

# Powell-Division Transit and Development Project— Transit Alternatives Screening Report

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September 29, 2014



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## I. SUMMARY

This report is intended to provide background information to assist decision makers in identifying the most promising transit alternatives to advance through an initial screening for consideration in the Powell-Division transit corridor. It was developed with input from public engagement over the summer of 2014, by the project team, which comprises staff from Metro, TriMet, ODOT, Multnomah County, Gresham and Portland.

This report describes a wide range of transit alternatives considered, information on how well those alternatives perform based on an initial screen, and questions to be considered by the Powell-Division Transit and Development Project Steering Committee. The project team intends to study a narrowed set of alternatives in greater detail based upon Steering Committee direction.

### Alternatives considered

The project considered a range of high capacity transit alternatives based on policy, technical assessment, and public feedback.

**Rail** options include:

- **Light rail**, similar to the existing TriMet light rail network.
- **Rapid streetcar**, which would be similar to the existing streetcar network, but would utilize dedicated transit lanes where possible, with station spacing farther apart. This screen assumes that at least fifty percent of the route would be in dedicated transit lanes.

**Bus** options were screened to provide a range of bus rapid transit characteristics. Both bus types would include new, larger, and more significant station area amenities compared to existing bus stops. Bus options screened included:

- **Dedicated busway** would include significant portions running in transit-only lanes, enhanced stops and stations, and new vehicles. For analytical purposes, this screen assessed at least fifty percent of the route would be in dedicated transit lanes. Concept design during the next phase could consider dedicated lanes for less than fifty percent, where right-of-way and traffic conditions allow.
- **Frequent service plus bus** would operate primarily in mixed traffic, with transit priority treatments, enhanced stops and stations, and new vehicles. Transit priority treatments could include queue bypass lanes, business access transit lanes, and dedicated right-of-way in locations where right-of-way and traffic conditions allow.

The project is also considering a range of **transit routes** within the corridor between downtown Portland and Gresham. The initial routes include portions of Powell Boulevard and Division Street in Gresham and Portland. The project is also exploring a range of Willamette River Crossings, potential north/south street connections in Portland, and north/south connections in Gresham.

- From downtown Portland, **Division Street**
- From downtown Portland, **Powell Boulevard**
- From downtown Portland, **inner Division Street and transitioning to Powell Boulevard** with options for the north-south crossing
- From downtown Portland, **inner Powell Boulevard and transitioning to Division Street**, with options for the north-south crossing

Based on the above proposed transit routes, there are three areas with more detailed route options. These include:

- **Willamette River crossing:** The project team has explored using either the Ross Island Bridge or the Tilikum Crossing to cross the Willamette River. This report identifies the Tilikum Crossing as the most promising alternative route.
- **Portland north/south connections:** If the transit alignment includes both Powell and Division in Portland, there are several potential north/south transition streets, including Cesar Chavez Boulevard, 50<sup>th</sup>, 52<sup>nd</sup>, 82<sup>nd</sup>, 92<sup>nd</sup>, I-205 ramps, and 122<sup>nd</sup>. This report identifies Cesar Chavez Boulevard, I-205 ramps and 122<sup>nd</sup> as less promising than other routes.
- **Gresham north/south connections:** There are options to connect Downtown Gresham to the intersection of Kane Drive (257<sup>th</sup>) and Stark near Mount Hood Community College. Routes from downtown to the vicinity of Mount Hood Community College include Eastman, Cleveland, Hogan, and Kane Drive. This report identifies Eastman as the least promising of these connecting routes.

The project will also be examining routing options in downtown Portland during conceptual design.

### Findings from initial screen

- **Transit ridership is high** and will increase in the future; there many key destinations that people want to get to along the corridor.
- Transit ridership is projected to grow by over 70% on lines 4-Division and 9-Powell by the year 2035. Passenger projections show transit capacity assumed in future plans would be inadequate to serve demand at peak times.
- Powell and Division serve already developed communities. In a well built urban environment, **maximizing use of the existing infrastructure while minimizing impacts** to residences, utilities, business, and the traffic network is important.
- It would be necessary to add dedicated transit lanes in order to provide the necessary capacity for a light rail alternative on either Powell or Division. A dedicated transit lane for light rail along the entire corridor would require a significant right-of-way acquisition program.
- Powell and Division both serve **important freight, auto, bicycle, and pedestrian** needs. Future transit investments need to balance the needs of all modes.
- Based on where concentrated environmental justice communities are located, the inner Powell and transitioning to Division route would be most promising for serving ridership of environmental justice populations.
- This screen identifies **bus options** as more promising based on ability to serve existing riders and key destinations, compatibility with existing transportation investments in the corridor, and least amount of potential impacts.
- The screen identifies the **inner Powell Boulevard and transitioning to Division Street** route as more promising based on serving the greatest number of riders and serving key destinations.
- The summary of findings based on purpose and need is found on page 22

## Findings from public engagement

This summer, the public was asked to weigh in on where enhanced transit will go along the Powell-Division corridor and which transit type would be most preferred. This included community events, open houses and online surveys. Full details about the public's preferences for enhanced transit can be found in the *Powell-Division Transit and Development Project Public Engagement Report, September 29, 2014*.

- The public has a clear preference that enhanced transit should connect destinations between downtown Portland and downtown Gresham on a combination of Powell Blvd and Division St. The preferred route uses the Tilikum Crossing and runs east along Powell Blvd to 82<sup>nd</sup> Ave, north on 82<sup>nd</sup>, and east on Division St to downtown Gresham. There is strong support in Gresham to connect to Mt. Hood Community College.
- Based on input, most of the public would be interested in a Frequent Service Plus bus option, more so than either rail option. This mode appeals because of its minimal impact to existing traffic.
- The public is quite interested in light rail for the corridor although they are more inclined to eliminate it as a suitable mode option than the bus options.
- The public is interested in rapid streetcar for the corridor although they are more inclined to eliminate it as a suitable mode option than the bus options.
- Most of the public is also interested in the Dedicated Busway option for the corridor based on cost of improvements compared to rail and provision of genuinely quicker service in the corridor.

Community members, advocacy organizations, professionals working on issues related to equity, staff from TriMet, Portland, Gresham, Multnomah County, the Oregon Department of Transportation, Metro and members of the Powell-Division Steering Committee convened on September 3, 2014. This equity work group meeting was the beginning of a multi-year effort to incorporate into a transit project ways to increase the prosperity and opportunities for people who live and work in these places today and in the future, while confronting the challenges that new investments can sometimes create.

- There is strong interest in capitalizing on the transit project to advance desired community outcomes, including: mixed income neighborhoods; intentional affordable housing; safer, more welcoming streets and community spaces; new local jobs for local workers; protecting existing small businesses especially ethnic businesses that are the heart of communities throughout the corridor.
- People readily identify places that could be made safer, more welcoming and better connected, and these improvements would present opportunities for business development and community building.
- The current challenges faced by communities in Southeast Portland, East Portland and Gresham differ. The solutions need to be context-specific rather than one size fits all.
- People want to see strategic coordination among the jurisdictions in the corridor to make the most of investments.
- Better transit will be welcome, and it should complement (and not reduce) local transit service.

## Requested policy direction

The project Steering Committee will provide a recommendation on the preferred transit alternative for the Powell-Division Corridor. The information in this report is intended to assist the Steering Committee in identifying those alternatives that are most promising for further study.

On September 29, 2014, The Steering Committee will seek consensus on promising alternatives to study further. The project team is requesting direction on the following policy decisions.

- **Transit Vehicle Type:** Which vehicle types are most promising for this corridor? This initial screen provides information on light rail, street car, and a range of bus alternatives. Project team is requesting direction on the range of vehicle types to study in more detail.
- **Route:** What routes should be studied in more detail? Project team is requesting direction on routes to be studied in more detail.

## Next Steps

Based on the Steering Committee recommendation, the project team will begin more detailed traffic and design evaluation on a narrowed range of alternatives, convene work groups on issues of importance to the Steering Committee, and continue public engagement. The next phase of the project will include:

- **Concept Design:** A smaller range of alternatives will be more fully evaluated based on concept design, traffic, and modeling. This will be the basis for Steering Committee review in early 2015.
- **Optional Work Groups:** The project team will convene detailed topical discussion that include:
  - **Equity:** Convened on September 3<sup>rd</sup>, this group will continue to explore how equity can inform project decisions.
  - **Safety and security:** will explore opportunities to incorporate safety and security features into the project.
  - **Transportation and modal issues:** will explore the relationship of the transit alternatives to the overall transportation system, including freight, vehicle, bicycle and pedestrian systems.
  - **Development:** will discuss development opportunities consistent with community values and opportunities.
  - **Transit local service:** will fully examine the relationship of the proposed alternatives with the existing bus network. Based on public feedback, technical analysis, and Steering Committee direction, future transit service in this corridor will include both regional and existing service.
- **Tours of the corridor -** Tours will help Steering Committee members and project staff better understand the challenges and opportunities in the corridor. The Steering Committee will be invited to tour the project area in the fall.
- **Talk with staff sessions -** These drop in sessions will continue to take place the second and fourth Tuesday of every month at the Division Midway Alliance office, mid-corridor on 122nd Avenue and Division Street. These sessions, which provide an opportunity to talk with staff about the project and provide input, will continue through the evaluation phase of the project.

## II. INTRODUCTION

The aim of the Powell-Division Transit and Development Project is to identify, develop and construct a new high-capacity transit route within the Powell-Division corridor. The project was called out as a near-term priority in Metro's High Capacity Transit Study. It is also addressed in the East Metro Connections Plan, in the Regional Transportation Plan and is an anticipated project in Portland's Proposed Draft 2035 Comprehensive Plan.

The project has three main phases:

1. Planning (Winter 2014 to Spring 2015)
2. Design and Environmental Review (2015-2017)
3. Construction (2018-2020)

There are two outcomes to be completed in the **planning phase** of the project:

- Identification of a preferred transit alternative, which includes a transit route, vehicle mode, key station locations and end points. This preferred transit alternative will be designed, analyzed and undergo environmental review in the second phase of the project, as outlined above.
- Creation of land use visions and action plans for key station locations. These station area visions and action plans will form the basis for detailed station area planning during the design and environmental review phase of the project.

Identifying a preferred transit alternative is a process of narrowing alternatives as the Steering Committee, the community, and project staff learn more about potential routes, vehicle modes, station locations, and community investments. Initial work in the narrowing process was completed summer 2014.

## Transit Alternatives Screening Report overview

This report is intended to provide background information to assist decision makers in identifying the most promising transit alternatives to advance for consideration in the Powell-Division transit corridor. It was developed by the project team (comprised of staff from Metro, TriMet, ODOT, Multnomah County, Gresham and Portland) with input from public engagement over the course of 2014.

This document describes:

- a process to identify promising alternatives (screening)
- the identification of a wide range of alternatives
- the results of an initial screen of a range of transit alternatives

The preferred transit alternative, to be determined in the Spring of 2015, will:

- consist of the route, mode and route end points most supported and then recommended by the Steering Committee;
- support the project purpose and need statement, goals and objectives and desired outcomes; and
- be forwarded by the Steering Committee to local, state and federal agencies for review, design, approval, construction and operation.

### **What is a transit alternative?**

A transit alternative consists of an alignment or route (where the transit line will travel), mode (the vehicle used, such as a light rail or bus), stations (places to be served by the transit line) and termini (where the line will begin and end) to be considered.

### **What is a preferred transit alternative?**

The preferred transit alternative identifies the specific mode, alignment, stations, and termini location selected for implementation.

The Steering Committee will select which alternatives merit further consideration based on results of a two-step screening process and input from the public. Information for screening alternatives has been developed based on a working draft purpose and need statement for the project, and the project outcomes and goals adopted by the Steering Committee on June 23, 2014.

Step 1, of the initial screening, looks at the wide range of alternatives and narrows to the most promising alternatives or the alternatives that require additional information prior to narrowing. Screen 2 evaluates the remaining alternatives to identify the most promising alternative(s) for more detailed technical analysis.

- Screen 1 - Does it meet the purpose and need will result in identifying which alternatives to analyze during Screen 2.
- Screen 2 - Objectives and Measures will result in identifying which alternatives to move forward for further evaluation.

### **What is a purpose and need statement?**

A purpose and need statement describes what a project will accomplish and why it is needed.

The purpose and need sets the stage for consideration of alternatives. It is good planning practice to define a project's purpose and need. It helps to ensure a common understanding among community members, project staff, and decision-makers of what the project will address and focuses technical work and decision making.

The purpose and need has three parts: the purpose, the need and the goals and objectives. The purpose and need is the first step in the project development process. It is intended to be used as a guide for the development of alternatives, and to be a fundamental element when developing criteria for selection among alternatives.

The draft Powell-Division Transit and Development Project purpose and need statement is based on the adopted project outcomes and goals, adopted plans and policies, and documented community needs.

The public will provide input on the purpose and need statement July 28 through September 19, 2014. The Steering Committee will review and possibly revise the statement prior confirming it and selecting the preferred transit alternative in 2015.

The purpose and need will also be used during the federal environmental review process required under the National Environmental Protection Act (NEPA).

## Project purpose, needs, outcomes, and goals

The framework for the screening process was developed by documenting the purpose of the project, and understanding why the project is needed. The statement of the purpose and need is instrumental in determining the most promising alternatives and identifying the preferred alternative for funding and implementation. If an alternative does not meet the project purpose or does not address the need, it is not considered to be worth pursuing. Project staff developed a working draft purpose and need statement that incorporates the adopted project goals and outcomes, and is based on policy adopted in the regional high capacity transit system plan, and the regional transportation plan.

The **purpose** of this project is to connect Gresham and Portland with cost-effective, efficient, reliable high-capacity transit that meets forecasted travel demand along Southeast Division Street and Southeast Powell Boulevard and supports the area's adopted policies as well as the project outcomes and goals adopted by the Steering Committee.

High capacity transit service in the Powell-Division corridor can address the following **needs**:

- Travel time reliability throughout the day needs to be improved in the congested corridor to continue to make transit an appealing and efficient choice for current and future riders.
- Current and future population and employment growth create an unmet demand for increased travel choices and transit capacity on the 4-Division and 9-Powell Blvd bus routes.
- Lack of infrastructure, such as crossings along arterial roadways and gaps in the pedestrian and bicycle networks, create barriers to access and unsafe conditions for current and future transit users.
- Transportation options to major destinations, including regional, town, and neighborhood centers, commercial corridors, and college campuses are limited.

On June 23, 2014 the Project Steering Committee adopted the following **outcomes** for this project:

The Powell-Division Transit and Development Project will result in an actionable plan for key places (future station areas) and improved mobility to address long-standing infrastructure and investment issues along Powell-Division. This action plan will strive to:

- 1) Create a vision and development strategy for key places that promotes community-driven and supported economic development and identifies tools and strategies that mitigate the impacts of market pressures that cause involuntary displacement.
- 2) Identify a preferred near-term high capacity transit solution for the corridor that safely and efficiently serves high ridership demand, improves access to transit, is coordinated with related transportation investments, and recognizes limited capital and operational funding. The solution will include mode, alignment and station locations.

The Steering Committee also adopted the following **goals** for the project:

- **Transportation:** People have safe and convenient transportation options – including efficient and frequent high capacity transit service that enhances current local transit service – that get them where they want to go and improves the existing system.
- **Well-being:** Future development and transit improvements create safe, healthy neighborhoods and improve access to social, educational, environmental and economic opportunities.
- **Equity:** Future development and transit improvements reduce existing disparities, benefit current residents and businesses and enhance our diverse neighborhoods. There is a commitment to prevent market-driven displacement of residents and businesses and to equitably distribute the benefits and burdens of change.
- **Efficiency:** A high capacity transit project is efficiently implemented and operated.

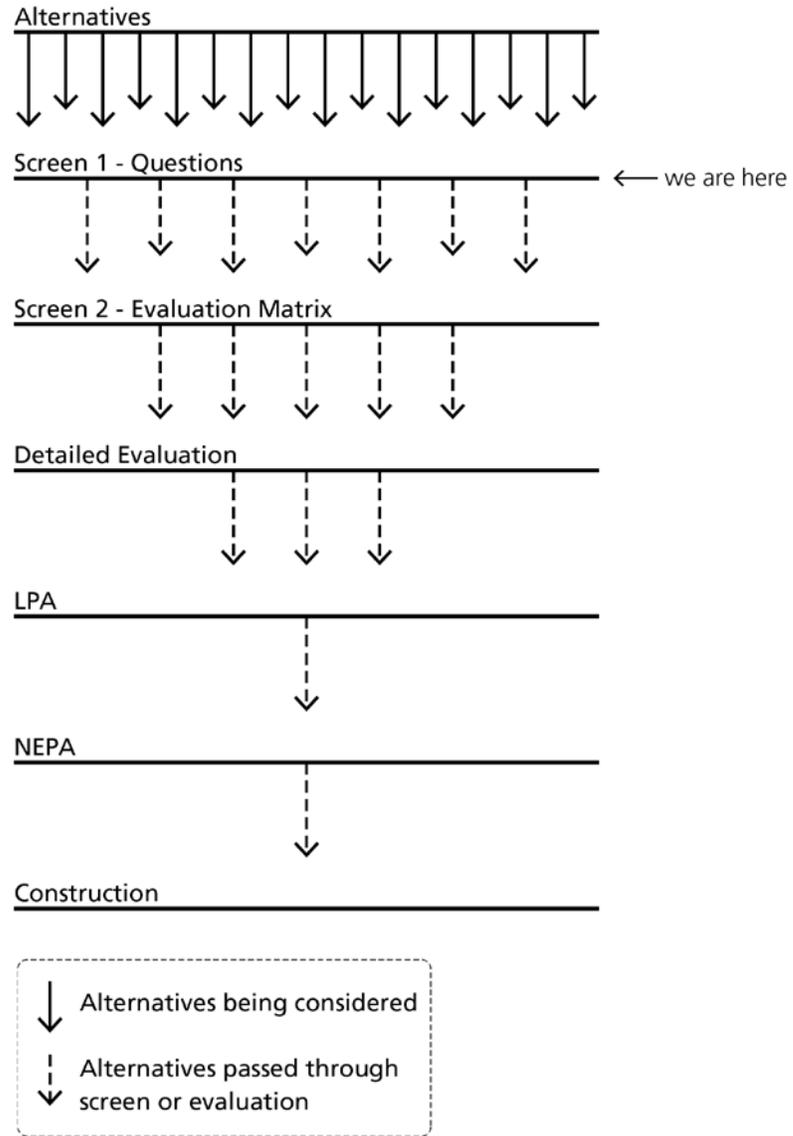
### Screening process

The working draft purpose and need statement, which incorporates the adopted project outcomes and goals, provided the basis for staff development of a project screening process. The criteria used to screen potential alternatives are based on the working draft purpose and need statement along with input from the Steering Committee and the public. Over the summer of 2014, narrowing occurred in the two screening steps that are described above and in further detail below. The Steering Committee will use information from the screening process and input from the public to narrow and recommend alternatives for further development in the fall of 2014.

The screening is a two-step process. The purpose of the screening process is identify which alternatives meet the purpose and need and desired outcomes of the project, which alternatives are not promising and which alternatives require more information. Screening will be followed by more detailed evaluation of alternatives.

The first screen is intended to look at the wide range of transit alternatives and narrow to the most promising or those that need more information to evaluate their potential. During this screen, the alternatives were evaluated based on four key questions that help identify how well those alternatives support the purpose and need and desired outcomes of the project.

Figure 1: Screening Transit Alternatives



## **Screen 1- Does it meet the purpose and need?**

First, alternatives were assessed with a set of initial screening questions. Project staff developed these specifically to assess which alternatives would address the purpose and need and the adopted project outcomes and goals. This report documents the results of screening based results of the following initial screening questions:

- Does the transit alternative support existing policies and plans, and capital investments, including projects currently under construction?
- Does it serve existing transit riders, including environmental justice populations on Powell and Division?
- Does it link key destinations in the corridor?
- Are the impacts reasonable; is the transit alternative feasible given impacts to residential, business and community resources or parks, wetlands, wildlife habitat, historic sites, utilities and other significant infrastructure?

The results of this series of questions are provided in the screening results section of this document. In addition, as part of the screening process, the project team conducted an initial inventory of known opportunities and constraints within the corridor, which was reviewed by the public online and at open houses in the summer of 2014. The inventory, which includes the following, is included as an appendix to this report:

- Why considered for study
- Why promising (opportunities)
- Why less promising (constraints)

The next step will be Screen 2, which will evaluate the alternatives recommended by the Steering Committee in more detail. The alternatives will be evaluated on how well they support the purpose and need and goals and objectives of the project.

## **Screen 2 - Objectives and Measures**

Following the initial screen, the most promising alternatives will be evaluated on quantitative and qualitative measures based on the goals and desired outcomes and will be screened by the Steering Committee. The criteria and measures for the detailed screen were developed using the process discussed below.

In order to provide information to evaluate and compare alternatives for screening step 2, the project team developed objectives and measures based on project goals and outcomes and the working draft purpose and need statement. The objectives for each goals are listed below. The measures and methodology used to assess the performance on each objective will be documented and available in a technical methods report.

**Goal: Transportation**

- TR1 Supports existing transportation policies and plans
- TR2 Connects to areas with currently high ridership
- TR3 Serves projected future transit ridership
- TR4 Serves transit users with faster service
- TR5 Leverages existing right-of-way
- TR6 Avoid where possible the conflicts between high capacity transit and motor vehicle mobility (including freight and emergency vehicles).

**Goal: Well-being**

- WB1 Supports adopted land use plans and policies
- WB2 Provides transit service to the greatest number of people
- WB3 Serves the greatest number of jobs
- WB4 Serves major land uses and transit connections
- WB5 Serves community resources, such as grocery stores, faith-based institutions, human and social services, and health care providers
- WB6 Minimizes right-of-way impacts to community resources
- WB7 Supports economic development
- WB8 Protects or improves the natural environment

**Goal: Equity**

- EQ1 Improves safe access to high capacity transit for communities of color and low-income and other populations of concern
- EQ2 Distributes negative impacts equitably
- EQ3 Distributes benefits equitably

**Goal: Efficiency**

- EF1 Time-frame for service implementation
- EF2 Maximizes financial resources
- EF3 Maximizes the utility of existing transportation facilities
- EF4 Minimizes right-of-way property impacts
- EF5 Minimizes impacts to parks, recreation areas and historic sites

### III. TRANSIT ALTERNATIVES

A wide range of transit alternatives were developed for the Steering Committee and the public based on in-person discussions, online feedback and open houses conducted in late spring and summer 2014. The wide range of alternatives includes the full range of reasonable potential transit investments for the Powell-Division Corridor. As the range of potential alternatives is narrowed, concepts will be more fully developed. The transit alternatives were developed at a high level for initial screening. More detailed design will be developed on a narrowed set of alternatives for evaluation.

#### Transit modes considered

The project considered a range of high capacity transit types, or modes, based on policy, technical assessment, and public feedback.

**Rail** options include:

- **Light rail**, similar to the existing TriMet light rail network.
- **Rapid streetcar**, which would be similar to the existing streetcar network, but would utilize dedicated transit lanes where possible, with station spacing farther apart. This screen assumes that at least fifty percent of the route would be in dedicated transit lanes.

**Bus** options were screened to provide a range of bus rapid transit characteristics. Both bus types would include new, larger, and more significant station area amenities compared to existing bus stops. Bus options screened included:

- **Dedicated busway** would include significant portions running in transit-only lanes, enhanced stops and stations, and new vehicles. For analytical purposes, this screen assessed at least fifty percent of the route would be in dedicated transit lanes. Concept design during the next phase could consider dedicated lanes for less than fifty percent, where right-of-way and traffic conditions allow.
- **Frequent service plus bus** would operate primarily in mixed traffic, with transit priority treatments, enhanced stops and stations, and new vehicles. Transit priority treatments could include queue bypass lanes, business access transit lanes, and dedicated right-of-way in locations where right-of-way and traffic conditions allow.

The following tables describe the transit vehicle choices developed for screening.

**Table 1: Transit Vehicle Alternatives**

	RAIL		BUS RAPID TRANSIT	
	<b>LIGHT RAIL</b>  MAX light rail system	<b>RAPID STREETCAR</b>  Similar to existing Portland Streetcar with significant portions of the line running in transit-only lanes	<b>DEDICATED BUSWAY</b>  Frequent bus service with <b>significant portions of the line running in transit-only lanes.</b> Buses and stations would have higher level of amenities (compared to existing bus stops).	<b>FREQ SERVICE PLUS BUS</b>  Frequent bus service <b>mostly operating in mixed traffic with focused transit priority treatments.</b> Buses and stations would have a higher level of amenities (compared to existing bus stops).
<b>Operational Characteristics</b>	<ul style="list-style-type: none"> <li>Operates on fixed rails in right-of-way separate from traffic.</li> <li>Includes signal priority at traffic signals, where appropriate.</li> <li>Operates every 15 minutes or better, every day. Service frequency is generally increased during peak hours.</li> </ul>	<ul style="list-style-type: none"> <li>Operates in exclusive transit lanes for the majority of length.</li> <li>Includes signal priority at traffic signals, where appropriate.</li> <li>Operates every 15 minutes or better, every day. Service frequency is generally increased during peak hours.</li> </ul>	<ul style="list-style-type: none"> <li>Operates in exclusive transit lanes for the majority of length.</li> <li>Includes turnouts or pullouts where appropriate and signal priority at stoplights.</li> <li>Integrates with the local bus system, but with higher speeds, higher frequency and more substantial stations, connecting concentrated housing or local bus hubs and employment areas.</li> <li>Operates every 15 minutes or better, every day. Service frequency is generally increased during peak hours.</li> </ul>	<ul style="list-style-type: none"> <li>Operates in the roadway in mixed traffic, but with signal priority for stoplights, and some exclusive right-of-way as available.</li> <li>Integrates with the local bus system, but with higher speeds, higher frequency and more substantial stations.</li> <li>Operates every 15 minutes or better. Service frequency can be increased during peak hours.</li> </ul>
<b>Carrying capacity</b>	<ul style="list-style-type: none"> <li>Carries about 266 passengers (seated and standing).</li> <li>Includes two car configurations.</li> </ul>	<ul style="list-style-type: none"> <li>Carries 81 passengers (seated and standing).</li> <li>Includes one car configurations.</li> </ul>	<ul style="list-style-type: none"> <li>Carries 80 passengers (seated and standing).</li> <li>Utilizes coach-style, articulated or higher capacity buses.</li> </ul>	<ul style="list-style-type: none"> <li>Carries 80 passengers (seated and standing).</li> <li>Utilizes coach-style, articulated or higher capacity buses.</li> </ul>
<b>Station amenities</b>	<ul style="list-style-type: none"> <li>Spaced 1/2 to 1 mile apart.</li> <li>Includes shelters, real-time arrival information, platforms that are ADA accessible, ticket machines, art and often bike parking.</li> </ul>	<ul style="list-style-type: none"> <li>Spaced approximately 1/2 mile apart.</li> <li>Includes real-time arrival information, ADA accessible platforms, shelters and ticketing machines and art.</li> </ul>	<ul style="list-style-type: none"> <li>Spaced approximately 1/2 mile apart.</li> <li>Includes shelters, real-time arrival information, platforms that are ADA accessible, ticketing machines, signature branding and art.</li> </ul>	<ul style="list-style-type: none"> <li>Spaced approximately 1/2 mile apart.</li> <li>Includes shelters, real-time arrival information, platforms that are ADA accessible, ticketing machines, signature branding and art.</li> </ul>

**Table 2: Summary of Vehicle Characteristics**

	RAIL		BUS RAPID TRANSIT	
	LIGHT RAIL	RAPID STREETCAR	DEDICATED BUSWAY	FREQ SERVICE PLUS BUS
Capital Cost	\$\$\$\$	\$\$\$	\$\$	\$
Transit Envelope				
Carrying Capacity				
Timeframe to Implement				
Traffic Priority	+++	++	++	+
Service Standard				
Station Amenities				

- Capital Cost** Infrastructure cost represents the physical improvements and investment needed to make a transit option viable, including exclusive lanes/trackway, bridges or structures, signals and stations. Some transit options require more infrastructure and capital investment than others. \$-250M or less    \$\$-250M to 750M    \$\$\$-750M to 1B    \$\$\$\$-1B+
  
- Transit Envelope** Transit envelope is a function of the full right of way required for the particular mode and other infrastructure (such as catenary and rails) that are necessary for operation. Rail installation has the disadvantage of interfering with access to buried utilities.
  
- Carrying Capacity** Approximate total number of passengers that can fit in each mode (sitting and standing).   
 ~10 passengers
  
- Timeframe to Implement** The time it takes to plan, design and construct transit projects varies depending on the type of transit and the associated infrastructure. ~ 5 years
  
- Traffic Priority** Exclusive travel lanes, turn lanes, and efficiency in traffic are associated with the design of each alternative. Light rail would have exclusive right of way, and therefore, operate more efficiently, however, it may impede driveway or parking lot access. Rapid Streetcar and Dedicated Busway would have significant portions running in exclusive lanes but also have the flexibility of running in mixed traffic which could cause delay to other modes.
  
- Service Standard** The most amount of time between vehicles during peak periods (in minutes). Frequency for all modes is 15 minutes or better.
  
- Station Amenities** Amenities include shelters, real-time arrival information, platforms that are ADA accessible, ticket machines, art and often bike parking.

## Routes considered

The project is also considering a range of *transit routes* within the corridor between downtown Portland and Gresham. The initial routes include portions of Powell Boulevard and Division Street in Gresham and Portland. The project is also exploring a range of Willamette River Crossings, potential north/south street connections in Portland, and north/south connections in Gresham.

- From downtown Portland, **Division Street**
- From downtown Portland, **Powell Boulevard**
- From downtown Portland, **inner Division Street and transitioning to Powell Boulevard** with options for the north-south crossing
- From downtown Portland, **inner Powell Boulevard and transitioning to Division Street**, with options for the north-south crossing

Based on the above proposed transit routes, there are three areas with more detailed route options. These include:

- **Willamette River crossing:** The project team has explored using either the Ross Island Bridge or the Tilikum Crossing to cross the Willamette River.
- **Portland north/south connections:** If the transit alignment includes both Powell and Division in Portland, there are several potential north/south transition streets, including Cesar Chavez Boulevard, 50<sup>th</sup>, 52<sup>nd</sup>, 82<sup>nd</sup>, 92<sup>nd</sup>, I-205 ramps, and 122<sup>nd</sup>.
- **Gresham north/south connections:** There are options to connect Downtown Gresham and the intersection of Kane Drive (25<sup>7th</sup>) and Stark near Mount Hood Community College. Routes from downtown to the vicinity of Mount Hood Community College include Eastman, Cleveland, Hogan, and Kane Drive.

The project will also be examining routing options in downtown Portland during conceptual design.

## Alternatives considered

Based on the mode choices and alignments described above, the following range transit alternatives were considered during the initial screening.

### Light rail

- L1** Light rail on SE Powell Blvd
- L2** Light rail on SE Division St
- L3** Light rail on inner SE Powell Blvd transitioning to Division
- L4** Light rail on inner SE Division St transitioning to Powell

### Dedicated Busway

- DB1** Dedicated Busway on SE Powell Blvd
- DB2** Dedicated Busway on SE Division St
- DB3** Dedicated Busway on inner SE Powell Blvd transitioning to Division
- DB4** Dedicated Busway on inner SE Division St transitioning to Powell

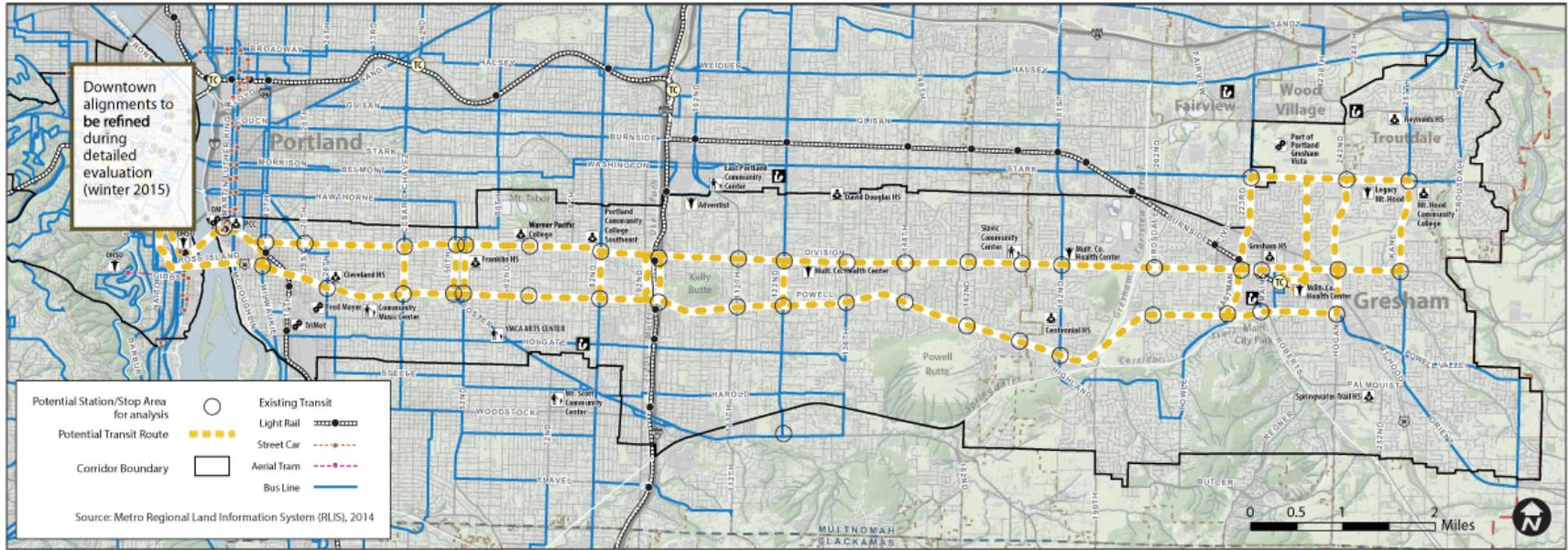
### Rapid streetcar

- RS1** Rapid Streetcar on SE Powell Blvd
- RS2** Rapid Streetcar on SE Division St
- RS3** Rapid Streetcar on inner SE Powell Blvd transitioning to Division
- RS4** Rapid Streetcar on inner SE Division St transitioning to Powell

### Frequent Service Plus

- FS1** Frequent Service Plus on SE Powell Blvd
- FS2** Frequent Service Plus on SE Division St
- FS3** Frequent Service Plus on inner SE Powell Blvd transitioning to Division
- FS4** Frequent Service Plus on inner SE Division St transitioning to Powell

**Figure 2: Routes considered**



### III. SCREEN 1—SCREENING QUESTIONS AND RESULTS

#### Screening Questions

Based on the adopted project outcomes and goals and the purpose and need, project staff developed four key questions to provide the initial screening of alternatives. The initial screening questions and methods and data used for answering each are as follows:

#### *1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?*

Alternatives were evaluated for consistency with adopted city, county, state, regional plans and policies, and any major capital investments in the corridor. The plans, policies and projects considered relevant include the following:

- Regional Transportation Plan (RTP), High Capacity Transit (HCT) Plan, Regional Freight Plan, and the Urban Growth Management Functional Plan
- Gresham and Portland transportation system plans (TSP)
- Gresham’s Community Development Plan
- East Metro Connections Plan
- Portland draft 2035 Comprehensive Plan update
- Portland Plan
- Portland’s Division Green Street / Main Street Plan and improvement projects
- Portland’s Outer Powell Blvd Conceptual Design Plan
- Portland’s Streetcar System Concept Plan
- Oregon Highway Plan
- Oregon Freight Plan
- Portland-Milwaukie Light Rail project

#### *2. Does it serve existing transit riders on Powell and Division?*

Alternatives were evaluated based on how well each would serve existing ridership, including environmental justice populations, based on bus stop data (ons, offs and lifts deployment) for the #9 Powell and #4 Division in the corridor and vehicle capacity.

#### *3. Does it link key destinations in the corridor?*

Each alternative was evaluated based on how well it serves the following locations:

- 2040 Regional and town centers as designated in Metro’s Urban Growth Management Functional Plan
- Neighborhood centers and commercial corridors as designated in local plans. The city of Portland’s Comprehensive Plan update currently underway is also considered.
- Colleges and universities

***4. Are the impacts reasonable; is the transit alternative feasible given impacts to residential, business and community resources or parks, wetlands, wildlife habitat, historic sites, utilities and other significant infrastructure?***

This is an assessment the magnitude and type of impacts and potential effect on project feasibility given those impacts. This analysis identifies impacts that could affect project feasibility due to the magnitude of impacts to residential and business properties, including impacts to environmental justice communities, important existing infrastructure, the significant utilities in the corridor, and the regulatory requirements related to impacts.

The following section summarizes the findings based on the screening questions. The table on the following page provides a summary of the results of the screening questions for each alignment and mode.

**Table 3: Summary of screening results**

		Supports existing plans, policies and investments?	Serves existing and future transit travel demand?	Links key destinations?	Impacts are reasonable?
<p><b>Less Promising</b>  <b>More Promising</b></p>					
<p><b>Light Rail</b></p> <p>Light rail carries a high number of riders quickly. Light rail requires dedicated right-of-way that would include significant impacts to traffic and property. Light rail would not be a near-term project.</p>					
	<b>Powell LR1</b>				
	<b>Division LR2</b>				
	<b>Inner Powell / Outer Division LR3</b>				
	<b>Inner Division / Outer Powell LR4</b>				
<p><b>Rapid Streetcar</b></p> <p>While rapid streetcar can operate in mixed traffic, it has similar impacts and less carrying capacity compared to light rail. Streetcar is not identified in city of Portland streetcar system plan, and streetcar does not currently exist in Gresham.</p>					
	<b>Powell RS1</b>				
	<b>Division RS2</b>				
	<b>Inner Powell / Outer Division RS3</b>				
	<b>Inner Division / Outer Powell RS4</b>				
<p><b>Dedicated Busway</b></p> <p>Dedicated busway would include all of the features of frequent service plus; in addition at least fifty percent of the route would be in dedicated transit lanes. It allows more design and operational flexibility than a fixed rail.</p>					
	<b>Powell DB1</b>				
	<b>Division DB2</b>				
	<b>Inner Powell / Outer Division DB3</b>				
	<b>Inner Division / Outer Powell DB4</b>				
<p><b>Frequent Service Plus Bus</b></p> <p>Frequent Service Plus Bus includes features designed to reduce travel time, such as faster boarding, transit signal priority, new vehicles, designated bus and right turn only lanes. There are opportunities for dedicated transit lanes, including the Tilikum Crossing. It would have fewer impacts to other modes and could be implemented sooner.</p>					
	<b>Powell FS1</b>				
	<b>Division FS2</b>				
	<b>Inner Powell / Outer Division FS3</b>				
	<b>Inner Division / Outer Powell FS4</b>				

## Screening Question Results

### LR1: Light Rail on Powell

LR1 Light Rail on Powell summary table

		Less Promising				More Promising
Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?		
LR1 Light Rail on Powell						
	Not consistent with current Portland policies east of SE 50 <sup>th</sup> , and not consistent with Comp Plan update. Gresham policy designates Powell as a potential future HCT, but recommends bus rapid transit on Division. Conflicts with Portland-Milwaukie light rail project.	Serves the high ridership demand on Powell but not Division east of 82 <sup>nd</sup> . Light rail has the highest carrying capacity. Serves environmental justice populations moderately well	Serves the Lents town center and downtown Gresham but does not serve many key destinations.	Requires significant right-of-way and infrastructure. Impacts would be substantial, including environmental justice populations.		

#### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

MORE SUPPORTIVE:

- Gresham’s TSP designates Powell as a potential HCT corridor
- The Gresham 2035 Transportation System Plan identifies a high capacity transit connection to Mt. Hood Community College via the Powell-Division corridor as a future need.

LESS SUPPORTIVE:

- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan, which recommends bus rapid transit on Division.
- The currently adopted Portland TSP does not designate Powell as a Major Transit Priority Street east of 50<sup>th</sup>.

- ☒ The Portland TSP has designations to accommodate freight on Powell, including Major Truck Street (Willamette River to Gresham). Major Truck Streets link to Regional Truckways and are intended to serve as principal routes for trucks within a Transportation District. Southeast Portland and Far Southeast Portland are Transportation Districts.
- ☒ Recent Portland plans and studies of Powell east of 82<sup>nd</sup> and at the intersection of 122<sup>nd</sup> and Powell did not support increases in density or development intensity
- ☒ Light rail would require revisions to the adopted in the Outer Powell Blvd Conceptual Design Plan to widen the planned cross-section and right-of-way dedications.
- ☒ The 117<sup>th</sup> Avenue overcrossing currently under construction as part of the Portland-Milwaukie Light Rail Project would need to be rebuilt or the alignment would need to be above grade on a structure.
- ☒ Within Portland Powell Blvd is US 26, a US highway owned by the Oregon Department of Transportation (ODOT). It is part of the National Highway System and is designated as a truck route. It is classified as an ODOT District Highway in the Oregon Highway Plan and as a in the Oregon Freight Plan. Per ORS 366.215, “No Reduction of Vehicle-Carrying Capacity,” any proposed decrease in vehicle carrying capacity on US 26 (removal of a travel lane or other reductions of the “hole-in-the-air” needed to accommodate legal loads and annual permitted over-dimension loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission (OTC).

## ***2. Does it serve existing transit riders on Powell and Division?***

### **MORE SUPPORTIVE:**

- ☒ Serves the 8,700 daily boardings on #9 Powell bus line
- ☒ Serves the slightly higher ridership on Powell west of 82<sup>nd</sup>
- ☒ Light rail would have the highest capacity of all modes considered.
- ☒ Serves environmental justice populations moderately well

### **LESS SUPPORTIVE:**

- ☒ Would not serve the current high ridership on Division at 82<sup>nd</sup>
- ☒ East of 82<sup>nd</sup> current ridership is higher on Division than on Powell.

## ***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among alternative routes.

### **MORE SUPPORTIVE:**

- ☒ Would serve the Lents town center.
- ☒ Would serve Powell-Creston, Heart of Foster centers and the inner Powell Civic Corridor in proposed in Portland’s draft 2035 Comprehensive Plan.

- Would serve downtown Gresham.

LESS SUPPORTIVE:

- Would not serve Portland Community College at 82<sup>nd</sup> and Warner Pacific College.
- Would not provide access to the 162<sup>nd</sup>/Division Center or the outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan update.
- Would not provide service to the Division-Midway Neighborhood Prosperity Initiative district.
- Would not serve the Civic Neighborhood in Gresham.

***4. Are the impacts reasonable; is the transit alternative feasible given impacts to residential, business and community resources or parks, wetlands, wildlife habitat, and historic sites?***

LESS SUPPORTIVE:

- Light rail would require exclusive right-of-way for its entire length. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street. Either would have substantial impacts to businesses and residents. Removing a travel lane would have substantial impacts to traffic in sections of the corridor that are already congested and would trigger ODOT Reduction in Carrying Capacity Review. The level of property acquisition required would be a major impact to communities, though it would be less on Powell than Division west of 82<sup>nd</sup>.
- Total right-of-way required is a minimum of approximately 110 feet in sections that are currently two-lanes and approximately 95 feet to convert an existing lane in a four-lane section.
- Many sections of Powell are currently two lanes. Substantial widening would be required in locations that currently narrow to 45 feet; removing travel lanes on Powell could have significant impacts to traffic congestion. Elevating light rail would require substantial structure for large portions of the alignment and still require some additional right-of-way or some removal of a lane or other street element to accommodate support structures and provide access to stations.
- Light rail on Powell poses substantial impacts for environmental justices communities because of the amount of property affected.
- Impacts to turn movements and local access
- Potential parks, schools and cemetery impacts include:
  - Powell Park and Cleveland High School at 26<sup>th</sup>. Existing right-of-way is approximately 80 feet adjacent to Powell Park and Cleveland High School.
  - Creston Park and St. Ignatius at SE 43rd
  - Cleveland High School field at SE 33<sup>rd</sup>
  - Ed Benedict Park Skate Park at 102<sup>nd</sup> Ave
  - Ed Benedict Park Memorial Grove at 104<sup>th</sup> Ave
  - Powell narrows to two lanes where the Gresham Fairview Path's pedestrian and bicycle bridge crosses. The road would need to be widened and the bridge reconstructed in order to accommodate light rail.

- St. Joseph Cemetery
- West Gresham Elementary School
- Main City Park
- ☒ Wetlands and protected habitat at the Fairview Creek headwaters between SE 182<sup>nd</sup> and Birdsdale limit potential to widen right-of-way in an area that narrows to two lanes.
- ☒ Widening the right-of-way along Powell Blvd would require the removal of many large conifer trees in the corridor near the edge of the existing right-of-way.
- ☒ Utilities that exist under Powell Boulevard make infrastructure difficult to design and engineer. Utilities, including access to existing water lines, would be substantially impacted. Any water line within 10 feet of the edge of a rail track slab must be relocated per Portland Water Bureau policy. Relocation of such pipes add significant cost. A large conduit relocation would likely require additional relocation of other utilities and potentially property purchase for the new alignment.

## LR2: Light Rail on Division

LR2 Light Rail on Division summary table

		Less Promising				More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?	
LR2	Light Rail on Division St					
		Consistent with current Portland TSP, but not consistent with Comp Plan update. Gresham policy designates Division as a potential future HCT, but recommends bus rapid transit on Division.	Serves the high ridership demand on Division from 82 <sup>nd</sup> east but not Powell west of 82nd. Light rail has the highest carrying capacity. Provides less benefit to environmental justice communities.	Serves many, but not all of the key destinations.	Requires significant right-of-way and infrastructure. Impacts would be substantial and include a high impact on environmental justice communities.	

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

#### MORE SUPPORTIVE:

- Gresham's TSP designates Division as a potential HCT corridor
- The Gresham 2035 Transportation System Plan identifies a high capacity transit connection to Mt. Hood Community College via the Powell-Division corridor as a future need.
- Consistent with the currently adopted Portland TSP, which designates Division as a Major Transit Priority Street.

#### LESS SUPPORTIVE:

- The Portland's draft Comprehensive Plan Update currently underway does not designate Division west of 82<sup>nd</sup> as a potential HCT street.
- Light rail on Division west of 82<sup>nd</sup> is less compatible with land use designations and development patterns.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan, which identifies bus rapid transit in the Powell-Division Corridor.

- Would not be consistent with Division Streetscape Plan and recently constructed stormwater facilities between SE 11<sup>th</sup> and Cesar Chavez Boulevard.

## ***2. Does it serve existing transit riders on Powell and Division?***

### **MORE SUPPORTIVE:**

- Serves existing # 4 Division riders (9,000 daily boardings).
- Division and 82<sup>nd</sup> is one of the highest ridership locations in the corridor.
- Would serve the Gresham Transit Center.
- Light rail would have the highest capacity of all modes considered.

### **LESS SUPPORTIVE:**

- The highest ridership west of 82<sup>nd</sup> Ave is on Powell.
- Provides less benefit to environmental justice communities. Despite high access to employment centers, destinations, and community resources, there are fewer environmental justice populations along the alignment.

## ***3. Does it link key destinations in the corridor?***

This question relates more to the alignment and is not related to the mode. The more supportive and less supportive findings will be the same for each mode and only different for alignment choices.

### **MORE SUPPORTIVE:**

- Many of the key destinations in the corridor, including colleges, and town and neighborhood centers are on Division.
- Would serve PCC and Warner Pacific College.
- Would serve the Division-Midway Neighborhood Prosperity Initiative district
- Would serve the Division / 162<sup>nd</sup> potential neighborhood center and outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan.
- Would serve the Civic Neighborhood in Gresham.

### **LESS SUPPORTIVE:**

- Would not serve Lents town center.
- Would not serve the inner Powell Civic Corridor in proposed in Portland's draft 2035 Comprehensive Plan.

## ***4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

### **LESS SUPPORTIVE:**

- Light rail would require exclusive right-of-way for its entire length. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and

other elements from the existing street. Either would have substantial impacts to businesses and residents. Removing a travel lane would have substantial impacts to traffic in already congested sections of the corridor; removing a travel lane on Division west of 82<sup>nd</sup> would eliminate all other traffic. The level of property acquisition required would be a major impact to communities, and include environmental justice populations.

- ☒ Total right-of-way required is a minimum of approximately 110 feet in sections that are currently two-lanes and approximately 95 feet to convert an existing lane in a four-lane section.
- ☒ Substantial widening would be required in locations that are currently two lanes. Current total right-of-way is approximately 60 feet between 11<sup>th</sup> and 80<sup>th</sup> avenues. Neighborhood and property impacts between SE 8<sup>th</sup> and SE 50<sup>th</sup> would be substantial. Right-of-way is less constrained east of 80<sup>th</sup> though it is reduced to 77 feet between Birdsdales and Wallula.
- ☒ Potential parks, schools and cemetery impacts include:
  - Franklin High School
  - Clinton Park
  - Warner Pacific College
  - Fairview Creek Headwaters
  - Gresham-Fairview Trail
  - Gresham High School
  - Gresham Golf and Country Club
- ☒ Sensitive wetlands and protected habitat at Fairview Creek Headwaters and Kelly Creek
- ☒ Requires crossing the main Union Pacific rail line in Portland and Portland-Milwaukie light rail on an elevated structure. An at-grade crossing is not feasible or advantageous. It would require approval of a Crossing Order by ODOT Rail Division and the railroad company, which is highly unlikely and generally against their policy. In addition an at-grade crossing would result in long delays to transit which must give right-of-way to the freight rail. There are often delays of 20 minutes for freight trains. This would severely impact transit reliability and travel times.
- ☒ Utilities, including access to existing water lines, would be substantially impacted. Any water line within 10 feet of the edge of a rail track slab must be relocated per Portland Water Bureau policy. Relocation of such pipes add significant cost. A large conduit relocation would likely require additional relocation of other utilities and potentially purchasing property.

### LR3: Light Rail on Powell transitioning to Division

LR3 Light Rail on Powell transitioning to Division summary table

		Less Promising					More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?		
LR3	Light rail on Powell transitioning to Division						
		Not consistent with current Portland policies for Powell east of SE 50 <sup>th</sup> , but would be with the Portland's draft Comprehensive Plan update with a transition on 82 <sup>nd</sup> . Gresham policy designates Division as a potential future HCT, but recommends bus rapid transit. Conflicts with the Portland-Milwaukie transit project.	This alignment has the potential to serve the high ridership demand on both Powell and Division. Light rail has the highest carrying capacity. Most promising for serving ridership of environmental justice populations.	Has the potential to serve most or all of the key destinations.	Requires significant right-of-way and infrastructure. Impacts would be substantial and include environmental justice populations.		

**1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?**

MORE SUPPORTIVE:

- Gresham's TSP designates Division as a potential HCT corridor
- The Gresham 2035 Transportation System Plan identifies a high capacity transit connection to Mt. Hood Community College via the Powell-Division corridor as a future need.
- Consistent with the Portland's draft Comprehensive Plan update if the transition is on 82<sup>nd</sup>; Powell is designated as a HCT street between the Portland-Milwaukie light rail line and 82<sup>nd</sup> and

Division is between 82<sup>nd</sup> and the Gresham city limit.

- Light rail would have the highest capacity of all modes considered.

LESS SUPPORTIVE:

- The 17<sup>th</sup> Avenue overcrossing currently under construction as part of the Portland-Milwaukie Light Rail Project would need to be rebuilt or the alignment would need to be above grade on a structure.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan, which recommends bus rapid transit on Division.
- Within Portland Powell Blvd is US 26, a US highway owned by the Oregon Department of Transportation (ODOT). It is part of the National Highway System and is designated as a truck route. It is classified as an ODOT District Highway in the Oregon Highway Plan and as a in the Oregon Freight Plan. Per ORS 366.215, “No Reduction of Vehicle-Carrying Capacity,” any proposed decrease in vehicle carrying capacity on US 26 (removal of a travel lane or other reductions of the “hole-in-the-air” needed to accommodate legal loads and annual permitted over-dimension loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission (OTC).

## ***2. Does it serve existing transit riders on Powell and Division?***

MORE SUPPORTIVE:

- The highest ridership in the corridor is on Powell west of 82<sup>nd</sup> and on Division east of 82<sup>nd</sup>.
- Division and 82<sup>nd</sup> is one of the highest ridership locations in the corridor.
- Based on where concentrated environmental justice communities are located, this route would be most promising for serving ridership of environmental justice populations.
- Light rail has the highest capacity vehicles.

## ***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among route alternatives.

MORE SUPPORTIVE:

- This alignment would serve most of the key destinations in the corridor with a transition at a strategic location.
- Depending on transition street, could provide service to PCC and could serve either Warner Pacific College or the Lents town center and the Jade District.
- Would serve the Division-Midway Neighborhood Prosperity Initiative district.
- Would serve the Division / 162<sup>nd</sup> potential neighborhood center and outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan.
- Would serve the Civic Neighborhood in Gresham.

*4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?*

LESS SUPPORTIVE:

- ☒ Light rail would require exclusive right-of-way for its entire length. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street. Either would have substantial impacts to businesses and residents. Removing a travel lane would have substantial impacts to traffic in already congested sections of the corridor. The level of property acquisition required would be a major impact to communities, and include environmental justice populations. However, property impacts would be less on Powell than on Division in Portland.
- ☒ Total right-of-way required is a minimum of approximately 110 feet in sections that are currently two-lanes and approximately 95 feet to convert an existing lane in a four-lane section.
- ☒ Depending on transition street, potential parks, schools and cemetery impacts could include:
  - Powell Park and Cleveland High School at 26<sup>th</sup>. Existing right-of-way is approximately 80 feet adjacent to Powell Park and Cleveland High School.
  - Cleveland High School field at SE 33<sup>rd</sup>
  - Creston Park and St. Ignatius at SE 43<sup>rd</sup>
  - Franklin High School
  - Clinton Park
  - Warner Pacific College
  - Fairview Creek Headwaters
  - Gresham High School
  - Gresham Golf and Country Club
- ☒ Sensitive wetlands and protected habitat at Fairview Creek Headwaters and Kelly Creek
- ☒ Utilities that exist under Powell and Division make infrastructure difficult to design and engineer. Utilities, including access to existing water lines, would be substantially impacted. Any water line within 10 feet of the edge of a rail track slab must be relocated per Portland Water Bureau policy. Relocation of such pipes add significant cost. A large conduit relocation would likely require additional relocation of other utilities and potentially property purchase for the new alignment.

## LR 4: Light Rail on Division transitioning to Powell

LR4 Light Rail on inner Division transitioning to Powell summary table

		Less Promising				More Promising		
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?			
LR4	Light Rail on inner Division transitioning to Powell							
		Consistent with current Portland TSP, but not consistent with current Comp Plan update. Gresham policy designates Powell as a potential future HCT, but recommends bus rapid transit on Division.	Would not serve the high ridership on Division in East Portland and Gresham. Light rail has the highest carrying capacity. Provides less benefit to environmental justice communities.	Could serve the Jade District and Lents town center, but would miss many of the other key destinations.	Requires significant right-of-way and infrastructure. Impacts would be substantial, and include environmental justice populations.			

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

LESS SUPPORTIVE:

- The Portland’s draft Comprehensive Plan update does not designate either Division west of 82<sup>nd</sup> or Powell east of 82<sup>nd</sup> as HCT streets.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan which identifies bus rapid transit in the Powell-Division Corridor.
- Would not be consistent with the Portland Division Streetscape Plan.
- Conflicts with the Outer Powell Concept Plans.
- Within Portland Powell Blvd is US 26, a US highway owned by the Oregon Department of Transportation (ODOT). It is part of the National Highway System and is designated as a truck route. It is classified as an ODOT District Highway in the Oregon Highway Plan and as a in the Oregon Freight Plan. Per ORS 366.215, “No Reduction of Vehicle-Carrying Capacity,” any proposed decrease in vehicle carrying capacity on US 26 (removal of a travel lane or other reductions of the “hole-in-the-air” needed to accommodate legal loads and annual permitted over-dimension loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission (OTC).

## ***2. Does it serve existing transit riders on Powell and Division?***

### **MORE SUPPORTIVE:**

- Light rail would have the highest capacity of all modes considered.

### **LESS SUPPORTIVE:**

- Would not serve the high ridership on Division in East Portland and Gresham
- Provides less benefit to environmental justice communities.

## ***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

### **MORE SUPPORTIVE:**

- Depending on the route choice, could provide access to the Jade District or could serve Lents town center with a transition street west of 52nd.
- Would serve downtown Gresham.

### **LESS SUPPORTIVE:**

- This alignment would not serve many of key destinations in the corridor regardless of the transition location
- Would not provide access to the 162<sup>nd</sup>/Division Center or the outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan update
- Would not provide service to the Division-Midway Neighborhood Prosperity Initiative district.
- Would not serve the Civic Neighborhood in Gresham.

## ***4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

### **LESS SUPPORTIVE:**

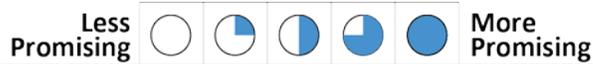
- This alternative would have the most impacts.
- Light rail would require exclusive right-of-way for its entire length. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street. Either would have substantial impacts to businesses and residents. Removing a travel lane would have substantial impacts to traffic in already congested sections of the corridor; removing a travel lane on Division west of 82<sup>nd</sup> would eliminate all other traffic. The level of property acquisition required would be a major impact to communities, and include environmental justice populations.
- Total right-of-way required is a minimum of approximately 110 feet in sections that are currently two-lanes and approximately 95 feet to convert an existing lane in a four-lane section.

- ☒ Substantial widening would be required in locations that are currently two lanes. Current total right-of-way is approximately 60 feet between 11<sup>th</sup> and 80<sup>th</sup> avenues. Neighborhood and property impacts between SE 8<sup>th</sup> and SE 50<sup>th</sup> would be substantial.
- ☒ Property impacts between SE 8<sup>th</sup> and SE 50<sup>th</sup> would be substantial
- ☒ Requires crossing main Union Pacific rail line and PMLR on structure. An at-grade crossing is not feasible or advantageous. It would require approval of a Crossing Order by ODOT Rail Division and the railroad company, which is highly unlikely and generally against their policy. In addition an at-grade crossing would result in long delays to transit which must give right-of-way to the freight rail. There are often delays of 20 minutes for freight trains. This would severely impact transit reliability and travel times.
- ☒ Potential parks, schools and cemetery impacts include:
- ☒ Depending on transition street, potential parks, schools and cemetery impacts could include:
  - Franklin High School
  - Clinton Park
  - Warner Pacific College
  - Ed Benedict Park Skate Park at 102<sup>nd</sup> Ave
  - Ed Benedict Park Memorial Grove at 104<sup>th</sup> Ave
  - Powell narrows to two lanes where the Gresham Fairview Path's pedestrian and bicycle bridge crosses. The road would need to be widened and the bridge reconstructed in order to accommodate light rail.
  - St. Joseph Cemetery
  - West Gresham Elementary School
  - Main City Park
- ☒ Wetlands and protected habitat at the Fairview Creek headwaters between SE 182<sup>nd</sup> and Birdsdale limit potential to widen right-of-way in an area that narrows to two lanes.
- ☒ Utilities that exist under Powell and Division make infrastructure difficult to design and engineer. Utilities, including access to existing water lines, would be substantially impacted. Any water line within 10 feet of the edge of a rail track slab must be relocated per Portland Water Bureau policy. Relocation of such pipes add significant cost. A large conduit relocation would likely require additional relocation of other utilities and potentially property purchase for the new alignment.
- ☒ Requires crossing main Union Pacific rail line and Portland-Milwaukie light rail on an elevated structure. An at-grade crossing is not feasible or advantageous. It would require approval of a Crossing Order by ODOT Rail Division and the railroad company, which is highly unlikely and generally against their policy. In addition an at-grade crossing would result in long delays to transit which must give right-of-way to the freight rail. There are often delays of 20 minutes for freight trains. This would severely impact transit reliability and travel times.

# Rapid Streetcar

## RS1: Rapid Streetcar on Powell Blvd

RS1 Rapid Streetcar on Powell summary table



	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?
RS1	Rapid Streetcar on Powell				
		Not consistent with current Portland policies east of SE 50 <sup>th</sup> and not consistent with Comp Plan update. Gresham policy designates Powell as a potential future HCT, but recommends bus rapid transit on Division. Conflicts with Portland-Milwaukie light rail. Portland Streetcar System Concept Plan does not support streetcar on Powell.	Serves the high ridership demand on Powell but not Division east of 82 <sup>nd</sup> . Streetcar is similar in capacity to bus alternatives. Serves environmental justice populations moderately well	Serves the Lents town center and downtown Gresham but does not serve many the key destinations.	Depending on where it could be in mixed traffic, could requires significant right-of-way and infrastructure in certain areas. Impacts would be substantial, and include environmental justice populations.

**1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?**

MORE SUPPORTIVE:

- Gresham’s TSP designates Powell as a potential HCT corridor

- The Gresham 2035 Transportation System Plan identifies a high capacity transit connection to Mt. Hood Community College via the Powell-Division corridor as a future need.

LESS SUPPORTIVE:

- Would not be consistent with the Portland Streetcar System Concept Plan.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan, which recommends bus rapid transit on Division.
- The currently adopted Portland TSP does not designate Powell as a Major Transit Priority Street east of 50th.
- The Portland Comp Plan update does not designate Powell as a HCT street east of 82<sup>nd</sup>
- The Portland TSP has designations to accommodate freight on Powell, including Major Truck Street (Willamette River to Gresham). Major Truck Streets link to Regional Truckways and are intended to serve as principal routes for trucks within a Transportation District. Southeast Portland and Far Southeast Portland are Transportation Districts.
- Recent Portland plans and studies of Powell east of 82<sup>nd</sup> and at the intersection of 122<sup>nd</sup> and Powell did not support increases in density or development intensity
- Rapid streetcar could require revisions to the adopted in the Outer Powell Blvd Conceptual Design Plan to widen the planned cross-section and right-of-way dedications.
- The 17<sup>th</sup> Avenue overcrossing currently under construction would need to be rebuilt to accommodate overhead catenaries even if it ran in mixed traffic.
- Within Portland Powell Blvd is US 26, a US highway owned by the Oregon Department of Transportation (ODOT). It is part of the National Highway System and is designated as a truck route. It is classified as an ODOT District Highway in the Oregon Highway Plan and as a in the Oregon Freight Plan. Per ORS 366.215, "No Reduction of Vehicle-Carrying Capacity," any proposed decrease in vehicle carrying capacity on US 26 (removal of a travel lane or other reductions of the "hole-in-the-air" needed to accommodate legal loads and annual permitted over-dimension loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission (OTC).

***2. Does it serve existing transit riders on Powell and Division?***

MORE SUPPORTIVE:

- Serves the 8,700 daily boarding on the # Powell bus line
- Would serve the slightly higher ridership on Powell west of 82<sup>nd</sup>.
- Serves environmental justice populations moderately well

LESS SUPPORTIVE:

- Would not serve the higher ridership on Division at 82<sup>nd</sup> and between 82<sup>nd</sup> and the Gresham Transit Center.

### ***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among alternative routes.

#### **MORE SUPPORTIVE:**

- Would serve the Lents town center.
- Would serve Powell-Creston, Heart of Foster centers and the inner Powell Civic Corridor in proposed in Portland's draft 2035 Comprehensive Plan.
- Would serve downtown Gresham.

#### **LESS SUPPORTIVE:**

- Would not serve Portland Community College at 82<sup>nd</sup> and Warner Pacific College
- Would not provide access to the 162<sup>nd</sup>/Division Center or the outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan update
- Would not provide service to the Division-Midway Neighborhood Prosperity Initiative district.
- Would not serve the Civic Neighborhood in Gresham.

### ***4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

#### **MORE SUPPORTIVE:**

- Rapid Streetcar would require less right-of-way than light rail. Some impacts could be avoided because it could run in mixed traffic and because the cross-section width is less than for light rail.

#### **LESS SUPPORTIVE:**

- Rapid streetcar would most likely have more than half of the route running in exclusive right-of-way. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street. Either would have substantial impacts to businesses and residents. Removing a travel lane would have substantial impacts to traffic in sections of the corridor that are already congested. The level of property acquisition required, though less than light rail and less on Powell than Division west of 82<sup>nd</sup>, would still be a major impact to communities, and include environmental justice populations.
- Powell is US 26, a US highway and Reduction Review Route that must undergo review for any decrease in vehicle carrying capacity.
- Rapid streetcar on Powell poses substantial impacts for environmental justices communities because of the amount of property affected.
- Impacts to turn movements and local access

- ☒ Impacts to parks, schools and cemetery may be avoided, depending on where it would run in mixed traffic. Potential impacts could include:
  - Powell Park and Cleveland High School at 26<sup>th</sup>. Existing right-of-way is approximately 80 feet adjacent to Powell Park and Cleveland High School.
  - Creston Park and St. Ignatius at SE 43rd
  - Cleveland High School field at SE 33<sup>rd</sup>
  - Ed Benedict Park Skate Park at 102<sup>nd</sup> Ave
  - Ed Benedict Park Memorial Grove at 104<sup>th</sup> Ave
  - Powell narrows to two lanes where the Gresham Fairview Path's pedestrian and bicycle bridge crosses. The road would need to be widened and the bridge reconstructed in order to accommodate light rail.
  - St. Joseph Cemetery
  - West Gresham Elementary School
  - Main City Park
- ☒ Wetlands and protected habitat at the Fairview Creek headwaters between SE 182<sup>nd</sup> and Birdsdale limit potential to widen right-of-way in an area that narrows to two lanes.
- ☒ Widening the right-of-way along Powell Blvd would require the removal of many large conifer trees in the corridor near the edge of the existing right-of-way.
- ☒ Utilities that exist under Powell Boulevard make infrastructure difficult to design and engineer. Utilities, including access to existing water lines, would be substantially impacted. Any water line within 10 feet of the edge of a rail track slab must be relocated per Portland Water Bureau policy. Relocation of such pipes add significant cost. A large conduit relocation would likely require additional relocation of other utilities and potentially property purchase for the new alignment.

## RS2: Rapid Streetcar on Division

RS2 Rapid Streetcar on Division summary table

		Less Promising				More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?	
RS2	Rapid Streetcar on Division St					
		Consistent with current Portland TSP, but not consistent with Comp Plan update. Gresham policy designates Division as a potential future HCT, but recommends bus rapid transit. Could conflict with the Division Streetscape Plan and stormwater improvements. Portland Streetcar System Concept Plan does not support streetcar on Division.	Serves the high ridership demand on Division from 82 <sup>nd</sup> east but not Powell west of 82 <sup>nd</sup> . Streetcar is similar in capacity to bus alternatives. Provides less benefit to environmental justice communities.	Serves many, but not all of the key destinations.	Depending on where it could be in mixed traffic, could require significant right-of-way and infrastructure in certain areas. Impacts would be substantial and include environmental justice populations.	

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

MORE SUPPORTIVE:

- Gresham's TSP designates Division as a potential HCT corridor.
- The Gresham 2035 Transportation System Plan identifies a high capacity transit connection to Mt. Hood Community College via the Powell-Division corridor as a future need.
- Consistent with the currently adopted Portland TSP, which designates Division as a Major Transit Priority Street.

LESS SUPPORTIVE:

- Would not be consistent with the Portland Streetcar System Concept Plan.
- The Portland's draft Comprehensive Plan Update currently underway does not designate Division west of 82<sup>nd</sup> as a potential HCT street.
- Would not be consistent with Division Streetscape Plan and recently constructed stormwater facilities.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan, and recommends bus rapid transit on Division.

**2. Does it serve existing transit riders on Powell and Division?**

MORE SUPPORTIVE:

- Serves existing # 4 Division riders (9,000 daily boardings).
- Serves the high ridership on Division east of 82<sup>nd</sup>.
- Serves Division and 82<sup>nd</sup>, one of the highest ridership locations in the corridor.

LESS SUPPORTIVE:

- The ridership is higher on Powell west of 82<sup>nd</sup> Ave.
- Provides less benefit to environmental justice communities. Despite high access to employment centers, destinations, and community resources, there are fewer environmental justice populations along the alignment.

**3. Does it link key destinations in the corridor?**

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

MORE SUPPORTIVE:

- Many of the key destinations in the corridor, including colleges, and town and neighborhood centers are on Division.
- Would serve PCC and Warner Pacific College.
- Would serve the Division-Midway Neighborhood Prosperity Initiative district.
- Would serve the Division / 162<sup>nd</sup> potential neighborhood center and outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan.
- Would serve the Civic Neighborhood in Gresham.

LESS SUPPORTIVE:

- Would not serve Lents town center.
- Would not serve the inner Powell Civic Corridor in proposed in Portland's draft 2035 Comprehensive Plan.

4. *Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?*

MORE SUPPORTIVE:

- Rapid Streetcar would require less right-of-way than light rail. Some impacts could be avoided because it could run in mixed traffic and because the cross-section width is less than for light rail.

LESS SUPPORTIVE:

- Rapid streetcar would most likely have more than half of the route running in exclusive right-of-way. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street. Either would have substantial impacts to businesses and residents. Removing a travel lane would have substantial impacts to traffic in already congested sections of the corridor; removing a travel lane on Division west of 82<sup>nd</sup> would eliminate all other traffic. The level of property acquisition required, though less than light rail, would still be a major impact to communities, and include environmental justice populations.
- Impacts to turn movements and local access
- Impacts to parks, schools and cemetery may be avoided, depending on where it would run in mixed traffic. Potential impacts could include:
  - Franklin High School
  - Clinton Park
  - Warner Pacific College
  - Fairview Creek Headwaters
  - Gresham-Fairview Trail
  - Gresham High School
  - Gresham Golf and Country Club
- Sensitive wetlands and protected habitat at Fairview Creek Headwaters and Kelly Creek
- Requires crossing main Union Pacific rail line and Portland-Milwaukie light rail on an elevated structure. An at-grade crossing is not feasible or advantageous. It would require approval of a Crossing Order by ODOT Rail Division and the railroad company, which is highly unlikely and generally against their policy. In addition an at-grade crossing would result in long delays to transit which must give right-of-way to the freight rail. There are often delays of 20 minutes for freight trains. This would severely impact transit reliability and travel times.
- Utilities, including access to existing water lines, would be substantially impacted. Any water line within 10 feet of the edge of a rail track slab must be relocated per Portland Water Bureau policy. Relocation of such pipes add significant cost. A large conduit relocation would likely require additional relocation of other utilities and potentially purchasing property.

## RS3: Rapid Streetcar on Powell transitioning to Division

RS3 Rapid Streetcar on Powell transitioning to Division summary table

		Less Promising				More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?	
RS3	Rapid Streetcar on Powell Blvd transitioning to Division					
		Not consistent with current Portland policies for Powell east of SE 50 <sup>th</sup> , but would be with the Portland’s draft Comprehensive Plan update with a transition on 82 <sup>nd</sup> . Gresham policy designates Division as a potential future HCT, but recommends bus rapid transit. Conflicts with the Portland-Milwaukie transit project. Portland Streetcar System Concept Plan does not support streetcar on Powell or Division.	This alignment has the potential to serve the high ridership demand on both Powell and Division. Streetcar is similar in capacity to bus alternatives. Most promising for serving ridership of environmental justice populations.	Has the potential to serve most or all of the key destinations.	Depending on where it could be in mixed traffic, could requires significant right-of-way and infrastructure in certain areas. Impacts would be substantial, and include environmental justice populations.	

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

MORE SUPPORTIVE:

- Gresham’s TSP designates Division as a potential HCT corridor
- Consistent with the Portland’s draft Comprehensive Plan update if the transition is on 82<sup>nd</sup>;

Powell is designated as a HCT street between the Portland-Milwaukie light rail line and 82<sup>nd</sup> and Division is between 82<sup>nd</sup> and the Gresham city limit.

LESS SUPPORTIVE:

- Would not be consistent with the Portland Streetcar System Concept Plan
- The 17<sup>th</sup> Avenue overcrossing currently under construction may need to be rebuilt to accommodate catenaries even if it ran in mixed traffic.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan and recommends bus rapid transit on Division.
- The 17<sup>th</sup> Avenue overcrossing currently under construction would need to be rebuilt to accommodate overhead catenaries even if it ran in mixed traffic.
- Within Portland Powell Blvd is US 26, a US highway owned by the Oregon Department of Transportation (ODOT). It is part of the National Highway System and is designated as a truck route. It is classified as an ODOT District Highway in the Oregon Highway Plan and as a in the Oregon Freight Plan. Per ORS 366.215, "No Reduction of Vehicle-Carrying Capacity," any proposed decrease in vehicle carrying capacity on US 26 (removal of a travel lane or other reductions of the "hole-in-the-air" needed to accommodate legal loads and annual permitted over-dimension loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission (OTC).

**2. Does it serve existing transit riders on Powell and Division?**

MORE SUPPORTIVE:

- This alignment would serve the highest current ridership if service is provided on Division at 82<sup>nd</sup>.
- Based on where concentrated environmental justice communities are located, this route would be most promising for serving ridership of environmental justice populations.

LESS SUPPORTIVE:

- Lower capacity vehicles would not provide service as efficiently as higher capacity alternatives.

**3. Does it link key destinations in the corridor?**

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

MORE SUPPORTIVE:

- This alignment would serve most of the key destinations in the corridor with a transition at a strategic location.
- Depending on transition street, could provide service to PCC and could serve either Warner Pacific College or the Lents town center and the Jade District.

- Would serve the Division-Midway Neighborhood Prosperity Initiative district.
- Would serve the Division / 162<sup>nd</sup> potential neighborhood center and outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan.
- Would serve the Civic Neighborhood in Gresham.

**4. *Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

**MORE SUPPORTIVE:**

- Rapid Streetcar would require less right-of-way than light rail. Some impacts could be avoided because it could run in mixed traffic and because the cross-section width is less than for light rail.

**LESS SUPPORTIVE:**

- Rapid streetcar would most likely have more than half of the route running in exclusive right-of-way. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street. Either would have substantial impacts to businesses and residents. Removing a travel lane would have substantial impacts to traffic in already congested sections of the corridor. The level of property acquisition required, though less than light rail, would still be a major impact to communities, and include environmental justice populations.
- Impacts to turn movements and local access
- Impacts to parks, schools and cemetery may be avoided, depending on the transition street and where it would run in mixed traffic. Potential impacts could include:
  - o Powell Park and Cleveland High School at 26<sup>th</sup>. Existing right-of-way is approximately 80 feet adjacent to Powell Park and Cleveland High School.
  - o Cleveland High School field at SE 33<sup>rd</sup>
  - o Creston Park and St. Ignatius at SE 43<sup>rd</sup>
  - o Franklin High School
  - o Clinton Park
  - o Warner Pacific College
  - o Fairview Creek Headwaters
  - o Gresham High School
  - o Gresham Golf and Country Club
- Sensitive wetlands and protected habitat at Fairview Creek Headwaters and Kelly Creek
- Utilities that exist under Powell and Division make infrastructure difficult to design and engineer. Utilities, including access to existing water lines, would be substantially impacted. Any water line within 10 feet of the edge of a rail track slab must be relocated per Portland Water Bureau policy. Relocation of such pipes add significant cost. A large conduit relocation would

likely require additional relocation of other utilities and potentially property purchase for the new alignment.

## RS4: Rapid Streetcar on Division transitioning to Powell

RS4 Rapid Streetcar on Division transitioning to Powell summary table

		Less Promising				More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?	
RS4	Rapid Streetcar on Division transitioning to Powell					
		Consistent with current Portland TSP, but not consistent with Comp Plan update. Gresham policy designates Powell as a potential future HCT, but recommends bus rapid transit on Division. Portland Streetcar System Concept Plan does not support streetcar on Powell or Division.	Would not serve the high ridership on Division in East Portland and Gresham. Streetcar is similar in capacity to bus alternatives. Provides less benefit to environmental justice communities.-	Could serve the Jade District and Lents town center, but would miss many of the other key destinations.	Depending on where it could be in mixed traffic, could requires significant right-of-way and infrastructure in certain areas. Impacts would be substantial, and include environmental justice populations.	

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

LESS SUPPORTIVE:

- The Portland's draft Comprehensive Plan update does not designate either Division west of 82<sup>nd</sup> or Powell east of 82<sup>nd</sup> as HCT streets.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan which identifies bus rapid transit in the Powell-Division Corridor.
- Would not be consistent with the Portland's Division Streetscape Plan.
- Could conflict with the Outer Powell Concept Plan.
- Recent Portland plans and studies of Powell east of 82<sup>nd</sup> and at the intersection of 122<sup>nd</sup> and Powell did not support increases in density or development intensity
- Portland Streetcar System Concept Plan does not support streetcar on Powell or Division

- Recent Portland plans and studies of Powell east of 82<sup>nd</sup> and at the intersection of 122<sup>nd</sup> and Powell did not support increases in density or development intensity
- Within Portland Powell Blvd is US 26, a US highway owned by the Oregon Department of Transportation (ODOT). It is part of the National Highway System and is designated as a truck route. It is classified as an ODOT District Highway in the Oregon Highway Plan and as a in the Oregon Freight Plan. Per ORS 366.215, “No Reduction of Vehicle-Carrying Capacity,” any proposed decrease in vehicle carrying capacity on US 26 (removal of a travel lane or other reductions of the “hole-in-the-air” needed to accommodate legal loads and annual permitted over-dimension loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission (OTC).

## *2. Does it serve existing transit riders on Powell and Division?*

### LESS SUPPORTIVE:

- Would not be consistent with the Portland Streetcar System Concept Plan
- Would not serve the high ridership on Division in East Portland and Gresham
- Provides less benefit to environmental justice communities.

## *3. Does it link key destinations in the corridor?*

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

### MORE SUPPORTIVE:

- Depending on the route choice, could provide access to the Jade District or could serve Lents town center with a transition street west of 52nd.
- Would serve downtown Gresham.

### LESS SUPPORTIVE:

- This alignment would not serve many of key destinations in the corridor regardless of the transition location
- Would not provide access to the 162<sup>nd</sup>/Division Center or the outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan update
- Would not provide service to the Division-Midway Neighborhood Prosperity Initiative district.
- Would not serve the Civic Neighborhood in Gresham.

*4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?*

MORE SUPPORTIVE:

- Rapid Streetcar would require less right-of-way than light rail. Some impacts could be avoided because it could run in mixed traffic and because the cross-section width is less than for light rail.

LESS SUPPORTIVE:

- This alignment alternative would have the most impacts.
- Rapid streetcar would most likely have more than half of the route running in exclusive right-of-way. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street. Either would have substantial impacts to businesses and residents. Removing a travel lane would have substantial impacts to traffic in already congested sections of the corridor; removing a travel lane on Division west of 82<sup>nd</sup> would eliminate all other traffic. The level of property acquisition required, though less than light rail, would still be a major impact to communities, and include environmental justice populations.
- Impacts to turn movements and local access
- Depending on transition street and where it would run in mixed traffic, potential parks, schools and cemetery impacts could include:
  - Franklin High School
  - Clinton Park
  - Warner Pacific College
  - Ed Benedict Park Skate Park at 102<sup>nd</sup> Ave
  - Ed Benedict Park Memorial Grove at 104<sup>th</sup> Ave
  - Powell narrows to two lanes where the Gresham Fairview Path's pedestrian and bicycle bridge crosses. The road would need to be widened and the bridge reconstructed in order to accommodate light rail.
  - St. Joseph Cemetery
  - West Gresham Elementary School
  - Main City Park
- Wetlands and protected habitat at the Fairview Creek headwaters between SE 182<sup>nd</sup> and Birdsdales limit potential to widen right-of-way in an area that narrows to two lanes.
- Widening the right-of-way along Powell Blvd would require the removal of many large conifer trees in the corridor near the edge of the existing right-of-way.
- Utilities that exist under Powell and Division make infrastructure difficult to design and engineer. Utilities, including access to existing water lines, would be substantially impacted. Any water line within 10 feet of the edge of a rail track slab must be relocated per Portland Water

Bureau policy. Relocation of such pipes add significant cost. A large conduit relocation would likely require additional relocation of other utilities and potentially property purchase for the new alignment.

- ☒ Requires crossing main Union Pacific rail line and Portland-Milwaukie light rail on an elevated structure An at-grade crossing is not feasible or advantageous. It would require approval of a Crossing Order by ODOT Rail Division and the railroad company, which is highly unlikely and generally against their policy. In addition an at-grade crossing would result in long delays to transit which must give right-of-way to the freight rail. There are often delays of 20 minutes for freight trains. This would severely impact transit reliability and travel times.

## Dedicated Busway

### DB1: Dedicated Busway on Powell

DB1 Dedicated Busway on Powell summary table

		Less Promising				More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?	
DB1	Dedicated Busway on Powell					
		Not consistent with current Portland policies east of SE 50 <sup>th</sup> and not consistent with Comp Plan update. Gresham policy designates Powell as a potential future HCT, but recommends bus rapid transit on Division, not Powell. Potential conflict with Portland-Milwaukie light rail project.	Serves the high ridership demand on Powell but not Division east of 82 <sup>nd</sup> . Capacity is similar to rapid streetcar and frequent service bus. Serves environmental justice populations moderately well	Serves the Lents town center and downtown Gresham but does not serve many the key destinations.	Depending on where it would be in mixed traffic, could require significant right-of-way and infrastructure in certain areas. Impacts could be substantial, and would likely include environmental justice populations.	

#### ***1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?***

**MORE SUPPORTIVE:**

- Gresham’s TSP designates Powell as a potential HCT corridor
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan, which recommends bus rapid transit on Division.
- Consistent with the Gresham 2035 Transportation System Plan which identifies a high capacity transit connection to Mt. Hood Community College via the Powell-Division corridor as a future need.

- Bus could operate in mixed traffic to avoid reconstructing the 17<sup>th</sup> Avenue overcrossing, however service would be less reliable because this area is congested currently.

LESS SUPPORTIVE:

- The Portland Comp Plan update does not designate Powell as a HCT street east of 82<sup>nd</sup>
- The currently adopted Portland TSP does not designate Powell as a Major Transit Priority Street east of 50th.
- This alternative would have to run in mixed traffic under The 17<sup>th</sup> Avenue overcrossing currently under construction or the overcrossing would need to be rebuilt.
- The Portland TSP has designations to accommodate freight on Powell, including Major Truck Street (Willamette River to Gresham). Major Truck Streets link to Regional Truckways and are intended to serve as principal routes for trucks within a Transportation District. Southeast Portland and Far Southeast Portland are Transportation Districts.
- Recent Portland plans and studies of Powell east of 82<sup>nd</sup> and at the intersection of 122<sup>nd</sup> and Powell did not support increases in density or development intensity
- Dedicated busway could require revisions to the adopted in the Outer Powell Blvd Conceptual Design Plan to widen the planned cross-section and right-of-way dedications.
- Within Portland Powell Blvd is US 26, a US highway owned by the Oregon Department of Transportation (ODOT). It is part of the National Highway System and is designated as a truck route. It is classified as an ODOT District Highway in the Oregon Highway Plan and as a in the Oregon Freight Plan. Per ORS 366.215, “No Reduction of Vehicle-Carrying Capacity,” any proposed decrease in vehicle carrying capacity on US 26 (removal of a travel lane or other reductions of the “hole-in-the-air” needed to accommodate legal loads and annual permitted over-dimension loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission (OTC).

*2. Does it serve existing transit riders on Powell and Division?*

MORE SUPPORTIVE:

- Would serve the slightly higher ridership on Powell east of 82<sup>nd</sup>.
- Serves environmental justice populations moderately well

LESS SUPPORTIVE:

- Would not serve the higher ridership on Division at 82<sup>nd</sup>, and between 82<sup>nd</sup> and the Gresham Transit Center.
- Lower capacity vehicles would not provide service as efficiently as higher capacity alternatives.
- This alternative would have to run in mixed traffic under The 17<sup>th</sup> Avenue overcrossing currently under construction or the overcrossing would need to be rebuilt.

### ***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

#### **MORE SUPPORTIVE:**

- Would serve the Lents town center.
- Would serve Powell-Creston, Heart of Foster centers and the inner Powell Civic Corridor in proposed in Portland's draft 2035 Comprehensive Plan.
- Would serve downtown Gresham.

#### **LESS SUPPORTIVE:**

- Would not serve Portland Community College at 82<sup>nd</sup> and Warner Pacific College
- Would not provide access to the 162<sup>nd</sup>/Division Center or the outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan update
- Would not provide service to the Division-Midway Neighborhood Prosperity Initiative district.
- Would not serve the Civic Neighborhood in Gresham.

### ***4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

#### **MORE SUPPORTIVE:**

- Dedicated busway would require less right-of-way than light rail. Some impacts could be avoided because it could run in mixed traffic and because the cross-section width is less than for light rail.
- Lack of overhead catenaries reduces impacts to overhead infrastructure, such as bridges, utilities and overcrossings
- Lack of rail track reduces impacts to underground infrastructure and the requirement to cross Union Pacific Portland-Milwaukie rail lines on an elevated structure.

#### **LESS SUPPORTIVE:**

- Dedicated busway would most likely have more than half of the route running in exclusive right-of-way. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street in some sections. Either would have impacts to businesses and residents, including some environmental justice populations.
- Removing a travel lane would have substantial impacts to traffic in sections of the corridor that are already congested.
- Powell is US 26, a US highway and Reduction Review Route that must undergo review for any decrease in vehicle carrying capacity.

- ☒ Potential impacts to turn movements and local access
- ☒ Impacts to parks, schools and cemetery may be avoided, depending on where it would run in mixed traffic. Potential impacts could include:
  - Powell Park and Cleveland High School at 26<sup>th</sup>. Existing right-of-way is approximately 80 feet adjacent to Powell Park and Cleveland High School.
  - Creston Park and St. Ignatius at SE 43rd
  - Cleveland High School field at SE 33<sup>rd</sup>
  - Ed Benedict Park Skate Park at 102<sup>nd</sup> Ave
  - Ed Benedict Park Memorial Grove at 104<sup>th</sup> Ave
  - Powell narrows to two lanes where the Gresham Fairview Path's pedestrian and bicycle bridge crosses. The road would need to be widened and the bridge reconstructed in order to accommodate busway if not in mixed traffic.
  - St. Joseph Cemetery
  - West Gresham Elementary School
  - Main City Park
- ☒ Wetlands and protected habitat at the Fairview Creek headwaters between SE 182<sup>nd</sup> and Birdsdales limit potential to widen right-of-way in an area that narrows to two lanes.

## DB2: Dedicated Busway on Division

DB2 Busway on Division summary table

		Less Promising				More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?	
DB2	Busway on Division St					
		Consistent with current Portland TSP, but not consistent with Comp Plan update. Consistent with Gresham policies.	Serves the high ridership demand on Division from 82 <sup>nd</sup> east but not Powell west of 82 <sup>nd</sup> . Capacity is similar to rapid streetcar and frequent service bus. Provides less benefit to environmental justice communities.	Serves many, but not all of the key destinations.	Depending on where it could be in mixed traffic, could requires significant right-of-way and infrastructure in certain areas. Impacts could be substantial, and would likely include environmental justice populations..	

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

#### MORE SUPPORTIVE:

- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan which identifies bus rapid transit in the Powell-Division Corridor.
- Gresham's TSP designates Division as a potential HCT corridor
- The Gresham 2035 Transportation System Plan identifies a high capacity transit connection to Mt. Hood Community College via the Powell-Division corridor as a future need.
- Consistent with the currently adopted Portland TSP, which designates Division as a Major Transit Priority Street.

#### LESS SUPPORTIVE:

- Division is designated as a potential HCT line from 82<sup>nd</sup> Ave. to the Portland / Gresham city limit, but not west of 82<sup>nd</sup> in the Portland's draft Comprehensive Plan Update currently underway.
- Could conflict with the Division Streetscape Plan and stormwater improvements.

## ***2. Does it serve existing transit riders on Powell and Division?***

### **MORE SUPPORTIVE:**

- Serves existing # 4 Division riders (9,000 daily boardings).
- Would serve high ridership at 82<sup>nd</sup> and between 82<sup>nd</sup> and the Gresham Transit Center.

### **LESS SUPPORTIVE:**

- Ridership is higher on Powell between the Willamette River and 82<sup>nd</sup>.
- Provides less benefit to environmental justice communities. Despite high access to employment centers, destinations, and community resources, there are fewer environmental justice populations along the alignment.

## ***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

### **MORE SUPPORTIVE:**

- Many of the key destinations in the corridor, including colleges, and town and neighborhood centers are on Division.
- Would serve PCC and Warner Pacific College.
- Would serve the Division-Midway Neighborhood Prosperity Initiative district
- Would serve the Division / 162<sup>nd</sup> potential neighborhood center and outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan.
- Would serve the Civic Neighborhood in Gresham.

### **LESS SUPPORTIVE:**

- Would not serve Lents town center.
- Would not serve the inner Powell Civic Corridor in proposed in Portland's draft 2035 Comprehensive Plan.

## ***4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

### **MORE SUPPORTIVE:**

- Dedicated busway would require less right-of-way than light rail. Some impacts could be avoided because it could run in mixed traffic and because the cross-section width is less than for light rail.
- Lack of overhead catenaries reduces impacts to overhead infrastructure, such as bridges, utilities and overcrossings
- Lack of rail track reduces impacts to underground infrastructure

- Would not be required to cross Union Pacific Portland-Milwaukie rail lines on an elevated structure.

LESS SUPPORTIVE:

- Dedicated busway would most likely have more than half of the route running in exclusive right-of-way. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street in some sections. Either would have impacts to businesses and residents, including environmental justice populations. Removing a travel lane would have substantial impacts to traffic in sections of the corridor that are already congested; removing a travel lane on Division west of 82<sup>nd</sup> would eliminate all other traffic.
- Potential impacts to turn movements and local access
- Impacts to parks, schools and cemetery may be avoided, depending on where it would run in mixed traffic. Potential impacts could include:
  - Franklin High School
  - Clinton Park
  - Warner Pacific College
  - Fairview Creek Headwaters
  - Gresham-Fairview Trail
  - Gresham High School
  - Gresham Golf and Country Club
- Sensitive wetlands and protected habitat at Fairview Creek Headwaters and Kelly Creek

## DB3:Dedicated Busway on Powell transitioning to Division

DB3 Busway on Powell Blvd transitioning to Division summary table

Less Promising  More Promising

	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?
DB3	Busway on Powell Blvd transitioning to Division				
		Not consistent with current Portland policies east of SE 50 <sup>th</sup> . Consistent with the Portland's draft Comprehensive Plan update with a transition on 82 <sup>nd</sup> . Consistent with policies in Gresham, including the East Metro Connections Plan. Potential conflict with the Portland-Milwaukie transit project.	This alignment has the potential to serve the high ridership demand on both Powell and Division. Capacity is similar to rapid streetcar and frequent service bus. Most promising for serving ridership of environmental justice populations.	Has the potential to serve most or all of the key destinations.	Depending on where it could be in mixed traffic, could require significant right-of-way and infrastructure in certain areas. Impacts could be substantial, and would likely include environmental justice populations.

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

MORE SUPPORTIVE:

- Consistent with the Portland's draft Comprehensive Plan update for HCT street if the transition is on 82<sup>nd</sup>; Powell is designated as a HCT street west of 82<sup>nd</sup> and Division is east of 82<sup>nd</sup>.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan which identifies bus rapid transit in the Powell-Division Corridor.
- Consistent with the Portland's draft Comprehensive Plan Update currently underway.
- Supports the Division – Midway Neighborhood Plan.

- Consistent with Main Street and corridor designations in Metro Region 2040 Growth Concept Plan.

LESS SUPPORTIVE:

- This alternative would have to run in mixed traffic under The 17<sup>th</sup> Avenue overcrossing currently under construction or the overcrossing would need to be rebuilt.
- Within Portland Powell Blvd is US 26, a US highway owned by the Oregon Department of Transportation (ODOT). It is part of the National Highway System and is designated as a truck route. It is classified as an ODOT District Highway in the Oregon Highway Plan and as a in the Oregon Freight Plan. Per ORS 366.215, “No Reduction of Vehicle-Carrying Capacity,” any proposed decrease in vehicle carrying capacity on US 26 (removal of a travel lane or other reductions of the “hole-in-the-air” needed to accommodate legal loads and annual permitted over-dimension loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission (OTC).

**2. Does it serve existing transit riders on Powell and Division?**

MORE SUPPORTIVE:

- Yes, this alignment would serve the highest current ridership if service is provided on Division at 82<sup>nd</sup>
- This alignment would serve the highest ridership portions of the corridor
- Based on where concentrated environmental justice communities are located, this route would be most promising for serving ridership of environmental justice populations.

**3. Does it link key destinations in the corridor?**

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

MORE SUPPORTIVE:

- This alignment would serve most of the key destinations in the corridor with a transition at a strategic location.
- Depending on transition street, could provide service to PCC and could serve either Warner Pacific College or the Lents town center and the Jade District.
- Would serve the Division-Midway Neighborhood Prosperity Initiative district.
- Would serve the Division / 162<sup>nd</sup> potential neighborhood center and outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan.
- Would serve the Civic Neighborhood in Gresham.

*4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?*

MORE SUPPORTIVE:

- Dedicated busway would require less right-of-way than light rail. Some impacts could be avoided because it could run in mixed traffic and because the cross-section width is less than for light rail.
- Lack of overhead catenaries reduces impacts to overhead infrastructure, such as bridges, utilities and overcrossings
- Lack of rail track reduces impacts to underground infrastructure

LESS SUPPORTIVE:

- Dedicated busway would most likely have more than half of the route running in exclusive right-of-way. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street in some sections. Either would have impacts to businesses and residents, including environmental justice populations. Removing a travel lane would have substantial impacts to traffic in sections of the corridor that are already congested.
- Potential impacts to turn movements and local access
- Impacts to parks, schools and cemetery may be avoided, depending on the transition street and where it would run in mixed traffic. Potential impacts could include:
  - Powell Park and Cleveland High School at 26<sup>th</sup>. Existing right-of-way is approximately 80 feet adjacent to Powell Park and Cleveland High School.
  - Cleveland High School field at SE 33<sup>rd</sup>
  - Creston Park and St. Ignatius at SE 43rd
  - Franklin High School
  - Clinton Park
  - Warner Pacific College
  - Fairview Creek Headwaters
  - Gresham High School
  - Gresham Golf and Country Club
- Sensitive wetlands and protected habitat at Fairview Creek Headwaters and Kelly Creek

## DB4: Dedicated Busway on Division transitioning to Powell

DB4 Busway on Division transitioning to Powell summary table

		Less Promising				More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?	
DB4	Busway on Division transitioning to Powell					
		Consistent with current Portland TSP, but not consistent with Comp Plan update. Gresham policy designates Powell as a potential future HCT, but recommends bus rapid transit on Division.	Would not serve the high ridership on Division in East Portland and Gresham. Capacity is similar to rapid streetcar and frequent service bus. Provides less benefit to environmental justice communities.-	Could serve the Jade District and Foster/Powell, but would miss many of the other key destinations.	Depending on where it could be in mixed traffic, could requires significant right-of-way and infrastructure in certain areas. Impacts could be substantial, and would likely include environmental justice populations.	

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

**MORE SUPPORTIVE**

- Consistent with Portland TSP

**LESS SUPPORTIVE:**

- The Portland’s draft Comprehensive Plan update does not designate either Division west of 82<sup>nd</sup> or Powell east of 82<sup>nd</sup> as HCT streets.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan which identifies bus rapid transit in the Powell-Division Corridor.
- Would not be consistent with the Portland Division Streetscape Plan or Outer Powell Concept Plans.
- Recent Portland plans and studies of Powell east of 82<sup>nd</sup> and at the intersection of 122<sup>nd</sup> and Powell did not support increases in density or development intensity

- Within Portland Powell Blvd is US 26, a US highway owned by the Oregon Department of Transportation (ODOT). It is part of the National Highway System and is designated as a truck route. It is classified as an ODOT District Highway in the Oregon Highway Plan and as a in the Oregon Freight Plan. Per ORS 366.215, “No Reduction of Vehicle-Carrying Capacity,” any proposed decrease in vehicle carrying capacity on US 26 (removal of a travel lane or other reductions of the “hole-in-the-air” needed to accommodate legal loads and annual permitted over-dimension loads) would require review and approval from a Stakeholder Forum (including affected jurisdictions and motor carriers) and the Oregon Transportation Commission (OTC).

## ***2. Does it serve existing transit riders on Powell and Division?***

LESS SUPPORTIVE:

- Would not serve the high ridership on Division in East Portland and Gresham.
- Ridership is higher on Powell between the Willamette River and 82<sup>nd</sup>.

## ***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

MORE SUPPORTIVE:

- Depending on the route choice, could provide access to the Jade District or could serve Lents town center with a transition street west of 52nd.
- Would serve downtown Gresham.

LESS SUPPORTIVE:

- This alignment would not serve many of key destinations in the corridor regardless of the transition location
- Would not provide access to the 162<sup>nd</sup>/Division Center or the outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan update
- Would not provide service to the Division-Midway Neighborhood Prosperity Initiative district.
- Would not serve the Civic Neighborhood in Gresham.

## ***4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

MORE SUPPORTIVE:

- Dedicated busway would require less right-of-way than light rail. Some impacts could be avoided because it could run in mixed traffic and because the cross-section width is less than for light rail.

- Lack of overhead catenaries reduces impacts to overhead infrastructure, such as bridges, utilities and overcrossings
- Lack of rail track reduces impacts to underground infrastructure
- Would not be required to cross Union Pacific Portland-Milwaukie rail lines on an elevated structure.

LESS SUPPORTIVE:

- This alignment alternative would have the most impacts.
- Dedicated busway would most likely have more than half of the route running in exclusive right-of-way. Exclusive right-of-way would require either acquiring private property to widen the right-of-way or removing travel lanes and other elements from the existing street in some sections. Either would have impacts to businesses and residents, including environmental justice populations. Removing a travel lane would have substantial impacts to traffic in sections of the corridor that are already congested; removing a travel lane on Division west of 82<sup>nd</sup> would eliminate all other traffic.
- Potential impacts to turn movements and local access
- Depending on transition street and where it would run in mixed traffic, potential parks, schools and cemetery impacts could include:
  - Franklin High School
  - Clinton Park
  - Warner Pacific College
  - Ed Benedict Park Skate Park at 102<sup>nd</sup> Ave
  - Ed Benedict Park Memorial Grove at 104<sup>th</sup> Ave
  - Powell narrows to two lanes where the Gresham Fairview Path's pedestrian and bicycle bridge crosses. The road would need to be widened and the bridge reconstructed in order to accommodate light rail.
  - St. Joseph Cemetery
  - West Gresham Elementary School
  - Main City Park
- Wetlands and protected habitat at the Fairview Creek headwaters between SE 182<sup>nd</sup> and Birdsdale limit potential to widen right-of-way in an area that narrows to two lanes.

## Frequent Service Plus

### FS1: Frequent Service Plus Bus on Powell

FS1 Frequent Service Plus on Powell summary table

		Less Promising				More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?	
FS1	Frequent Service Plus on Powell					
		Could be implemented in the short term. Not consistent with current Portland policies east of SE 50 <sup>th</sup> , and not consistent with Comp Plan update east of 82 <sup>nd</sup> . Gresham policy designates Powell as a potential future HCT, but recommends bus rapid transit on Division.	Serves the high ridership demand on Powell but not Division east of 82 <sup>nd</sup> . Capacity is similar to rapid streetcar and dedicated bus. Serves environmental justice populations moderately well	Serves the Lents town center and downtown Gresham but does not serve many key destinations.	Could avoid most of the impacts to traffic, businesses and homes, utilities, schools, natural resources and parks. Promising in terms of impacts to environmental justice communities.	

#### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

MORE SUPPORTIVE:

- Frequent Service Plus is the only alternative that could be implemented in the near term, which is one of the adopted outcomes for the project.
- It would not require reconstructing the 17<sup>th</sup> Avenue overcrossing or an elevated structure.
- Gresham’s TSP designates Powell as a potential HCT corridor
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan, which recommends bus rapid transit on Division.

- Consistent with the Gresham 2035 Transportation System Plan which identifies a high capacity transit connection to Mt. Hood Community College via the Powell-Division corridor as a future need.
- Bus could operate in mixed traffic to avoid reconstructing the 17<sup>th</sup> Avenue overcrossing, however service would be less reliable because this area is congested currently.

LESS SUPPORTIVE:

- The currently adopted Portland TSP does not designate Powell as a Major Transit Priority Street east of 50<sup>th</sup>.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan which identifies bus rapid transit in the Powell-Division Corridor.
- The Portland TSP has designations to accommodate freight on Powell, including Major Truck Street (Willamette River to Gresham). Major Truck Streets link to Regional Truckways and are intended to serve as principal routes for trucks within a Transportation District. Southeast Portland and Far Southeast Portland are Transportation Districts.
- Recent Portland plans and studies of Powell east of 82<sup>nd</sup> and at the intersection of 122<sup>nd</sup> and Powell did not support increases in density or development intensity

***2. Does it serve existing transit riders on Powell and Division?***

MORE SUPPORTIVE:

- Would serve the slightly higher ridership Powell in Portland (8,700 riders on the #9).
- Serves environmental justice populations moderately well

LESS SUPPORTIVE:

- Would not serve the higher ridership on Division at 82<sup>nd</sup> and between 82<sup>nd</sup> and the Gresham Transit Center.

***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

MORE SUPPORTIVE:

- Would serve the Lents town center.
- Would serve Powell-Creston, Heart of Foster centers and the inner Powell Civic Corridor in proposed in Portland's draft 2035 Comprehensive Plan.
- Would serve downtown Gresham.

LESS SUPPORTIVE:

- Would not serve Portland Community College at 82<sup>nd</sup> and Warner Pacific College

- Would not provide access to the 162<sup>nd</sup>/Division Center or the outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan update
- Would not provide service to the Division-Midway Neighborhood Prosperity Initiative district.
- Would not serve the Civic Neighborhood in Gresham.

***4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

**MORE SUPPORTIVE:**

- A promising alternative in terms of property impacts to environmental justice communities.
- The design philosophy and flexibility of this alternative would be to avoid or minimize any significant impacts.

**LESS SUPPORTIVE:**

- There could be property impacts at station areas and intersections.

## FS2: Frequent Service Plus Bus on Division

FS2 Frequent Service Plus on Division summary table

		Less Promising				More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?	
FS2	Frequent Service Plus on Division					
		Could be implemented in the short term. Consistent with current Portland TSP, but not consistent with Comp Plan update. Consistent with Gresham policies, including the East Metro Connections Plan.	Serves the high ridership demand on Division from 82 <sup>nd</sup> east but not Powell west of 82 <sup>nd</sup> . Capacity is similar to rapid streetcar and dedicated bus. Provides less benefit to environmental justice communities.	Serves many, but not all of the key destinations.	Could avoid most of the impacts to traffic, businesses and homes, utilities, schools, natural resources and parks. Promising in terms of impacts to environmental justice communities.	

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

**MORE SUPPORTIVE:**

- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan which identifies bus rapid transit in the Powell-Division Corridor.
- Consistent with the currently adopted Portland TSP, which designates Division as a Major Transit Priority Street.

**LESS SUPPORTIVE:**

- The Portland's draft Comprehensive Plan Update currently underway does not designate Division west of 82<sup>nd</sup> as a potential HCT street.

### 2. Does it serve existing transit riders on Powell and Division?

**MORE SUPPORTIVE:**

- Serves existing # 4 Division riders (9,000 daily boardings).

- Serves the high ridership on Division east of 82<sup>nd</sup>; Division and 82<sup>nd</sup> is one of the highest ridership locations in the corridor.
- Provides service to downtown and Civic Neighborhood in Gresham.

LESS SUPPORTIVE:

- The highest ridership west of 82<sup>nd</sup> Ave on Powell.
- Would operate in mixed traffic more than other transit options.
- Provides less benefit to environmental justice communities. Despite high access to employment centers, destinations, and community resources, there are fewer environmental justice populations along the alignment.

***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

MORE SUPPORTIVE:

- Many of the key destinations in the corridor, including colleges, and town and neighborhood centers are on Division.
- Would serve PCC and Warner Pacific College.
- Would serve the Division-Midway Neighborhood Prosperity Initiative district
- Would serve the Division / 162<sup>nd</sup> potential neighborhood center and outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan.
- Would serve the Civic Neighborhood in Gresham.

LESS SUPPORTIVE:

- Would not serve Lents town center.
- Would not serve the inner Powell Civic Corridor in proposed in Portland's draft 2035 Comprehensive Plan.

***4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

MORE SUPPORTIVE:

- The design philosophy and flexibility of this alternative would be to avoid or minimize any significant impacts.

LESS SUPPORTIVE:

- There could be property impacts at station areas and intersections.

### FS 3: Frequent Service Plus Bus on Powell transitioning to Division

FS3 Frequent Service Plus on Powell transitioning to Division summary table



	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?
FS3	Frequent Service Plus on Powell transitioning to Division				
		<p>Could be implemented in the short term. Not consistent with current Portland policies east of SE 50<sup>th</sup> but consistent with the Portland's draft Comprehensive Plan update with a transition on 82<sup>nd</sup>. Consistent with policies in Gresham, including the East Metro Connections Plan.</p>	<p>This alignment has the potential to serve the high ridership demand on both Powell and Division. Capacity is similar to rapid streetcar and dedicated bus. Most promising for serving ridership of environmental justice populations.</p>	<p>Has the potential to serve most or all of the key destinations.</p>	<p>Could avoid most of the impacts to traffic, businesses and homes, utilities, schools, natural resources and parks. Promising in terms of impacts to environmental justice communities.</p>

**1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?**

MORE SUPPORTIVE:

- Consistent with the Portland's draft Comprehensive Plan update for HCT street if the transition is on 82<sup>nd</sup>; Powell is designated as a HCT street west of 82<sup>nd</sup> and Division is east of 82<sup>nd</sup>.
- Buses could operate in mixed traffic to avoid reconstructing the 17<sup>th</sup> Avenue overcrossing, however this area is currently congested.

## ***2. Does it serve existing transit riders on Powell and Division?***

### **MORE SUPPORTIVE:**

- This route would serve the highest current ridership if service is provided on Division at 82<sup>nd</sup> and east to Gresham.
- Based on where concentrated environmental justice communities are located, this route would be most promising for serving ridership of environmental justice populations.

### **LESS SUPPORTIVE:**

- Would operate in mixed traffic more than other transit options.

## ***3. Does it link key destinations in the corridor?***

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative.

### **MORE SUPPORTIVE:**

- This alignment would serve most of the key destinations in the corridor with a transition at a strategic location.
- Depending on transition street, could provide service to PCC and could serve either Warner Pacific College or the Lents town center and the Jade District.
- Would serve the Division-Midway Neighborhood Prosperity Initiative district.
- Would serve the Division / 162<sup>nd</sup> potential neighborhood center and outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan.
- Would serve the Civic Neighborhood in Gresham.

## ***4. Are the impacts reasonable; Is the transit alternative feasible given impacts to parks, wetlands, wildlife habitat, historic sites, and residential, business and community resources?***

### **MORE SUPPORTIVE:**

- The most promising alternative in terms of property impacts to environmental justice communities.
- This alternative would have the fewest property impacts
- The design philosophy and flexibility of this alternative would be to avoid or minimize any significant impacts.

### **LESS SUPPORTIVE:**

- There could be property impacts at station areas and intersections.

## FS4: Frequent Service Plus Bus on Division transitioning to Powell

FS4 Frequent Service Plus on Division transitioning to Powell summary table

		Less Promising					More Promising
	Alternative	Supports existing plans, policies and investments?	Serves existing travel demand?	Links key destinations?	Impacts are reasonable?		
FS4	Frequent Service Plus on Division transitioning to Powell						
		Could be implemented in the short term. Consistent with current Portland TSP, but not consistent with Comp Plan update. Gresham policy designates Powell as a potential future HCT, but recommends bus rapid transit on Division.	Would not serve the high ridership on Division in East Portland and Gresham. Capacity is similar to rapid streetcar and dedicated bus. Provides less benefit to environmental justice communities.-	Could serve the Jade District and Foster/Powell, but would miss many key destinations.	Could avoid most of the impacts to traffic, businesses and homes, utilities, schools, natural resources and parks. Promising in terms of impacts to environmental justice communities.		

### 1. Does the transit alternative support existing policies and plans, including planned capital investments and projects currently under construction?

LESS SUPPORTIVE:

- The Portland’s draft Comprehensive Plan Update does not designate either Division west of 82<sup>nd</sup> or Powell east of 82<sup>nd</sup> as HCT streets.
- The Gresham 2035 TSP Public Transit System Plan supports the findings of the East Metro Connections Plan which identifies bus rapid transit in the Powell-Division Corridor.
- Would not be consistent with the Portland Division Streetscape Plan.
- Recent Portland plans and studies of Powell east of 82<sup>nd</sup> and at the intersection of 122<sup>nd</sup> and Powell did not support increases in density or development intensity

### 2. Does it serve existing transit riders on Powell and Division?

LESS SUPPORTIVE:

- Would not serve the high ridership on Division in East Portland and Gresham.

- Less capacity than light rail, but more than streetcar, but would operate in more mixed traffic than other options.
- Ridership is higher on Powell between the Willamette River and 82<sup>nd</sup>.
- Provides less benefit to environmental justice communities.

### *3. Does it link key destinations in the corridor?*

This question differentiates among route alternatives but not the mode alternatives. Therefore for this question the results are the same regardless of mode and only reflect the differences among routes alternative

#### MORE SUPPORTIVE:

- Depending on the route choice, could provide access to the Jade District or could serve Lents town center with a transition street west of 52nd.
- Would serve downtown Gresham.

#### LESS SUPPORTIVE:

- This alignment would not serve many of key destinations in the corridor regardless of the transition location
- Would not provide access to the 162<sup>nd</sup>/Division Center or the outer Division (82<sup>nd</sup> to Gresham) Civic Corridor proposed in the Portland draft Comprehensive Plan update
- Would not provide service to the Division-Midway Neighborhood Prosperity Initiative district.
- Would not serve the Civic Neighborhood in Gresham.

## Route Options results

In addition to the alternatives identified above, the project team completed an initial screen of the following route options:

**Willamette River crossing:** Project team has explored using either the Ross Island Bridge or the Tilikum Crossing to cross the Willamette River.

- **Ross Island Bridge:** The Ross Island Bridge route alternative would require the transit to be in mixed-traffic on the bridge. There is heavy congestion during the AM and PM peak hours at both the east and west bridgeheads. The Ross Island Bridge is an historic structure and potential modifications to the bridge would require review. The bridge does not provide direct connections to South Waterfront.
- **Tilikum Crossing:** The Tilikum Crossing route would provide over a mile of dedicated transitway between downtown Portland and the central eastside. It would connect to major destinations, including Portland State, OHUS, and OMSI. It would connect to areas identified for the most significant future growth.

The Tilikum Crossing is identified as the most promising alternative based on:

- **Travel Time reliability:** The Tilikum Crossing will provide over a mile of dedicated transit way, as opposed to the Ross Island Bridge option, which would require mixed-traffic operations, or major modifications to an historic structure.
- **Current and future population and employment growth:** The Tilikum Crossing provides connections to areas with the highest planned population growth, including south waterfront and the central eastside.
- **Transportation options to major destinations:** The Tilikum Crossing provides options to Portland State, OHUS, OMSI, and the central eastside.
- **Leveraging infrastructure:** The Tilikum crossing option benefits from the new investments in pedestrian and bicycle infrastructure that will provide greater access.

**Portland north/south connections:** If the transit alignment includes both Powell and Division in Portland, there are several potential north/south transition streets, including Cesar Chavez Boulevard, 50<sup>th</sup>, 52<sup>nd</sup>, 82<sup>nd</sup>, 92<sup>nd</sup>, I-205 ramps, and 122<sup>nd</sup>. Many of these route options will require future traffic, modeling, and concept design to weigh their benefits and impacts. Based on the initial screen, Cesar Chavez, the I-205 ramps 122<sup>nd</sup> are least promising for the following reasons:

- **Current and future population and employment growth:** The crossing options between 50<sup>th</sup> and 92<sup>nd</sup> would provide the greatest connections to current and future employment growth.
- **Transportation options to major destinations:** Cesar Chavez and the I-205 ramp transition would not connect to key destinations in east Portland. The 122<sup>nd</sup> option would preclude the ability to connect to Portland Community College southeast.

**Gresham north/south connections:** There are options to connect Downtown Gresham and the intersection of Kane Drive (257<sup>th</sup>) and Stark near Mount Hood Community College. Routes from downtown to the vicinity of Mount Hood Community College include Eastman, Cleveland, Hogan, and Kane Drive.

Many of these route options will require future traffic, modeling, and concept design to weigh their benefits and impacts. The initial screen identifies Eastman as the least promising alternative route for the following reasons:

- Travel Time reliability: Eastman would require out-of-direction travel from the Gresham Transit Center to connect to other destinations.
- Transportation options to major destinations: While Eastman would serve Gresham Vista, it is not identified by City of Gresham Policy as a future high capacity transit corridor, and would provide longer connections to destinations east of downtown Gresham.

## IV. POLICY DIRECTION AND NEXT STEPS

The project team is requesting direction on which alternatives are most promising to study in more detail.

The project Steering Committee will provide a recommendation on the preferred transit alternative for the Powell-Division Corridor. The information provided in this report is intended to assist the Steering Committee in identifying those alternatives that are most promising for further study. The project team is requesting direction on the following policy decisions.

- **Transit Vehicle Type:** Which vehicle types are most promising for this corridor? This initial screen provides information on light rail, street car, and a range of bus alternatives. Project team is requesting direction on the range of vehicle types to study in more detail.
- **Route:** What routes should be studied in more detail? Project team is requesting direction on routes to be studied in more detail.

### Next Steps

After the Steering Committee direction, the project team will begin a more detailed traffic and design evaluation on a narrowed range of alternatives, convene work groups on issues of importance to the Steering Committee, and continue public engagement. The project team will take the elements that are most supported, and begin more detailed analysis for evaluation.

- **Concept Design:** A smaller range of alternatives will be more fully evaluated based on concept design, traffic, and modeling. This will be the basis for Steering Committee review in early 2015.
- **Optional Work Groups:** The project team will be initiating more detailed topical discussion. The equity work group is currently underway, and this fall the project team will include others:
  - **Equity:** Convened on September 3<sup>rd</sup>, this group will continue to explore how equity can inform project decisions.
  - **Safety and Security:** A working group will explore opportunities to incorporate safety and security features into the project.
  - **Transportation and modal issues:** A working group will explore the relationship of the transit alternatives to the overall transportation system, including freight, vehicle, bicycle and pedestrian systems.
  - **Development:** A working group will convene stakeholders to discuss development opportunities consistent with community values and opportunities.
  - **Transit local service:** A working group will be developed to more fully examine the relationship of the proposed alternatives with the existing bus network. Based on public feedback, technical analysis, and Steering Committee direction, future transit service in this corridor will include both regional and existing service.

- Tours of the corridor - Tours will help committee members and project staff better understand the challenges and opportunities in the corridor. The committee, as a group, will be invited to tour the project area in summer and fall. Efforts will be made to secure TriMet buses for these tours.
- Talk with staff sessions - These unstructured drop in sessions will continue to take place the second and fourth Tuesday of every month at the Division Midway Alliance office, mid-corridor on 122nd Avenue and Division Street. The sessions provide an opportunity to talk with staff about the project and provide input.

## Timeline

	2014	2015	2016	2017	2018	2019	2020
<b>PLANNING</b>							
<b>Winter 2014</b> Establish a common understanding of the needs and opportunities for transit and development in the corridor	■						
<b>Spring and summer 2014</b> Look at the kinds of transit that that are feasible and desirable in the corridor, hear ideas about where it should go and identify places that would make safe and active station areas	■						
<b>Fall 2014</b> Take the elements that are most supported and feasible, and craft a recommendation on the type of transit, route and strategies for development at station areas		■					
<b>Winter 2015</b> Refine the recommendation and present it to local and regional elected councils for consideration and endorsement		■					
<b>DESIGN</b>							
<b>2015 to 2017</b> Create detailed design of the new transit line and station areas, and complete environmental review and permitting			■	■	■		
<b>CONSTRUCTION</b>							
<b>2018 to 2020</b> Build the transit line and station areas and start new service					■	■	■

## ATTACHMENTS

### **Table A.1: Transit Alternative Inventory**

As part of the screening process, the project team conducted an initial inventory of known opportunities and constraints within the corridor, and reviewed by the public online and at open houses in the summer of 2014.

## Light Rail on SE Powell Blvd

The following table describes the opportunities and constraints associated with light rail on SE Powell Boulevard.

<b>Why considered for study</b>	<ul style="list-style-type: none"> <li>• Leverages existing light rail network in the region</li> <li>• Current ridership demand on Powell</li> </ul>
<b>Why promising</b>	<ul style="list-style-type: none"> <li>• Ridership demand, particularly west of I-205</li> <li>• Operating capacity and efficiency</li> <li>• Could link Portland-Milwaukie and MAX Green Line</li> </ul>
<b>Why less promising</b>	<ul style="list-style-type: none"> <li>• Right-of-way:             <ul style="list-style-type: none"> <li>○ Exclusive right-of-way would require substantial impacts to businesses and residents</li> <li>○ Substantial widening in locations that currently narrow to 45 feet.</li> <li>○ In Gresham, Powell Boulevard narrows to 2 lanes in areas adjacent to sensitive wetlands.</li> </ul> </li> <li>• Potential parks and schools impacts include             <ul style="list-style-type: none"> <li>○ Powell Park and Cleveland High School at 26<sup>th</sup></li> <li>○ Creston Park and St. Ignatius at SE 43rd</li> <li>○ Cleveland field at SE 33rd</li> </ul> </li> <li>• Infrastructure impacts include:             <ul style="list-style-type: none"> <li>○ Utilities, including access to existing water lines, would be substantially impacted.</li> <li>○ Potential impacts to the 17th Avenue overpass recently rebuilt in conjunction with the Portland-Milwaukie light rail and Union Pacific Brooklyn sub line. The option may be to build above grade.</li> </ul> </li> <li>• Transportation and land use             <ul style="list-style-type: none"> <li>○ Traffic impacts to freight corridor on US 26.</li> <li>○ Access to MAX Green Line at I-205 is not convenient</li> <li>○ Would not serve Portland Community College or the Midway neighborhood.</li> </ul> </li> </ul>
<b>Issues for further study</b>	<ul style="list-style-type: none"> <li>• Do not preclude future light rail extension from Gresham TC to Mount Hood Community College.</li> </ul>
<b>Key Findings</b>	<ul style="list-style-type: none"> <li>• Impacts to utilities would be significant</li> <li>• Some segment of a light rail alignment west of I-205 would most likely be above-grade on structure, or require significant right-of-way acquisition.</li> <li>• Light rail on Powell Blvd is less promising for further study due to impacts to private property and public investments.</li> </ul>

## Light Rail on Division

<b>Why considered for study</b>	<ul style="list-style-type: none"> <li>• Existing light rail network in the region</li> <li>• Current ridership demand on Division</li> </ul>
<b>Why promising</b>	<ul style="list-style-type: none"> <li>• Ridership demand, particularly at 82<sup>nd</sup> and east</li> <li>• Redevelopment along Division</li> <li>• Operating efficiency</li> <li>• Could link Portland-Milwaukie and MAX Green Line</li> <li>• Less constrained right-of-way east of I-205.</li> </ul>
<b>Why less promising</b>	<ul style="list-style-type: none"> <li>• Right-of-way constraints               <ul style="list-style-type: none"> <li>○ Require right-of-way with substantial impacts to businesses and residents</li> <li>○ Between SE 8th and SE 50th, the right-of-way narrows to 40 feet in some areas, and would have substantial property impacts</li> </ul> </li> <li>• Utilities and infrastructure impacts               <ul style="list-style-type: none"> <li>○ Impacts to utilities, including water</li> <li>○ Recent green street stormwater and pedestrian improvements between 12<sup>th</sup> and 50<sup>th</sup>.</li> </ul> </li> <li>• Parks and schools impacts               <ul style="list-style-type: none"> <li>○ Impacts to parks and schools, including Clinton City Park at 54th, Franklin, Warner Pacific, PCC southeast</li> </ul> </li> <li>• Adjacent to existing MAX service               <ul style="list-style-type: none"> <li>○ East of I-205 in Portland, light rail would be between 1 and 1 ½ miles from existing MAX service on Burnside.</li> <li>○ In Gresham, light rail would parallel and intersect existing service on Burnside.</li> </ul> </li> <li>• Traffic               <ul style="list-style-type: none"> <li>○ Congestion and constrained right-of-way between 11<sup>th</sup> and 50<sup>th</sup>.</li> </ul> </li> </ul>
<b>Issues for further study</b>	<ul style="list-style-type: none"> <li>• Based on available right-of-way, and the limitations of going below-grade, a light rail alignment would need to be above-grade on structure.</li> </ul>

## Rapid Streetcar on Powell

<b>Why considered for study</b>	<ul style="list-style-type: none"> <li>• HCT mode identified in regional policy</li> </ul>
<b>Why promising</b>	<ul style="list-style-type: none"> <li>• Could link into Portland Streetcar Loop</li> </ul>
<b>Why less promising</b>	<ul style="list-style-type: none"> <li>• Rapid streetcar would have impacts and costs similar to light rail in this corridor</li> <li>• Higher per rider operating cost than light rail because vehicles carry fewer passengers</li> <li>• Right-of-way constraints:             <ul style="list-style-type: none"> <li>○ Require right-of-way with substantial impacts to businesses and residents</li> <li>○ While the Outer Powell Boulevard Design Plan does not preclude Rapid Streetcar, it would require substantial widening in locations that currently narrow to 45 feet.</li> <li>○ In Gresham, Powell Boulevard narrows to 2 lanes in areas adjacent to wetlands.</li> </ul> </li> <li>• Parks and Schools impacts             <ul style="list-style-type: none"> <li>○ Potential impacts to parks include – 26th and Powell is adjacent to Powell Park and Cleveland High School</li> <li>○ Potential impacts to Creston Park and St. Ignatius at SE 43rd and Powell</li> <li>○ Impacts to Cleveland field at SE 33rd</li> </ul> </li> <li>• Utilities and infrastructure impacts             <ul style="list-style-type: none"> <li>○ Impacts to utilities, including water</li> <li>○ Potential impacts to reconstructing the 17th avenue overpass, Portland-Milwaukie light rail, and Union Pacific Brooklyn sub line.</li> </ul> </li> <li>• Transportation             <ul style="list-style-type: none"> <li>○ Impacts to freight corridor on US 26.</li> <li>○ Access to Green Line at I-205 is not convenient</li> </ul> </li> </ul>
<b>Issues for further study</b>	<ul style="list-style-type: none"> <li>• Availability of right-of-way for dedicated transit lane</li> </ul>

## Rapid Streetcar on Division

<b>Why considered for study</b>	<ul style="list-style-type: none"> <li>• Known HCT alternative</li> </ul>
<b>Why promising</b>	<ul style="list-style-type: none"> <li>• Could link into Portland Streetcar Loop</li> </ul>
<b>Why less promising</b>	<ul style="list-style-type: none"> <li>• Right-of-way constraints               <ul style="list-style-type: none"> <li>○ Require right-of-way with substantial impacts to businesses and residents</li> <li>○ Between SE 8th and SE 50th, the right-of-way narrows to 40 feet in some areas, and would have substantial property impacts</li> </ul> </li> <li>• <b>Utilities and infrastructure impacts</b> <ul style="list-style-type: none"> <li>○ Impacts to utilities, including water</li> <li>○ Recent green street stormwater and pedestrian improvements between 12<sup>th</sup> and 50<sup>th</sup>.</li> </ul> </li> <li>• Parks and schools impacts               <ul style="list-style-type: none"> <li>○ Impacts to parks and schools, including Clinton City Park at 54th, Franklin, Warner Pacific, PCC southeast</li> </ul> </li> <li>• Adjacent to existing MAX service               <ul style="list-style-type: none"> <li>○ East of I-205 in Portland, light rail would be between 1 and 1 ½ miles from existing MAX service on Burnside.</li> <li>○ In Gresham, light rail would parallel and intersect existing service on Burnside.</li> </ul> </li> <li>• Traffic               <ul style="list-style-type: none"> <li>○ Congestion and constrained right-of-way between 11<sup>th</sup> and 50<sup>th</sup>.</li> </ul> </li> </ul>
<b>Issues for further study</b>	<ul style="list-style-type: none"> <li>• Based on available right-of-way, and the limitations of going below-grade, a light rail alignment would need to be above-grade on structure.</li> </ul>

## Frequent Service Plus on Powell

<b>Why considered for study</b>	<ul style="list-style-type: none"> <li>• Lower capital cost than other modes</li> <li>• Could be implemented sooner than other modes</li> </ul>
<b>Why promising</b>	<ul style="list-style-type: none"> <li>• Least right-of-way required of all modes</li> <li>• Design flexibility provides opportunity to             <ul style="list-style-type: none"> <li>○ take advantage of existing right-of-way</li> <li>○ avoid or lessen delay factors such as congestion, fare collection, and loading and unloading at stops.</li> </ul> </li> <li>• Lower capital cost than other modes</li> <li>• Could be implemented sooner than other modes studied</li> <li>• Would avoid impacts to critical utilities</li> <li>• Higher capacity vehicles could meet demand more efficiently</li> </ul>
<b>Why less promising</b>	<ul style="list-style-type: none"> <li>• Operating in traffic will add schedule delay where congestion cannot be avoided. Currently congested intersections include:             <ul style="list-style-type: none"> <li>○ Milwaukie, 26<sup>th</sup>, Cesar Chavez, 50<sup>th</sup>/52<sup>nd</sup>/Foster, 82<sup>nd</sup> in Portland</li> <li>○ Eastman Parkway in Gresham</li> </ul> </li> <li>• Access to MAX Green Line is not ideal</li> <li>• Lack of pedestrian access and infrastructure on Powell east of I-205</li> </ul>
<b>Issues for further study</b>	<ul style="list-style-type: none"> <li>• Opportunities for exclusive right-of-way, signal priority and business and transit lanes (BAT)</li> </ul>

## Frequent Service Plus on Division

<b>Why considered for study</b>	<ul style="list-style-type: none"> <li>• Lower capital cost than other modes</li> <li>• Could be implemented more quickly than other modes</li> </ul>
<b>Why promising</b>	<ul style="list-style-type: none"> <li>• Serve new development on Division, PCC, and developing areas along outer Division that currently have high ridership.</li> <li>• Less constrained right-of-way east of 80<sup>th</sup></li> <li>• Least right-of-way required of all modes</li> <li>• Design flexibility provides opportunity to:             <ul style="list-style-type: none"> <li>○ Take advantage of existing right-of-way</li> <li>○ Avoid or lessen delay factors such as congestion, fare collection, and loading and unloading at stops.</li> </ul> </li> <li>• Lower capital cost than other modes</li> <li>• Could be implemented sooner than other modes studied</li> <li>• Avoid impacts to critical utilities</li> <li>• Higher capacity vehicles could meet demand more efficiently</li> </ul>
<b>Why less promising</b>	<ul style="list-style-type: none"> <li>• Operating in traffic will add schedule delay if congestion cannot be avoided. Currently congested intersections include:             <ul style="list-style-type: none"> <li>○ 11<sup>th</sup> and 12<sup>th</sup>, 26<sup>th</sup>, Cesar Chavez, 50<sup>th</sup>, 82<sup>nd</sup> in Portland</li> <li>○ Eastman Parkway in Gresham</li> </ul> </li> <li>• Right-of-way is very constrained from 12<sup>th</sup> to 50<sup>th</sup>.</li> </ul>
<b>Issues for further study</b>	<ul style="list-style-type: none"> <li>• Opportunities for exclusive right-of-way, signal priority, and business and transit lanes (BAT)</li> </ul>

## Dedicated Busway on Powell

<p><b>Why considered for study</b></p>	<ul style="list-style-type: none"> <li>• Lower capital cost than other light rail or streetcar</li> <li>• Could be implemented more quickly than light rail or streetcar</li> </ul>
<p><b>Why promising</b></p>	<ul style="list-style-type: none"> <li>• May require less right-of-way than light rail or streetcar</li> <li>• Design flexibility provides opportunities to:             <ul style="list-style-type: none"> <li>○ take more advantage of existing right-of-way</li> <li>○ better avoid or lessen delay factors such as congestion, fare collection, and loading and unloading at stops.</li> </ul> </li> <li>• Lower capital cost than light rail and streetcar</li> <li>• Could be implemented sooner than light rail and streetcar</li> <li>• Could avoid impacts to critical utilities</li> <li>• Higher capacity vehicles could meet demand more efficiently</li> </ul>
<p><b>Why less promising</b></p>	<ul style="list-style-type: none"> <li>• Right-of-way:             <ul style="list-style-type: none"> <li>○ Exclusive right-of-way would require impacts to businesses and residents</li> <li>○ Widening in locations that currently narrow to 45 feet.</li> <li>○ In Gresham, Powell Boulevard narrows to 2 lanes in areas adjacent to wetlands.</li> </ul> </li> <li>• Potential parks and schools impacts include             <ul style="list-style-type: none"> <li>○ Powell Park and Cleveland High School at 26<sup>th</sup></li> <li>○ Creston Park and St. Ignatius at SE 43rd</li> <li>○ Cleveland field at SE 33rd</li> </ul> </li> <li>• Transportation             <ul style="list-style-type: none"> <li>○ Traffic impacts to freight corridor on US 26.</li> <li>○ Would have to travel through congestion in mixed traffic if the 17<sup>th</sup> Avenue overcrossing is not expanded to create exclusive right-of-way</li> </ul> </li> <li>• Access to MAX Green Line at I-205 is not convenient</li> </ul>
<p><b>Issues for further study</b></p>	<ul style="list-style-type: none"> <li>• Vertical and horizontal clearance at the 17<sup>th</sup> overcrossing, I-205.</li> <li>• Availability of right-of-way for dedicated transit lane</li> </ul>

## Dedicated Busway on Division

<b>Why considered for study</b>	<ul style="list-style-type: none"> <li>• Lower capital cost than other light rail or streetcar</li> <li>• Could be implemented more quickly than light rail or streetcar</li> </ul>
<b>Why promising</b>	<ul style="list-style-type: none"> <li>• Less constrained right-of-way east of 80<sup>th</sup></li> <li>• May require less right-of-way than light rail or streetcar</li> <li>• Design flexibility provides opportunities to:             <ul style="list-style-type: none"> <li>○ take more advantage of existing right-of-way</li> <li>○ better avoid or lessen delay factors such as congestion, fare collection, and loading and unloading at stops.</li> </ul> </li> <li>• Lower capital cost than light rail and streetcar</li> <li>• Could be implemented sooner than light rail and streetcar</li> <li>• Would avoid impacts to critical utilities</li> <li>• Higher capacity vehicles could meet demand more efficiently</li> </ul>
<b>Why less promising</b>	<ul style="list-style-type: none"> <li>• Right-of-way:             <ul style="list-style-type: none"> <li>○ Exclusive right-of-way would require impacts to businesses and residents</li> <li>○ Between SE 8th and SE 50th, the right-of-way narrows to 40 feet in some areas, and would have substantial property impacts</li> </ul> </li> <li>• Utilities and infrastructure impacts             <ul style="list-style-type: none"> <li>○ Recent green street stormwater and pedestrian improvements between 12<sup>th</sup> and 50<sup>th</sup>.</li> </ul> </li> <li>• Potential parks and schools impacts may include:             <ul style="list-style-type: none"> <li>○ Clinton City Park at 54th</li> <li>○ Warner Pacific at 68<sup>th</sup></li> <li>○ PCC Southeast at 82<sup>nd</sup></li> </ul> </li> <li>• Traffic             <ul style="list-style-type: none"> <li>○ Congestion and constrained right-of-way between 11th and 50th.</li> </ul> </li> </ul>
<b>Issues for further study</b>	<ul style="list-style-type: none"> <li>• Availability of right-of-way for dedicated transit lane</li> </ul>



Figure A.2 inventory of project area – I-205 to Gresham City boundary

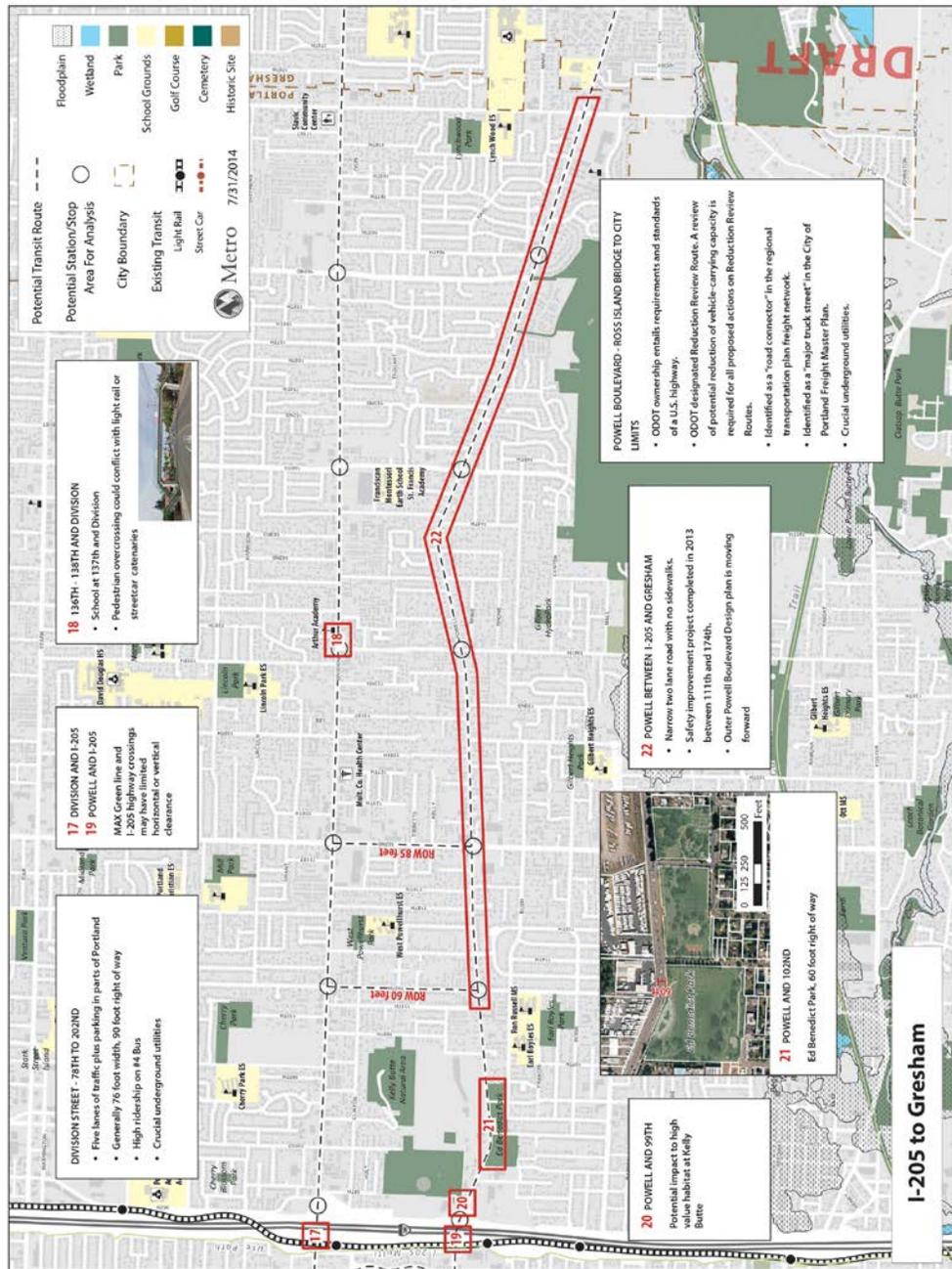


Figure A.3 – Inventory of project area – City of Gresham

