South Corridor Phase II
Portland to Milwaukie LRT Corridor

Refinement Report Executive Summary

Background

Since the 1980s numerous studies have concluded that there is a need for high capacity transit service in the Portland to Milwaukie corridor.[1] In 2002, an alternatives analysis of a wide range of transit options culminated in a Supplemental Draft Environmental Impact Statement (SDEIS), which reviewed busway, bus rapid transit and light rail options. It concluded with adoption of a locally preferred alternative (LPA) in 2003. The LPA included a light rail alignment between Portland and Milwaukie as Phase II. Phase I called for reconstruction of the downtown Portland bus mall to accommodate light rail and construction of a light rail line on I-205 between I-84 and Clackamas Town Center.

With construction of the I-205/Portland Bus Mall LRT Project underway, the region is commencing a new SDEIS on the Phase II alignment between Portland and Milwaukie. The SDEIS will be initiated in May and is required in order to review portions of the LPA that are new or have not been reviewed in several years. In preparation for that SDEIS, a refinement study was undertaken to consider whether changed conditions warrant the inclusion of design options in the upcoming SDEIS.

Refinement Report Purpose

The findings discussed in the refinement report are very preliminary and are based on the limited information that is currently available on the design options. Ridership estimates presented, for example, are also very preliminary and are not based on a full transit model forecasting runs. As work progresses on the SDEIS, these preliminary estimates will be replaced with more detailed information. The Refinement Report do include a comprehensive discussion of the measure and criteria used in the current assessment.

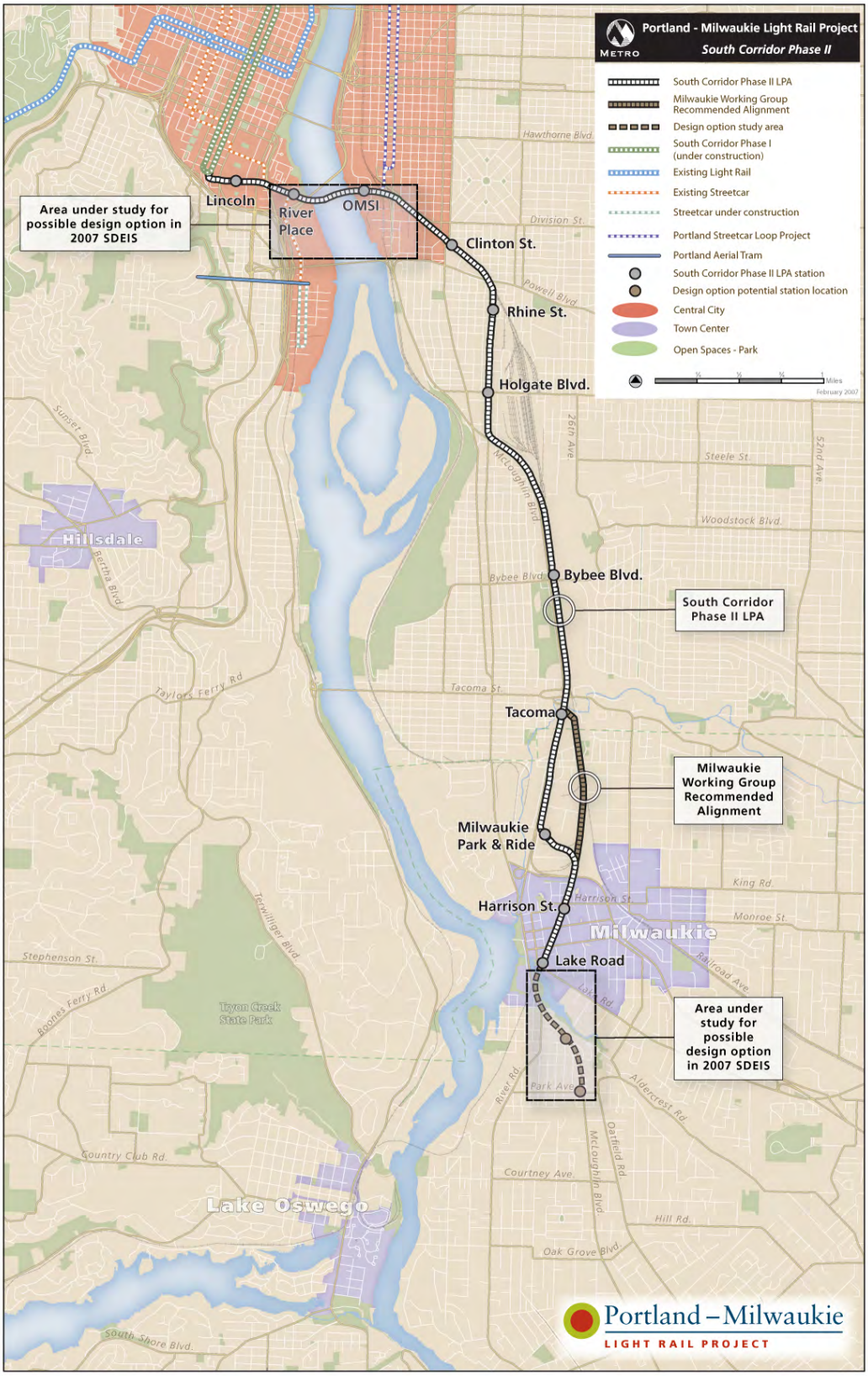
The purpose of the refinement report is to review proposed design options against a wide range of evaluation criteria, which are summarized in the matrix at the end of this executive summary. The issues studied are further described below. Figure 1 on the following page shows the areas studied in the refinement phase. The refinement of design options focuses on two areas: Southern Terminus and Willamette River Crossings.

1. Develop Design Options for Southern Terminus, Stations and Park and Ride

Subsequent to the LPA decision in 2003, the Milwaukie City Council established a Working Group to consider options to reduce impacts of the adopted LPA's Southgate

[1] These studies include, among others, the LRT-Regional System Plan by TriMet and Metro in 1984, the ODOT McLoughlin Blvd. FEIS, the South/North Corridor Study DEIS published by Metro in 1998 and the South Corridor Project Transportation Alternatives SDEIS published by Metro in 2002.

Figure 1. Refinement phase study areas



Crossover Alignment on the Milwaukie Industrial area. That Working Group, which was supported by the City of Milwaukie, Metro and TriMet, developed a number of options. Ultimately, the group recommended an alternative alignment along the Tillamook Branch Railroad, which terminated at a park and ride at Kellogg Lake south of the downtown. The Kellogg Lake site is no longer available, which necessitates the study of other terminus locations. The refinement effort considered other termini and park and ride locations to see whether a viable option could be developed for further review in the SDEIS.

2. Develop Willamette River Crossing Design Options

The LPA includes the Caruthers Willamette River crossing between OMSI and RiverPlace. That particular crossing has not been studied in detail since the South/North LRT Project DEIS in 1998, when it was selected over a mid-Ross Island Crossing.

The South Waterfront Plan was adopted by the Portland City Council in 2002, has triggered significant public and private investments in the area immediately adjacent to the proposed LRT Project. Over 1,000 housing units have been completed and approximately 1,700 additional housing units are planned. In 2006 the City of Portland's Aerial Tram was completed that provides access from the South Waterfront area. Oregon Health Science University (OHSU) has completed their Center of Health and Healing and is currently developing a new master plan for a 10-acre university complex. Development planning for the OHSU's South Waterfront campus and the city's overall planning for the South Waterfront area has generated interested in examining additional options for a Willamette River Crossing. In addition, OMSI's acquisition of six acres south of the current museum site creates new opportunities on the eastern bank of the river.

3. Address FTA Cost Effectiveness

The SDEIS will include development of a funding plan for the project. Federal Transit Administration New Starts funding could cover as much as 60% of the cost, but the project must meet federal cost effectiveness standards. Projects must compete nationally for scarce federal dollars on the measure, which weighs the transit ridership and travel time savings of options against capital and operating costs, also transit supportive land use factors must be considered. Due to the importance of this measure, preliminary analysis of the LPA and the effects of various design options in terms of these measures were studied. Buses are also being considered on the Willamette River crossing in order provide transit time savings to riders stuck in congestion on Ross Island Bridge.

The Refinement Study Process and Options

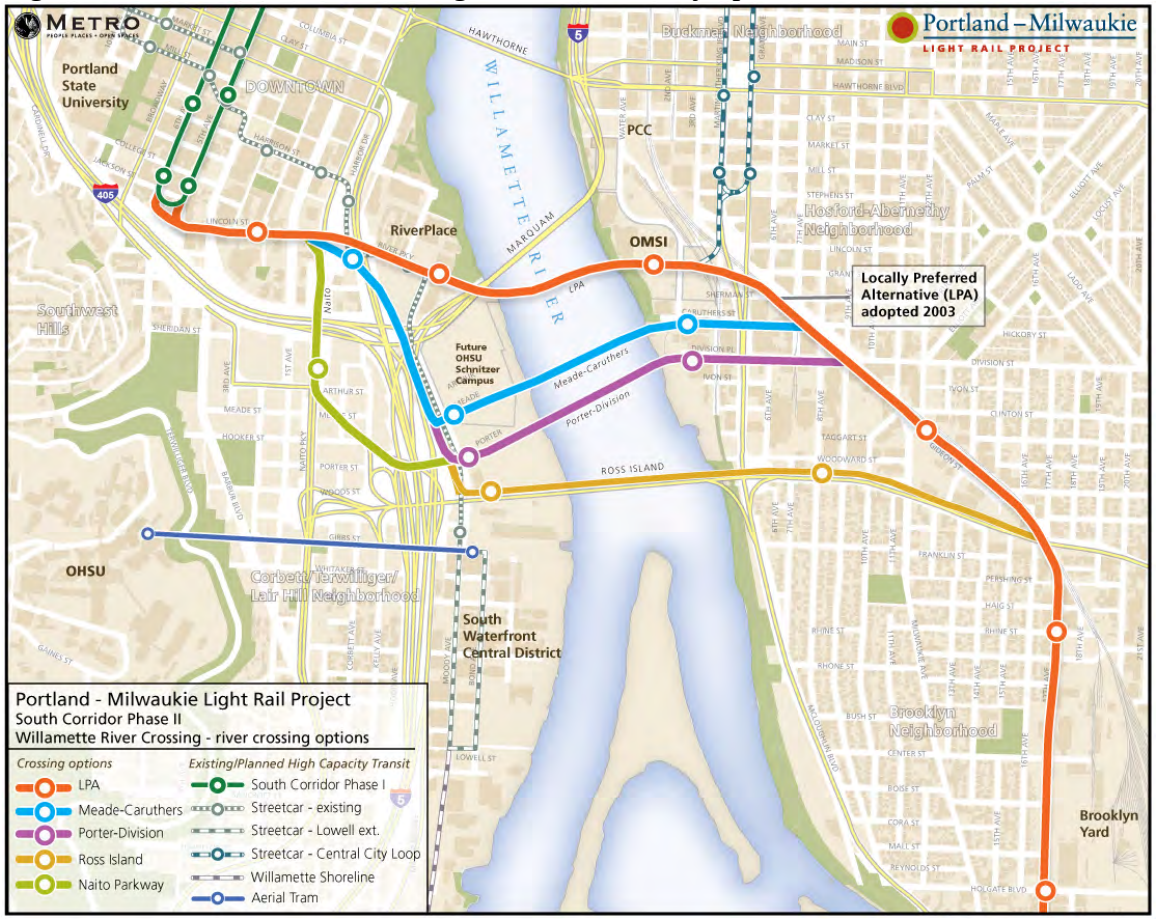
Project partners include Metro, TriMet, the cities of Portland, Milwaukie and Oregon City, the Portland Development Commission, Clackamas and Multnomah Counties and ODOT. Metro led the overall effort. TriMet led the concept design and provided

significant support on the cost effectiveness evaluation. Partner jurisdictions provided technical review and substantial public involvement support.

Willamette River Crossing

Five options were developed between the Caruthers Bridge that is the LPA alignment and the Ross Island Bridge. They include options between Caruthers and Meade, Division Place and Porter, and an option north of the Ross Island Bridge. All of these options continue up Moody to Lincoln on the west side. The Division/Porter alignment was also considered with a connection up to Naito parkway on the west side. These options and the LPA are depicted on figure 2, below. All options would provide pedestrian and bicycle facilities and were considered for bus access as well.

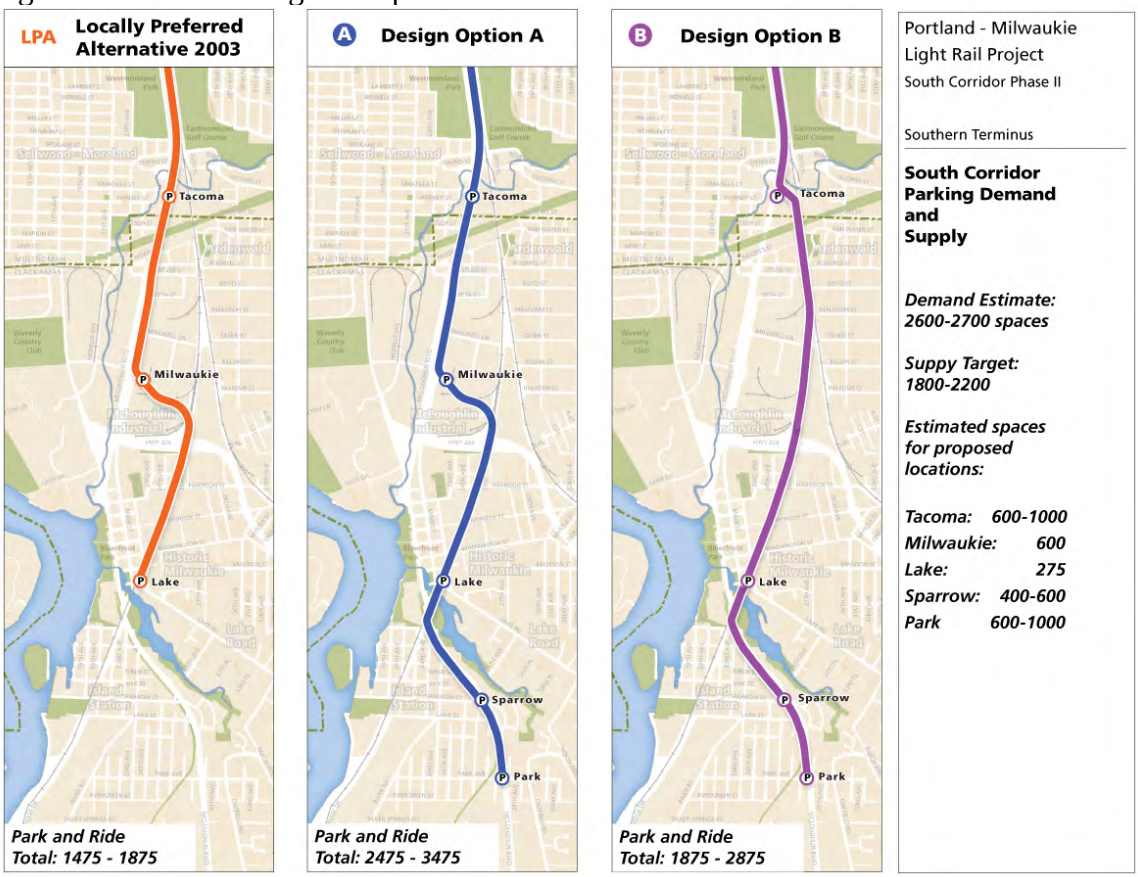
Figure 2. Willamette River Crossing Refinement Study options



Southern Terminus

A light rail extension south of downtown Milwaukie along McLoughlin to Park Avenue was considered as an extension to both the LPA and the Working Group alignments. A variety of potential park and ride and station locations were reviewed for each of these alignments. Park and ride options are depicted on figure 3, below. Note that these options depict the maximum number of park and ride spaces and station locations for each alignment. Figure 4 on the following page depicts the station options in downtown Milwaukie.

Figure 3. Milwaukie segment options

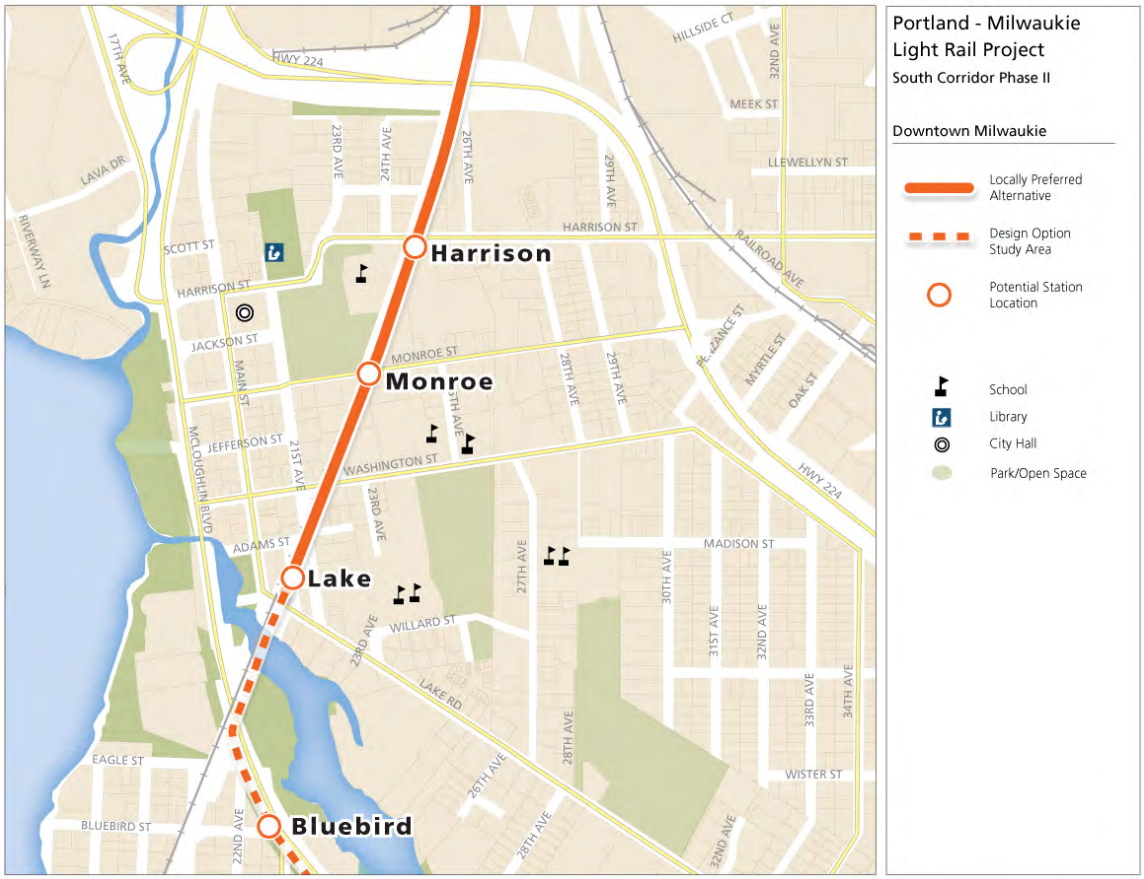


Analysis was conducted in order to compare the various options. Criteria included capital cost, engineering feasibility, potential transit ridership, travel time, land use and transportation connections and known potential environmental and property impacts. Cost effectiveness was assessed by evaluating the combined effects of the capital cost, potential ridership and travel time measures.

Metro and its project partners conducted public outreach through the winter and spring of 2007. The purpose was to inform interested parties about the project status and obtain input on the design options. Key stakeholders including property owners, institutions and

neighborhood and business association representatives were contacted. In Milwaukie, an open house was held on March 5, which had over 150 attendees. This was followed by three meetings focused on different segments of the alignment: south of downtown Milwaukie, the downtown area and the area between downtown and the Tacoma station. The project hosted an open house to review the Willamette Crossing options on April 9 attended by 70 people. In addition, project representatives made presentations and obtained feedback at numerous other community meetings, including neighborhood and business associations throughout the corridor.

Figure 4. Downtown Milwaukie station options



Public comment was solicited on alignment, park and ride and station location choices. This input, along with technical criteria, will be used to develop specific options for study in the SDEIS. Reports detailing all comments at the various public open houses are posted on Metro's website at www.metro-region.org. A summary report on the public outreach for the refinement phase is being developed and will be available on Metro's website after May 10th.

Refinement Findings

The evaluation is summarized in the attached summary matrices. The matrices focus on information and measures for which we have information that distinguishes the options at the refinement level of analysis. More detailed information will be developed and evaluated for all options studied into the SDEIS. The technical information on which these matrices are based is available in the full South Corridor Phase II Refinement Report and associated detailed matrices. The detailed matrices will be posted on Metro's website after May 1 and the full report will be posted after May 14.

Willamette River Crossing Area

In the Willamette River Crossing area, all of the options appear to offer better connections to the South Waterfront, a walk connection to the tram and more ridership than the LPA. They all increase travel time, costs and property and other environmental impacts, compared with the LPA, however.

The Caruthers/Meade and Porter/Division options look more promising due to the quality of the connections to key land uses such as OMSI and OHSU, good connections to the streetcar and fewer costs and environmental impacts than the other design options.

The Ross Island option's lack of service to the Central Eastside Industrial District and OMSI, potentially significant impact to the historic Ross Island Bridge, substantial property impacts on the east side and elevated connection on the west side make it considerably less desirable than the other design options.

The Naito Parkway route from Porter, while providing service to the Lair Hill neighborhood, would come with very significant infrastructure cost and property impacts, poor streetcar connections and loss of service to RiverPlace.

Public comment generally supported including options that continued to serve CEID and OMSI.

Please see the Executive North Summary Matrix (following page) for more details.

Southern Terminus

In the Milwaukie area, the extension to Park Avenue could increase park and ride capacity, avoid traffic impacts further north along the alignment and improve transit service to underserved areas in Clackamas County. The costs of a light rail extension are substantial, however, and analysis indicates that the extension might potentially reduce project cost effectiveness. In addition, extensive coordination is needed with the North Clackamas County Parks District and others regarding the planned trolley trail along this section of McLoughlin. While analysis indicates that both the trolley trail and the light rail can fit within the available right of way, the trolley trail would need to be redesigned

Executive North Summary Matrix

	Locally Preferred Alternative LPA	Meade/Caruthers	Porter/Division	Ross Island Bridge (RIB) Lincoln Alignment	Naito Parkway (via Porter/Division)
Cost	○	◎	◎	●	●
Potential transit ridership	◎	○	○	◎	◎
Potential transit travel time	○	◉	◉	◎	◉
Direct connection to key land use-Westside	◉	○	○	◎	◎
Direct connection to key land use - Eastside	○	◎	◉	●	◉
Eastside urban design and land use compatibility	◎	◎	◉	●	◉
Westside urban design and land use compatibility	◎	◎	◉	●	●
Engineering feasibility	◎	◉	◉	◎	●
Property impact (sq. ft.)	○	◎	◉	●	●
Historic and visual impact	○	◎	◎	●	◎
Transportation connections Eastside Streetcar access	○	○	○	●	◎
Transportation connections Westside Streetcar access	○	○	○	●	●
Transportation connections Other Transportation connections	○	◎	◉	●	●
Potential transportation impacts East and west sides	◎	◎	●	◉	●

● Worse ◉ ◎ ○ Best

to accommodate the light rail within the available right of way. The trail is a designated park, and coordination is needed to avoid a potential section 4(f) impact.

Public involvement revealed a strong interest among citizens from Milwaukie and unincorporated Clackamas County for a southern light rail extension. Concerns were raised about impacts to area property, traffic to and from park and ride lots and impact to trolley trail in that portion of the alignment.

Businesses and residents expressed concern about traffic impacts associated with park and rides throughout the corridor. Concerns about the compatibility of a park and ride with the residential character of the neighborhood surrounding Sparrow Avenue were raised. Residents appeared to support the Tacoma and Milwaukie Park and Ride stations overall, while businesses in the north Industrial area expressed concerns over traffic and property impacts associated with the LPA around the Milwaukie Park and ride. Some concerns were also expressed about the traffic impacts of a Lake Avenue park and ride on downtown Milwaukie.

At the downtown segment meeting significant concerns were raised by the Waldorf school parents and students, as well as some residents from the Historic Milwaukie neighborhood, concerning the LRT alignment in that area. Concerns focused on the Harrison street station and safety and noise associated with having the LRT in close proximity to the school.

See the Executive South Summary Matrix (following page) for more details.

Other Findings

Analysis indicates that significant time savings could be achieved for buses on any of the Willamette River Crossings. At this point in the study, there is a broad range of potential travel benefits based on differing assumptions about capital costs and operating characteristics required in order to accommodate buses on the bridge. Travel times did not vary significantly enough to distinguish between the options for buses at this level of analysis.

There was considerable interest expressed in a station at SE 17th Avenue and Harold Street at various community meetings. Suggestions included adding that station, which was assumed in neighborhood planning effort, and substituting that station for the one located at Bybee.

Recommendations

Willamette River Crossing

Based on the technical analysis and public comment, the Meade Caruthers and Division/Porter alignments showed the most promise for further study. These options

Executive South Summary Matrix

	Locally Preferred Alignment (LPA)	LPA with Extension to Park	Tillamook Alignment to Park
Cost	○	◉	●
Potential transit travel time	○	◉	●
Potential transit ridership	◉	◎	○
Park & Ride and station potential	●	○	◎
Connection to key land uses	◎	○	◉
Urban design and land use compatibility	◎	◉	◎
Engineering feasibility	○	◎	●
Possible effect on trolley trail	○	◉	◉
Bicycle /pedestrian connections	◎	○	○
Potential transportation impacts	◎	◉	◎

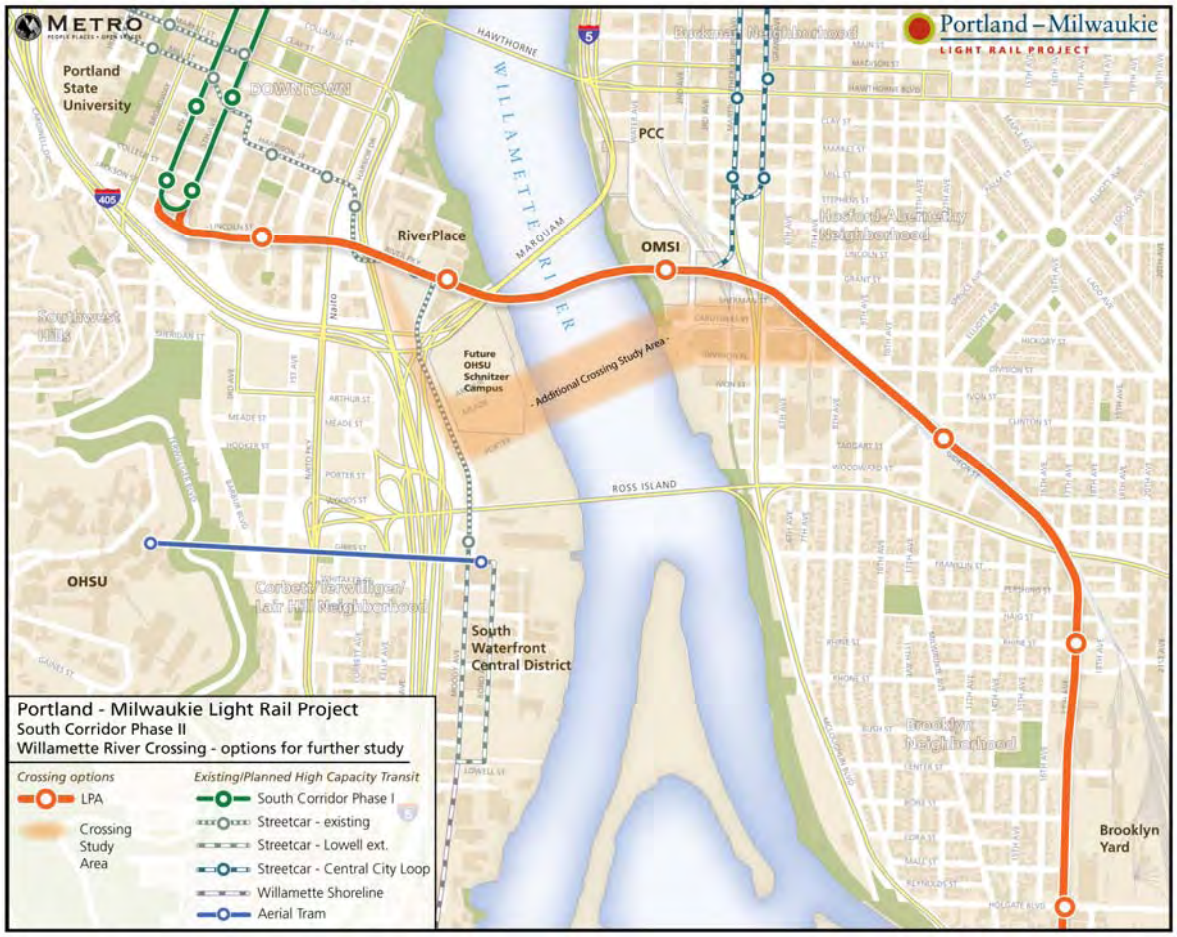
● Worst ◉ ◎ ○ Best

could support development plans for OHSU and OMSI, provide a better connection to the South Waterfront area and offer a walk connection to the Portland Aerial tram. However, OHSU is still in the early stages of master plan development for its new campus and continued coordination between the project and OHSU will be critical. On the east side, the Division Place alignment impacts the industrial sanctuary and is further from OMSI.

Further study is needed to identify options that are cost effective, minimize impacts on the industrial sanctuary and can still support developing plans of both OMSI and OHSU. Flexibility is needed in how the project approaches resolution of alignment issues.

It is recommended that two design options be developed by June 15 in the area between SE Sherman and Division Place and SW Arthur and Porter Streets, shown in figure 5. The project team should work with OMSI and OHSU as well as other area stakeholders in defining the specific options. These options would then be subject to further analysis and public review in the SDEIS along with the LPA. If consensus emerges over a single design option, it could be carried into the DEIS along with the LPA.

Figure 5. Area recommended for Willamette River options



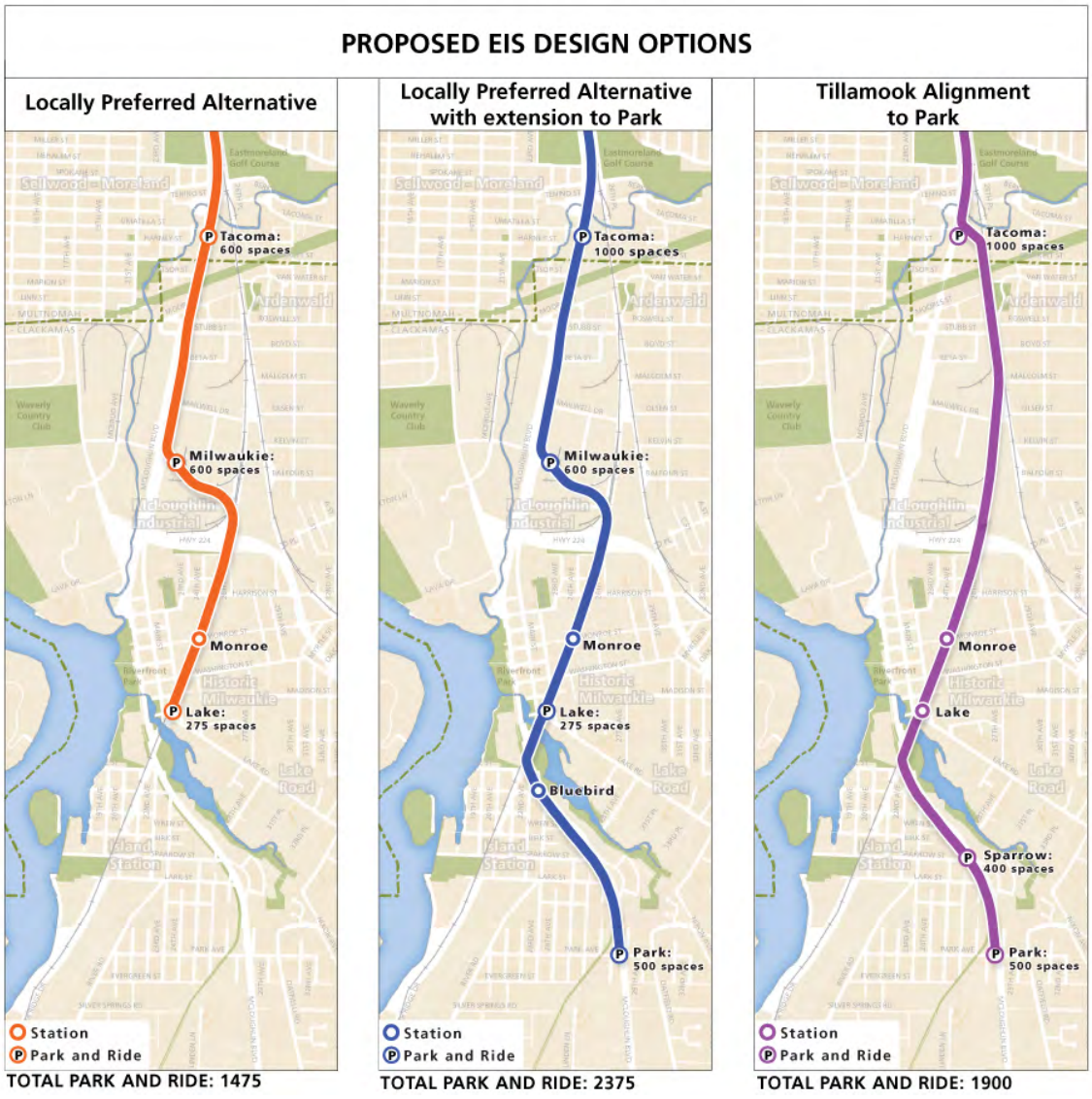
Southern Terminus

The Milwaukie Working Group identified potential impacts to freight movement in the Milwaukie industrial area as part of their work to refine the Southern Crossover LPA alignment in 2003. There are limited options available to complete the working group alignment and provide sufficient access for commuters from Clackamas County in this corridor. A number of issues with design options need further study including the impacts to the trolley trail, existing neighborhoods and cost effectiveness. In addition, traffic impacts associated with all park and ride lots for both the LPA and design options need further study.

It is recommended that the extension to Park Avenue be studied further in the SDEIS. Figure 6 shows the LPA and the two proposed design options, with associated stations and park and ride locations, proposed for further study in the SDEIS in this portion of the alignment.

The design options are intended to allow further study of key choices in terms of alignment, locations and amount of park and ride capacity and stations. Both design options show an extension to Park Avenue, while the LPA terminates at Lake Avenue in downtown Milwaukie. One design option is routed behind the North Industrial area along the Tillamook branch rail line and has not park and ride in this location. In an attempt to accommodate park and ride demand, both design options increase the proposed amount of park and ride capacity at Tacoma to 1000 spaces, for example, while the LPA continues study of 600 spaces there. One design option eliminates a Lake Road park and ride in favor of a park and ride at Sparrow to test the trade offs between these choices during the SDEIS. Due to the public preference for the Monroe station over the Harrison station expressed at public meetings, the Harrison station is not proposed for further study in any design option.

Figure 6. Milwaukie segment proposed design options.



Other Findings

There is a need for further study to determine the number of buses and the appropriate infrastructure improvements and operating characteristics if buses are allowed on the Willamette River Crossing. However, due to the large potential transit benefits resulting from accommodating buses, it is recommended that this issue be considered in depth during the SDEIS.

Therefore, it is recommended that further study of the ability to accommodate bus movements on all Willamette River Crossing options be further studied during the SDEIS.

At various public meetings considering adding or replacing one of the proposed stations with a SE Harold/SE 22nd Street Station has been suggested. Analysis indicates that there is strong potential station area ridership, however, there was not time or resources to complete an analysis of the trade offs between travel time and net ridership. This work is needed in order to determine whether it is cost effective to add the station or whether it could be substituted for another planned station.

It is recommended that an analysis of the viability of a station at Harold Street as a stand alone or as a substitute for the Bybee station be studied in the SDEIS.