Portland-Milwaukie Light Rail Project
Draft Locally Preferred Alternative Report

Project Management Group Findings and Recommendations to the South Corridor Steering Committee

June 26, 2008

Metro | *People places. Open spaces.*

The preparation of this report was financed in part by the U.S. Department of Transportation, Federal Transit Administration (FTA). The opinions, findings and conclusions expressed in this report are not necessarily those of the FTA.

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1. SUMMARY

1.1 Report Purpose

This *Portland-Milwaukie Project Locally Preferred Alternative Report* presents the recommended implementation strategy and the Locally Preferred Alternative (LPA) for transit improvements in the Portland-Milwaukie Corridor. This Report documents the amendment to the 2003 LPA and defines the elements of the 2008 Portland-Milwaukie LPA. The LPA recommendation has been made based on information documented in the *Portland-Milwaukie Supplemental Draft Environmental Impact Statement* (SDEIS) (Metro: May 2008), public comment received, as well as other studies listed in section 5.1. The recommended LPA is shown in Figure 1.

1.2 Locally Preferred Alternative Recommendation

The recommended Portland-Milwaukie Light Rail Project Locally Preferred Alternative (LPA) is a light rail transit with alignment, terminus, stations, park-and-ride facilities, a new bridge for transit, bicycles and pedestrians across the Willamette River, and bus and streetcar elements as follows:

Alignment
- Connecting to the southern end of the new light rail mall alignment in downtown Portland with a SW Lincoln Street alignment.
- Refined SW Porter Street to SE Sherman Street Willamette River Crossing.
- Tillamook Branch Alignment south of Tacoma.

Terminus

- Park Avenue terminus

Light Rail Stations
Stations would include stops and shelters at: SW Lincoln Street/Harbor Drive, South Waterfront, Oregon Museum of Science and Industry (OMSI), SE Clinton Street, SE Rhine Street, SE Holgate Boulevard, SE Bybee Boulevard, SE Tacoma Street, SE Lake Road, and SE Park Avenue. A potential future station is planned at SE Harold Street.

Park-and-Ride
Park-and-ride facilities would be located at the Tacoma and Park Avenue stations. Both facilities would include 1000 parking spaces.

Bus Improvements
The Portland-Milwaukie Light Rail Project LPA includes bus use of a transitway from SW 1st Avenue to approximately SE 8th Avenue and bus-related improvements at intersections and stations, including a new Bus Stop Shelter Area near the downtown Milwaukie (SE Lake Road) station.

Ruby Junction Maintenance Facility
The Portland-Milwaukie Light Rail Project LPA includes an expansion of the existing Ruby Junction Operations and Maintenance Facility to accommodate additional light rail vehicles associated with the operation of the Portland-Milwaukie Light Rail Project.

Future Streetcar Improvements

The Portland Streetcar, a distinct transit mode from light rail, could share some of the improvements made for light rail including the new Willamette River crossing, with light rail tracks also used by streetcars. Track connections would need to be made by a separate streetcar project plan and funding effort.

SE Water Avenue Relocation

The project will seek to accommodate the development of the existing SE Water Avenue detour as the permanent location for SE Water Avenue, however, design and construction of the permanent relocation are not included in the project.

Project Finance Consideration

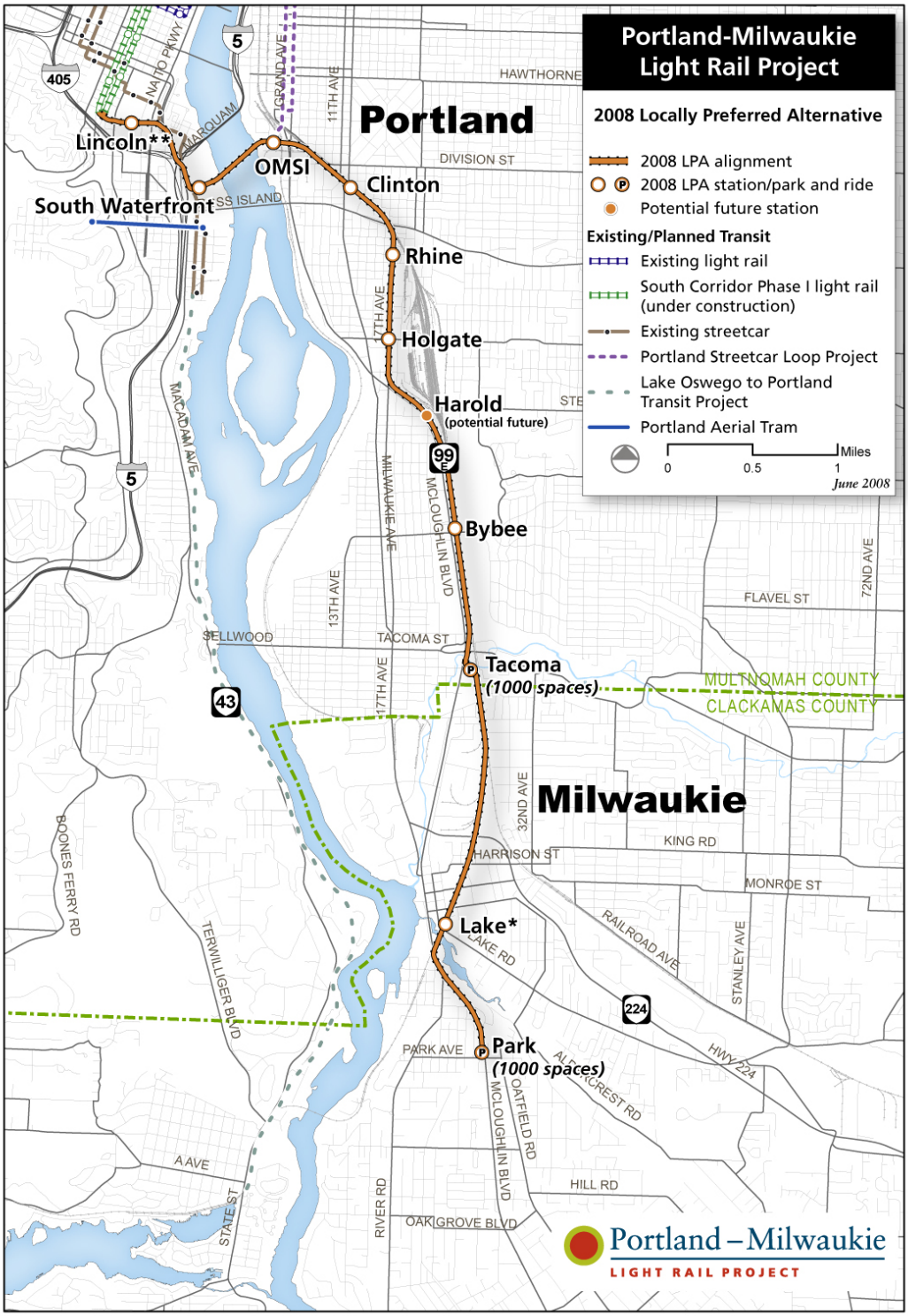
Securing local matching funds to complete the finance package has not yet been completed. If project revenues and project cost estimates cannot be balanced, a minimum operating segment (MOS) with a shorter alignment and a southern terminus at SE Lake Road could be pursued, consistent with the 2008 Portland-Milwaukie SDEIS.

1.3 Next Steps

The LPA would include local approval to proceed with the following next steps:

- Submit FTA New Starts and Preliminary Engineering applications.
- Initiate a Final Environmental Impact Statement (FEIS).
- Clarify and reach agreement on the project elements that will be reduced, deferred or eliminated to reduce project costs by the time the FEIS is published.
- Undertake actions to finalize the capital and operating financial plan for the project by the time the FEIS is published.
- Resolve project issues identified during and after publication of the SDEIS.
- Conduct analysis with City of Portland by January 2009, to determine the optimal location of a single station to serve the RiverPlace and the South Auditorium areas.

Figure 1.1 Draft 2008 Locally Preferred Alternative



** Lake Road Minimum Operable Segment (MOS):*
A Lake Road MOS terminus would include a 275 space park and ride at Lake Road, and a 1250 space park and ride at Tacoma.
*** The Lincoln and Harbor Stations will be consolidated into a single station. The new starts application will include the Lincoln Station.*

2. ALTERNATIVES CONSIDERED

The purpose of this section is to provide a brief description of how the previous 2003 South Corridor LPA decision was made and how it relates to the Light Rail Alternative and design options that were examined in the *Portland-Milwaukie Project Supplemental Draft Environmental Impact Statement (SDEIS)* (Metro: May 2008). For a complete description of these alternatives, please see the *Portland-Milwaukie Light Rail Project SDEIS*, Chapter 2 Alternatives Considered and Appendix L Background on Alternatives Development. Chapter 5 of this report describes the modes and alignments that have been studied in the corridor.

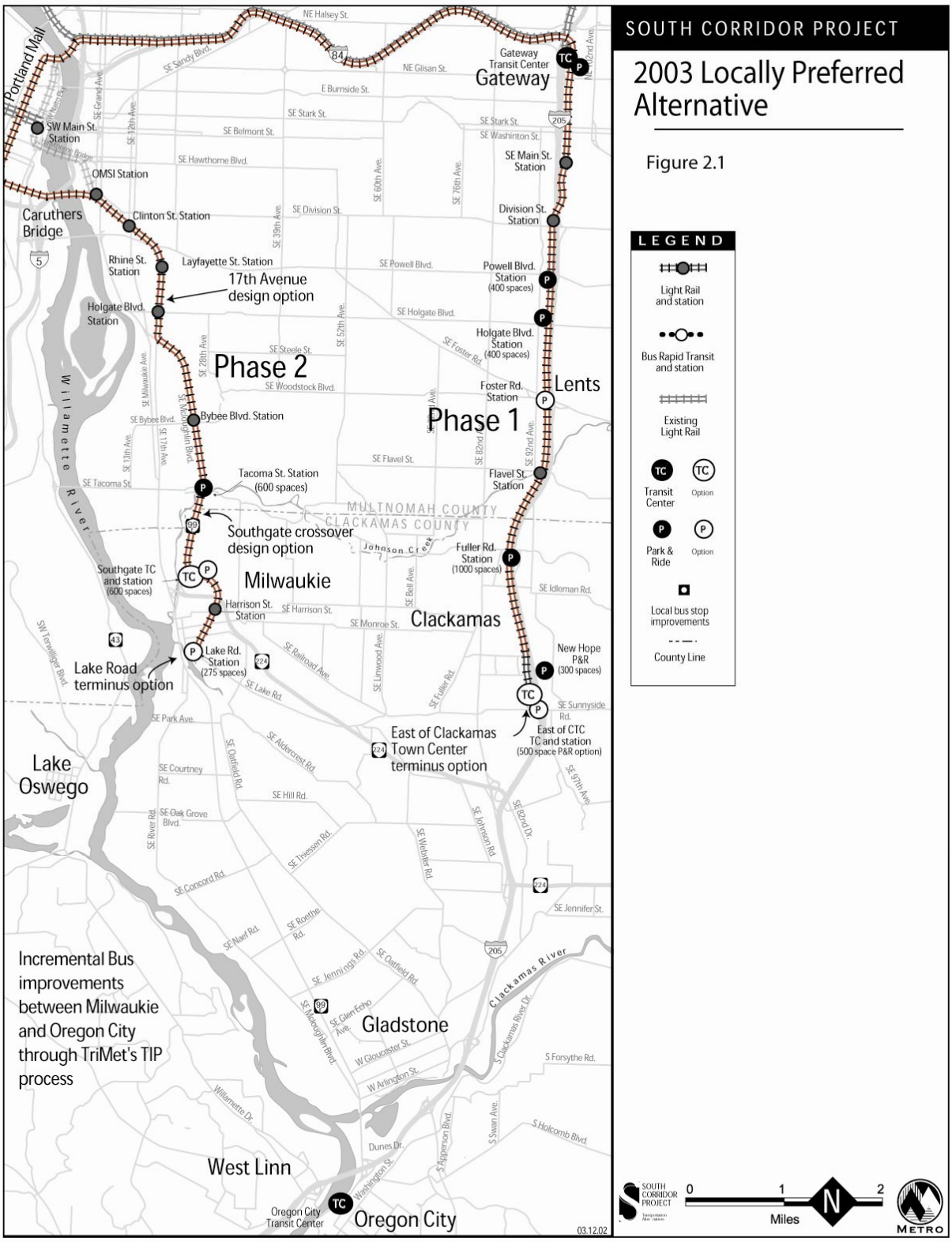
2.1 Portland-Milwaukie Light Rail Project Context in the South Corridor

On April 17, 2003, the Metro Council adopted a two-phased major transit investment strategy for the South Corridor (see Figure 2.1). Phase 1, the I-205/Portland Mall Light Rail Project, was selected as the Phase 1 Locally Preferred Alternative (LPA), to be followed by Phase 2, the Portland-Milwaukie Light Rail Project. The I-205/Portland Mall Light Rail Project was approved by the Federal Transit Administration (FTA) in a full funding grant agreement, with construction that commenced February 2007, with an opening scheduled for September 2009.

This LPA Report addresses Phase 2 of the South Corridor—the Portland-Milwaukie Light Rail Project.

In 2003, the project sponsors and Metro found that in the Portland-Milwaukie segment, the Light Rail Alternative was preferred over busway, bus rapid transit (BRT) and a No-Build Alternative because:

- **In 2020, Milwaukie Light Rail would have the highest number of transit trips in this segment** of any alternative, adding over 20,000 light rail trips in addition to I-205 light rail for a combined total of over 53,000 daily light rail trips in the South Corridor.
- **The Milwaukie Light Rail Alternative would provide the fastest travel time** of any of the Alternatives between Milwaukie and downtown Portland.
- **Light rail station areas would provide excellent opportunities for transit oriented development** in southeast Portland and in downtown Milwaukie.
- **Milwaukie Light Rail would provide better neighborhood transit service** than the BRT or Busway Alternatives, by providing accessible, high-capacity transit service to southeast Portland neighborhoods, Milwaukie and downtown Portland.
- **The Milwaukie Light Rail Alternative generated significant community support** in Milwaukie, southeast Portland and downtown Portland.
- **The Milwaukie Light Rail Alternative would have fewer environmental and displacement impacts** than the Busway Alternative.
- **Milwaukie Light Rail would be compatible with and would augment the regional light rail transit system** offering direct service to downtown Portland, the Rose Quarter and north Portland as well as easy transfers to the Blue and Red Lines between Hillsboro, downtown Gresham and the Portland Airport.



Note:
This figure shows the 2003 South Corridor LPA which, for the Portland-Milwaukie Corridor (Phase 2), is superseded by the 2008 LPA.

2.2 2008 Portland-Milwaukie Project SDEIS Alternatives

The 2008 SDEIS Light Rail Alternative was developed in response to modifications to the 2003 LPA proposed by citizens and local governments. These modifications were based on:

- A 2003 LPA work program element directing that options to the LPA alignment in the vicinity of the Milwaukie North Industrial area be investigated in order to mitigate impacts to businesses on SE McLoughlin Boulevard. This resulted in the creation of the Milwaukie Working Group that recommended the Tillamook Branch alignment design option in 2004 to the Milwaukie City Council.
- Demand for park-and-ride in the South Corridor.
- Interest by the City of Milwaukie and Clackamas County in a more southerly terminus outside downtown Milwaukie to serve light rail riders and park-and-riders further to the south and to maximize the quality and availability of downtown Milwaukie real estate for mixed-use, moderate density redevelopment.
- Substantial development in the South Waterfront area including a new Oregon Health & Science University (OHSU) building and plans for a future campus that include additional medical-related research and health facilities; an estimated increase in employment of over 10,000; ten planned new residential towers for 5,000 residents; and a need to have light rail be a part of an improved transportation system for the area.
- Completion of the Portland Aerial Tram and the desire for a closer connection between the tram and light rail.

Accordingly, starting in 2006 the Refinement Phase for the Portland-Milwaukie project examined and the Steering Committee narrowed alignment options in and south of Milwaukie and for the Willamette River crossing. As a result, Willamette River crossing alignment options, a Tillamook Branch alignment option and alignment options with a 0.84 mile extension of the southern terminus to SE Park Avenue were included in a 2008 Portland-Milwaukie SDEIS as part of the Light Rail Alternative. A No-Build Alternative was also included.

2.2.1 Portland-Milwaukie Light Rail Alternative

In 2008, the SDEIS Light Rail Alternative, including alignment and design options, included:

- **2003 LPA** from the Portland Mall to SE Lake Road in Milwaukie, with approximately 6.4 miles of light rail, 11 stations, and a new bridge across the Willamette River joining OMSI and RiverPlace.

- **Willamette River crossing options** between the South Waterfront District and southeast Portland, with four new alignment options in addition to the 2003 LPA river crossing, plus options for bridge height, bridge type, and whether the bridge would accommodate buses in addition to light rail, streetcar, bicycles and pedestrians.

- **Tillamook Branch Line**, an alignment option in the Milwaukie North Industrial Area that would transition to an alignment along the existing Tillamook Branch Railroad Line just south of the Tacoma Station and would include the extension to SE Park Avenue.

- **Extension to SE Park Avenue**, an alignment terminus option that would extend light rail approximately 0.84 mile from SE Lake Road to SE Park Avenue, add up to two stations, and provide additional park-and-ride capacity at SE Park Avenue.

Other localized options included:

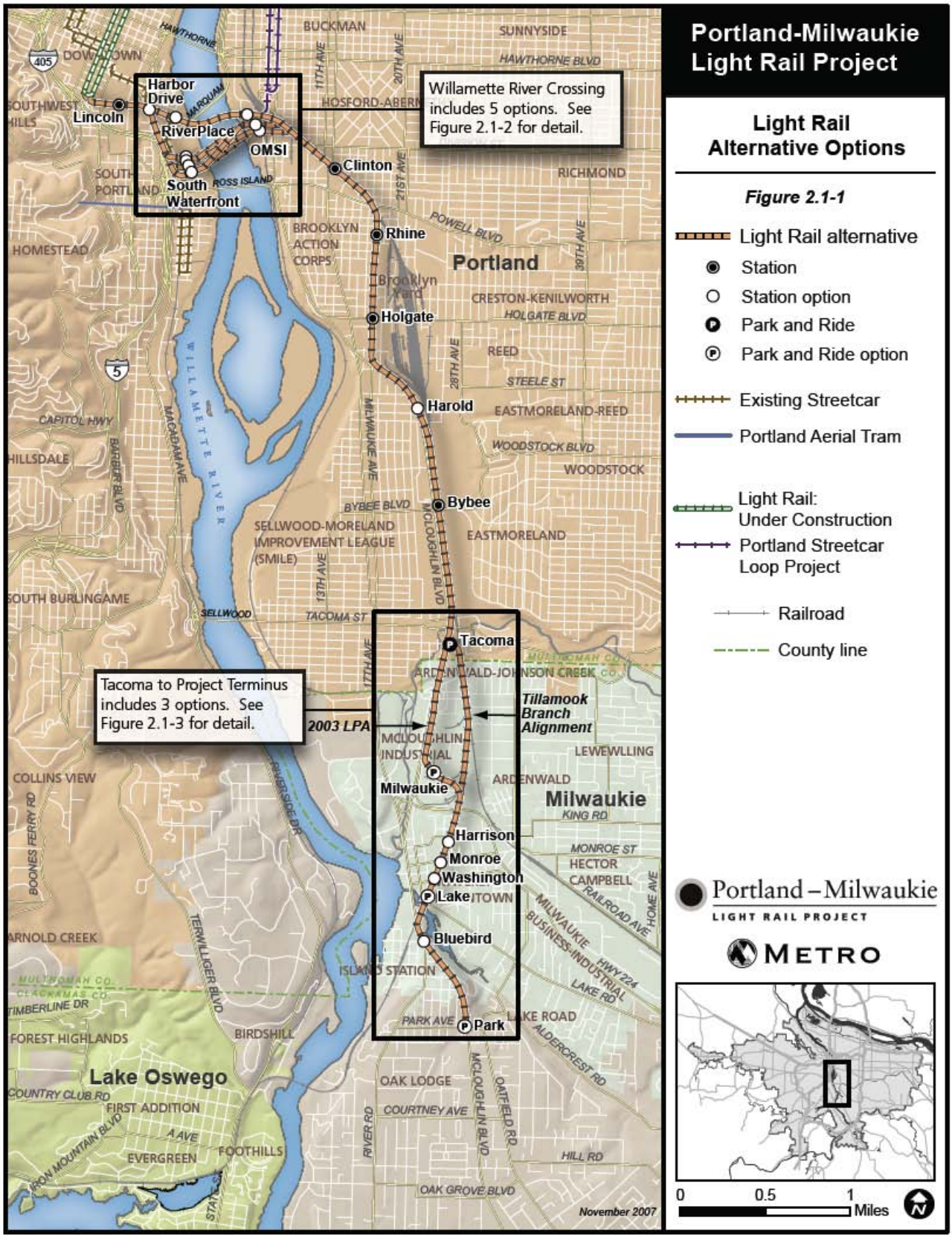
- SE Harold Street Station, an additional station in southeast Portland between the Bybee and Holgate Stations.
- Washington and Monroe Station options in downtown Milwaukie, in addition to the station at SE Harrison Street that was identified in the 2003 LPA.
- Bridge access options that would accommodate buses and streetcars.
- Options for elevated or at-grade crossings of the Oregon Pacific Railway (OPR) Line east of the Willamette River and across SE McLoughlin Boulevard south of downtown Milwaukie.
- Expansion of the Ruby Junction Operating and Maintenance Facility.

The analysis of the Light Rail Alternative was based on comparing the 2003 LPA to the alignment and design options, and each design and alignment option was combined with the 2003 LPA for analysis. For example, the Tillamook Branch Line option was combined with the 2003 LPA river crossing, and the Willamette River crossing options were combined with the 2003 LPA terminus at SE Lake Road. Figures 2.1-1 through 2.1-3 illustrate the alignment options evaluated in the Portland-Milwaukie SDEIS.

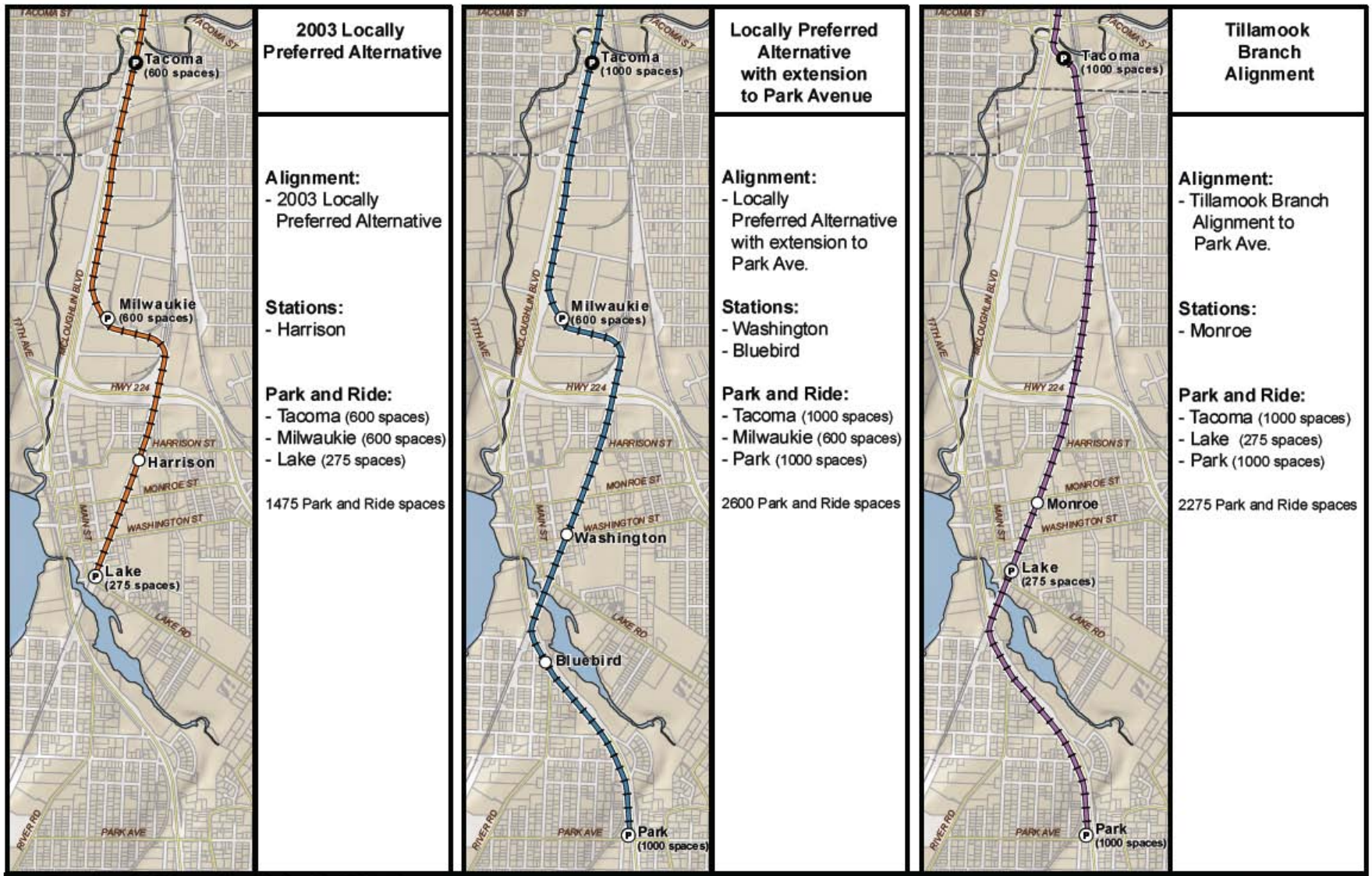
2.2.2 No-Build Alternative

The **No-Build Alternative** is required under NEPA and represents future conditions without the Portland-Milwaukie Light Rail Project. The No-Build Alternative represents both a possible outcome of the process and a reference point to gauge the benefits, costs, and impacts of the Light Rail Alternative.

The No-Build Alternative includes assumptions about future growth in population and employment in the region and in the project corridor through the year 2030, and the regional transportation system with the committed transportation investments that would occur with or without the Portland-Milwaukie Light Rail Project. The No-Build Alternative roadway improvements are projects in the corridor that are currently planned and for which a source of funding has been identified. They are the projects listed in the “financially constrained” project list of the 2004 Regional Transportation Plan, the currently adopted transportation plan for the region. Transit service will increase at a rate of 0.5% a year. See Table 2.1-1 of the SDEIS for a summary of the transit and roadway improvements included in the No-Build Alternative


Portland-Milwaukie Light Rail Project
Light Rail Alternative Options
Figure 2.1-1
Light Rail alternative
Station
Station option
Park and Ride
Park and Ride option
Existing Streetcar
Portland Aerial Tram
Light Rail: Under Construction
Portland Streetcar Loop Project
Railroad
County line
Willamette River Crossing includes 5 options. See Figure 2.1-2 for detail.
Tacoma to Project Terminus includes 3 options. See Figure 2.1-3 for detail.
2003 LPA
Tillamook Branch Alignment
Harbor Drive
Lincoln
RiverPlace
OMSI
South Waterfront
Clinton
Rhine
Holgate
Harold
Bybee
Tacoma
Milwaukie
Harrison
Monroe
Washington
Lake
Bluebird
Park
Portland
Milwaukie
Lake Oswego
Portland – Milwaukie
LIGHT RAIL PROJECT
METRO
0 0.5 1 Miles
November 2007

Portland - Milwaukie Light Rail Project
Project Options: Willamette River Crossing
Figure 2.1-2
1. 2003 LPA
2. Meade-Sherman
3. Meade-Caruthers
4. Porter-Sherman
5. Porter-Caruthers
Station option
Existing Streetcar
Portland Aerial Tram
Portland Streetcar Loop Project
Railroad
Arterial road
Portland – Milwaukie
LIGHT RAIL PROJECT
METRO
0
500
1,000
Feet
November 2007
Crossing Options:
1. 2003 LPA
2. Meade-Sherman
3. Meade-Caruthers
4. Porter-Sherman
5. Porter-Caruthers
WILLAMETTE RIVER
HAWTHORNE BLVD
GRAND AVE
MARTIN LUTHER KING BLVD
Union Pacific RR
DIVISION ST
SHERMAN ST
CARUTHERS ST
POWELL BLVD
MCLOUGHLIN BLVD
Eastside Willamette River Greenway
OMSI
Oregon Pacific RR
ROSS ISLAND BRIDGE
MARQUAM BRIDGE
South Waterfront
South Waterfront Willamette River Greenway (Planned)
Harbor Drive
RiverPlace
HARBOR DR
MARKET ST
Meade Options
Porter Options
MACADAM AVE
HOOD AVE
NAITO PKWY
Portland Aerial Tram


2003 Locally Preferred Alternative
Alignment:
- 2003 Locally Preferred Alternative
Stations:
- Harrison
Park and Ride:
- Tacoma (600 spaces)
- Milwaukie (600 spaces)
- Lake (275 spaces)
1475 Park and Ride spaces
Locally Preferred Alternative with extension to Park Avenue
Alignment:
- Locally Preferred Alternative with extension to Park Ave.
Stations:
- Washington
- Bluebird
Park and Ride:
- Tacoma (1000 spaces)
- Milwaukie (600 spaces)
- Park (1000 spaces)
2600 Park and Ride spaces
Tillamook Branch Alignment
Alignment:
- Tillamook Branch Alignment to Park Ave.
Stations:
- Monroe
Park and Ride:
- Tacoma (1000 spaces)
- Lake (275 spaces)
- Park (1000 spaces)
2275 Park and Ride spaces
Tacoma (600 spaces)
Tacoma (1000 spaces)
Milwaukie (600 spaces)
Harrison
Washington
Monroe
Bluebird
Lake (275 spaces)
Park (1000 spaces)
TACOMA ST
McLOUGHLIN BLVD
17TH AVE
HWY 224
HARRISON ST
MONROE ST
WASHINGTON ST
MAIN ST
LAKE RD
RIVER RD
PARK AVE
Portland-Milwaukie Light Rail Project
Figure 2.1-3
Project Options: Tacoma to Project Terminus
Light Rail alternative
Station
Station option
Park and Ride
Park and Ride option
Railroad
County line
0
0.25
0.5
Miles
N
November 2007

3. PUBLIC OUTREACH AND INVOLVEMENT

3.1 Portland-Milwaukie SDEIS Distribution and Public Comment

The *Portland-Milwaukie Project Supplemental Draft Environmental Impact Statement* was distributed on May 1, 2008, and notice of availability was published in the *Federal Register* on May 9, 2008. This document was also circulated and discussed at four community open houses (May 21, 22, 27, and 28, 2008). The 45-day local public comment period ends at noon, June 23, 2008 and has included numerous neighborhood meetings and a public hearing on June 9, 2008. The South Corridor Steering Committee made the initial recommendation for the Locally Preferred Alternative (LPA) for the Portland-Milwaukie Light Rail Project. This *Portland-Milwaukie Project Locally Preferred Alternative Report* documents the amendment to the 2003 LPA and defines the elements of the 2008 Portland-Milwaukie LPA.

3.2 Portland-Milwaukie LPA Decision Process

The South Corridor Steering Committee considers the LPA recommendation on June 26, 2008. It will then be considered by local jurisdictions, ODOT and TriMet, the Joint Policy Advisory Committee on Transportation (JPACT) and by the Metro Council (See Figure 1.4-1). The final LPA decision will be made by the Metro Council after consideration of:

- Public comments on the Portland-Milwaukie SDEIS made during the public hearings and as documented in the *Portland-Milwaukie Project Public Comment Report* (Metro, June 2008).

- Data and analysis included in the *Portland-Milwaukie Project Supplemental Draft Environmental Impact Statement.*

- Consistency with the study Purpose and Need and the project's adopted goals and objectives.

- Consideration of recommendations from the following committees and jurisdictions on the following dates:

Portland-Milwaukie Citizen Advisory Committee	June 12
City of Oregon City Commission	July 2
TriMet Board of Directors	July 9
Multnomah County Board of Commissioners	July 10
Joint Policy Advisory Committee on Transportation	July 10
Milwaukie City Council	July 14, 15
City of Portland Council	July 17
Clackamas County Board of Commissioners	July 17
Metro Council	July 24

The recommendations and resolutions adopted by the committees and jurisdictions listed above will be contained in Appendix B of the Metro Council's Final LPA Recommendation.

Figure 3.1 Locally Preferred Alternative Adoption Process and Schedule

4. LOCALLY PREFERRED ALTERNATIVE DESCRIPTION AND RATIONALE

The recommended locally preferred alternative is a Light Rail transit project that would extend the light rail that is currently under construction on the Portland Transit Mall to a terminus at SE Park Avenue in Clackamas County. The LPA is based on the 2003 LPA and the options analyzed in the SDEIS. Specific elements of the LPA are discussed below. Figure 4.1 illustrates the Portland-Milwaukie LPA.

4.1. Willamette River Crossing Alignment: Refined Porter-Sherman

A. Location

From the terminus of the Portland Mall Light Rail alignment located between SW 5th and SW 6th Avenues at SW Jackson Street in downtown Portland, light rail alignment would be extended east crossing SW 5th Avenue and the I-405 on-ramp and would continue east in the center of SW Lincoln Street, then cross SW 1st Avenue and through to SW Naito Parkway in the location of a currently existing building. Proceeding east and crossing SW Naito Parkway, the light rail alignment would turn south on the east side of SW Naito Parkway. The light rail would proceed over SW Harbor Drive on a structure and under the I-5/I-405 elevated roadways on a structure and continue south along the east side of SW Moody Avenue to an intersection of SW Moody Avenue and a future SW Porter Avenue in an alignment proximate to the southern edge of the OHSU campus. The light rail would then turn east and cross the Willamette River on a modified Porter-Sherman alignment to a point on the east side of the Willamette River at SE Sherman Street, just north of the Portland Opera building.

B. Alternatives Considered

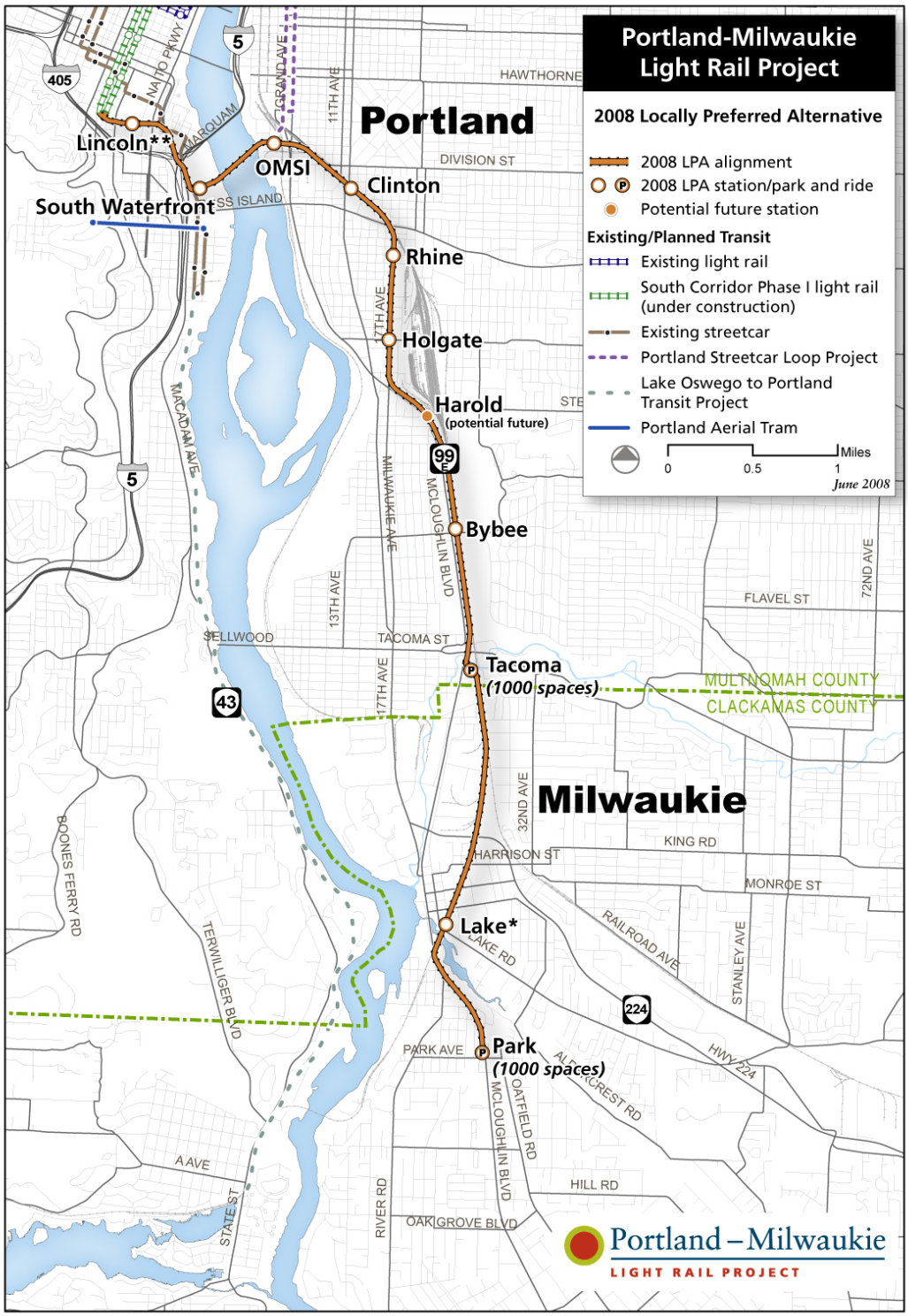
The following alignment options were considered for the Willamette River crossing. Additional alignments were considered in the refinement phase and were narrowed by the Steering Committee to the alignments listed below.

- 2003 LPA (SW RiverPlace to south OMSI parking lot)
- SW Meade to SE Sherman
- SW Meade to SE Caruthers
- SW Porter to SE Sherman
- SW Porter to SE Caruthers

C. Rationale for Selection

The City of Portland convened the Willamette River Partnership, a committee of local property owners, businesses and agencies in the vicinity of the proposed bridge crossings. The committee was charged with coordinating private development plans and investments with City utility, street and park improvements and the light rail project. After a series of meetings, they recommended a refined Porter-Sherman crossing described in “A”, above. All the more southerly river crossing design options (Meade and Porter on the west bank and Sherman and Caruthers on the east bank) share similar advantages over the 2003 LPA bridge crossing alignment.

Figure 4.1 Draft 2008 Locally Preferred Alternative



** Lake Road Minimum Operable Segment (MOS):*
A Lake Road MOS terminus would include a 275 space park and ride at Lake Road, and a 1250 space park and ride at Tacoma.
*** The Lincoln and Harbor Stations will be consolidated into a single station. The new starts application will include the Lincoln Station.*

The refined Porter-Sherman crossing compared to the 2003 LPA would:

- Serve almost 3,000 more residents and more than 4,000 additional employees.
- Add 1,200 to 1,400 light rail trips a day between downtown Portland and Milwaukie or Oak Grove.
- Reduce transit travel time to South Waterfront by 5 minutes (23 minutes compared to the No-Build).
- Have fewer noise impacts and would impact one less park.
- Be more likely to serve as a catalyst for development in the area.
- Provide substantive travel time benefits for buses, with over 13,000 riders gaining benefits.

In addition, the refined Porter-Sherman crossing has several additional advantages not shared by all of the other southerly crossing options. It would:

- Avoid the greater business and property impacts required by the Caruthers options.
- Be compatible with the OHSU and OMSI master plans.
- Be more compatible with the South Waterfront Willamette River Greenway Plans for natural habitat area between Porter and the Marquam bridge.
- Offer a short walk connection to the Portland Aerial Tram and access to more than 10,000 jobs on Marquam Hill.

D. Issues to be Addressed by Staff

The following issues will need to be further addressed

- Final bridge height, and bridge type (including number and size of in-water piers).
- Coordination with City of Portland on Willamette Greenway plan modifications.
- In-water and riparian habitat avoidance, mitigation and enhancement measures.
- Amount, extent, timing, cost and Light Rail Project cost burden for an elevated alignment in the South Waterfront area.

4.2 Preferred Light Rail Alignment: Tillamook Branch to Park

A. Location

The locally preferred alternative includes the Tillamook alignment in the Milwaukie North Industrial Area and a terminus at SE Park Avenue. From SE 8th to SE Tacoma Street the alignment is the same as the LPA adopted in 2003. On the east side of the river, following along the west/south side of the Union Pacific Railroad (UPRR), the light rail alignment would cross SE Powell Boulevard and go south along SE 17th Avenue to SE McLoughlin Blvd. The alignment would then continue south between SE McLoughlin Boulevard and the UPRR tracks to SE Tacoma Street.

At SE Tacoma Street the preferred Tillamook alignment would proceed south about 300 feet and then turn southeast. The Tacoma Street Station would be located south of Johnson Creek and a 1000 space parking structure would be located at this site. The alignment would cross under the Springwater corridor bridge then be elevated to just north of Highway 224. The alignment would cross under Highway 224 and then run south along the west side of the Tillamook Branch railroad right-of-way to SE Lake Road. The light rail would cross over SE McLoughlin Boulevard on a grade-separated structure and proceed south along the west side of SE McLoughlin Boulevard to SE Park Avenue.

B. Alternatives Considered

The following alternatives were considered for the portion of the light rail alignment between SE Tacoma Street and SE Park Avenue:

- The 2003 LPA alignment along SE McLoughlin and SE Main Street through the Milwaukie North Industrial Area with southern terminus at SE Lake Road.
- 2003 LPA alignment as described above with a southern terminus at SE Park Avenue.
- The Tillamook Branch Alignment with the extension to SE Park Avenue.

C. Rationale

Tillamook Branch Alignment. Compared to the 2003 LPA or the 2003 LPA to SE Park Avenue, this option would:

- Require fewer impacts to traffic and freight access for businesses in the Milwaukie North Industrial Area.
- Result in fewer acquisitions and displacements of North Industrial Area businesses.
- Reduce light rail travel by one minute along the length of the segment.
- Cost less to construct (approximately $39 million).
- Avoid adverse impacts to the historic ODOT building and grounds on SE McLoughlin Boulevard.
- Have support of the businesses in the North Industrial Area and is similar to the Milwaukie Working Group Recommendation from the 2004 process.
- Avoid traffic impacts at SE Ochoco and SE Milport Streets.

Park Terminus. The SE Park Avenue terminus is preferred, although funding is not assured. While substantial efforts will be made to find sufficient funds to construct to Park Avenue, a minimum operating segment (MOS) to Lake Rd is also indicated. Compared to the Lake Road terminus, the Park Avenue terminus would:

- Increase the number of people using transit to get to downtown Portland.
- Put 1,100 to 1,600 more households and approximately 1,300 jobs within a ½ mile walk of the light rail system.
- Reach more commuters in north Clackamas County by maximizing park-and-ride opportunities with 1,000 more spaces.
- Increase ridership by over 2,000 rides each day.
- Would intercept significant park-and-ride trips south of downtown Milwaukie before it reaches the Milwaukie Town Center.
- Avoid impacts of a park-and-ride in downtown Milwaukie.

D. Issues to be Addressed by Staff

With the SE Park Avenue terminus, the following issues would need to be addressed:

- Developing cost reduction strategies that will allow for the extension to SE Park Avenue terminus.
- Developing capital and operating finance plan for the SE Park Avenue terminus.
- Addressing the additional noise and vibration impacts.
- Mitigating the potential impacts to two additional parks.

4.3 Locally Preferred Alternative Light Rail Stations: Portland

A. Location

The recommended Locally Preferred Alternative includes stations and park-and-rides at the following locations:

- Lincoln/Harbor
- South Waterfront
- OMSI
- Clinton
- Rhine
- Holgate
- Bybee
- Tacoma

The station at Tacoma includes structured park-and-ride facilities with 1000 spaces.

B. Alternatives Considered

The following station locations were considered based on the 2003 LPA, finding the Refinement Study and recommendations of the Steering Committee:

- Lincoln
- Harbor Drive
- RiverPlace
- South Waterfront
- OMSI
- Clinton
- Rhine (formerly Lafayette)
- Holgate
- Harold (studied as an optional station)
- Bybee
- Tacoma

C. Rationale

The station locations in Portland are based on the adopted 2003 LPA, except as follows:

- The Lincoln Station was relocated from SE Harrison Street because the alignment was relocated to SE Lincoln Street because the Portland Streetcar has been constructed on SE Harrison Street.
- The selection of the revised Porter-Sherman Willamette River crossing alignment precludes a station at RiverPlace. The Harbor Station, which was intended serve RiverPlace, is discussed below.
- A station option at SE Harold Street was studied the SDEIS, though it was not included in the 2003 LPA. It is also discussed below.

4.3.1 Lincoln and Harbor Stations

A. Location.

The Lincoln Station studied in the SDEIS would be located in the South Auditorium area on SW Lincoln Street between SW 4th and SW 1st Avenue. The Harbor Station studied

would be located over SW Harbor Drive and SW Moody Street in SW Portland. Because of topography and light rail alignment grade considerations, the Harbor Station would be required to be an elevated station. The location of these two stations will be reexamined prior to January 2009.

B. Reasons to Consolidate Lincoln and Harbor Stations

The Harbor Station was preliminarily evaluated and is recommend to be consolidated with the Lincoln Station in the 2008 LPA because:

- Ridership to and from the Harbor station is estimated to be among the lowest of any station (900-1,200 boardings per day).
- The delay to each trip due to an additional stop reduces overall ridership, reduces the transit user benefits, and negatively affects the cost effectiveness to a significant degree—17,000 light rail riders and 2,1000 bus riders daily bypass Harbor Station and would be slowed by 30-60 seconds if there were an additional stop.
- 70 percent of the riders at the Harbor Station transfer to or from the streetcar.
- The Lincoln Street station is only 500-800 feet from the Harbor station.
- Most trips are within walk access to another station and have access to streetcar that will serve OHSU and OMSI as well as downtown.
- The cost of the Harbor Station, elevated 35 feet above SW Harbor Drive, ($17 million) is substantially more than other at-grade stations.
- The elevated, 96' wide station would visually impact surrounding uses and would mar the entrance to downtown Portland from I-5.
- An elevated station would require property from PDC redevelopment parcels.
- An elevated station would require steps, a ramp and possibly an elevator, which would make it less convenient for passengers than at-grade stations.

C. Consideration

Prior to January 2009, the project will reexamine the Lincoln and Harbor stations and identify a single station location that optimizes ridership, is fiscally responsible and serves the RiverPlace and the South Auditorium areas.

4.3.2 Harold Station

Examination of the potential for a future Harold Street station is identified as a future work element. See Chapter 6 Future Work Program for additional detail.

A. Location

The SE Harold Street Station would be located between SE Harold Street and SE Ellis Streets on the east side of SE McLoughlin Boulevard in SE Portland.

B. Reasons Not to Advance

The Harold Street Station was not recommended to be included in the 2008 LPA:

- Low ridership (1,400 boardings per day even with a pedestrian bridge that would provide access to neighborhoods to the east) compared with other stations.
- Most of the station area is within ½ mile of either Bybee or Holgate Stations.
- Currently fewer than 30 riders a day use the existing Harold bus stop.

- Most riders could be served by the existing #19 Woodstock or other routes that will benefit from use new Willamette River bridge, which will increase reliability and decrease bus travel times
- 1,900 light rail riders traveling through the station would experience about ½ to 1 minute additional transit travel time thereby reducing the cost effectiveness of the project.
- SE Harold Station would be considered as a potential future station with track offsets designed to accommodate a future station.

C. Considerations

Current land uses and zoning do not adequately support a Harold Station at this time. A Harold Street Station would benefit by having a multi-use bridge over the railroad tracks at SE Reedway Street to connect the East Moreland and Reed neighborhoods and Reed College. The cost of the bridge is estimated at $6-8 million.

D. Future Evaluation

The SE Harold Station is considered a potential future station with track offsets and infrastructure designed to accommodate a future station. As part of PE and future area planning processes conducted in coordination with the Portland Plan planning process, studies should evaluate ridership, cost effectiveness, land use, zoning, infrastructure and bus routing options that would support a future Harold Station.

4.4 Locally Preferred Alternative Light Rail Stations: Milwaukie and Clackamas County

4.4.1 Preferred Milwaukie Station: Lake Road

A. Location

The station is located on the north side of SE Lake Road, south of SE Adams and west of SE 21st Avenue adjacent to the railroad tracks in the downtown Milwaukie.

B. Alternatives Considered

Stations at SE Harrison Street, SE Monroe Street, SE Washington Street and SE Lake Road were studied in the 2008 SDEIS. A park-and-ride with 275 spaces was studied in the SDEIS. This option is discussed in section 4.5.1 below.

A station and park-and-ride at the former Southgate Theatre site was included in the 2003 LPA, and studied as part of 2003 LPA alternative in the SDEIS. A station at Bluebird was studied as an option with the extension to SE Park Avenue.

C. Rationale

Under the Park Avenue terminus option, one station in downtown Milwaukie is recommended.

A single station at SE Lake Road is preferred because it:

- Is the closest station alternative to Main Street, the retail spine of downtown Milwaukie, of the four stations studied.

- Encourages the greatest possible use of Main Street, helping to activate the entire length of the street with pedestrian activity compared with the other station alternatives in downtown Milwaukie.
- Provides downtown Milwaukie with the anchor the Downtown Plan suggests is necessary for strengthening Main Street.
- Supports the City of Milwaukie's plans for redevelopment.
- Will be highly convenient to the Milwaukie High School.
- Has community support and was recommended by the Milwaukie City Council.

Selection of a Tillamook Branch alignment in the North Industrial Area precludes the station and park-and-ride at the former Southgate Theatre site.

4.4.2 Bluebird Station

A. Location

The SE Bluebird Street Station would be located just north of SE Bluebird Street, on the east side of SE 22nd Avenue and along SE McLoughlin Boulevard in the City of Milwaukie.

B. Reasons Not to Advance

The Bluebird Station was not recommended to be included in the 2008 LPA or advance to the 2008 FEIS because:

- The station would need to be elevated and station construction costs and visual impact would be substantially greater than at-grade stations.
- The light rail ridership would be significantly lower than other stations along the light rail line (the Bluebird station is estimated to have only about 1,400 boardings and alightings daily compared with the station median of 2,748)
- The real estate potential of the surrounding area is very limited because of existing zoning and land uses.
- There are existing commercial uses that would have to be acquired and displaced at the site.

4.4.3 Lake Road Park-and-Ride

A. Location

A park-and-ride facility for the Lake Road Station located at SE Lake Road and SE Washington Street in downtown Milwaukie was evaluated in the SDEIS. It is not recommended to be included in the LPA.

B. Reasons Not to Advance

The Lake Road park-and-ride facility was not recommended to be included in the 2008 LPA for the Project to SE Park Avenue. It should be included in a Minimum Operating Segment (MOS), which is discussed below. The reasons for the recommendation include:

- The park-and-ride would not conform to the City of Milwaukie's guidelines for parking within the downtown area.
- The extension to Park would provide a location further south for many park-and-ride trips and would bring less traffic into downtown Milwaukie.

- This 275 space structured park-and-ride lot would be difficult to construct next to Kellogg Creek and would be expensive ($17 million).
- If an MOS with a Lake terminus is constructed, this park-and-ride would be needed in order to serve the southern portion of the alignment and to provide sufficient park-and-ride for the project.

4.5 Minimum Operating Segment: Lake Road

Final cost estimates and finance plans have not yet been completed. A Minimum Operating Segment (MOS) terminating at SE Lake Road would only be pursued if sufficient funds to construct the preferred alignment with a terminus at SE Park Avenue can not be identified. The preferred alternative would remain a SE Park Avenue terminus.

A. Location

A Lake Road Minimum Operating Segment (MOS) would use the Tillamook Branch alignment and would have a southern terminus at SE Lake Road – until such time as additional funds were secured to extend the light rail further south. A station would be located at SE Lake Road. The Park Avenue Park-and Ride would not be constructed until the line was extended to Park Avenue. Therefore, the Lake Road MOS would include a park-and-ride with 275 parking spaces located south of SE Washington Street and west of SE Main Street, and the Tacoma Park-and-Ride would increase to up to 1,250 spaces.

B. Rationale

This option would only be selected if sufficient funds to construct the preferred alternative can not be identified. The preferred alternative is the terminus at Park Avenue. In order to accommodate the demand for park-and-ride at the southern end of the project area, a park-and-ride would be necessary with the terminus at SE Lake Road. The park-and-ride structure could transition to city use when the project is completed to the Park Avenue terminus.

4.6. Additional Improvements

4.6.1 Ruby Junction Operations and Maintenance Facility

A. Location

The Ruby Junction Operations and Maintenance Facility is located in the City of Gresham near SE 199th and SE Burnside.

B. Rationale

The Ruby Junction facility would need to be expanded to accommodate the additional light rail vehicles that will be required for the Portland-Milwaukie project.

4.6.2 Bus Improvements

A. Location

Capital improvements for buses associated with the project include a transitway and bus-related intersection improvements from SW 1st and Lincoln to approximately SE 8th and

SE Powell Boulevard. Service improvements include a new bus route to connect Milwaukie and the Clackamas Regional Center.

B. Rationale

Use of the new bridge and transitway decrease travel time and increase reliability because the buses do not have to travel on congested roads and bridges.

C. Considerations

Access control for buses entering SE Powell has yet to be determined and will be coordinated with the Oregon Department of Transportation.

4.6.3 Future Streetcar Improvements

A. Location

The Portland Streetcar could be accommodated on the Willamette River Bridge and portions of the transitway.

B. Rationale

The Portland Streetcar alignment could share some of the improvements constructed as part of the Portland-Milwaukie project, and has been planned to use the Willamette Bridge that would be constructed. The streetcar it is a distinct project and mode and the track connections and switches would be a separate project.

4.6.4 SE Water Avenue Relocation

Location

The project will seek to accommodate the development of the current SE Water Avenue detour as the permanent SE Water Avenue alignment.

5. BACKGROUND AND ALTERNATIVES CONSIDERED AND NOT ADVANCED

5.1 Project History

The *Portland-Milwaukie Light Rail Project SDEIS* is a supplement to the *South Corridor Project Supplemental Draft Environmental Impact Statement* (2002).

In addition to the 2002 and 2008 SDEIS's, the following documents were prepared and public has reviewed and comments have been gathered in association with these documents in the long-term work effort to assess an LPA for the Portland-Milwaukie Light Rail Project:

- *Tier I and Tier II South/North Alternatives Analysis* (1993)
- *South/North Draft Environmental Impact Statement* (1998)
- *Portland-Milwaukie Transportation Alternatives Study* (2000)
- *Downtown Amendment to the Portland-Milwaukie Project Supplemental Draft Environmental Impact Statement* (2003)
- *Portland-Milwaukie Refinement Report* (May 2007)
- *Portland-Milwaukie Light Rail Project Downtown Milwaukie Alignments Review* (June 2007)
- *Portland-Milwaukie Light Rail Project Downtown Milwaukie Workshop Summary SE Main Streets/SE 21st Avenue* (August 2007)
- *Portland-Milwaukie Light Rail Project 2008 SDEIS Public Comment Report* (June 24, 2008)

5.2 Transit Modes and Transit Substitutes Considered

The transit modes (in addition to light rail) and transit substitutes (HOV and HOT lanes) that have been evaluated or considered[1] in the past for the South Corridor and Portland-Milwaukie area include:

- River transit
- Commuter rail
- High Occupancy Toll (HOT) and High Occupancy Vehicle (HOV) lanes
- Busway
- Bus Rapid Transit (BRT) including intelligent transportation management (ITS)
- Streetcar

The reasons the modes were not advanced are detailed in Chapter 2 of the 2008 SDEIS.

[1] Streetcar was not evaluated in an environmental document in this corridor, but was rejected due to operational cost and lower carrying capacity.

Figure 5.2.1: South/North Corridor Project Development Process

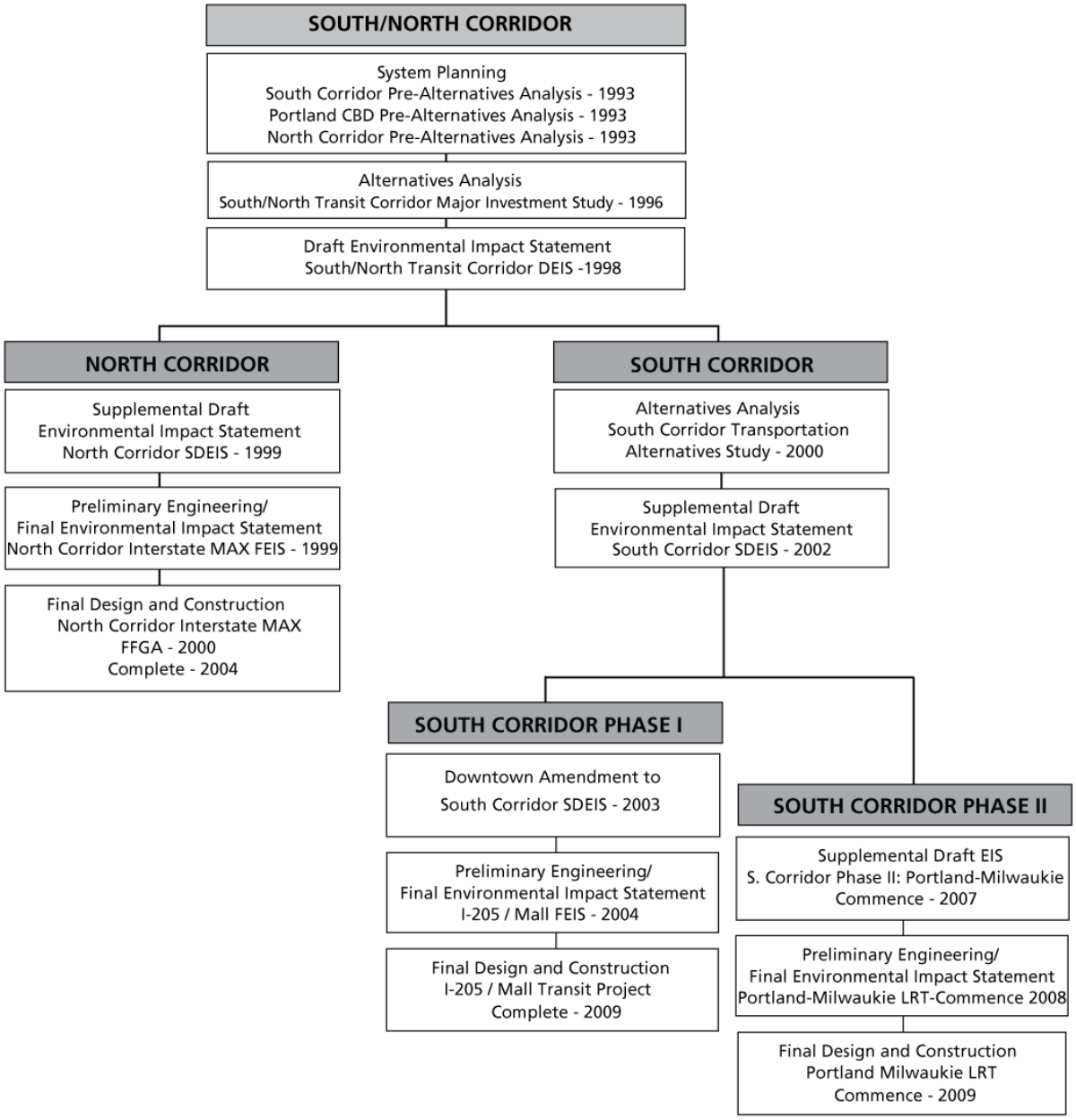
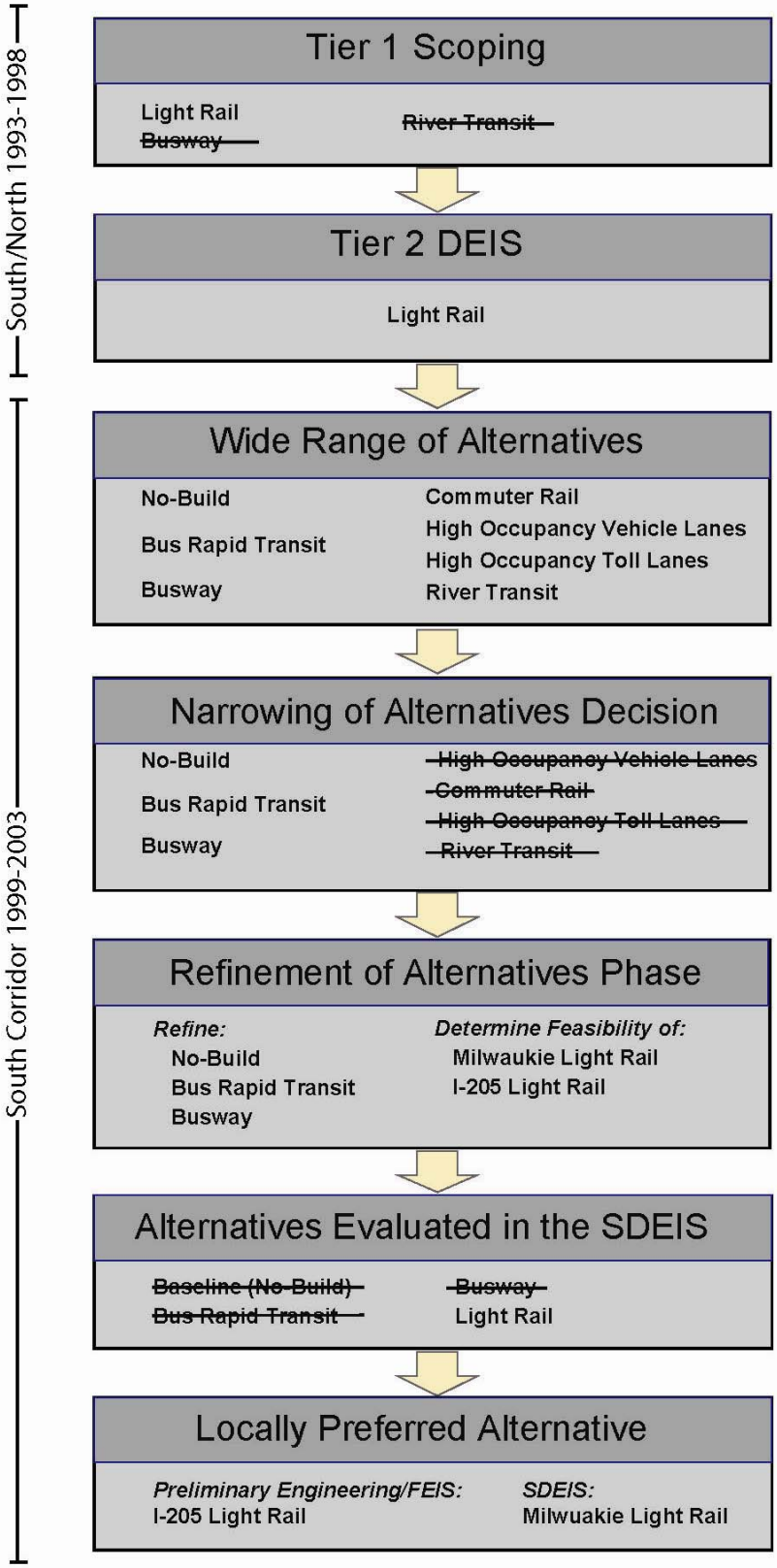


Figure 5.2.2
Narrowing and Refinement of Modal Alternatives
1993-2003

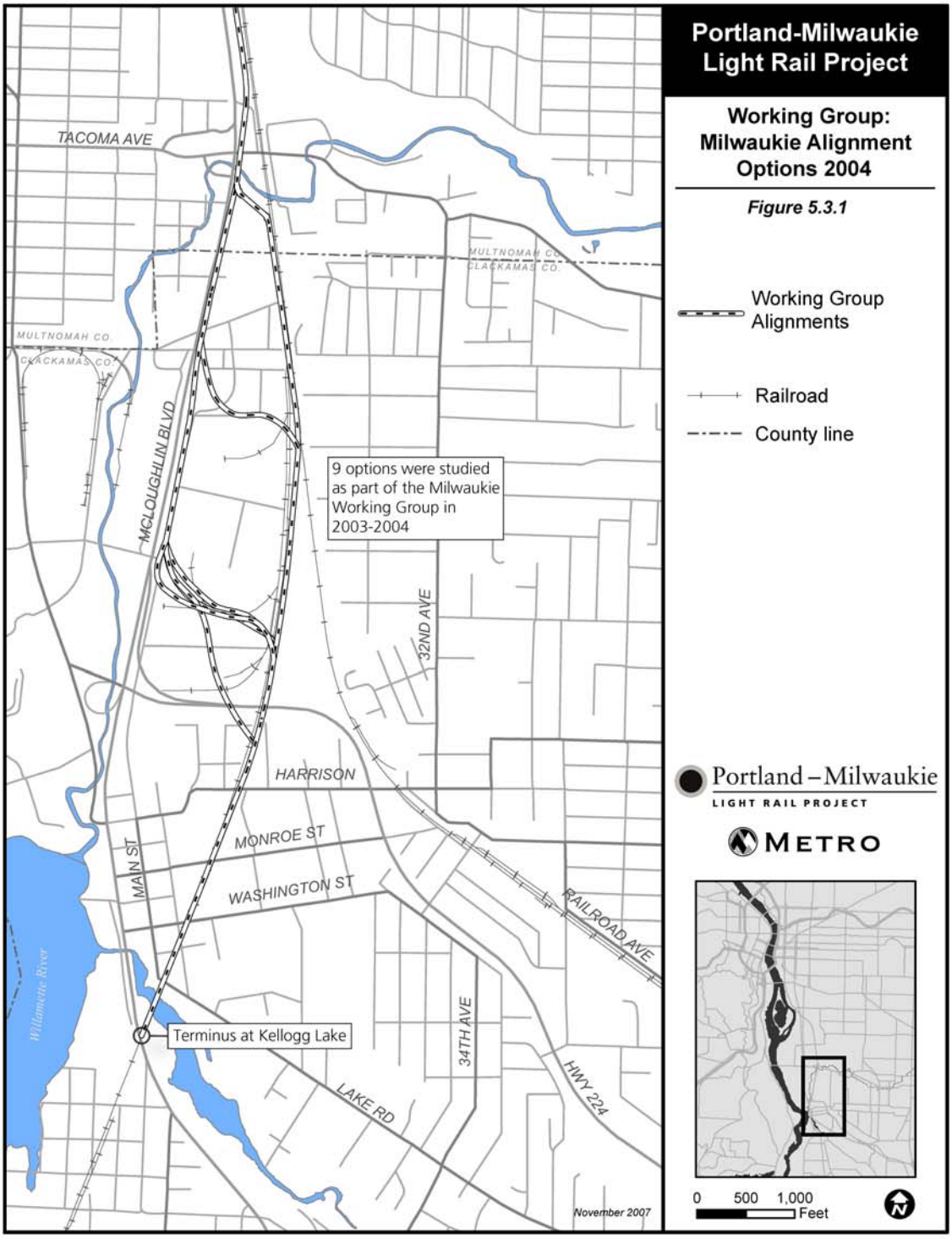


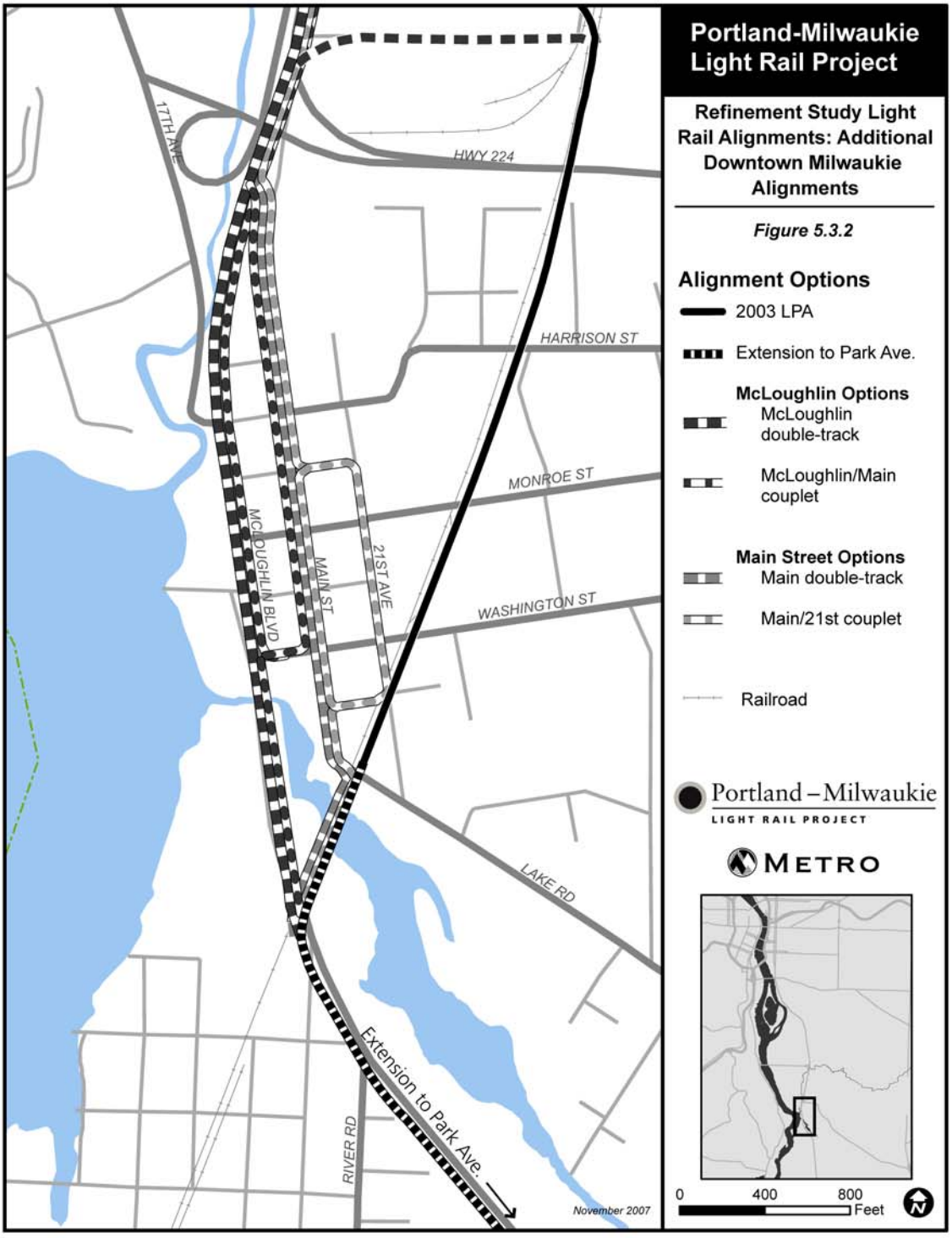
5.3 Transit Alignments Considered and Not Advanced

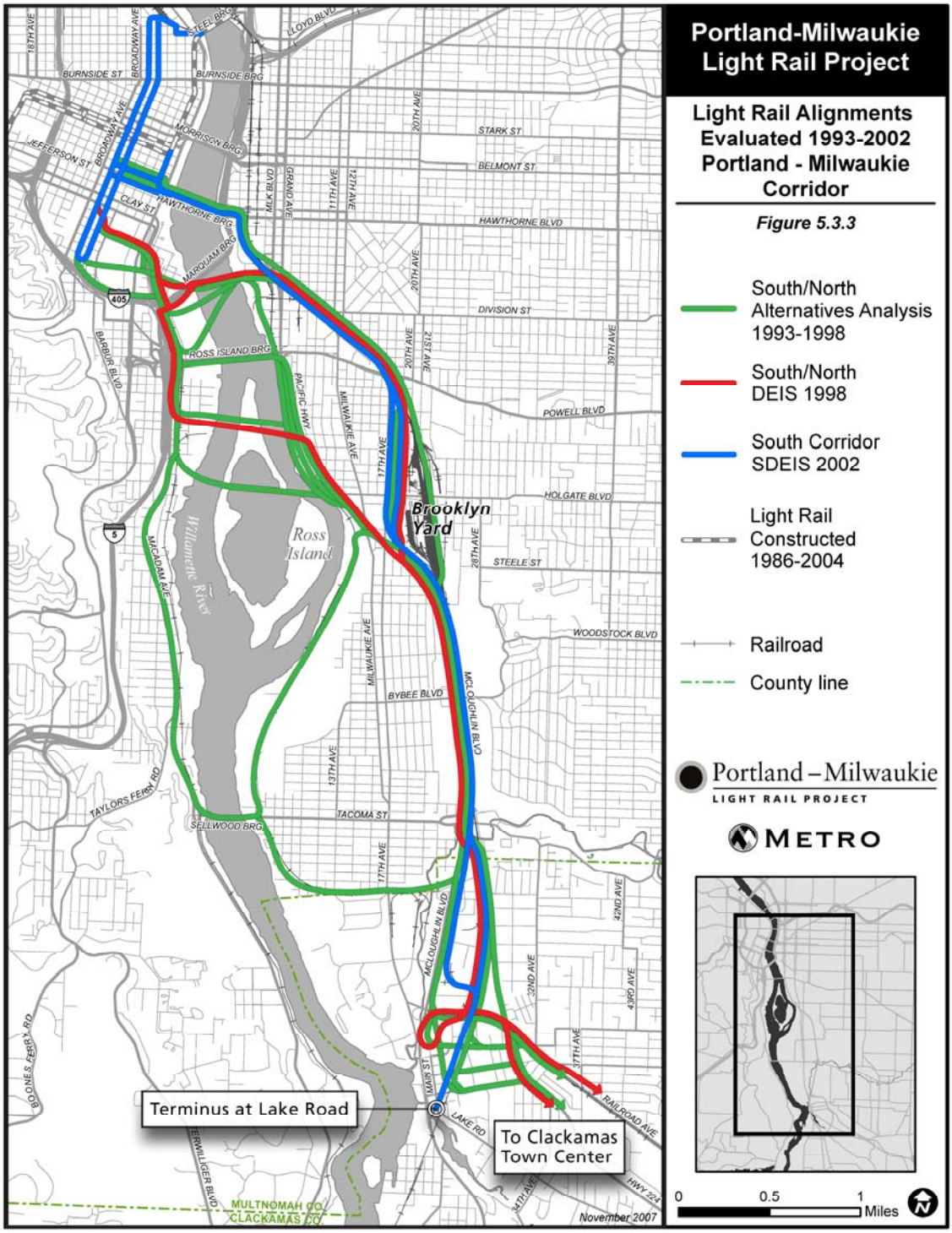
The following transit alignments were considered and not advanced:

- Nine options considered in 2004 Milwaukie Working Group situated in the Milwaukie Industrial area transitioning between McLoughlin Blvd and the Tillamook Branch line shown in Figure 5.3.1
- Six alternatives analyzed in 2007 Refinement Study with alignments located in the downtown Milwaukie area along McLoughlin Blvd, Main Street and 21st Ave shown in Figure 5.3.2
- Numerous alignments and combinations of alignments in the Portland-Milwaukie corridor studied between 1993 and 2002 illustrated in Figure 5.3.3

More details about these alignments and why they were eliminated may be found in Chapter 2 and Appendix L of the 2008 SDEIS.


Portland-Milwaukie Light Rail Project
Working Group: Milwaukie Alignment Options 2004
Figure 5.3.1
Working Group Alignments
Railroad
County line
9 options were studied as part of the Milwaukie Working Group in 2003-2004
Terminus at Kellogg Lake
TACOMA AVE
MCLOUGHLIN BLVD
32ND AVE
HARRISON
MONROE ST
WASHINGTON ST
MAIN ST
RAILROAD AVE
34TH AVE
HWY 224
LAKE RD
Willamette River
MULTNOMAH CO.
CLACKAMAS CO.
Portland – Milwaukie
LIGHT RAIL PROJECT
METRO
0 500 1,000
Feet
November 2007


Portland-Milwaukie Light Rail Project
Refinement Study Light Rail Alignments: Additional Downtown Milwaukie Alignments
Figure 5.3.2
Alignment Options
2003 LPA
Extension to Park Ave.
McLoughlin Options
McLoughlin double-track
McLoughlin/Main couplet
Main Street Options
Main double-track
Main/21st couplet
Railroad
Portland – Milwaukie
LIGHT RAIL PROJECT
METRO
0
400
800
Feet
17TH AVE
HWY 224
HARRISON ST
MONROE ST
WASHINGTON ST
MCLOUGHLIN BLVD
MAIN ST
21ST AVE
LAKE RD
RIVER RD
Extension to Park Ave.
November 2007


Portland-Milwaukie Light Rail Project
Light Rail Alignments Evaluated 1993-2002 Portland - Milwaukie Corridor
Figure 5.3.3
South/North Alternatives Analysis 1993-1998
South/North DEIS 1998
South Corridor SDEIS 2002
Light Rail Constructed 1986-2004
Railroad
County line
Portland – Milwaukie LIGHT RAIL PROJECT
METRO
Terminus at Lake Road
To Clackamas Town Center
Brooklyn Yard
Ross Island
Willamette River
0 0.5 1 Miles
November 2007

6. FUTURE WORK PROGRAM

The following additional work has been identified that should proceed in order to complete the project:

- Develop and submit a New Starts Program Application.
- Develop and submit an application to enter Preliminary Engineering.
- Finalize the project financing plan.
- Prepare a Final Environmental Impact Statement.

Staff should consider the interplay between desired project features and cost and financing considerations in completing the above work program. Considerations include:

- Reducing the number of light rail vehicles initially purchased for opening year plus five years instead year 2030 capacity.
- Examination of the potential for an at-grade crossing of SE McLoughlin Blvd near SE Lake Road, recognizing substantive ODOT concerns.
- Building a combination of smaller structure and surface or surface only park-and-ride at SE Park Avenue.
- Removing the Darigold freight rail spur located at approximately SE 6th Avenue.
- Selecting an appropriate bridge type based on input from the community and consideration of the environment impacts, cost, aesthetics, greenway, transit and navigational needs.
- Relocating bike lanes to SE16th Avenue or location other than SE17th Avenue and redesigning SE 17th Avenue.
- Conducting a technical and public involvement analysis to optimize a station location to best serve the RiverPlace and South Auditorium areas.
- Defining specific project finance, ridership, and land use performance measures that would trigger a future light rail station at Harold Street.
- Further examination of the Tacoma Park-and-Ride to better calibrate optimal number of parking spaces.
- Development of Minimum Operating Segment (MOS) to Lake Road if project revenues and project estimates cannot be balanced. If the MOS to Lake Road is constructed, it would include a 275 space park-and-ride at SE Main and SE Washington Streets, and an increase at Tacoma Park-and-Ride up to 1,250 spaces.
- Development of a Bus Routing Plan to maximize use of the transit investment.
- Measures to minimize impacts to existing businesses and properties along the corridor, including a relocation strategy to find locations in the immediate vicinity and the future economic viability of remainder parcels.
- Coordination with the Portland Office of Transportation and ODOT on the design of the Sheridan Street intersection to accommodate the future I-405 northbound off-ramp.
- Further examination of an alternative to the SE 8th Avenue/SE Powell Boulevard intersection for bus access to the transitway across the Willamette River, recognizing ODOT's concern regarding a new bus only signal on SE Powell Boulevard.
- Completion of the station area planning work, which commenced in the fall of 2007, in partnership with the Cities of Portland and Milwaukie, and development of recommendations for further study.
- Jointly managing with the City of Portland, completion of any further station location evaluations called for by the station area planning recommendations prior to March 2009.

- Coordinate with the City of Portland on station area development strategies it may undertake on specific stations in the corridor in order to optimize ridership and future redevelopment potential.
- Coordinate with City of Portland as it develops a Central Eastside/Southern Triangle Circulation Plan that addresses bus access and circulation needs for the Central Eastside area, including the potential for a relocated SE Water Avenue with the City of Portland.

APPENDIX A

Metro Council Resolution No. 08-3959 adopting the
Portland –Milwaukie Light Rail Project Locally Preferred Alternative Report

APPENDIX B

Adopted resolutions and Oregon Department of Transportation letter in support of the Portland-Milwaukie Light Rail Project Locally Preferred Alternative

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