



To: Mayor Holladay and City Commission

From: Christina Robertson-Gardiner, Senior Planner
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RE: Beaver Creek Road Preferred Street Cross Section

Date: August 7, 2019

Background

This memorandum summarizes the attached traffic study for the Oregon City Beaver Creek Road Concept Plan conducted by DKS Associates and provides staff recommendations for intersection control and the optimal cross-section for Beaver Creek Road. The study area comprises the adopted 2008 Beaver Creek Road Concept Plan area. The objective of the traffic study is to:

1. Compare future development and infrastructure recommendations in the Beaver Creek Road Concept Plan to that of the 2013 Transportation System Plan (TSP) and Municipal Code; and
2. Ensure Transportation Planning Rule (TPR) consistency; and
3. Provide responses to the following three questions identified by the public during the public engagement phase of this project to implement the Beaver Creek Road Concept Plan.
 - **Intersection Control Analysis.** What is the optimal design for intersection control along the Beaver Creek Road Concept Plan boundary- traffic signals or roundabouts?
 - **Holly Lane Connection.** How important is the Holly Lane connection to the transportation model? What if it does not connect for a very long time, or is removed?
 - **Road Network Evaluation.** What is the optimal cross section for Beaver Creek Road?

The responses contained in the DKS Associates memo address the above from a transportation capacity and design lens. Additional policy, legal, fiscal, construction, or maintenance factors that may be part of a larger discussion are discussed further in this memo.

DKS Finding/Recommendation

Transportation System Plan (TSP) Consistency and Transportation Planning Rule (TPR) Compliance

Overall, the current TSP includes adequate transportation system projects for the Beaver Creek Road Concept Plan area to comply with the Transportation Planning Rule (TPR). All transportation impacts as a result of the additional housing units and jobs in the Beaver Creek Road Concept Plan area are addressed

by current TSP projects. Likewise, a revised 5-lane cross-section and replacement of signals for roundabouts as intersection control also meets the TPR requirements.

Intersection Control Analysis

Signals and roundabouts are both viable options for intersection control and each offer different approaches to pedestrian safety. Signals are recommended at Glen Oak Road and Loder Road as they are easier to build through incremental Land Use development conditions. Roundabouts have a larger footprint and can only be built as a full project, which likely requires that some of the cost be borne by the city. Additionally, as the Beavercreek corridor already has signalized intersections signals at these new intersections will create consistency for drivers, as well as allow us to interconnect all the signals and create a more efficient corridor.

Holly Lane Connection

The Holly Lane extension connection does not greatly affect the output of the transportation model, all roadways within the Beavercreek Road Concept Plan area continue to meet TPR requirements. Any future policy discussion that looks at removing the Holly Lane connection from the TSP does not need to be tied to the Beavercreek Road Concept Plan Zoning and Code Amendments.

Road Network Evaluation

The existing and adopted 3-lane section is recommended to remain for Beavercreek Road along the Concept Plan Boundary. A 3-lane section would encourage slower travel speeds, which in itself helps create capacity by reducing spacing distances, would be more inviting to pedestrians and cyclists and would reduce the crossing distance of Beavercreek Road, especially for students traveling between the neighborhoods and Main Street node on the east side of Glen Oak Road and the school on the west side. A 3-lane section could also allow for a larger buffer between the roadway and sidewalk and allow for wider travel lanes to better facilitate the large trucks expected at the northern end of the Concept Plan area. However, the 3-lane section would also have less capacity than a 5-lane section and thus the ability to move cars through the roadway is slower.

If a 5-lane section is desired along a portion of Beavercreek Road adjacent to the Concept Plan boundary, a logical transition point back to a 3-lane section could be the Loder Road intersection. This location will serve as a primary access point to the industrial employment and the associated heavy vehicle traffic at the northern end of the Beavercreek Road Concept Plan area. South of this intersection, the land use transitions to a mixed-use neighborhood. In any case, the City should design intersections and obtain right-of-way to accommodate the ultimate cross-section in the future.

Additional Factors

Stormwater & Constructability

The adopted 3-lane cross section proposed a large inverted stormwater planter to collect and treat street runoff in the center of the roadway. Public Works staff is concerned with converting the roadway that currently drains as a crown section (drains to the outside edges of pavement) to an inverted crown section (drains to center) roadway. This will be difficult to do incrementally as development occurs, as the road will feel bumpy to vehicles as the road transitions from draining to the center to the outside edges. Additionally, Beaver Creek Road contains various public & private utilities that were installed in the roadway as a crown section with adequate cover over the underground utilities. If converted to an inverted crown section, those existing utilities may be impacted.

Legal and Policy

There may be some legal and policy implications of adopting a standard larger than what is necessary to meet requirements, which could affect the city's ability to condition the construction of a revised 5-lane cross-section through a development application. We will have additional information on this topic at the work session.

Conversion of a built 3-lane roadway to a 5-lane roadway

Reducing the width of the planter area to convert the roadway from a built interim 3-lane section to a future 5-lane section will require a substantial redesign and reconstruction of the nearly the entire roadway. This would include repurposing a majority of the center planter strip to a travel lane, decreasing the planter strip between the bike lane & sidewalk, reconstructing the stormwater system, etc. As the 3-lane section would likely be built by development, the work to build the 5-lane section would likely be a City project. Additionally, our current Transportation System Development Charge does not account for a 5-lane section and therefore we are not collecting SDC's for a 5-lane project.

Construction Viability Within Market Conditions & Long-Term Maintenance Considerations

The Public Works Department is currently looking at these various considerations for both cross sections (3 and 5 lane) and will provide an update at the work session.

Compliance with the Beaver Creek Road Concept Plan Goals

A revision to the Beaver Creek Road Cross Section can be approved through an amendment to the Beaver Creek Road Concept Plan and the TSP through the upcoming LEG 19-0003 Beaver Creek Road Concept Plan – Zoning and Code amendments. However, any revisions to the Concept Plan will need to show compliance with the Goals and Principles of the adopted Concept Plan (page 7-8) which can be found below. As the public outreach for this revision will be limited to the LEG 19-0003 public hearings process, there may need to be some additional public outreach needed before adopting a revised Beaver Creek Road cross-section.

The Beavercreek Road Concept Plan Area will:

- *Create a complete and sustainable community, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center;*
- *Be a model of sustainable design, development practices, planning, and innovative thinking;*
- *Attract “green” jobs that pay a living wage;*
- *Maximize opportunities for sustainable industries that serve markets beyond the Portland region and are compatible with the site’s unique characteristics;*
- *Incorporate the area’s natural beauty into an ecologically compatible built environment;*
- *Provide multi-modal transportation links (such as bus routes, trails, bike-ways, etc.) that are connected within the site as well as to the surrounding areas*
- *Implement design solutions along Beavercreek Road that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand;*
- *Promote connections and relationships with Oregon City High School and Clackamas Community College;*
- *Have a unique sense of place created by the mix of uses, human scale design, and commitment to sustainability and Ecological Health*
- *Manage water resources on site to eliminate • pollution to watersheds and lesson impact on municipal infrastructure by integrating ecological and man-made systems to maximize function, efficiency and health.*

The following 10 Principles of Sustainable Community Design were submitted by a CAC member, supported by the committee, and used throughout the development of the Concept Plan:

1. *Mix Land Uses - Promote a mix of land uses that support living wage jobs and a variety of services.*
2. *Housing Types - Create a range of housing choices for all ages and .incomes.*
3. *Walk-ability - Make the Neighborhood “walkable” and make services. “walk-to-able.*
4. *Transportation - Provide a range of transportation options using a. connected network of streets and paths.*
5. *Open Space - Protect and maintain a functioning green space network for a variety of uses.*
6. *Integrate Systems - Integrate ecological and man-made systems to maximize function, efficiency and health.*
7. *Watershed Health - Manage water resources on site to eliminate pollution to watershed and lesson impact on municipal infrastructures*
8. *Reuse, Recycle, Regenerate - Reuse existing resources, regenerate existing development areas*
9. *Green Buildings - Build compact, innovative structures that use less energy and materials*
10. *Work Together - Work with community members and neighbors to design and develop*

2008/2016 Adopted Cross Section (with no dimensions)

As part of the code and zoning amendments process (LEG 19-0003), the city will need to adopt specific dimensions for each cross-section component as they are not identified in the adopted plan (below). Adopting specific cross section dimensions will allow the city to condition site specific street

improvements as part of any future land use decision. This level of detail is needed shortly as two separate development applications are likely to be submitted with frontage along Beavercreek Road soon.

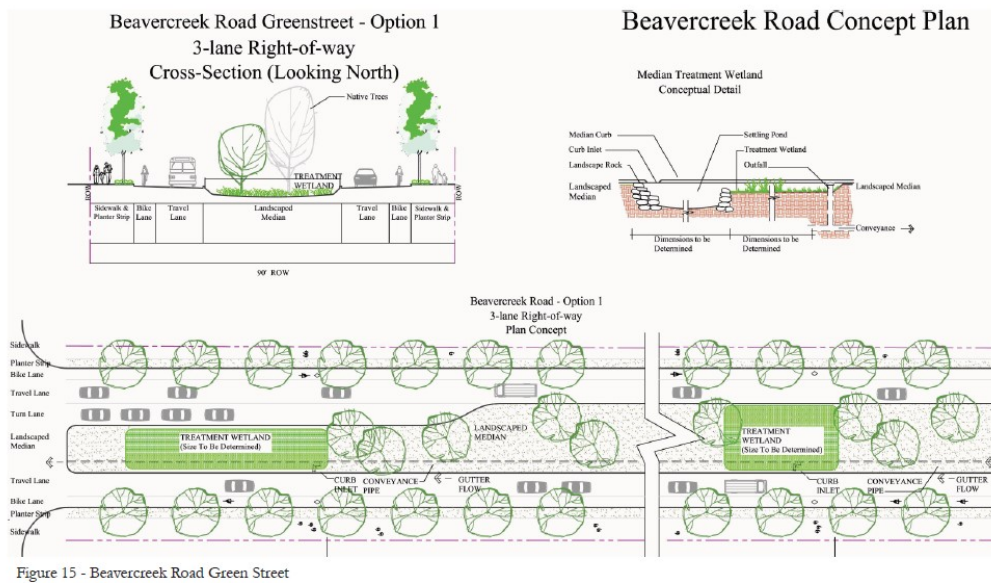
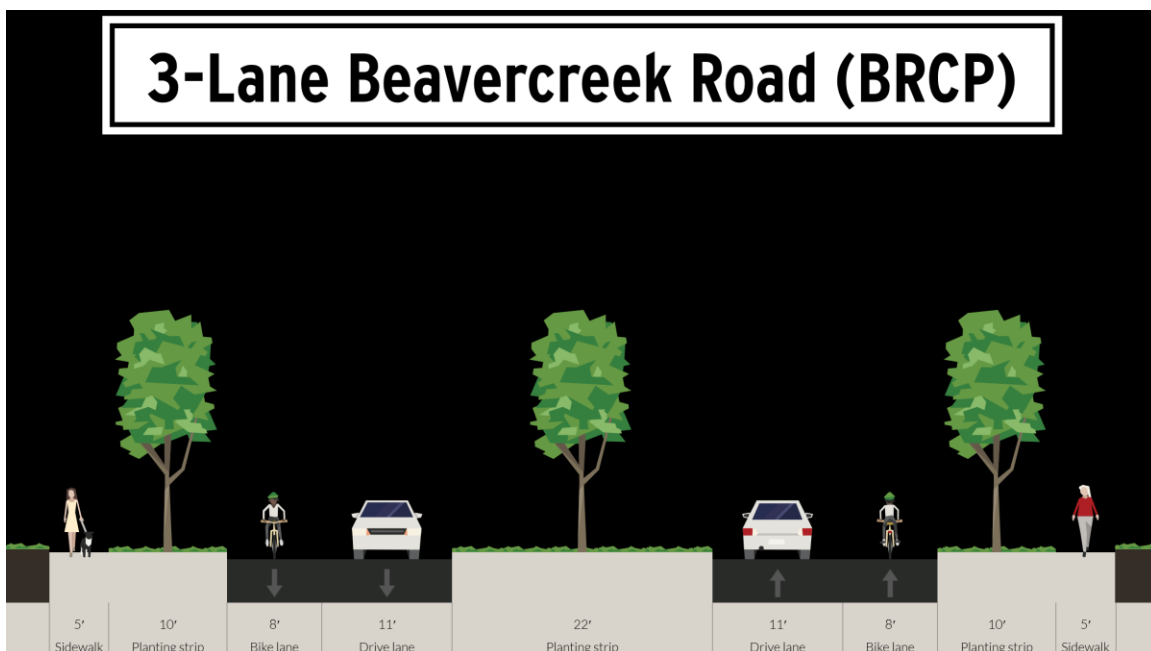


Figure 15 - Beavercreek Road Green Street

Three Lane Cross Section (recommended)

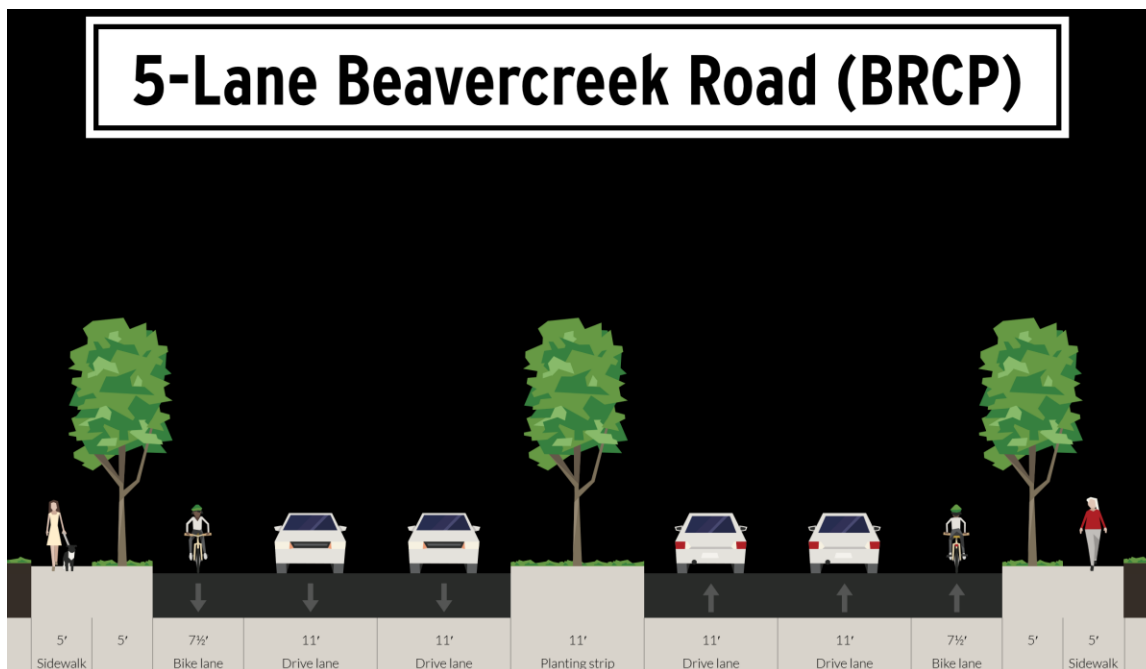
The following cross section translates the intent of the adopted concept plan cross section utilizing standard travel lane, curb, bike and sidewalk width and sizing the center storm water planter to adequately treat stormwater from the street. The following example cross section utilizes the full 90 feet identified in the concept plan for a 3-lane section.



* The 22-foot Planter Strip includes a 11- foot center turn lane at signalized intersections.

Five Lane Cross Section (not recommended)

With a 5-lane cross section, the bike lanes are reduced to 7 ½ feet and the sidewalk planter strip and center stormwater planter strip are also reduced. The following example shows how the 90 feet width identified in the concept plan could be utilized for a 5-lane section.



** The 11-foot Planter Strip includes a center turn lane at signalized intersections.*

Staff Recommendation/ Next Steps

Taking in to account the findings of the DKS study and the additional factors mentioned above, staff recommends keeping the existing and adopted 3-lane cross-section and re-adopting a cross section with dimensional components in the upcoming LEG 19-0003 to provide additional clarity for future land use conditions. Staff also agrees with DKS's finding that signals are recommended at Glen Oak Road and Loder Road as signals are easier to build through incremental Land Use development conditions whereas, roundabouts can only be built as a full project.

If the City Commission wishes to implement a 5-lane cross section on Beaver Creek Road either partially, such as north of Loder Road or completely, staff may need to return at a future work session to provide an update on some of the outstanding factors described in this report.