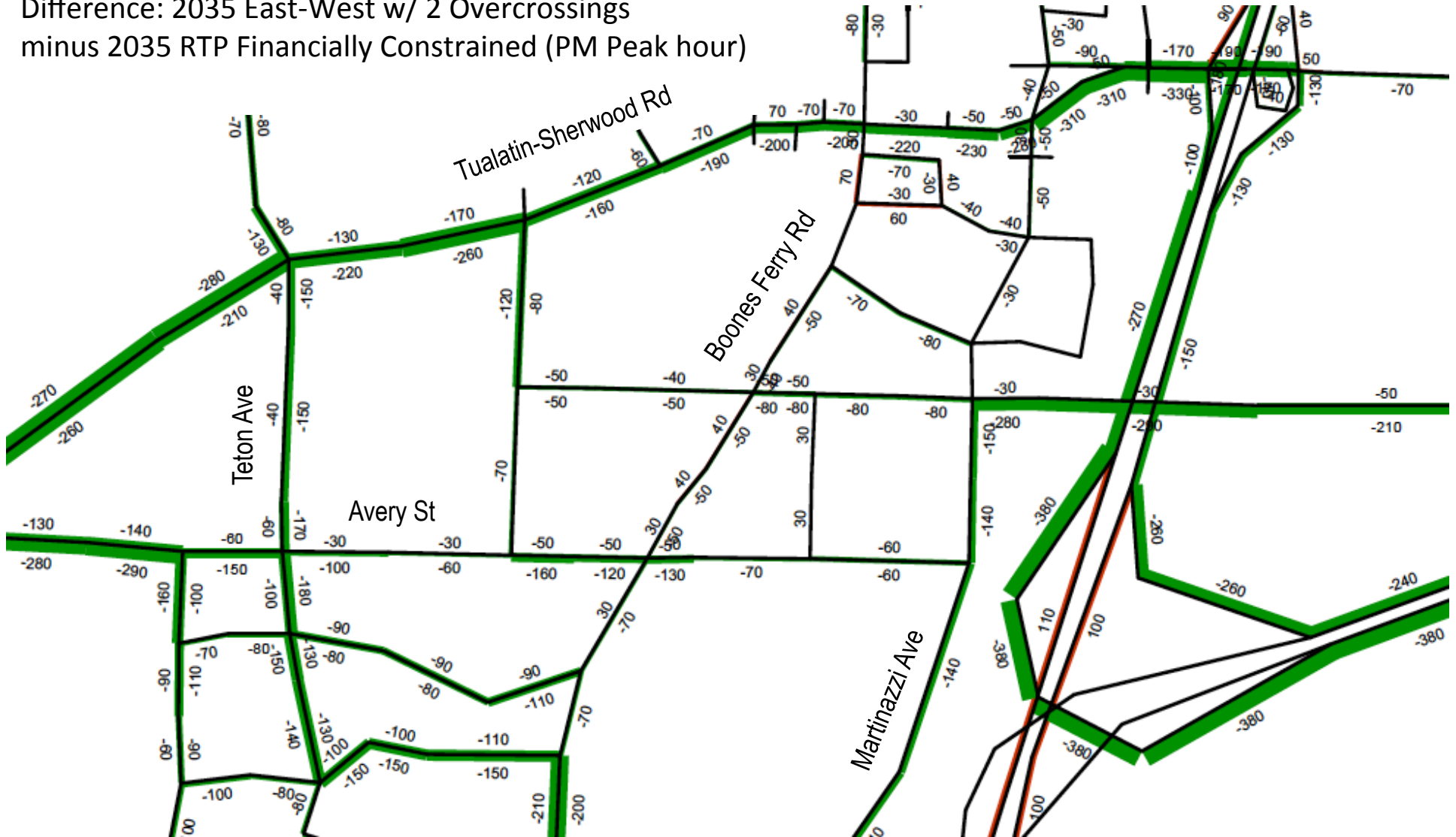
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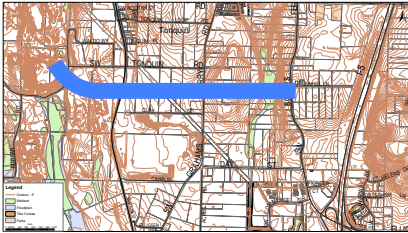
Volume PrT [Veh](AP,Diff)

- ≤ 0.00
- > 0

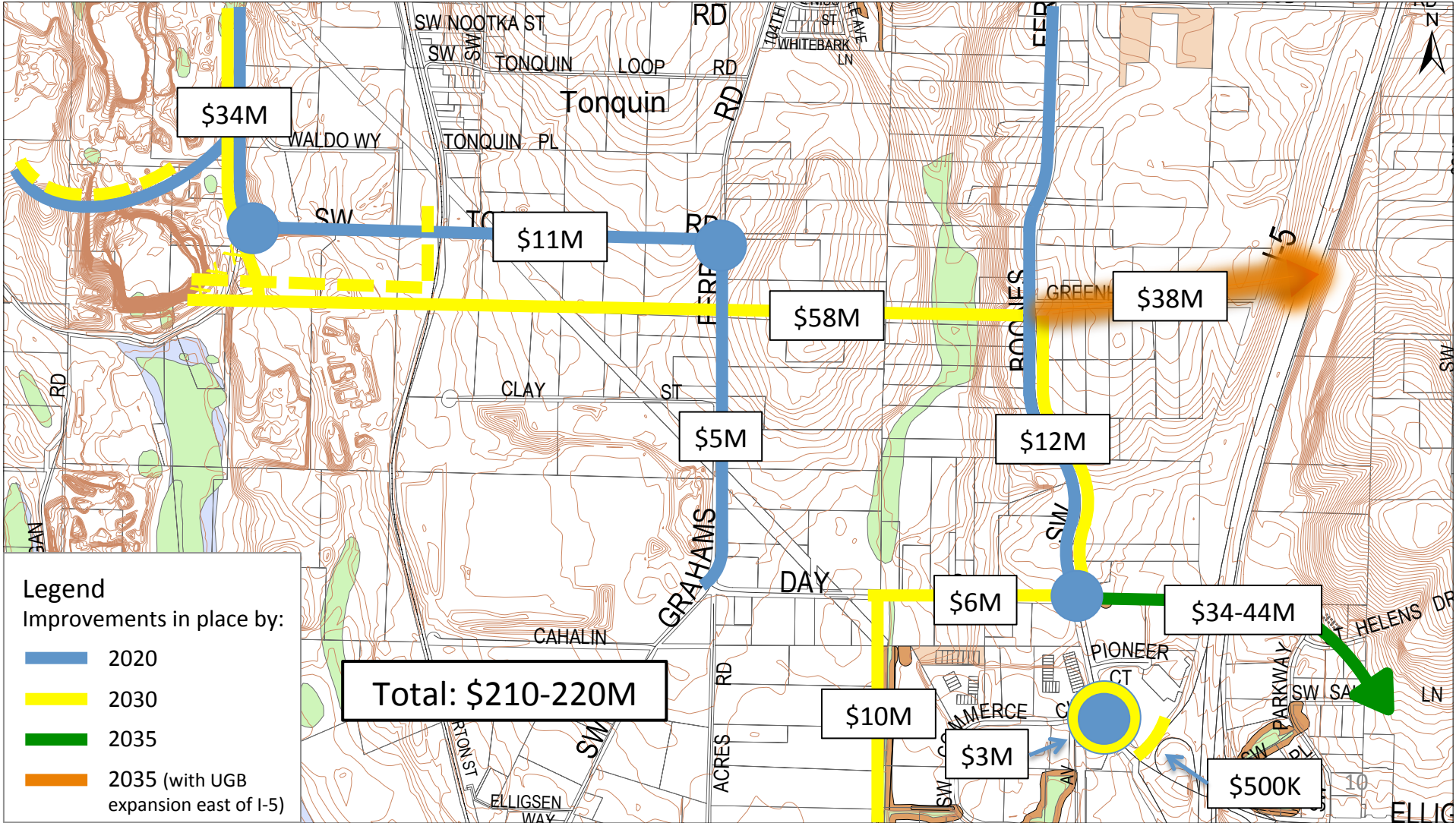
Traffic Impact of East-West Concept to Downtown and South Tualatin

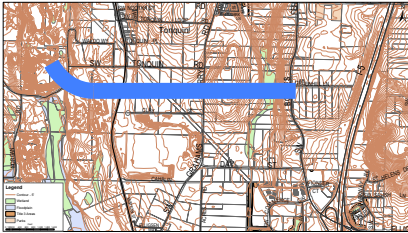
Difference: 2035 East-West w/ 2 Overcrossings
minus 2035 RTP Financially Constrained (PM Peak hour)



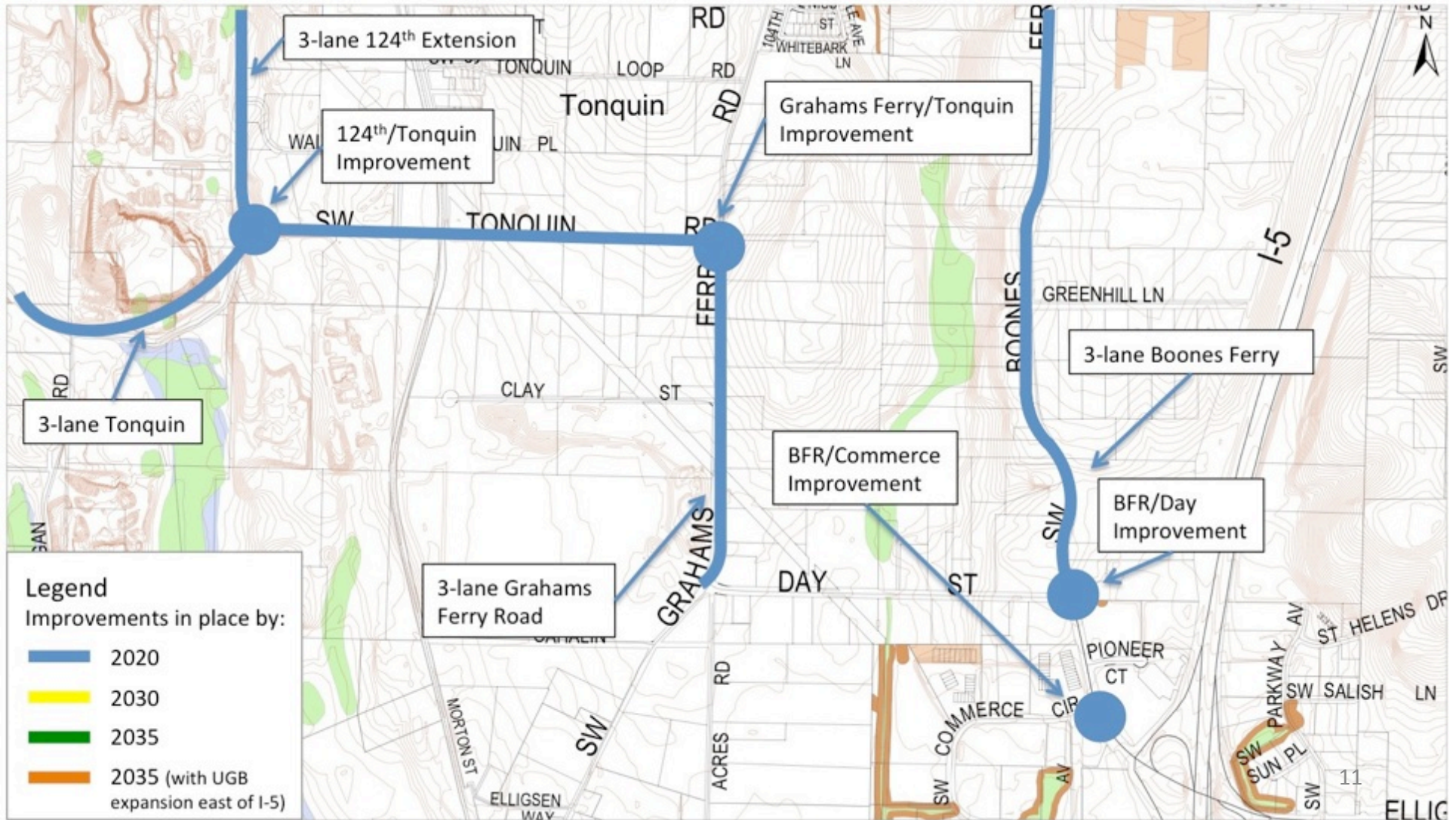


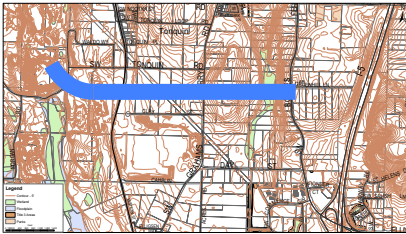
Cost



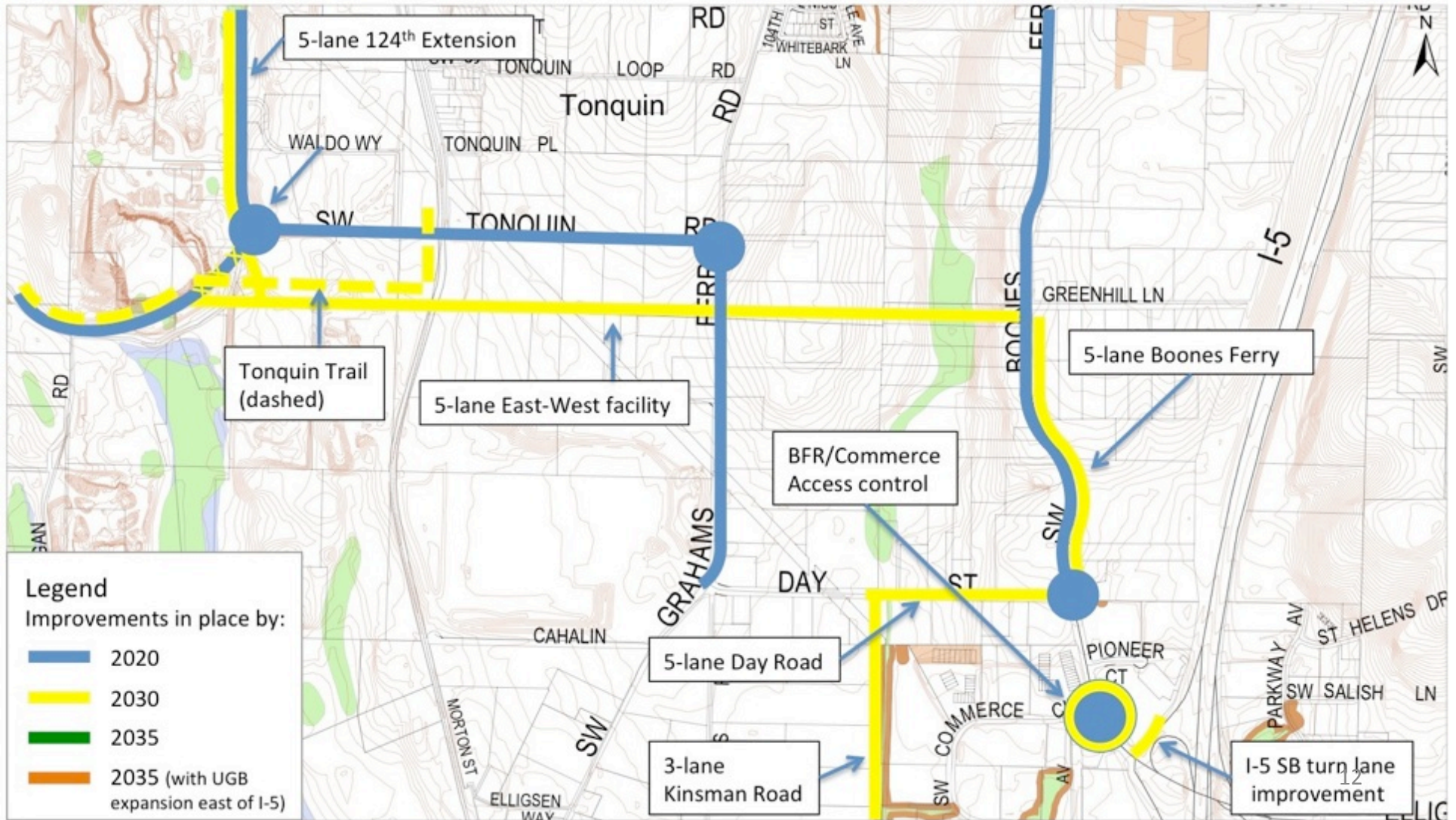


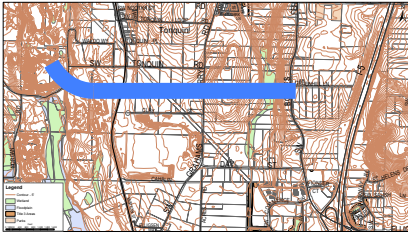
East-West System: 2020



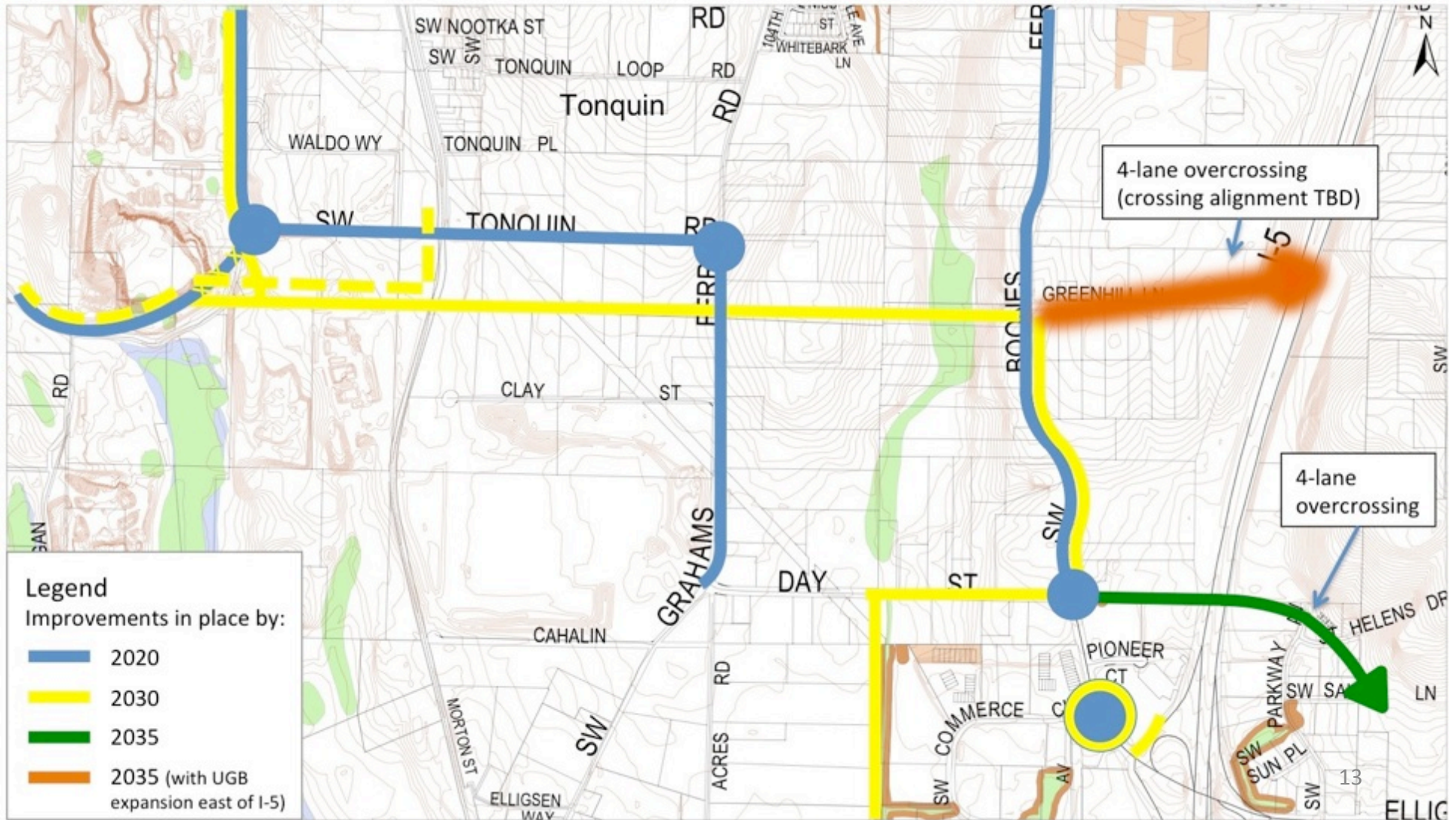


East-West System: 2030

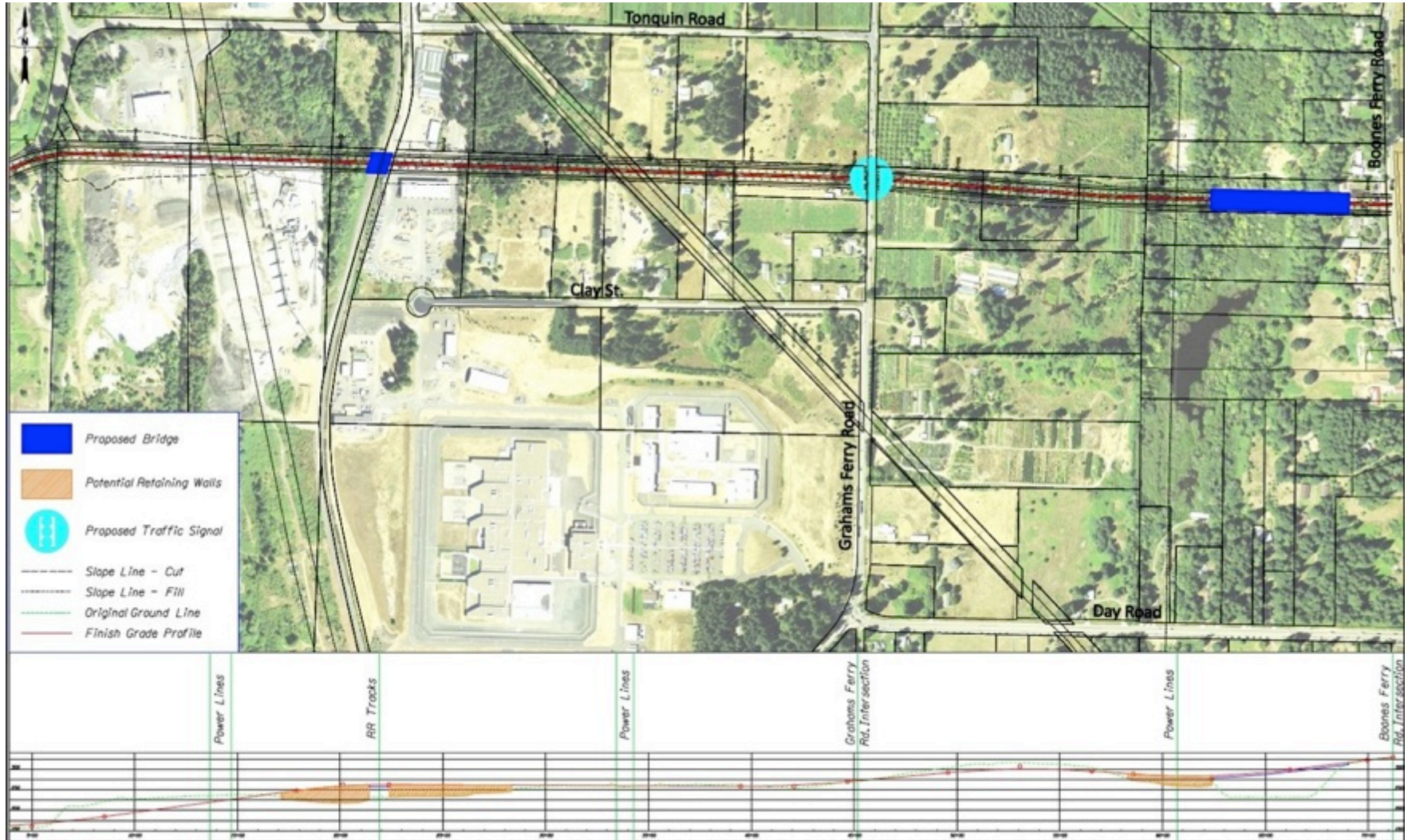




East-West System: 2035



East-West Alignment Detail



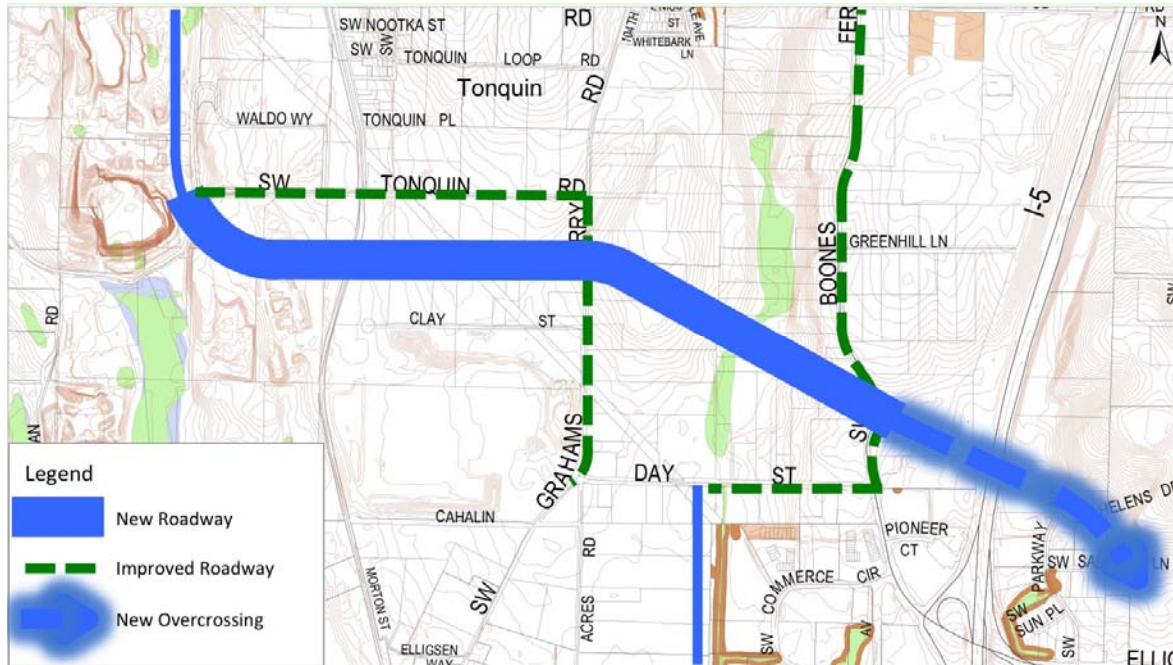
Next Steps

Meeting	Date
City Council Briefings (Tualatin and Wilsonville)	August/September 2012
Policy Advisory Group Recommendation	September 13, 2012
Intergovernmental Agreement between Cities, County, and Metro	Fall 2012
Begin Land Use Concept Planning	Winter 2012/2013

Diagonal Hybrid Concept

Why was this concept added?

This was developed to evaluate a diagonal concept that would be more comparable to the East-West Concept by providing a separate road for east/west regional traffic. Neighbors near Boones Ferry affected by the East-West Concept also requested a more viable diagonal concept that would move the regional traffic further south.



What does the Diagonal Hybrid include?

- A new east-west 5-lane road from the planned 124th Avenue Extension to Grahams Ferry Road.
- A new diagonal 5-lane road from Grahams Ferry Road toward I-5.
- Improvements to Tonquin Road, Grahams Ferry Road, and Day Road, bringing them up to urban standards, including curbs, sidewalks, and accommodation for bike use.

What does the concept do well?

- + It adds needed capacity west of Grahams Ferry Road, similar to the East-West Concept, by constructing a new 5-lane road and improving Tonquin to a 3-lane road.
- + Like the East-West Concept, by providing new roads for the regional traffic, it allows Tonquin Road, Grahams Ferry Road, and Day Road to serve the local access needs as the Basalt Creek area develops.
- ± It moves impacts of the new regional road further south along Boones Ferry; although it avoids impacts to some properties affected by the East-West Concept, it affects other properties further south.

What does the concept not do well?

- Due to topography, it only allows for one overcrossing of I-5. The East-West Concept is the only concept that allows for two overcrossings. As development occurs in the future, including in urban reserves areas, traffic volumes will be heavier on the new arterial if there is only one overcrossing of I-5. The traffic will be focused at the intersections of the new arterial with Grahams Ferry Road and with Boones Ferry Road, causing unacceptable performance at the intersections in the future.
- It costs more than the other concepts due to: (1) the added road west of Grahams Ferry Road and (2) the length of the structure needed to cross the Basalt Creek wetland diagonally.
- It has high environmental impacts due to the long crossing of the wetland area.

Executive Summary

This report documents the background, purpose, development of alternatives, and findings for the Basalt Creek Transportation Refinement Plan. The refinement planning effort is intended to determine the major transportation system connecting Tualatin-Sherwood Road to I-5 in North Wilsonville through the Basalt Creek Planning Area, which is currently an unincorporated urban area of Washington County lying between the cities of Tualatin to the north, and Wilsonville to the south (see Figure 1 on next page). This refinement will better define recommendations from the I-5/99W Connector Study (see below) and the Regional Transportation Plan, setting the stage for concept planning and comprehensive plan development for the Basalt Creek area.

Project Background and Purpose

The need to plan for the future transportation system in the Basalt Creek area is driven not only by future growth in the Basalt Creek Planning area itself, but by future growth in adjacent areas such as the Southwest Tualatin Concept Planning Area and the Tonquin Employment Planning Area in Sherwood, and the Coffee Creek Planning Area in Wilsonville, also shown in Figure 1. Several related planning efforts provide direction and context for the Basalt Creek Transportation Refinement Plan:

- The **I-5/99W Connector Study** recommended an alternative that spreads east-west traffic across three smaller arterials rather than a single expressway. Although a specific alignment was not defined, the eastern end of the southern arterial was generally located within the Basalt Creek Planning Area, south of Tonquin Road. The present planning effort aims to further define the location of the connection from SW 124th Avenue to the I-5/Elligsen interchange in a manner that does not preclude the future Southern Arterial west of SW 124th.
- The **2035 Regional Transportation Plan (RTP)** calls for detailed project planning and near-term construction of an extension of SW 124th Avenue from Tualatin-Sherwood Road to the I-5/Elligsen Road interchange, supporting industrial access from the Tonquin, Southwest Tualatin, and Basalt Creek Planning Areas.
- The **Tonquin Employment Area, Southwest Tualatin Concept Planning Area, and Coffee Creek Planning Area** (all shown in Figure 1) together comprise about 1,000 acres surrounding the Basalt Creek area that are planned for primarily industrial use. These areas are expected to generate growing freight and work-related travel demands on the transportation network that runs through the Basalt Creek area.

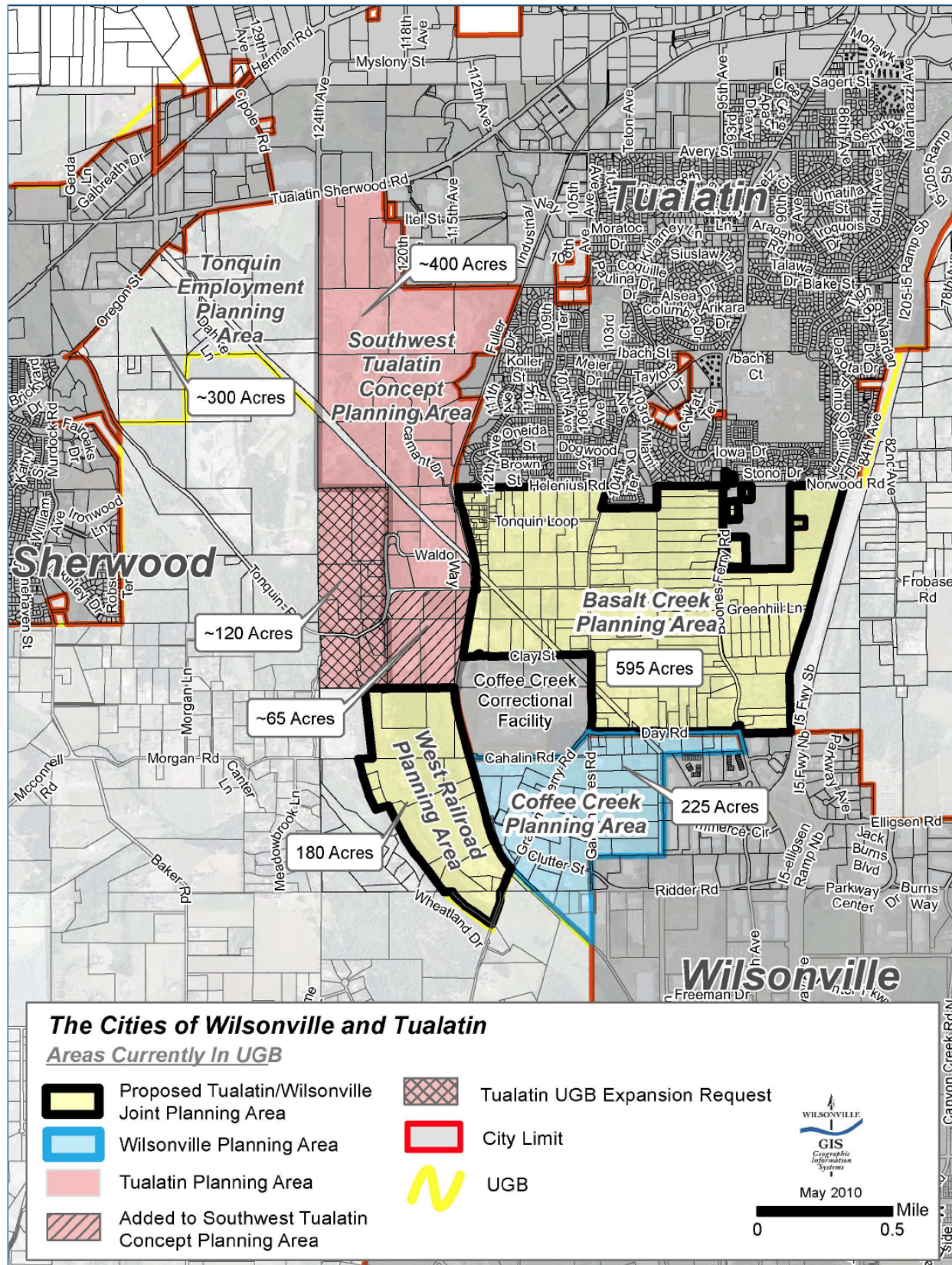


Figure 1: Basalt Creek and other planning areas

- The **SW 124th Avenue Extension** Project, currently underway, is planning and designing the corridor described in the RTP from Tualatin-Sherwood Road to Tonquin Road. The present planning effort aims to extend the corridor to I-5 as envisioned in the RTP and ensure consistency with current SW 124th Avenue project.
- The **Boones Ferry Road** improvement project, also currently underway, provides pedestrian and bicycle improvements and an intermittent center turn lane between Norwood Road and Day Road. It is an assumed improvement for the Basalt Creek area.
- The **Tonquin Trail** master plan identifies an alignment for new bicycle and pedestrian connections between Sherwood, Tualatin, and Wilsonville, with connections to the larger regional trail system. The Tonquin Trail will travel through the Tonquin Employment Concept Plan Area and the Southwest Tualatin Concept Plan Area, and is an assumed improvement within the Basalt Creek Transportation Refinement Plan.

Finally, completion of this transportation refinement plan sets the stage for the Cities of Tualatin and Wilsonville to begin joint land use concept planning for the Basalt Creek area, including further refinement of the local transportation system.

Guiding Considerations

Prior to developing alternatives, partner agencies articulated a set of considerations to guide selection, and preferred characteristics of the primary east-west facility through the area.

- **Guiding considerations** included: ability to fund and phase improvements, level of impacts (environmental, right-of-way, etc.), support for development, consistency with regional policy, and traffic operations performance.
- **Facility characteristics** included: for the primary arterial connection, a 45 mph prevailing speed and access spacing of one-half mile to one mile to improve capacity.

Alternatives Considered

Using the considerations and preferred characteristics described above, the multi-agency group developed alternatives for the major transportation system in the Basalt Creek area. Three roadway network concepts emerged, each featuring a main east-west arterial:

Improve Existing. This concept (Figure 2) proposed to widen Tonquin Road, Grahams Ferry Road, and Day Road to five lanes, providing a single corridor connecting the 124th Avenue Extension to the I-5/Elligsen Road interchange.

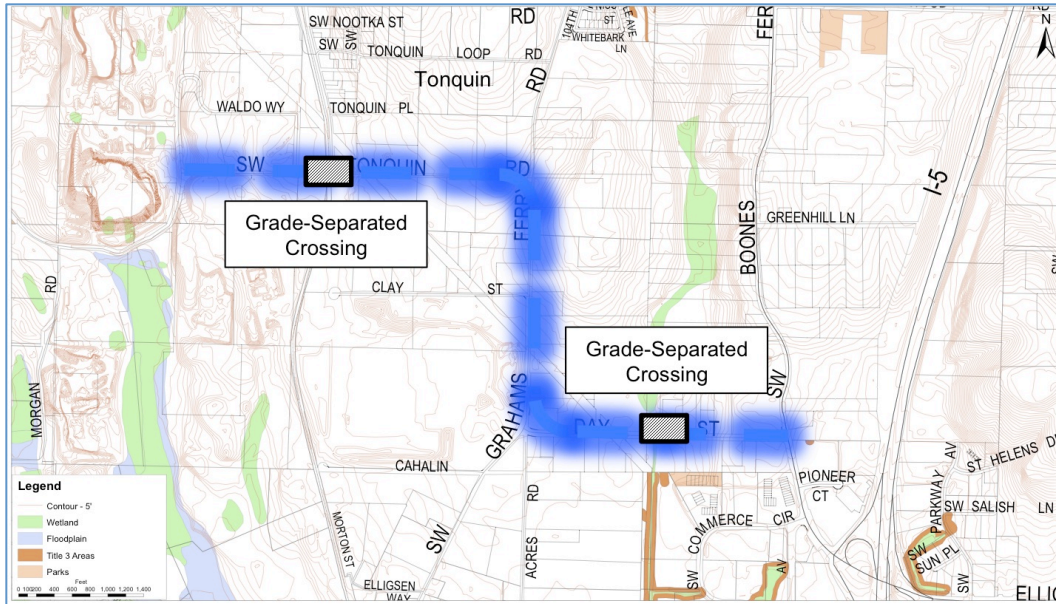


Figure 2: Improve Existing network concept

Diagonal Alignment. This concept (Figure 3) proposed to widen Tonquin Road to five lanes and construct a new, diagonally-aligned facility between the Tonquin/Grahams Ferry intersection and the I-5/Elligsen Road interchange area. Between Grahams Ferry and Boones Ferry, the alignment stays south of a major hill and canyon.¹

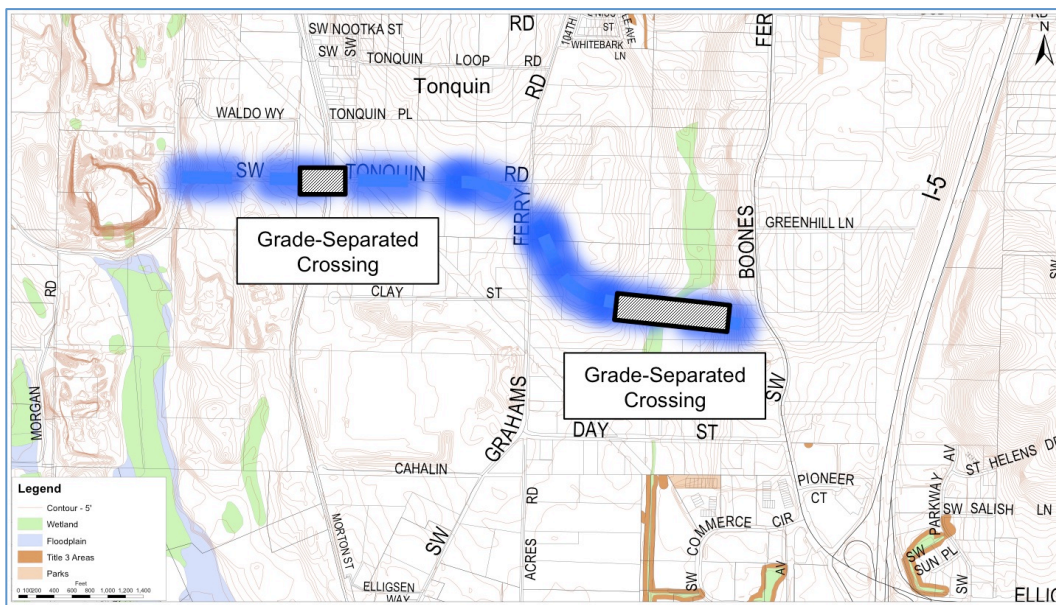


Figure 3: Diagonal Alignment network concept

¹ See Chapter 4 for more detail on topographical considerations.

East-West Alignment. This concept (Figure 4) proposed a new five-lane east-west facility from the 124th Avenue Extension towards I-5, leaving Tonquin Road to develop as a parallel three-lane road for property access. Between Grahams Ferry and Boones Ferry, the alignment crosses over the hill and canyon at a well-identified location that minimizes canyon crossing distance.

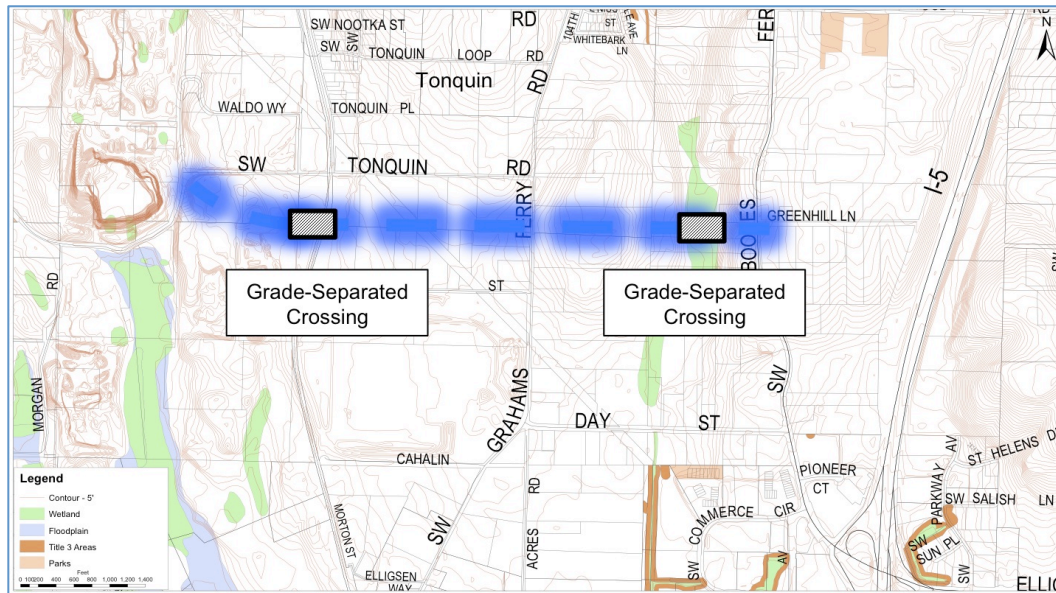


Figure 4: East-West Alignment network concept

Also, near the end of the evaluation process, a fourth network concept, the **Diagonal Hybrid**, was developed. This concept included elements similar to the Diagonal described above, with the following differences:

- 3-lane Tonquin Road
- New east-west facility between the 124th Avenue Extension and Grahams Ferry Road, similar to the facility included in the East-West concept
- Connection from the east-west facility to a diagonal crossing of the area between Grahams Ferry Road and Boones Ferry Road, similar to the crossing in the Diagonal concept

The Diagonal Hybrid was suggested through public input and forwarded for evaluation by the project's Technical Working Group (TWG) as a concept that would combine the diagonal footprint with some of the traffic benefits seen in the East-West concept. This concept is illustrated in Figure 5.

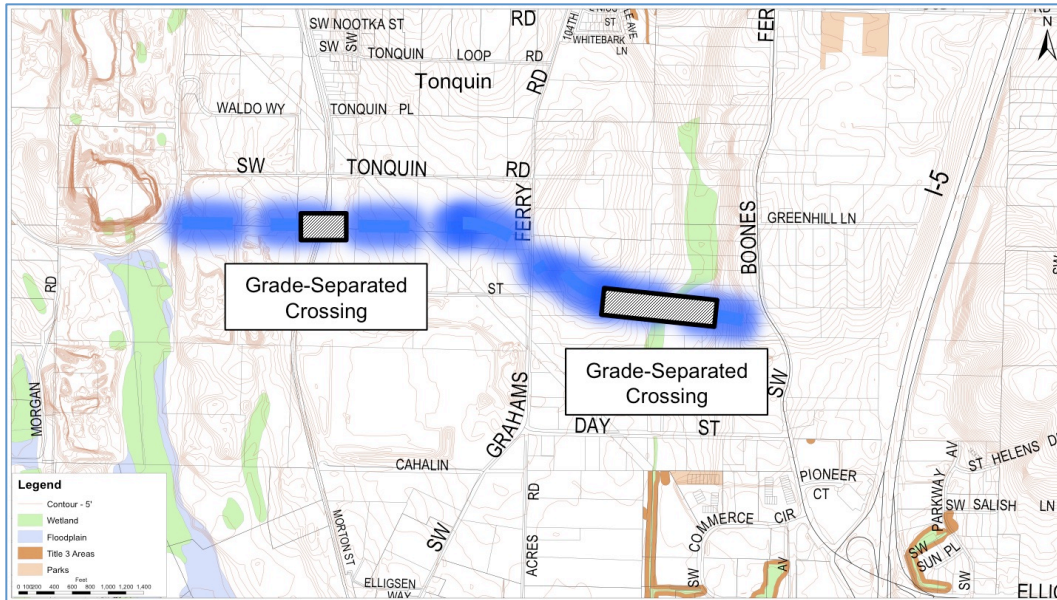


Figure 5: Diagonal Hybrid Alignment network concept

Additionally, four I-5 interface concepts were developed:

- **Improve Existing Interchange.** This concept would make incremental improvements to the existing I-5/Elligsen Road interchange configuration, such as widening off-ramps.
- **Overcrossing to Elligsen Road.** This concept would either extend Day Road east over I-5, looping down to Elligsen Road, or extend a new diagonally-aligned facility over I-5 to Elligsen Road.
- **Northern Overcrossing.** This concept would extend a new east-west facility over I-5 in the vicinity of Greenhill Road on the west and Frobase Road on the east, connecting into the Stafford urban reserve area.
- **Split Diamond.** This concept would modify the interchange, moving the I-5 southbound off and I-5 northbound on ramp terminals to a Day Road or Diagonal overcrossing, and provide collector-distributor roads. The Split Diamond concept was developed with the understanding that it should be considered a last resort for accommodating long-term needs, and all other viable concepts should be considered first.

Among the network concepts, only the East-West allows for the possibility of both I-5 overcrossing concepts in the long term if the urban reserves begin to develop and increase travel demand. The other three network concepts only accommodate the overcrossing to Elligsen Road.

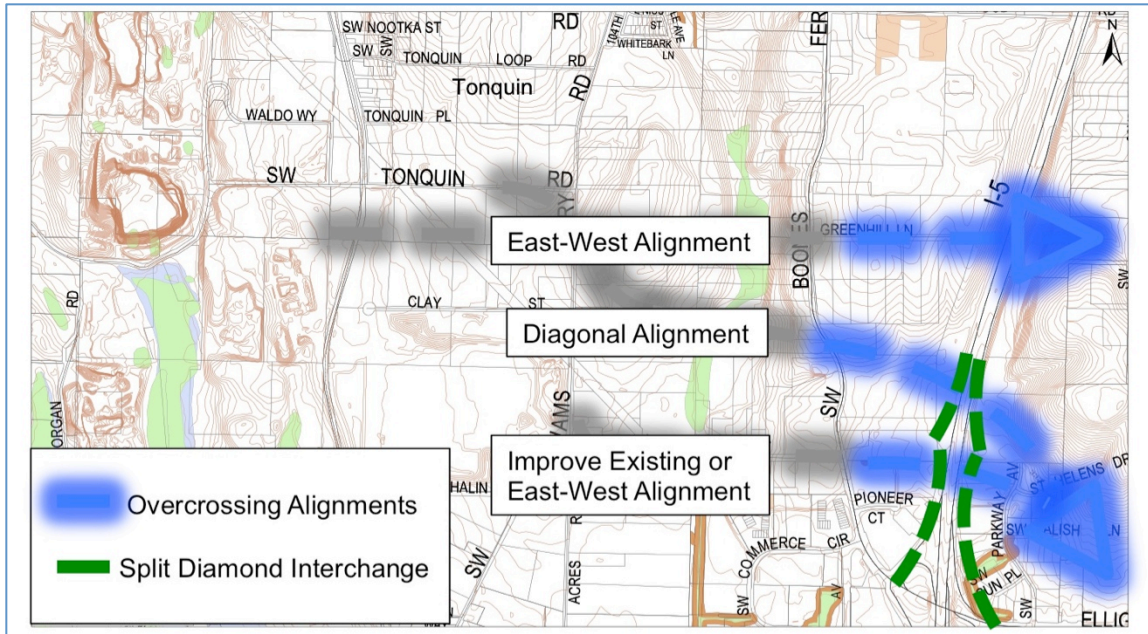


Figure 6: I-5 Interface concepts

Findings

The three original network concepts and four I-5 interface concepts were evaluated according to the guiding considerations developed at the beginning of the process. Table 1, below, summarizes how the concepts performed by each evaluation measure. A more detailed evaluation matrix is included at the end of Chapter 4. **Note that the Improve Existing network concept was not evaluated to the same level of detail as the other two concepts**, as initial traffic analysis screening showed that improving existing roads only would not provide acceptable performance in 2035. Also, the Diagonal Hybrid concept, introduced later in the evaluation process, was only analyzed for long-term (2035 with growth in urban reserves) traffic performance.

Table 1: Evaluation Summary

Evaluation Measure	Network Concepts			
	East-West	Diagonal Hybrid	Diagonal	Improve Existing
Network Cost	\$139M	\$149M	\$130M	\$82M
Future I-5 Connection Cost	\$72-82M*	\$34-44M	\$34-44M	\$34-44M
Ability to Phase	+	+	+	+
Supportive of Development	+	✓	✓	-
Environmental Impact	-	--	--	+
Consistency with RTP	+	+	+	✓
Traffic Operations	+	- **	-	--
Constructability	+	✓	✓	+

Sources: DKS Associates and Quincy Engineering, 2012

† Performs well ✓ Performs adequately - Does not perform well -- Performs poorly

* The East-West concept provides flexibility for a second overcrossing, at an additional cost of \$38M.

** The Diagonal Hybrid concept performs better than the Diagonal, but fails to serve forecast traffic demand.

Key findings from the evaluation are:

- Of the network concepts, only the East-West Alignment provides acceptable traffic operations under 2035 conditions, assuming growth in the region’s urban reserves areas consistent with Metro's RTP. **It provides the best operations because it has adequate east-west capacity west of Grahams Ferry Road, and it is the only concept that accommodates two I-5 overcrossings.** Note that the modeling for this effort includes travel demand for urban reserves areas as they may develop in the future. However, this plan does not advocate for or against urban reserves being brought into the urban growth boundary or when and where future development should occur.
- While the Diagonal Hybrid does have the traffic benefits of a new 5-lane arterial as in the East-West concept, the intersections of the new arterial with Grahams Ferry Road and with Boones Ferry Road exceed capacity. Traffic is also heavier on the Hybrid Diagonal crossing between Grahams Ferry and Boones Ferry than the comparable East-West crossing because it connects to the concept’s only I-5 overcrossing, where traffic in the East-West concept may use another facility (Day Road) to access an I-5 crossing.
- The Improve Existing Interchange concept is a key part of potential improvement phasing, as it improves traffic conditions in north Wilsonville and helps to delay the need for a new I-5 overcrossing, but is insufficient in itself to address needs in 2035.
- All alternatives are compatible with the Tonquin Trail. Roadway cross-sections and right of way purchases for the future roadway network will consider needs for the Tonquin Trail and its connections to the larger regional trail system. This includes incorporating the trail into the design for the railroad overpass for a new east-west roadway, and to

provide a potential multi-use path on a future east-west roadway and east-west I-5 overcrossing. The Basalt Creek Transportation Refinement Plan will also meet the needs of bicycle and pedestrian facilities for planned roadways and for crossing of planned roadways.

- The East-West concept, with two overcrossings, creates different traffic patterns in the area in 2035 from the network currently assumed in the RTP (see Chapter 4 of this report for more detail):
 - Compared to the RTP projects, the East-West concept removes a significant number of vehicles from the street network around downtown Tualatin, including Tualatin-Sherwood Road and also off of local neighborhood streets in southwest Tualatin.
 - The East-West concept significantly increases vehicle volumes on SW 124th Avenue, and on Tualatin-Sherwood Road west of 124th.
 - In north Wilsonville, the East-West concept increases vehicle volumes on Parkway Center Drive, but generally reduces volumes on the west side of the I-5/Elligsen interchange, particularly on Grahams Ferry Road and Ridder Road.
- The Day Road overcrossing to Elligsen Road is effective in drawing traffic off of Boones Ferry Road and Elligsen Road, as well as improving conditions at the I-5/Elligsen Road ramp terminals. This improvement (or the northern overcrossing improvement) would be needed by 2035 regardless of growth in urban reserves areas to provide adequate operation at the I-5/Elligsen Road interchange.
- Assuming the inclusion of urban reserves east of I-5 into the urban growth boundary in 2035, a second overcrossing in the vicinity of Greenhill Road/Frobase Road will be needed to provide new east-west connectivity and to continue to relieve the interchange of through traffic.
- The split diamond interchange concept, as an addition to the two new overcrossings, appears to have no clear traffic operations benefit for the transportation system in the area due to constraints west of I-5. However, any I-5 overcrossing in the vicinity of Day Road should be designed so as not to preclude a future split diamond, with room under the overcrossing for collector-distributor roads.

Improving the existing facilities as mentioned above, adding a new arterial road, and adding new I-5 interface improvements would total up to \$220 million. However, many of these are improvements that have been planned previously:

- Several of the network improvements are already included in the financially constrained (Federal) RTP.² The RTP cost estimates for these projects total about \$120 million.
- Other improvements similar to those included in the network and I-5 interface concepts are included in the State RTP, which assumes additional revenue sources.³ The RTP cost estimates for these projects represent an additional \$130 million of planned improvements, including portions of the I-5 to 99W Southern Arterial (east of 124th Avenue).

This is a total of \$250 million in RTP projects that can potentially be refined based on the outcome of this effort.

Table 2, on the following page, compares cost elements among the Diagonal, Diagonal Hybrid, and East-West alternatives, including the I-5 treatments. Phasing years shown reflect the year by which a project should be complete in order to maintain acceptable traffic operations in the Basalt Creek area. While a separate phasing analysis was not done for the Diagonal Hybrid, it was assumed that the general phasing would be the same as the other two concepts.

Full costs for each project are provided by potential phasing year (current dollars), although design and right of way costs could be incurred earlier. The Tonquin Trail is not included, as cost estimates are not yet available, but this project is included in the financially constrained RTP as well. Potential phasing for the Diagonal and East-West alternatives is illustrated in Figures 7 and 8.

² The Financially Constrained RTP assumes existing and proposed funding sources that can reasonably be expected to be available for transportation uses during the plan period. Financial constraint is required by federal transportation planning regulations and constitutes the federally recognized plan.

³ The State RTP assumes additional funding sources beyond those included in the Federal RTP, including increases in the state vehicle registration fee, increased in local system development charges, and local street utility fees.

Table 2: Cost Estimates for Diagonal and East-West Alignment Alternatives with Potential Improvement Phasing

Improvement	Diagonal Alt Cost (\$M)	Diag. Hybrid Alt Cost (\$M)	East-West Alt Cost (\$M)	Previously Planned?*
2020				
3-lane 124 th Avenue Extension ^a	\$20.0	\$20.0	\$20.0	Federal RTP
Improve Tonquin Road to 3 lanes (124 th Avenue Extension to Grahams Ferry Road) ^b	\$10.5	\$10.5	\$10.5	Federal RTP
Improve Grahams Ferry Road to 3 lanes (Tonquin to Day) ^b	\$5.4	\$5.4	\$5.4	Federal RTP
Improve Boones Ferry Road to 3 lanes (Norwood Road to Day Road) ^a	\$10.8	\$10.8	\$10.8	In design
Boones Ferry Road/Commerce Circle/95 th Avenue Intersection Improvements ^c	\$2.5	\$2.5	\$2.5	Federal RTP
Construct Tonquin Trail ^{**}	-	-	-	Federal RTP
TOTAL 2020	\$49.2	\$49.2	\$49.2	\$49.2
2030				
Improve 124 th Avenue Extension to 5 lanes ^a	\$14.0	\$14.0	\$14.0	Federal RTP
5-lane East-West facility (124 th Avenue Ext to Boones Ferry Rd) ^b	N/A	N/A	\$57.9	State RTP
Improve Tonquin Road to 5 lanes (124 th Avenue to Grahams Ferry) ^b	\$6.7	N/A	N/A	State RTP
5-lane Diagonal facility (Grahams Ferry Road to Boones Ferry Road) ^b	\$42.9	N/A	N/A	State RTP
5-lane Hybrid facility (124 th Avenue Ext to Boones Ferry Road) ^b	N/A	\$69.1	N/A	State RTP
5-lane Boones Ferry Road (new facility to Day Road) ^b	\$0.8	\$0.8	\$1.1 ^{***}	State RTP
5-lane Day Road (Kinsman Extension to Boones Ferry Road) ^b	\$5.8	\$5.8	\$5.8	Similar to RTP project
3-lane Kinsman Road Extension ^c	\$10.4	\$10.4	\$10.4	Federal RTP
Boones Ferry Road/Commerce Circle/95 th Avenue Access Control	minimal	minimal	minimal	No
TOTAL 2030	\$80.6	\$100.1	\$89.2	\$156.2
2035 UGB				
5-lane Overcrossing of I-5 (Day Road/Boones Ferry Road intersection to Elligsen Road) ^b	\$33.7-\$44.1	\$33.7-\$44.1	\$33.7-\$44.1	State RTP
TOTAL 2035 UGB	\$33.7-\$44.1	\$33.7-\$44.1	\$33.7-\$44.1	\$50.0
2035 RTP				
5-lane Overcrossing of I-5 (East-West facility/Boones Ferry Road intersection to Stafford Road) ^b	N/A	N/A	\$38.0	State RTP
TOTAL 2035 RTP	\$0	\$0	\$38.0	\$0
GRAND TOTAL	\$165-\$175	\$185-195	\$210-220	\$250

Source of cost estimates: ^a Washington County, ^b Quincy Engineering, ^c 2035 Regional Transportation Plan

* Totals for each interim year in this column, as well as grand total, represent total dollar amount either allocated in the RTP or committed for projects already in development. See Chapter 4 for more information on RTP comparison projects.

** Tonquin Trail costs are being estimated outside of this transportation refinement plan process.

*** Boones Ferry Road improvement costs are higher for the East-West because the segment south to Day Road is longest in this concept.

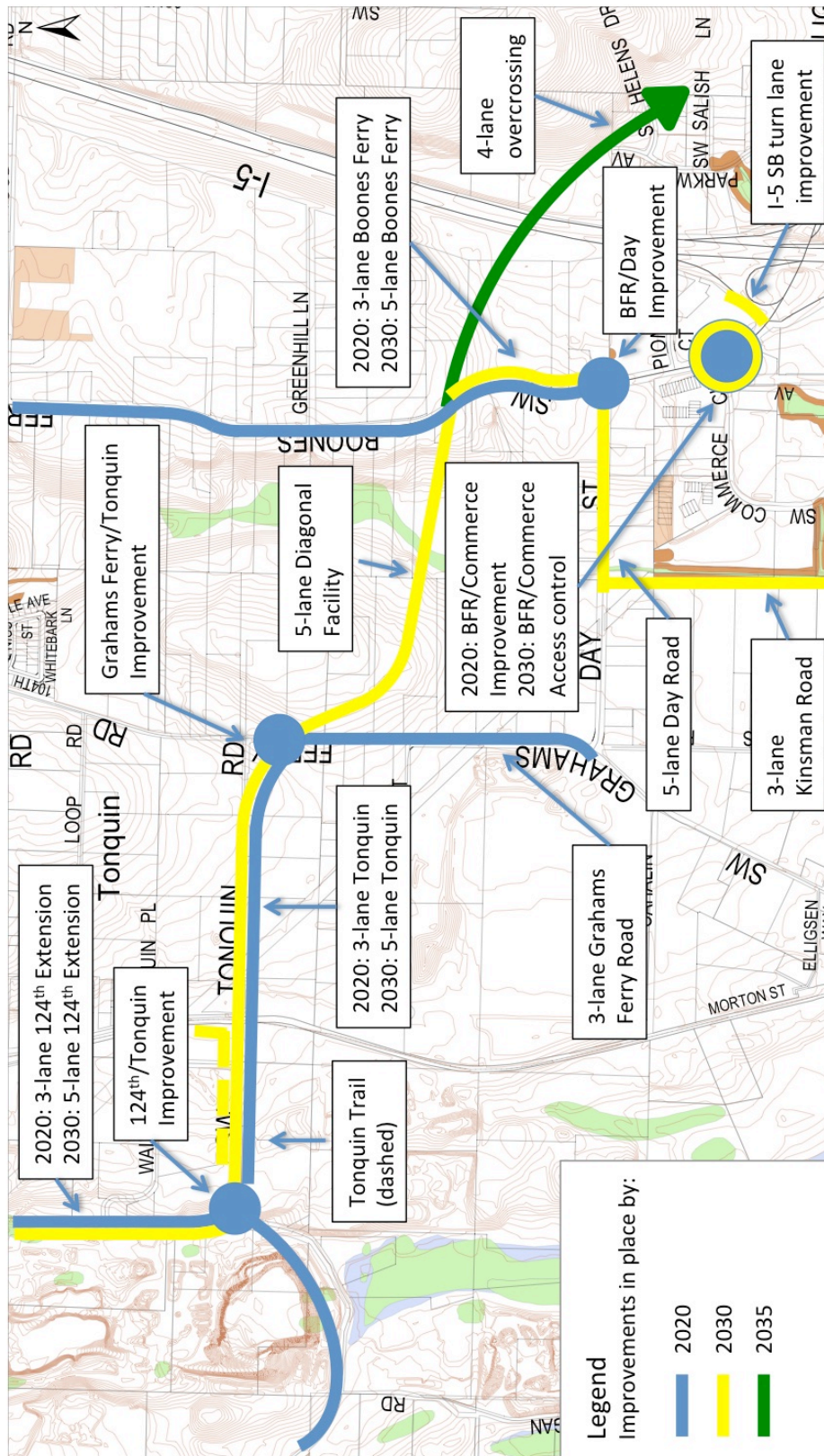


Figure 7: Summary of Potential Phasing (Diagonal Concept)

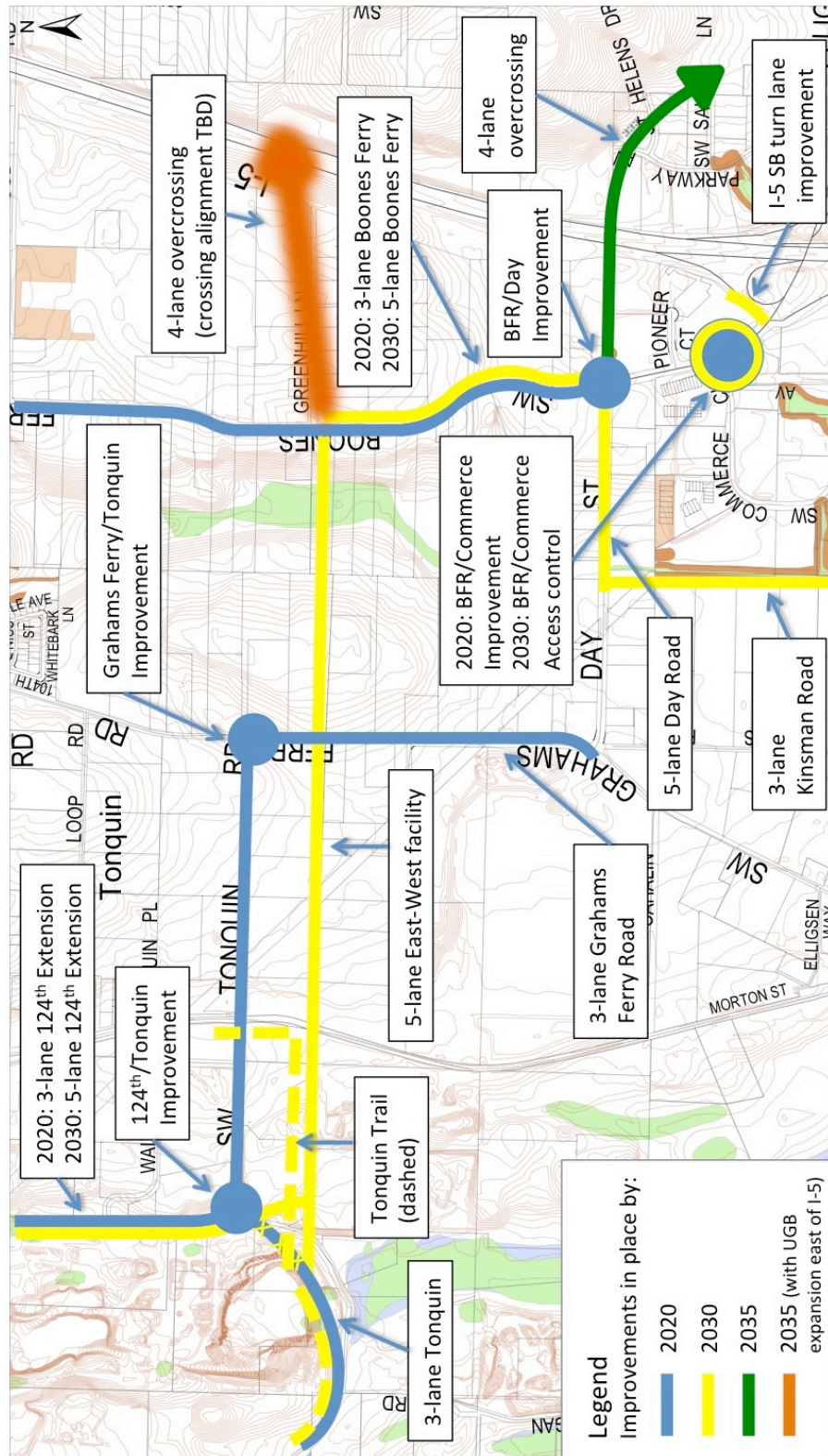


Figure 8: Summary of Potential Phasing (East-West Concept)

Mayor: Lou Ogden

November 16, 2012

City Council Members: Beikman, Brooksby, Bubenik, Davis, Grimes, Truax

City of Tualatin: Sara Singer, Ben Bryant

To all it may concern,

The Executive Board of CIO6 would like to share the voice of the CIO6 community and their input as it pertains to the Basalt Creek Refinement Plan.

First we would like to share the appreciation that has been voiced for the City seeking input in the planning process for Tualatin's future.

While Board members received e-mails, comment forms and attended multiple venues to discuss the options being proposed, the messages conveyed were simple, clear and consistent. It all came down to:

- Livability
- Safety
- Traffic impacts on the neighborhoods.

Tualatin residents both public and private share a common vision when it comes to livability and safety. We see it expressed in our City Charter, Tualatin Tomorrow and TSP goals. It is why so many have chosen to move here and become part of the community.

To apply those messages to the location of a highway whose sole purpose is to move large amounts of traffic from the center of the city to its periphery, would be in violation of the trust of its neighborhoods to locate it within close proximity to those neighborhoods. Certainly not when there are other options available.

Livability – The current issue is the placement of a highway...the whole story must include the future development of commercial properties adjacent it. One concern shared by many is a buffer (agricultural or City/CountyPark) be created between any commercial activities and existing neighborhoods.

Safety – The addition of large quantities of idling trucks at a newly created intersection could add pollutants within close proximity to existing neighborhoods and schools.

Traffic Impacts – The lure of a highway to bypass Tualatin will be attractive to many. At the first sign of congestion, there are concerns of traffic backing up into the neighborhoods. With the goal of guiding traffic from Tonquin to the I5/Elligsen interchange, a most direct route could lessen the attraction.

While the engineering studies have focused on cost, environmental impacts, constructability, etc. there has not been any livability or safety concerns weighed in the "Evaluation Summary" matrices.

Please consider the following:

Evaluation Measure	East - West	Diagonal	Improve Existing	Hybrid
Network Cost	\$139M	\$130M	\$82M	
Livability	---	/	+	/
Safety	---	/	+	/
Traffic Impacts	---	-	+	-

+ Performs well / Performs adequately - Does not perform well --- Performs poorly

The residents of southeast Tualatin are very much in favor of routing traffic out of the center of the city, past its schools and neighborhoods. The farther that traffic is routed from existing schools and neighborhoods (and closer to existing commercial areas) the more alignment with community goals.

- Livability
- Safety
- Traffic impacts on the neighborhoods

Summary:

The citizens in Tualatin most affected by this plan are seeking a route that is as far south, and close to the existing industrial / commercial area as possible, in addition to ensuring that there is green / park space buffer between the proposed highway and existing Tualatin communities.

The decisions we make today will have a very permanent and long lasting effect on our homes, neighborhoods and lives.

Thank you for allowing the CIO's to gather community input and weigh in on the future planning and development of our great city.

Respectfully,

Willie Fisher - *President*

Steve Caporale - *Vice-President*

Peggy Fisher - *Secretary*

Vacant - *Treasurer*

Chris Burchill - *Land Use Officer*



MEMORANDUM

CITY OF TUALATIN

TO: Honorable Mayor and Members of the City Council

THROUGH: Sherilyn Lombos, City Manager

FROM: Aquilla Hurd-Ravich, Planning Manager
Alice Rouyer, Community Development Director

DATE: 11/26/2012

SUBJECT: An Update on Proposed Framework Planning in the Stafford Area

ISSUE BEFORE THE COUNCIL:

Clackamas County and the City of Lake Oswego agreed to participate in framework planning of the Stafford area as a condition of approval in order for Lake Oswego to add land to the Urban Growth Boundary. Mayors and staff from the Cities of Lake Oswego, Tualatin and West Linn met in September to discuss this idea. The purpose of this memo is to update the Tualatin City Council about this discussion and recent activity.

EXECUTIVE SUMMARY:

When the Mayors and staff of the Cities of Lake Oswego, Tualatin and West Linn met in September, the group reached a general agreement about what issues to address prior to the start of framework planning. These issues were communicated to Clackamas County via a letter sent on September 20, 2012 on behalf of Mayor Ogden addressed to Chair Lehan. The letter communicated general support for working together to address future planning in the Stafford area and requested that the following points get addressed prior to the start of any work:

- The framework planning process should not begin until the Urban Reserves appeal is completely resolved and not before January 2013.
- The scope and scale of the framework planning process needs clarification.
- The process needs to establish that the Cities will take a lead role in partnership with the County and the Hamlet. Metro Title 11 establishes that cities take a lead role in concept planning.

The Mayors of Lake Oswego and West Linn sent similar letters expressing their concerns with framework planning.

On September 22, 2012 Clackamas County held a forum to discuss Conservation Options in the Stafford Area. At that meeting Chair Lehan gave a brief update on the framework planning process. The scope and scale of framework planning still needs to be addressed but generally it

is high level planning that precedes concept planning work of new urban areas. Concept planning typically identifies land uses, infrastructure needs, service providers and governance of new urban areas. The following issues could affect framework planning:

- When Metro adopted the reserves, they signed intergovernmental agreements (IGA) that governed urban reserves with all three counties. Metro's IGA with Clackamas County includes Principles for Concept Planning of Urban Reserves which states "concept planning for 4A, 4C and 4D must be coordinated so that Area 4C (Borland Road) is planned and developed as the town center serving the vast majority of Area 4A (North Stafford) and Area 4D (South Stafford)."
- Metro's IGA with Clackamas County could have implications on the memorandum of understanding (MOU) between Clackamas County and Lake Oswego which establishes the two jurisdictions willingness to participate in future planning for the Stafford Basin.
- Finally, Title 11 in the Metro Code governs planning of new urban areas and now requires that concept planning be completed prior to annexation to the UGB.

Regarding time frame, the direction from the three Cities is that framework planning should not begin until the Urban and Rural Reserves appeal is decided by the Court of Appeals. Oral arguments are scheduled for January 6, 2013 and a decision could be issued 60 days later. There are several possible outcomes of the Court of Appeals decision:

- The court of appeals could order LCDC to remand part or all of the decision to Metro. At which point Metro would have to draft new rules and go through the public comment period again.
- The UGB expansion process could possibly revert back to the old way of identifying new urban land which discourages urban expansion onto high value farmland.
- If the reserves decision is remanded, Metro should address the implications of Senate Bill 1011 and if they are required to implement a reserves process.

Clackamas County has since requested our participation in framework planning; however, the Urban and Rural Reserves appeal is still outstanding and such discussions are premature. Staff also anticipates the County requesting our participation in an application to Metro for a Construction Excise Tax Grant to fund framework planning. Again, this request is premature given the status of the appeal and secondly, any request for funding to pursue planning should be initiated by a City and therefore we anticipate declining to participate in a joint grant application.

Attachments: