

Technical Memorandum

January 26, 2024

Project# 29629

To: City of Gresham
From: Susan Wright, PE and Sutapa Banerjee – Kittelson & Associates Inc.
CC: ECONorthwest
RE: Gresham Pleasant Valley District Plan Update – Transportation System Refinement

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Introduction

The 2019 Pleasant Valley TSP Refinement Plan reviewed planned transportation facilities in the Pleasant Valley Transportation System Plan (TSP) with a primary focus on assessing the need for a planned extension of SE 172nd Avenue north of a future SE Giese Road extension to Jenne Road and reviewing the entire planned roadway network needs with and without this potential connection. The 2019 Plan was based upon an assumption of a Town Center being located at the future intersection of SE Giese Road and SE 172nd Avenue.

The City of Gresham is currently evaluating alternative land use concepts that reconsider the placement of the Town Center. This memorandum considers whether these land use alternatives change the needed transportation improvements and could impact the planned roadway network and it considers if there are alternatives that still meet connectivity needs but would be easier for the City to deliver or easier for development to build incrementally to remove barriers to development. Specifically, this memorandum considers if SE Foster Road could continue to serve as an arterial or collector in its current alignment and eliminate the need for extensions of both SE Giese Road and/or SE 172nd Avenue as arterials.

In addition, this memorandum considers the potential cross-section of SE Foster Road west of SE 172nd Avenue as a collector or local roadway and considers the functional classification of SE McKinley Street.

PVTSP Refinement Plan Alternatives

During the 2019 Pleasant Valley TSP Refinement Plan, five different transportation alternatives were developed, and a preferred concept was selected that did not include a previously planned extension SE 172nd Avenue north of SE Giese Road. The preferred plan (based on Alternative 1) includes bringing SE Foster Road and SE 172nd Avenue together at a roundabout and routing traffic up an extension of SE 172nd Avenue to a SE Giese Road extension. West of SE 172nd Avenue, SE Foster Road is envisioned to be a local street with an additional local roads being built by future development that align with Knapp Street.

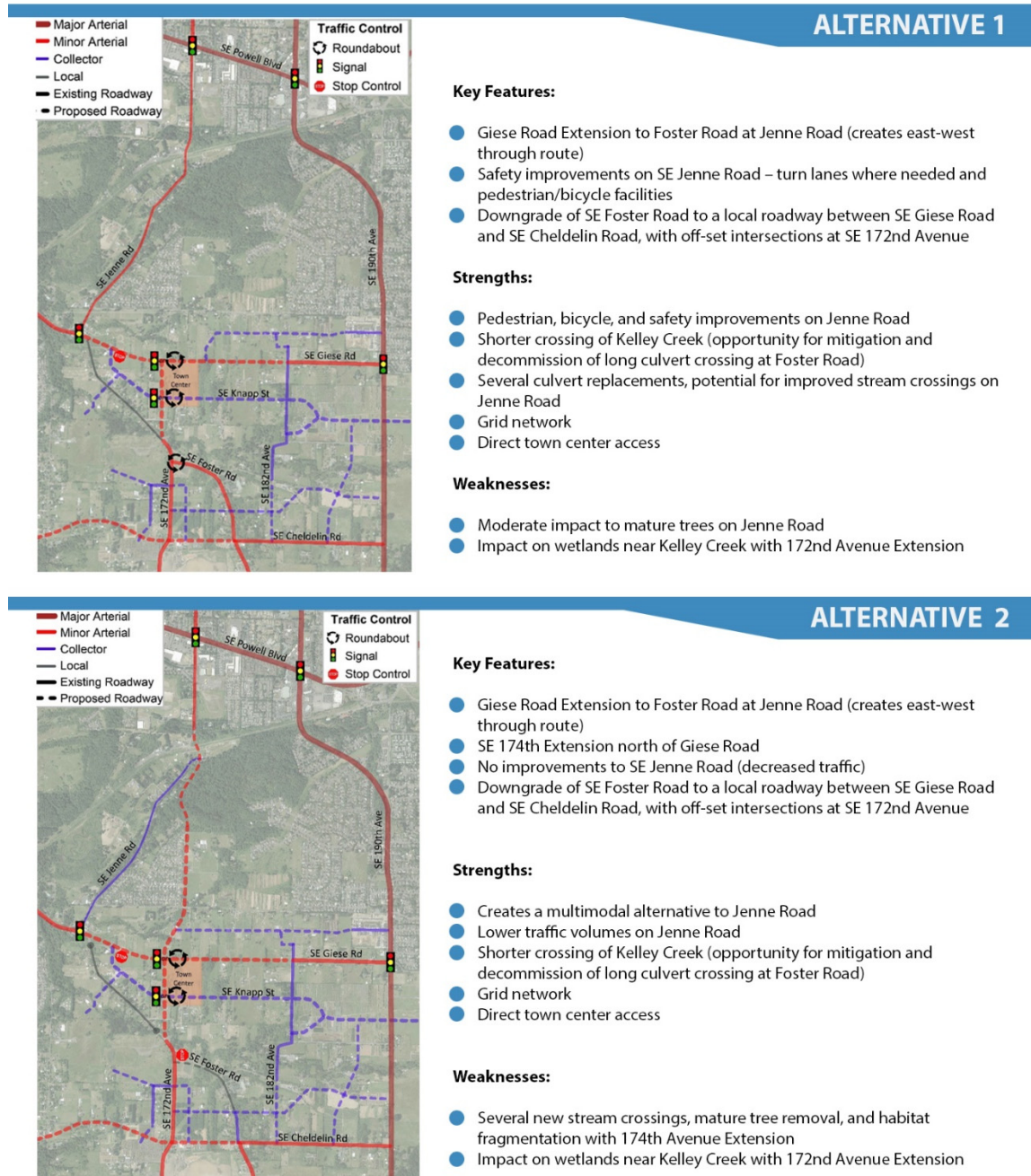
The following section describes some of the key findings from the 2019 PV TSP Refinement Plan alternatives analysis. Each of the five transportation alternatives considered in the 2019 Plan, including their key features and high-level strengths and weaknesses, are shown in Figure 1. Some key takeaways from that analysis include:

- ▶ Extending SE 172nd Avenue north of the Giese Road Extension to Jenne Road (tested in the 2019 PVTSP Refinement Plan Alternative 2) would have major environmental impacts and is not essential for regional traffic flow if other connections are provided. This extension is not in the Preferred Alternative. Regional north-south traffic flows will rely upon SE 190th Avenue as it's planned to connect to SE 172nd Avenue south of Pleasant Valley.
- ▶ Jenne Road is constrained by topography and wetlands from widening to facilitate more traffic but will continue to support local north-south trips and is recommended to have safety improvements including a multi-use path on one side of the road. ; therefore, it is important to develop and enhance other connections from Foster Road to SE 190th Avenue to connect the Pleasant Valley District into Gresham.
- ▶ A relatively direct east-west connection from SE Foster Road to SE 190th Avenue through the Pleasant Valley Plan District (the Giese Road Extension tested in Alternatives 1 through 4) is important for regional traffic flow to take pressure off of Jenne Road as a connection to Powell Boulevard, given the constraints of improving Jenne Road.
- ▶ The Foster Road to -Giese Road extension is an important connection for traffic coming from and headed to the west. This connection is important even with Clackamas County's proposed future connection from SE 172nd Avenue to SE 190th Avenue south of the Pleasant Valley Plan District.
- ▶ Creating a four-way intersection at SE Foster Road/Jenne Road/Giese Road Extension would have major environmental impacts and cost implications due to being located right at Kelly Creek (evaluated in Alternative 3) and is not a viable option for any of the proposed land use scenarios.
- ▶ Widening Foster Road (tested in Alternatives 3, 4 and 5) west of SW 172nd Avenue to an arterial standard would impact wetlands, require a stream crossing to be improved at significant cost and

impact a number of smaller properties with structures close to the road and some mature trees.

- ▶ Extending SE 172nd Avenue north to the Giese Road Extension (tested in Alternative 1) also includes a creek crossing, but it could cross at a more perpendicular angle, and could potentially have fewer structure impacts than improving Foster Road west of SE 172nd Avenue.

Figure 1. PVTSP Refinement Plan Alternatives



ALTERNATIVE 3

Key Features:

- Giese Road Extension to Foster Road at Jenne Road (creates east-west through route)
- Improved SE Jenne Road, SE Foster Road, and SE 172nd as north-south through route
- Creation of a four-way intersection of SE Jenne Road, SE Giese Road, SE 172nd Avenue, and SE Foster Road
- Downgrade of Foster Road to a local or collector roadway between SE 172nd Avenue and SE Cheldelin Road

Strengths:

- Utilizes existing alignments
- Provides pedestrian, bicycle, and safety improvements on Jenne Road
- Several culvert replacements or improvements needed, potential for improved stream crossings on Jenne Road
- Potential for Kelley Creek crossing improvements
- Grid network

Weaknesses:

- Utilizes existing alignments
- Provides pedestrian, bicycle, and safety improvements on Jenne Road
- Several culvert replacements or improvements needed, potential for improved stream crossings on Jenne Road
- Potential for Kelley Creek crossing improvements
- Grid network

ALTERNATIVE 4

Key Features:

- Giese Road Extension to Foster Road at Jenne Road (creates east-west through route)
- Improved SE Jenne Road and SE Foster Road
- Offset intersections of SE Jenne Road and SE Foster Road with SE Giese Road

Strengths:

- Utilizes existing alignments
- Provides pedestrian, bicycle, and safety improvements on Jenne Road
- Several culvert replacements or improvements needed, potential for improved stream crossings on Jenne Road
- Potential for Kelley Creek crossing improvements
- Grid network

Weaknesses:

- Wetland impacts along Foster Road
- Lacks direct north-south connectivity to town center

ALTERNATIVE 5

Key Features:

- Giese Road Extension to Foster Road east of Jenne Road (no east-west through route)
- Improved SE Jenne Road and SE Foster Road
- SE Giese Road T-ed into SE Foster Road

Strengths:

- Utilizes existing alignments
- Provides pedestrian, bicycle, and safety improvements on Jenne Road
- Several culvert replacements or improvements needed, potential for improved stream crossings on Jenne Road
- Potential for Kelley Creek crossing improvements

Weaknesses:

- Wetland impacts along Foster Road
- Lacks grid network and direct north-south and east-west connectivity to town center
- May not reduce cut-through traffic on McKinley Road

PVTSP Refinement Plan Preferred Alternative

The Preferred Alternative in the PVTSP Refinement Plan was based on Alternative 1. Minor adjustments were made to reduce environmental impacts at stream crossings and to provide more direct travel between neighborhoods. The key elements of the preferred plan are shown in Figure 2.

The Preferred Alternative reflects recommended near-term improvements at SE 172nd Avenue/Foster Road, Foster Road between SE 172nd Avenue and SE Cheldelin Road remaining as an arterial or as a collector and a roundabout at the SE 172nd Avenue/Foster Road intersection. It also includes a change in traffic flow for SE Foster Road that includes bringing SE Foster Road and SE 172nd Avenue together at a roundabout and routing traffic up an extension of SE 172nd Avenue to the SE Giese Road Extension at a roundabout or traffic signal. Roundabouts typically have better safety performance than traffic signals, particularly in areas transitioning from a rural to suburban context, and they have lower maintenance costs; however, they can have larger property impacts and also may not work in close proximity to existing traffic signals.

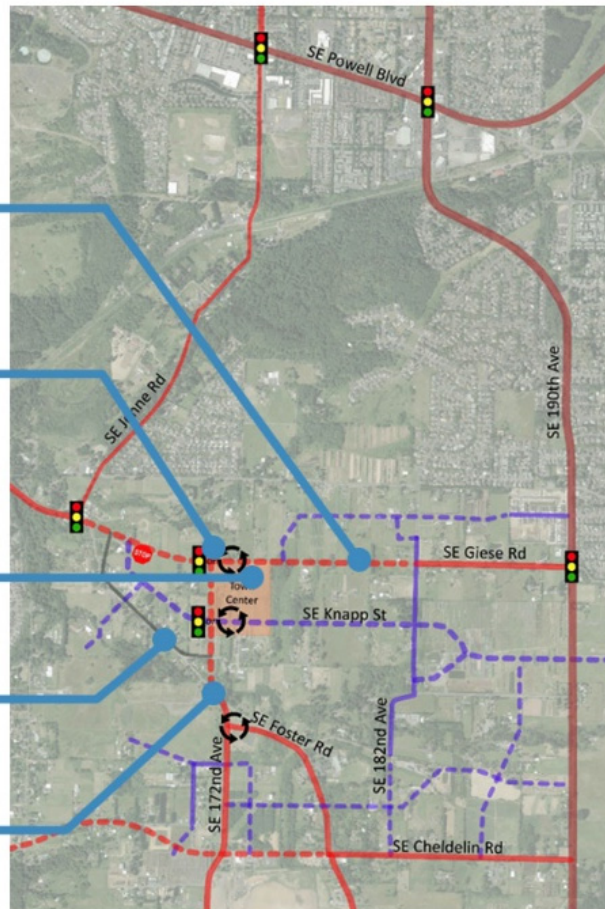
West of SE 172nd Avenue, SE Foster Road is envisioned to be a local street. A new collector street is shown connecting SE 172nd Avenue to SE Giese Rd aligned with a proposed extension of SE Knapp Street west of SE 182nd Avenue; however this is recommended to be downgraded to a local street that could be located based on how development occurs; however, access points to SE 172nd Avenue and to SE Giese Road extension need to be consolidated.

Figure 2. Refined Preferred Alternative and its key features

PREFERRED ALTERNATIVE

Key Features:

- **East - West through connectivity -**
Giese Road Extension to Foster Road at Jenne Road (creates east-west through route)
- **Safety improvements -**
Along major intersections like roundabouts, traffic signals and turn lanes along with pedestrian/bicycle facilities.
- **Direct town center access -**
Provides direct access to major activity center
- **Downgrade of SE Foster Road -**
Change of classification to a local roadway
- **Shorter crossing of Kelley Creek -**
Opportunity for reducing environmental impacts



Land use Concept Alternatives

The following section describes the land use concept alternatives under consideration as part of the Pleasant Valley District Plan Update and their key features that impact the transportation alternatives.

The three land use concept alternatives (A, B and C) have differences in placement of the Town Center, as shown in Figure 3. All three land use alternatives are shown with transportation networks that are similar to the PVTSP Refinement Plan Preferred Alternative but with some varied alignments such as Knapp Street transitioning to Dahlquist Road at SE 172nd Avenue and Foster Road being used as a collector roadway west of SW 172nd Avenue but with different connections points than in the PVTSP.

Serving the Town Center was a very significant factor in the PVTSP Refinement Plan and influenced the selection of the preferred alternative. The potential relocation of the Town Center could make some previously eliminated transportation alternatives more viable. For example, land use concepts B and C could be viable with transportation alternatives 4 and 5 while land use concept C could also be viable with transportation alternative 4.

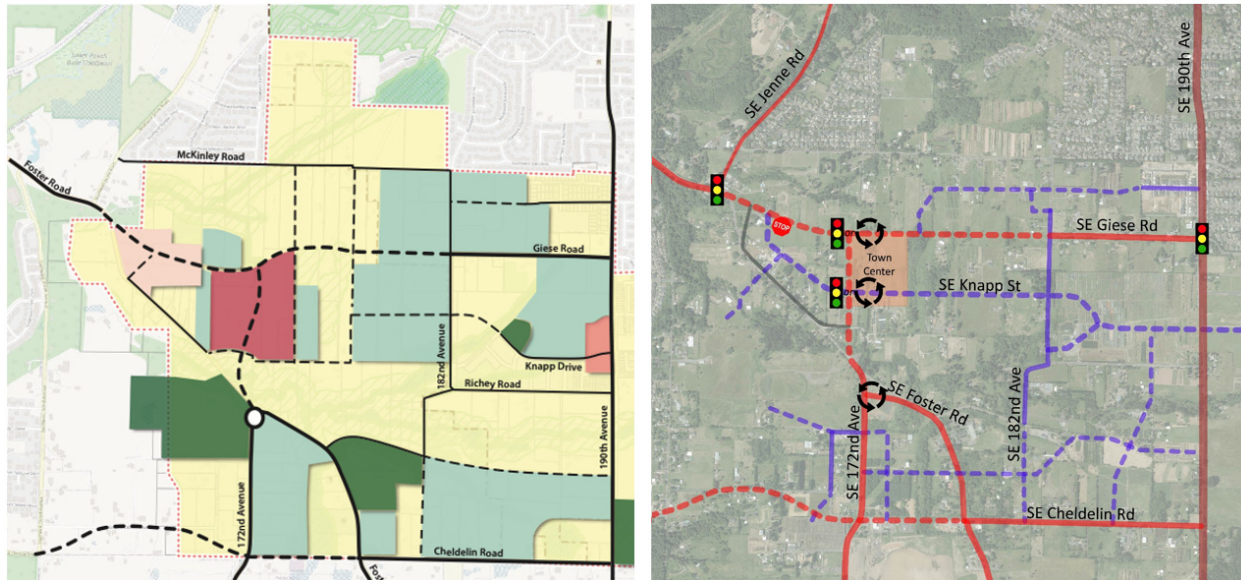
Figure 3. Land Use Concepts



LAND USE CONCEPT A

Land Use Concept A retains a large Town Center at the intersection of SE 172nd Avenue and Giese Road and therefore the Preferred Alternative in the PVTSP is likely still the best alternative to support this land use concept. Alternative 4 would result in indirect access to the town center from the south while Alternative 5 would result in indirect access to the town center from both the south and west.

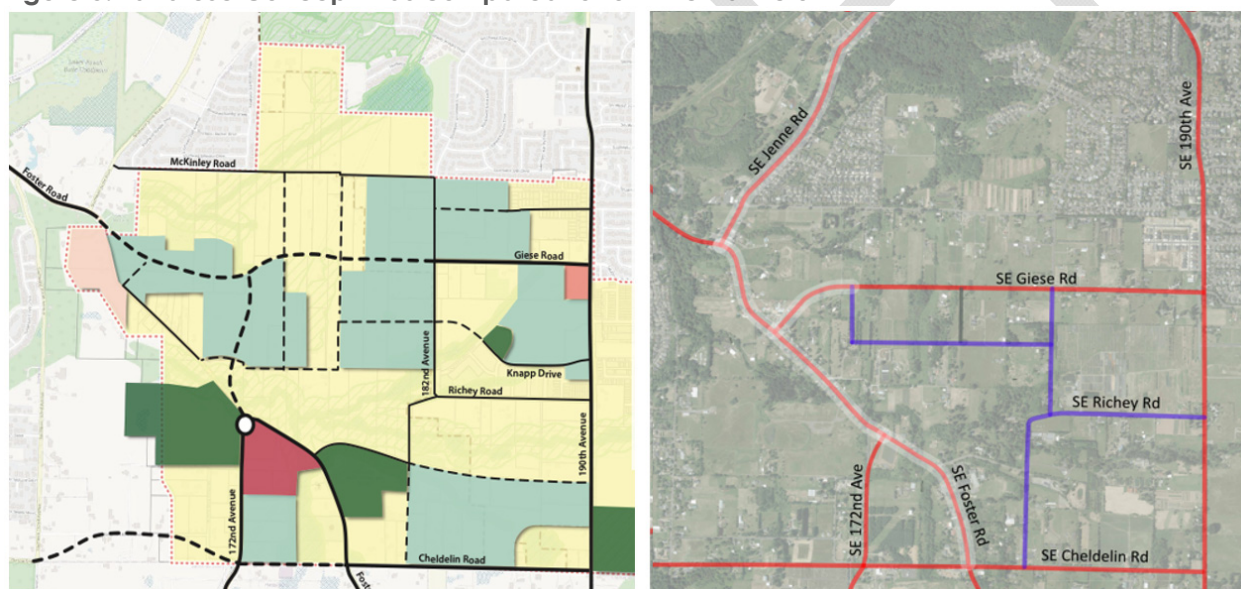
Figure 4. Land use Concept A as compared to Preferred Alternative in the PVTSP



LAND USE CONCEPT B

Land Use Concept B relocates the Town Center to the south to the intersection of SE 172nd Avenue and SE Foster Road with medium and high density residential in surrounding areas. This land use concept would still be best served by the PVTSP Refinement Plan Preferred Alternative (as shown in Concept B in the Figure 5 below) but could also work with PVTSP Refinement Plan Alternative 4 or 5. This is the only land use concept that could potentially work with Alternative 5 (shown in Figure 5) as it's the only land use alternative that could function well while retaining SE Foster Road as a through route based on the proposed location of the town center. East-west connectivity for travelers on Foster road to/from the west to Gresham would still be maintained through the Giese Road Extension to Foster as shown below by constructing a roundabout the Foster Road/Giese Road Extension intersection. Although improving SE Foster Road would still have environmental and property impacts, these could be outweighed by cost savings associated with not extending SE 172nd Avenue to Giese Road or extending SE Giese Road all the way to Jenne Road.

Figure 5. Land use Concept B as compared to TSP Alternative 5



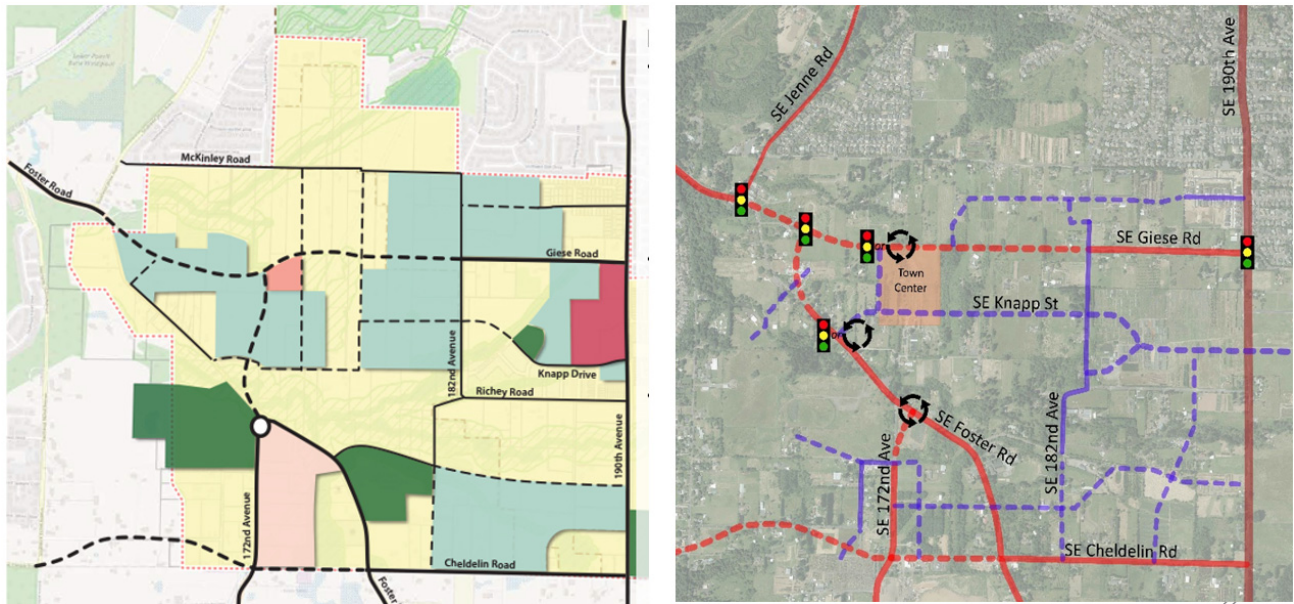
LAND USE CONCEPT C ¹

Land Use Concept C includes less dense Neighborhood Centers along SE 172nd Avenue at Foster Road and at Giese Road and includes a Town Center at SE 190th Avenue/SE Giese Road. This concept would still be best served by the PVTSP Refinement Plan Preferred Alternative (as shown in Concept C in the Figure 6 below) but could also work with PVTSP Refinement Plan Alternative

¹ Following the preparation of this memorandum, Concept C was removed from consideration as part of the Pleasant Valley District Plan Update. The current status of development applications in Concept C's potential Town Center area ruled out the possibility of commercial development in that specific area. The Transportation System Refinement memo still maintains Kittelson's assessment of Concept C for documentation purposes.

4 that retains SE Foster Road as a through route, maintains strong east-west connectivity but has a less direct north-south connection into the Town Center. Improving SE Foster Road would still have high costs associated with environmental and property impacts that may not be outweighed by cost savings of not having an arterial extension of SE 172nd Avenue to Giese Road.

Figure 6. Land use Concept C as compared to TSP Alternative 4



LAND USE CONCEPT SUMMARY

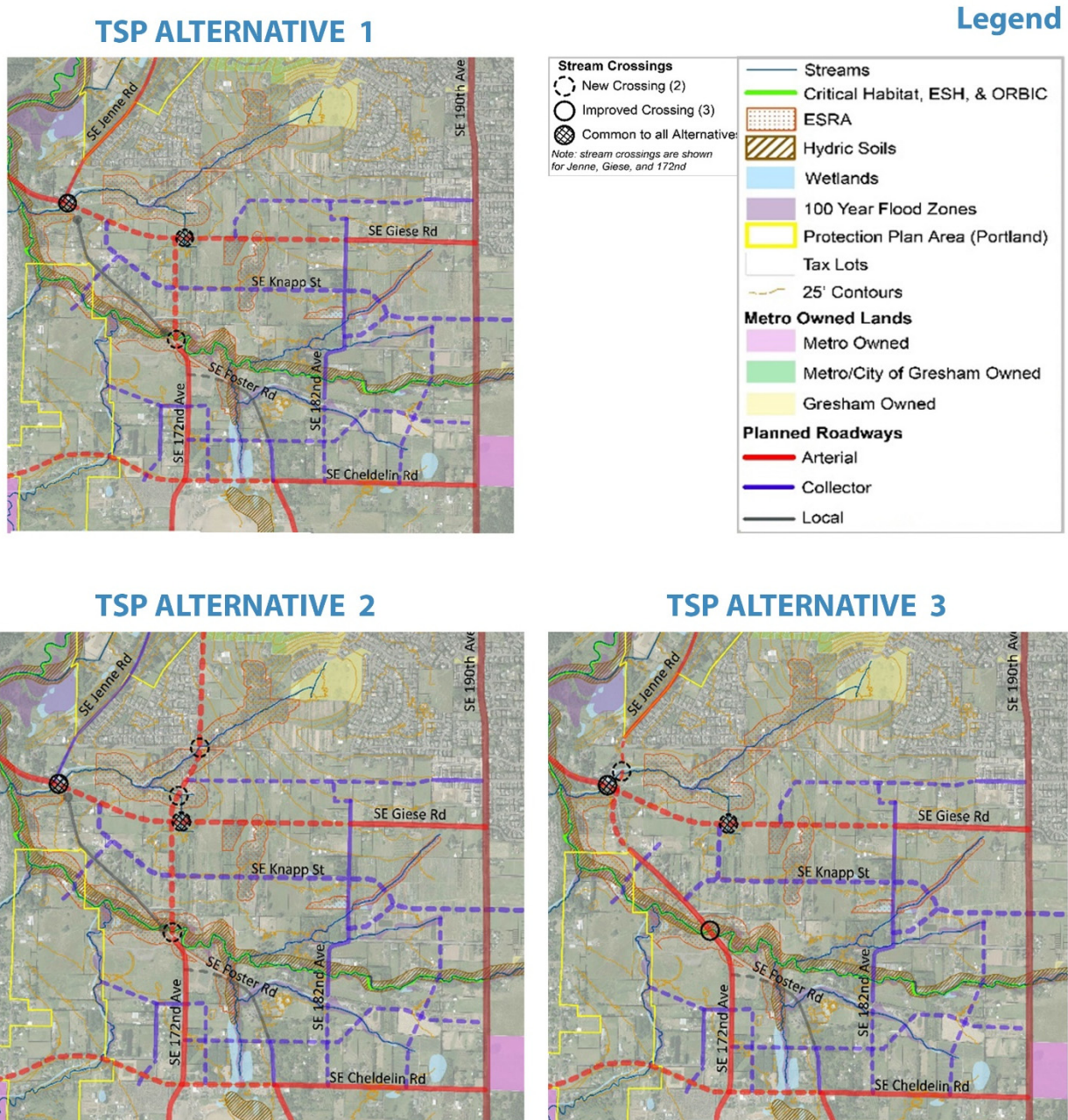
The PVTSP Refinement Plan Preferred Alternative can serve any of the land use alternatives well. In an effort to reduce potential property and environmental impacts and better support potential development phasing, PVTSP Refinement Plan Alternative 4 or 5 could be further considered for land use Concept B and Alternative 4 could be further considered for land use Concept C. The following section summarizes other factors identified in the 2019 PVTSP Refinement (beyond connecting to the Town Center) that inform the trade-offs associated with these options.

Environmental Impacts

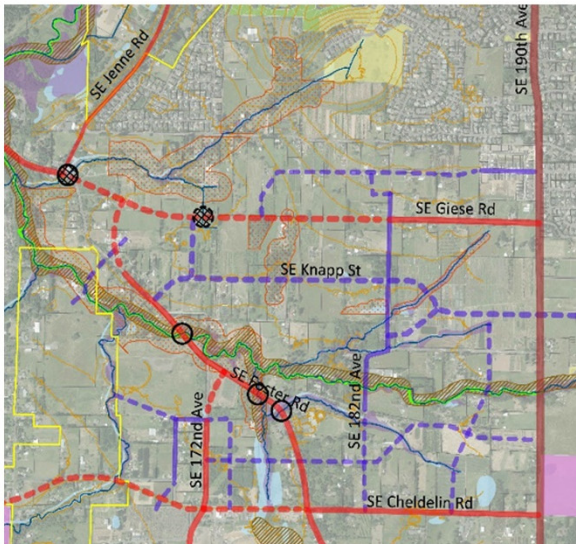
Land Use Concept B could be supported by a transportation network that does not include an extension of SE 172nd Avenue to the Giese Road Extension and instead relies upon Foster Road continuing to be an arterial (such as in PVTSP Refinement Plan Alternatives 4 and 5). The analysis of PVTSP Alternatives 4 and 5 can serve as proxies for relooking at some of the impacts and trade-offs with the Town Center possibly relocated.

Figure 7 shows the environmental impact overlays of each of the 2019 Plan alternatives. It also shows proposed stream crossing locations and environmentally sensitive area buffers. As shown in Alternative 1, SE Foster Road east of SE 172nd Avenue was originally envisioned in this alternative to be a local roadway and therefore this alternative would have reduced the number of creek crossings requiring improvement from three to one and would significantly reduce the length of arterial roadway in sensitive areas. As Alternative 1 evolved into the Preferred Alternative, it was decided that SE Foster Road east of SE 172nd Avenue should continue to be an arterial. This change brings the environmental impacts along SE Foster Road in Alternative 1 much closer to Alternatives 4 and 5 with the key difference being the angle and length of the most western Kelly Creek crossing. To implement Alternative 4 or 5, SE Foster Road at western Kelly Creek may need to be fully reconstructed and realigned to cross the creek at a perpendicular angle.

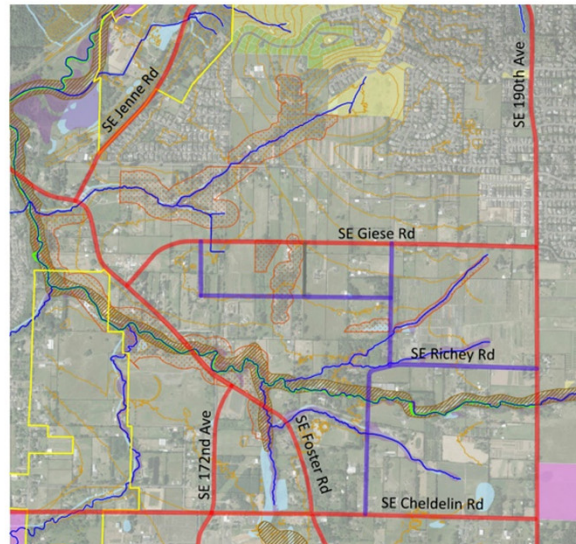
Figure 7. Environmental impact Overlays of Alternatives 1- 5



TSP ALTERNATIVE 4



TSP ALTERNATIVE 5



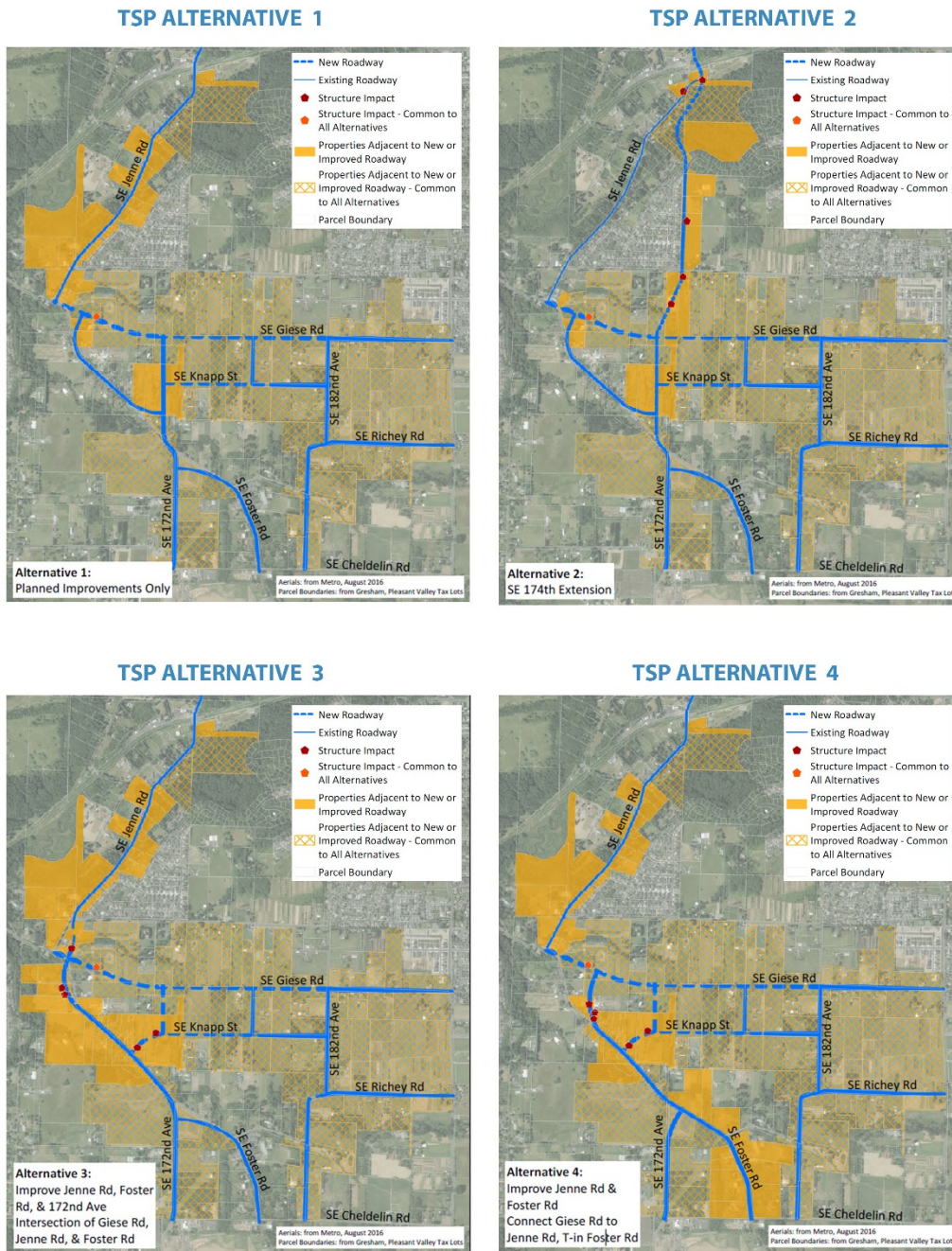
Property Impacts

Property impacts were evaluated in the PVTSP Refinement Plan for Alternatives 1 through 4 as Alternative 5 had been eliminated by that stage of the project. Figure 8 shows the potential property impacts of Alternatives 1-4. Alternatives 3 and 4 combined can be used as a proxy for Alternative 5. Categories of impact include the following:

- ▶ **Structure Impact:** a roadway is likely to require the demolition of a building on the parcel.
- ▶ **Land Impact:** a roadway is likely to take a portion of a parcel – bisects property or frontage.

Impacts were identified as common to all alternatives or unique to a specific alternative.

Figure 8. Property impact maps of Alternatives 1 - 4



Key Findings

- ▶ Most of the property impacts are common to all alternatives with Alternative 1 having the least unique impacts due to it not include widening Foster Road; however the final preferred alternative (a refinement of Alternative 1) includes widening of Foster Road east of SE 172nd Avenue.
- ▶ Maintaining Foster Road as an arterial, as shown Alternative 4, impacts several additional properties as it's realigned to intersect the Giese Road Extension and as Knapp Street is extended to connect to Foster Road in lieu of a 172nd Avenue Extension.

- ▶ Alternative 5 (not shown) would have similar impacts to Alternative 4 along Foster and Knapp Road Extension but would have some properties along the Giese Road Extension that would have no impacts.

Traffic Operations

A high-level intersection operational analysis based on information in the PVTSP Refinement Plan was conducted for the study intersections to assess if Alternatives 4 and 5 could accommodate the future traffic demands. Alternatives 4 and 5 were found to function acceptably during the Future PM peak hour of 2045 with roundabouts at the major intersections of 172nd Ave/Foster Road or 172nd Ave/Giese Road. Therefore, traffic operations are not a deciding factor for selection of a modified roadway network.

Foster Road - Local Road vs Collector

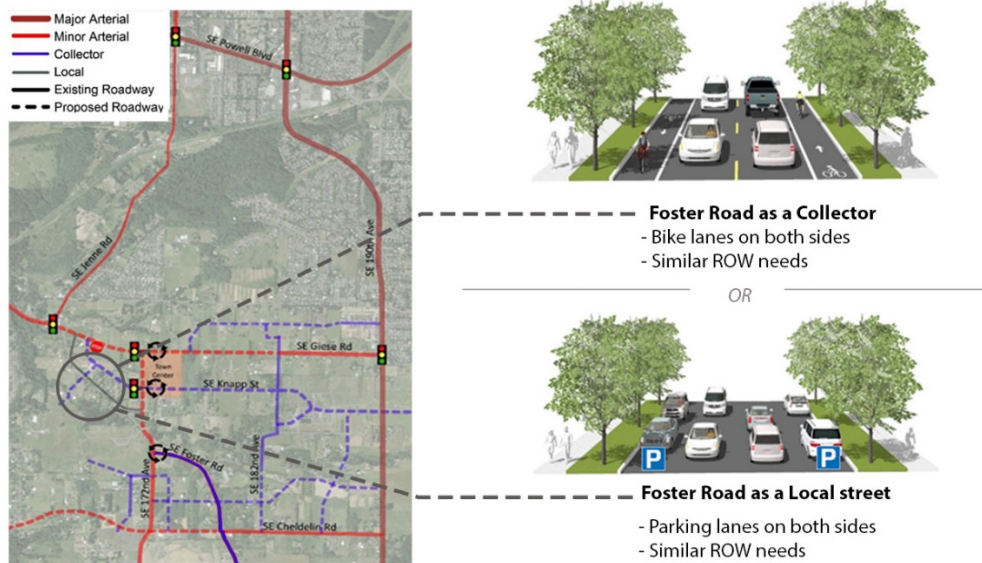
West of SE 172nd Avenue, SE Foster Road is shown as a local street in the PVTSP with a new collector street shown connecting SE 172nd Avenue to SE Giese Rd aligned with a proposed extension of SE Knapp Street west of SE 182nd Avenue. The purpose of this is to:

- ▶ Align future collectors on either side of SE 172nd Avenue so they can share a traffic control device (shown at SE 172nd Avenue/ Knapp Street but the alignments are conceptual, Knapp Street could connect to Dahlquist Road at Foster Road if that worked better for development phasing, and the collector west of SE 172nd Avenue could also be a local street that connected at this location);
- ▶ Provide increased intersection spacing along Foster Road – Giese Road from the Jenne Road signal with a new intersection.
 - Note that connectivity for the area southwest of the SE 172nd Avenue/Giese Road intersection is important to being able to limit turning movements at the intersections along the Giese Road Extension between Jenne Road and SE 172nd Avenue to reduce cut-through traffic and direct the majority of outbound neighborhood traffic to the SE 172nd Avenue/Knapp Road Extension where there will be a traffic control device.
- ▶ Place the collector roadway for the area within the new development so it can be constructed incrementally by development and so that subdivision traffic is not funneled to an unimproved roadway that may not get improved due to the multiple small rural residential properties fronting the roadway. As noted above, this roadway could also be a local roadway along any alignment but street local street connectivity needs to support consolidating access for this neighborhood along SE 172nd Avenue and along the Giese Road extension.

Depending upon the development pattern and phasing, there are a variety of scenarios of how Foster Road could evolve and connect to the collector and arterial network. As shown in the PVTSP Refinement Plan, the ROW needs for a collector and local street are fairly similar; however, ROW needs for an arterial are incrementally higher at approximately 74 feet. The current ROW in this section of Foster Road is approximately 60 feet. At the first glance, widening a road seems faster and easier with lesser potential challenges than developing a completely new road. However, widening Foster will not only have environmental impacts due to been in the environmentally sensitive zone but the extensive ROW required from multiple land owners would be considered a significant challenge.

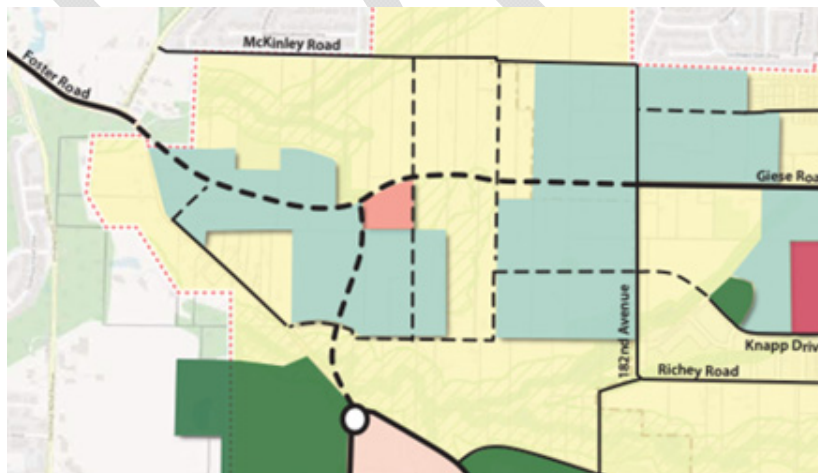
The PVTSP Refinement Plan intentionally does not include a specific ROW width, but collectors and local roadways are both approximately 50-60 feet depending upon if the sidewalks are set back behind a landscape strip. The paved widths are similar to on-street parking being replaced by bike lanes; however narrower widths could be feasible for a local street without on-street parking. Figure 9 shows conceptual cross sections for a collector and a local roadway from the PV TSP Refinement Plan.

Figure 9. Possible cross sections of Foster Road (west of 172nd Ave)



All three land use alternatives are shown with transportation networks that are similar to the PVTSP Refinement Plan Preferred Alternative but with Knapp Street transitioning and connecting to SE 172nd Avenue further south and Foster Road being used as a collector roadway west of SW 172nd Avenue but with different connections points than in the PVTSP. This would meet the intent of the PVTSP Preferred Alternative and this could be a local or collector roadway.

Figure 10. Land Use Concept Roadway Network



Summary

The City of Gresham is currently evaluating alternative land use concepts that reconsider the placement of the Pleasant Valley Town Center. This memorandum considers whether these land use alternatives change the needed transportation improvements and could impact the planned roadway network. Specifically, this memorandum considers if SE Foster Road could continue to serve as an arterial or collector in its current alignment. In addition, this memorandum considers the potential cross-section of SE Foster Road west of SE 172nd Avenue as a collector or local roadway and considers the functional classification of SE McKinley Road.

Foster Road as an Arterial Roadway

Serving the Town Center was a very significant factor in the PV TSP Refinement Plan and influenced the selection of the preferred alternative. The potential relocation of the Town Center in Land Use Concept B and C could make previously eliminated transportation alternatives more viable. The following describes some of the key findings looking at viability of previously considered transportation alternatives.

- ▶ The PVTSP Refinement Plan Preferred Alternative can serve any of the land use alternatives well. In an effort to reduce potential property and environmental impacts and better support potential development phasing, PVTSP Refinement Plan Alternative 4 or 5 could be further considered for land use Concept B and Alternative 4 could be further considered for land use Concept C. The location of the roadways and connections in any of the transportation alternatives have the opportunity to be refined to optimize access to properties most likely to develop.
- ▶ Environmental Impacts - Alternatives that kept Foster Road as an arterial from Jenne Road to SE 172nd Avenue (Alternatives 4 and 5) were previously eliminated in part based on environmental impacts; however, Alternative 1 was modified during the refinement process to maintain Foster Road as an arterial east of SE 172nd Avenue which reduced the differences in environmental impacts between Alternative 1 compared to 4 and 5.
 - SE Foster Road east of SE 172nd Avenue (in addition to west of SE 172nd Avenue) was originally envisioned in this alternative to be a local roadway and therefore this alternative would have reduced the number of creek crossings requiring improvement from three to one and would have significantly reduced the length of arterial roadway in sensitive areas. As Alternative 1 evolved into the Preferred Alternative, it was decided that SE Foster Road east of SE 172nd Avenue should continue to be an arterial. This change brings the environmental impacts along SE Foster Road in Alternative 1 much closer to Alternatives 4 and 5 with the key difference being the angle and length of the most western Kelly Creek crossing. To implement Alternative 4 or 5, SE Foster Road at the western Kelly Creek may need to be fully reconstructed and realigned to cross the creek at a perpendicular angle.
- ▶ Property Impacts - Alternatives that kept Foster Road as an arterial from Jenne Road to SE 172nd Avenue were previously eliminated in part based on property impacts. The preferred alternative had very few property impacts that were not common to all alternatives.
 - Maintaining Foster Road as an arterial, as shown Alternative 4, impacts several additional properties as it's realigned to intersect the Giese Road Extension and as

Knapp Street is extended to connect to Foster Road in lieu of a 172nd Avenue Extension.

- Alternative 5 would have similar impacts to Alternative 4 along Foster and Knapp Road Extension but would have some properties along the Giese Road Extension that would have no impacts.
- ▶ Traffic operations are not a deciding factor for selection of a modified roadway network. Alternatives 4 and 5 were previously screened out in large part due to the environmental and property impacts of widening Foster Road to an arterial through this area.

Foster Road as a Collector or Local Roadway

Foster Road west of SE 172nd Avenue could be designated as a collector or local roadway or could transition from one to the other as they have similar ROW needs. The key considerations are about how and where the roadways in this area connect to SE 172nd Avenue (proposed to be across from a future collector on the east side of SE 172nd Avenue) and along Giese Road (adequately spaced from Jenne Road) and whether property along Foster Road is likely to redevelop or not and if it's appropriate to funnel future subdivision traffic to this roadway. All streets in this area could be local streets as long as access is consolidated along SE 172nd Avenue and along Giese Road extension.

McKinley Road

The City should classify McKinley Road as a minor collector from Jenne Road to SE 182nd Avenue and anticipate local street connections between McKinley Road and the Giese Road extension