



Date: Tuesday, August 25, 2009  
To: John Witmer, FTA  
From: Bridget Wieghart, Transit Project Manager  
Jamie Snook, Principal Planner  
Subject: Lake Oswego to Portland Transit Project – Narrowing of Streetcar Alignments

---

Through the Johns Landing Refinement Study, several streetcar alignments were developed and analyzed. Based on that evaluation, the project Steering Committee has proposed that two alignment options be eliminated from further study. The purpose of this memorandum is to provide documentation of why these two alignments are not recommended for further study.

Five alignment options in Johns Landing were developed and evaluated. (Alignment options are presented in Attachment A through E.) These include:

- Hybrid 1: Macadam Avenue in-street (Boundary Street to Carolina Street)
- Hybrid 2: East Side Exclusive (Boundary Street to Iowa Street)
- Hybrid 3: Macadam Avenue with new northbound lane (Boundary Street to Carolina Street)
- Willamette Shore Line
- Full Macadam In-Street

The project Steering Committee has proposed eliminating Hybrid 2: East Side Exclusive and the Full Macadam In-Street alignment options based on the project Purpose and Need.

Goals and objectives were developed in accordance with the Purpose and Need for the project (see Attachment F for the Purpose and Need and Attachment G for the goals and objectives). From the goals and objectives, specific evaluation criteria and measures were used to evaluate each of the proposed alignments. (The evaluation matrix for the streetcar alignment options described above are presented in Attachment H.) The Project should:

- Optimize the regional transit system.
- Be fiscally responsive and maximize regional resources.
- Maximize the economic development potential
- Be sensitive to the built and social environments.
- Be sensitive to the natural environment.

The results of the evaluation are on the attached matrix (Attachment H). The following is a description of why Hybrid 2: East Side Exclusive and Full Macadam In-Street are not recommended for further study.

### **Hybrid 2: East Side Exclusive (Boundary Street to Iowa Street) alignment option**

With this option (Attachment B) the streetcar would continue south from South Waterfront until a transition from the Willamette Shore Line to Landing Drive. The streetcar would operate in Landing Drive with mixed traffic to Boundary Street. From Boundary Street, the streetcar would operate adjacent to Macadam Avenue (on the east side of Macadam Avenue) between Boundary Street and Iowa Street. The streetcar would transition from the east side alignment next to Macadam Avenue to the Willamette Shore Line at Iowa Street.

The East Side Exclusive alignment option has similar alignment, impacts and benefits as the Willamette Shore Line option. As shown on the attached map, the East Side Exclusive alignment is near the Willamette Shore Line, diverging by a few hundred feet for approximately one half mile. It also operates in exclusive right of way through the condominium complex similar to the Willamette Shore Line alignment (Attachment D). The two options also perform similarly in terms of project goals, objectives and evaluation criteria. In almost all areas where they perform differently, this option performs worse than the Willamette Shore Line:

#### **1. Optimize the regional transit system.**

- Similar to the Willamette Shore Line alignment, this option would provide transit reliability in an exclusive guideway.
- While this option would have better travel time than the hybrid options, it would have slightly higher travel times than the Willamette Shore Line due to out of direction travel.

#### **2. Be fiscally responsive and maximize regional resources.**

- This option was the most expensive of all the design options. This option would be approximately \$2 to \$20 million more expensive than other alignment options; and almost double the cost of the Willamette Shore Line alignment.
- This option has less local match potential than the Willamette Shore Line.

#### **3. Maximize the economic development potential within the Lake Oswego to Portland corridor.**

- Because the East Side Exclusive alignment option is located closer to Macadam than the Willamette Shore Line alignment, it performs slightly better on development potential and accessibility. However, it does not perform as well as the other hybrids.

#### **4. Be sensitive to the built and social environments.**

- Like the Willamette Shore Line option, this option has significant neighborhood impacts. In fact, it included the most property impacts to the nearby condominiums due to the loss of 60 parking spaces and removal of landscaping between the condominiums and SW Macadam Avenue.
- Like the Willamette Shore Line alignment, this option, because it operates in a separate right of way parallel to Macadam, would have minimal impacts to traffic on Macadam or other nearby streets.
- This option would require the most right-of-way acquisition, since it would not use publicly owned right-of-way for approximately three quarters of a mile.

#### **5. Be sensitive to the natural environment.**

- All of the options have very limited impacts on the natural environment. This option was only slightly better than the Willamette Shore Line alignment option and would have similar environmental issues as the Hybrid #1 and Hybrid #3 alignment options. The Willamette Shore Line option ranked slightly lower than the others only due its proximity to the Willamette River.

The evaluation determined that this option would have similar, but worse, impacts and benefits as the Willamette Shore Line alignment option. Compared to the Willamette Shore Line alignment

option, it would have more right-of-way acquisition, more parking and landscaping impacts, higher costs, slower travel times, and less local match potential. It would have only slight advantages in the area of economic development over the Willamette Shore Line alignment, but was worse than the other hybrid options. Because this alignment is similar to the Willamette Shore Line option (which is being studied), in alignment, impacts, and benefits, and does not offer any significant advantage over other options being studied, it therefore does not need to be included in the range of alternatives studied in the DEIS.

### **Full Macadam In-Street alignment option**

With this option (Attachment E), the streetcar would continue south from the South Waterfront area and utilize Bancroft Street (or Hamilton Street) to access Macadam Avenue. It would operate in mixed traffic on Macadam Avenue for approximately one and one quarter mile from Bancroft/Hamilton Street to Nevada Street. At Nevada Street the streetcar would transition from Macadam Avenue to the Willamette Shore Line right of way.

The Full Macadam In-Street alignment option would offer slightly greater economic development opportunities than other options. However, it is not financially feasible and has high operating costs, slower travel time and impacts to traffic. The Full Macadam In-Street alignment option should be eliminated from further consideration because it does not meet the purpose statements: optimize the regional transit system, be fiscally responsive, maximize regional resources and minimize impacts to the built and social environments:

#### **1. Optimize the regional transit system.**

- This option would have the slowest travel times and the worst reliability due to congestion on Macadam Avenue.
- This option would also have the highest operating costs. It would, therefore, would have the worst streetcar performance/operations of all the design options.

#### **2. Be fiscally responsive and maximize regional resources.**

- This option would have the worst local match potential due to the amount of the Willamette Shore Line that would not be utilized. The Willamette Shore Line and Hybrid options would contribute approximately \$29 to \$20 million in local match, while the full Macadam option would only contribute \$3 to \$4 million. The estimated in-kind right of way contribution or other state and regional funds needed (funding gap) would be in the order of \$38 million with the Full Macadam option compared to \$22 million with the Willamette Shore Line option. This would nearly double the cash required from local jurisdictions.
- The lack of local match potential would make this option financially infeasible.

#### **3. Maximize the economic development potential**

- The full Macadam alignment option would have slightly more economic development potential than other alignment options because of the extent of streetcar operations in Macadam Avenue. However, Hybrid #1 and Hybrid #3 would have similar economic development potential without the negative impacts of operating in the most congested portions of the roadway.

#### **4. Be sensitive to the built and social environments.**

- The Oregon Department of Transportation (ODOT) has jurisdiction over Macadam and has indicated that streetcar in Macadam Avenue for this length would be too much of an impact to their operations.
- This option would have most traffic concerns because the streetcar would be operating in mixed traffic within the most congested areas of the corridor. The option would enter and exit Macadam from at the most congested intersections, Macadam Avenue/Bancroft Street to the north and at Macadam Avenue/Taylors Ferry to the south.

**5. Be sensitive to the natural environment.**

- This option ranked the highest because it was the furthest away from the Willamette River. However, all the alignment options would have the same environmental concerns south of Carolina Street.

The full Macadam alignment option would have the worst transit operations, ridership and reliability because of the long distance it operates in congested conditions, . It offers the lowest local match potential, due to the long distance that it operates off of the Willamette Shore Line, making it not fiscally responsive. While it performs well in terms of economic development and property impacts, it has the worst traffic impacts of all options and is not acceptable to ODOT. Hybrid #1 and Hybrid #3 would have similar benefits as the full Macadam option while maximizing the streetcar operations and performance, minimizing traffic impacts and being fiscally responsive. The Full Macadam option does not meet the project purpose in the areas of transit operations and performance, minimizing (traffic) impacts to the built environment and being fiscally responsive. It therefore should be dropped from consideration.

The project is analyzing a wide range of alignment options in the Johns Landing area. The three alignment options currently recommended for study by the project Steering Committee provide for a full range of reasonable options that meet the project Purpose and Need.

Once you have had a chance to review this memo, please give me a call to discuss your thoughts and whether any additional documentation is needed.



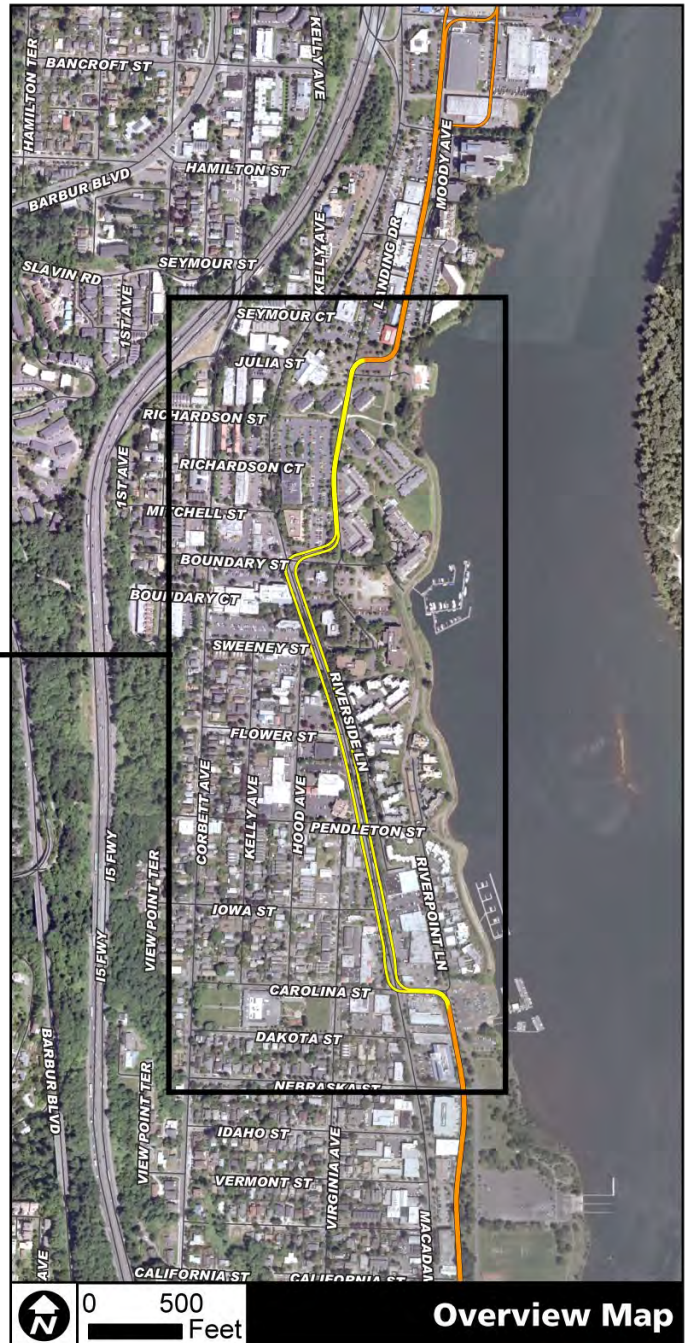
# Lake Oswego to Portland Transit Project

## Johns Landing Design Options

Attachment A  
Hybrid 1: Macadam Avenue in-street  
(Boundary Street to Carolina Street)

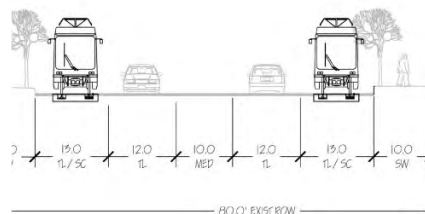


**Detailed Map**



**Overview Map**

- In-street / Mixed Traffic
- Exclusive Guideway



August 2009





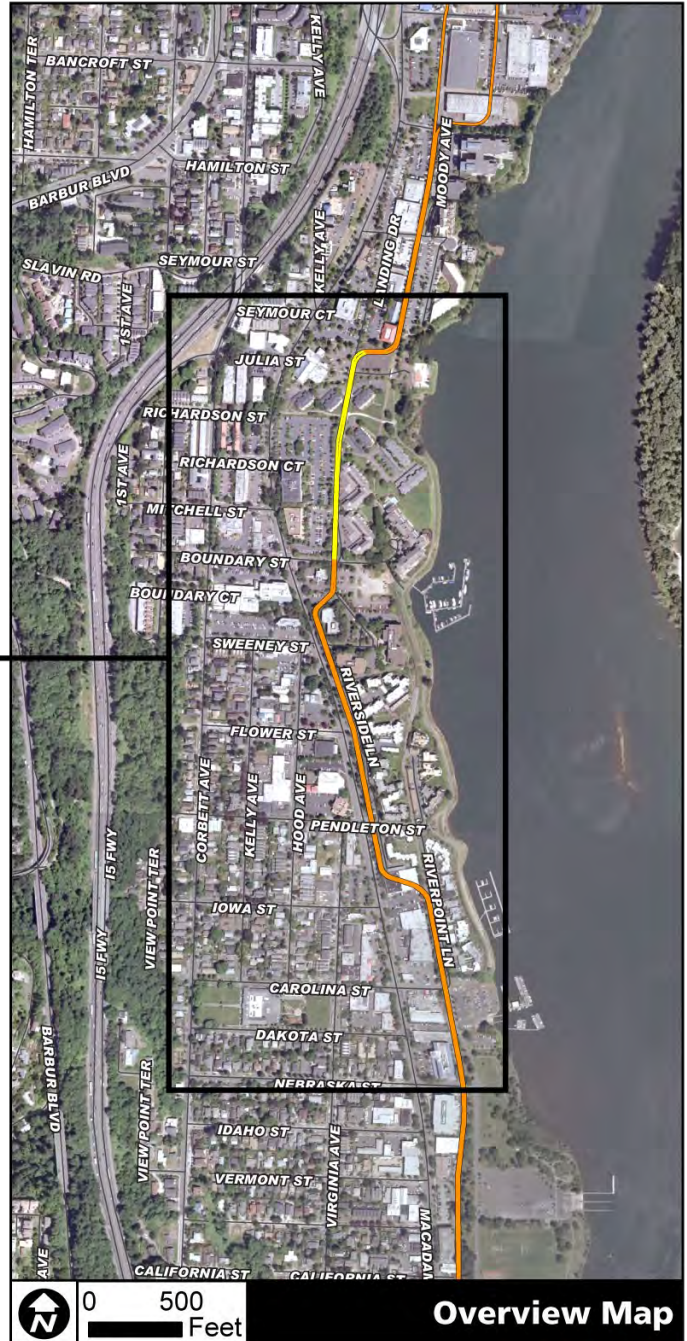
# Lake Oswego to Portland Transit Project

## Johns Landing Design Options

Attachment B  
Hybrid 2: East Side Exclusive  
(Boundary Street to Iowa Street)

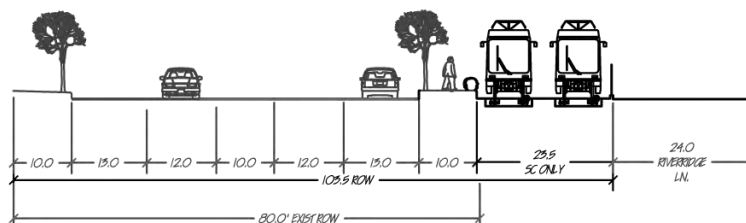


**Detailed Map**



**Overview Map**

- In-street / Mixed Traffic
- Exclusive Guideway



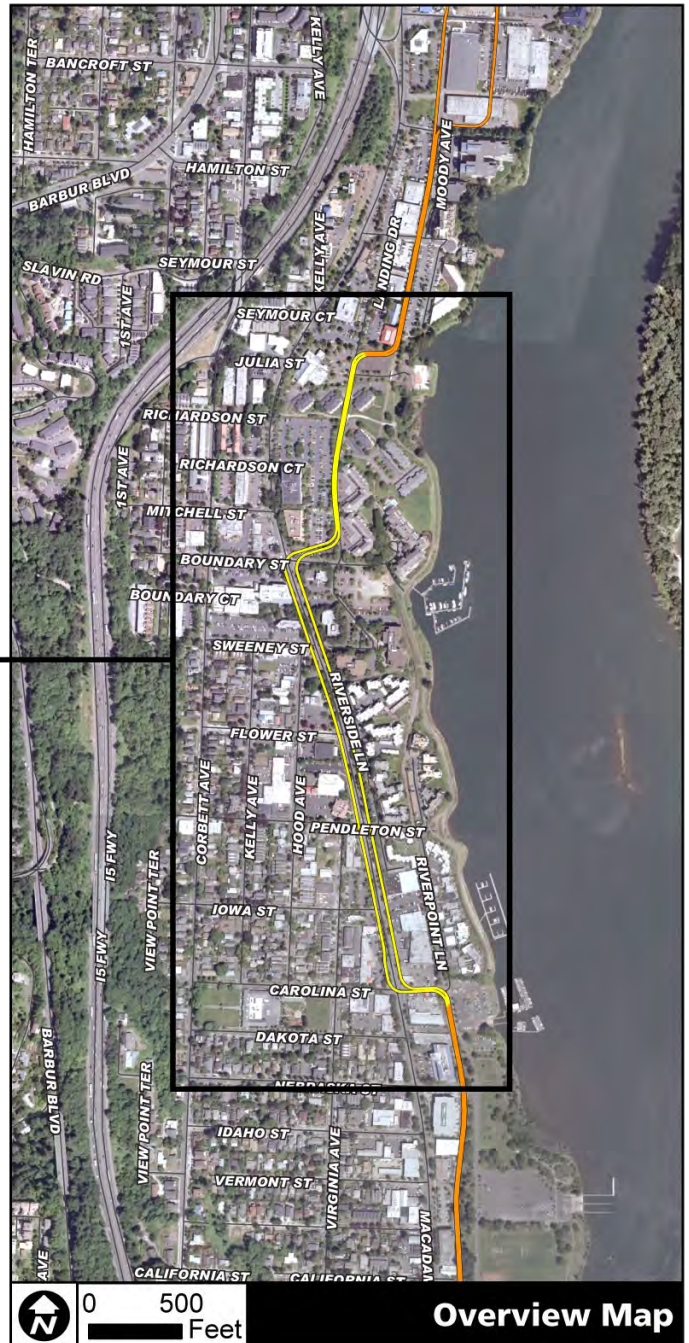
**Locator Map**



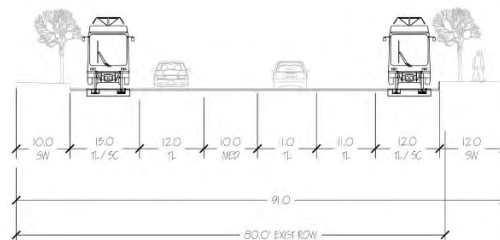
# Lake Oswego to Portland Transit Project

## Johns Landing Design Options

Attachment C  
Hybrid 3: Macadam Avenue  
with new northbound lane



- In-street / Mixed Traffic
- Exclusive Guideway

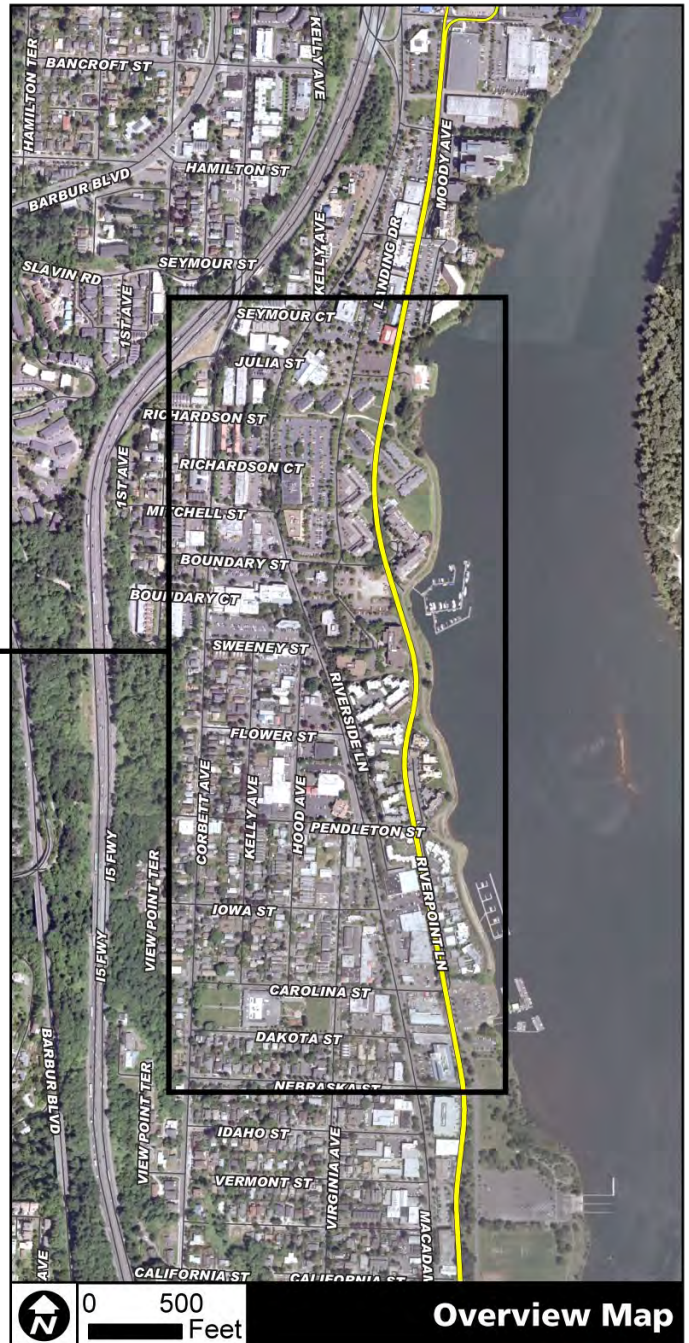




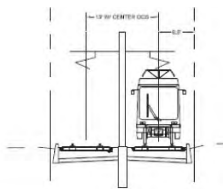
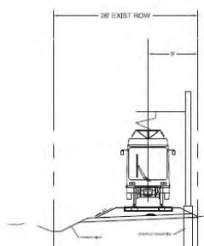
# Lake Oswego to Portland Transit Project

## Johns Landing Design Options

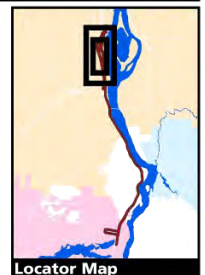
Attachment D  
Willamette Shore Line



— Exclusive Guideway



August 2009

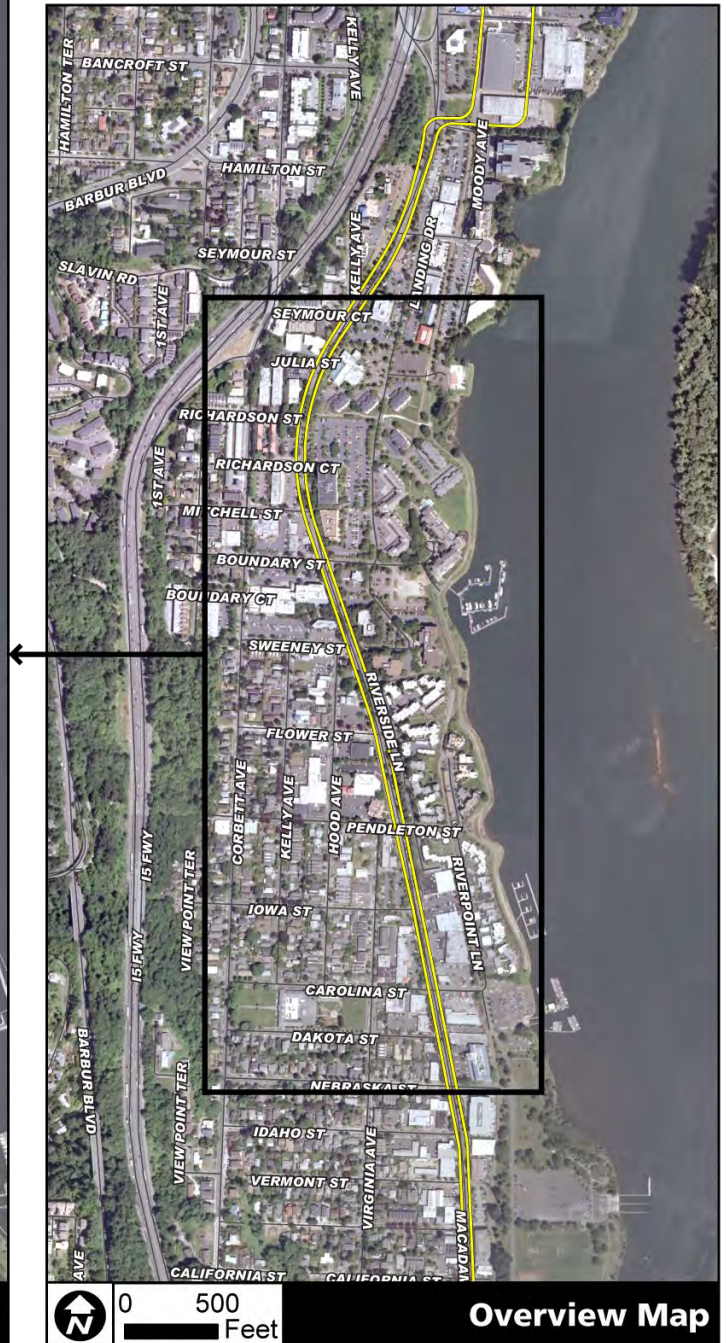




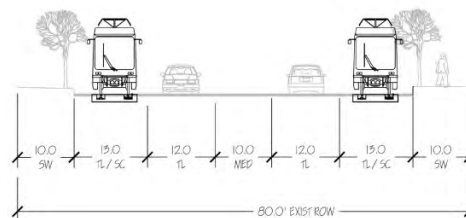
# Lake Oswego to Portland Transit Project

## Johns Landing Design Options

Attachment E  
Full Macadam In-Street



— In-street / Mixed Traffic



August 2009



## **Attachment F – DRAFT Purpose and Need Statement**

### **Lake Oswego to Portland Transit Project DRAFT – Purpose and Need Statement August 14, 2009**

The **Purpose** of the project is to optimize the regional transit system by improving transit within the Lake Oswego to Portland Transit Corridor, while being fiscally responsive and by supporting regional and local land use goals. The project should maximize, to the extent possible, regional resources, economic development and garner broad public support. The project should build on previous corridor transit studies, analyses and conclusions and should be sensitive to the natural, built and social environments.

The **Need** for the project results from:

- Historic and projected increases in traffic congestion in the Lake Oswego to Portland Corridor due to increases in regional and corridor population and employment;
- Local and regional land use and development plans, goals and objectives that target the corridor for residential, commercial, retail and mixed-use development to help accommodate forecast regional population and employment growth;
- The topographic, geographic and built environment constraints within the corridor that limit the ability of the region to expand the highway and arterial infrastructure in the corridor;
- Lengthy and increasing transit travel times and deteriorating public transportation reliability in the corridor due to growing traffic congestion;
- The region's growing reliance on public transportation to meet future growth in travel demand in the corridor;
- Increasing operating expenses, combined with increasingly scarce operating resources, while demanding more efficient public transportation operations; and
- Limited options for transportation improvements in the corridor caused by the identification and protection of important natural, built and socioeconomic environmental resources in the corridor.



## Attachment G - Evaluation Criteria

Based on the Lake Oswego to Portland Transit Project Purpose and Need, the following Goals and evaluation criteria was developed and used to determine differences in alignment options.

### 1. Optimize the regional transit system.

- **Goal 1A: Improve transit operations.** This goal and related objectives refer to the quality of the streetcar operations and reliability. Design options should provide the ability to expand service (i.e., increased service frequency); ensure more reliable service; and provide better transit travel times. Specific objectives include:
  1. Minimize travel time (minutes)
  2. Maximize reliability of service
  3. Maximize ability to expand service
- **Goal 1B: Improve transit performance.** This goal and related objectives refer to how well the transit alignment option would perform. Design options should maximize ridership and lower operating cost. Specific objectives include:
  1. Maximize ridership
  2. Estimated operating costs (millions \$)
  3. Cost/ride

### 2. Be fiscally responsive and maximize regional resources.

- **Goal 2A: Financial Feasibility.** This goal and related objectives refer to the ability to minimize capital cost, maximize the ability to provide local match and minimize the use of private property. Specific objectives include:
  1. Minimize capital cost (millions \$)
  2. Maximize local match potential

### 3. Maximize the economic development potential

- **Goal 3A: Maximize the development potential.** This goal and related objectives refer to a quantitative evaluation of the potential for a design concept to support residential and commercial development and redevelopment. This will be evaluated based on the available floor area ratio (FAR) along the proposed design options. Specific objectives include:
  1. Maximize development potential
- **Goal 3B: Maximize accessibility that promotes redevelopment.** This goal and related objectives refer to a qualitative assessment of the ease of access to proposed streetcar stop locations for pedestrians and bicyclists, and the ability to provide good access to major commercial, residential and employment nodes. Accessibility to the Willamette riverfront should also be considered. Specific objectives include:
  1. Optimize bicycle and pedestrian access to stops and the Willamette Riverfront
  2. Maximize access to commercial, residential & employment nodes

#### **4. Be sensitive to the built and social environments.**

- **Goal 4A: Minimize traffic impacts.** This objective refers to an assessment by traffic engineers as to the type and magnitude of traffic impacts that would likely be associated with the design options. Specific objectives include:
  1. Maintain traffic progression
  2. Minimize auto travel time
  3. Maintain acceptable intersection LOS
  4. Minimize traffic signal modifications required
  5. Minimize work zone/construction staging impacts
  6. Promote safe operations for bicycles and motorcycles
- **Goal 4B: Sustain existing neighborhoods.** This goal and related objectives refers to an assessment of the potential for right of way, parking, rail crossings or other impacts (noise, visual, etc.) to established residential and commercial neighborhoods. It also includes an assessment of the amount and type of property acquisition necessary to support an alignment. Opportunities to avoid conflicts with the proposed Lake Oswego to Portland pedestrian/bike trail should also be considered. Specific objectives include:
  1. Compatibility with existing development
  2. Minimize ROW impacts
  3. Minimize off-street parking impacts
  4. Minimize noise impacts
  5. Minimize visual impacts
  6. Minimize bicycle & pedestrian conflicts
  7. Minimize impacts to Lake Oswego-to Portland Trail

#### **5 Be sensitive to the natural environment.**

- **Goal 5A: Minimize impacts to the natural resources.** This goal and related objectives refer to the ability to minimize potential impacts to streams, wetlands and waterways, as well as minimizing construction or proximity concerns in or near the FEMA 100-year floodplain. This goal also refers to potential impacts to parklands or potential Section 4(f) concerns. This is a qualitative assessment based on the existing GIS data gathered to date. Specific objectives include:
  1. Minimize impacts to streams, wetlands and waterways
  2. Minimize construction in or proximity to the FEMA 100-year floodplain
  3. Minimize impacts to Metro Title 3 lands (Water Quality, Flood Management and Fish and Wildlife Conservation)
  4. Minimize impacts to parklands, recreational areas and other Section 4(f)

#### **6 Garner broad public support.**

- **Goal 6A: garner broad public support.** This goal and related objectives refer to the ability to garner public support the transit alternative. This is a qualitative assessment that will be based on public input on the transit alternatives being considered in the DEIS through public outreach throughout the process. This goal and related objectives were not evaluated during this refinement phase but is meant to capture public input during the DEIS. Specific objectives include:
  1. Maximize public support for the transit alternative.





	Hybrid 1: Macadam In-Street (Boundary to Carolina)	Hybrid 2: East Side Exclusive (Boundary to Iowa)	Hybrid 3: Macadam with New North Bound Lane (Boundary to Carolina)	Willamette Shore Line	Full Macadam In-Street
1. OPTIMIZE THE REGIONAL TRANSIT SYSTEM					
GOAL 1A. IMPROVE TRANSIT OPERATIONS					
Minimize travel time (minutes)	8.5 - 9.5	7.5 - 7.9	8.5 - 9.5	5.2 - 5.9	7.7 - 10.7
Maximize reliability of service	Less reliability, in mixed traffic for a portion of alignment	Most amount of exclusive transit guideway of the hybrid options	Provides some reliability in the NB direction	Most reliable transit service/exclusive guideway	Least reliable, in mixed traffic.
Maximize ability to expand service	Good; double track operations allow for expansion	Less ability to expand service if single track at Pendleton; good if double tracked adjacent to Macadam	Good; double track operations allow for expansion	Less ability to expand service if single track; good if double tracked	Good; double track operations allow for expansion
GOAL 1B. IMPROVE TRANSIT PERFORMANCE					
Maximize ridership	10,300 - 9,900	10,500 - 10,400	10,300 - 9,900	11,100 - 10,900	10,100 - 9,400
Estmated operating costs (millions \$)	\$2.28 - \$2.33 M	\$2.27 - \$2.28 M	\$2.28 - \$2.33 M	\$2.21 - \$2.22 M	\$2.31 - \$2.38 M
Cost/ride	\$0.64 - \$0.67	\$0.63 - \$0.64	\$0.64 - \$0.67	\$0.58 - \$0.59	\$0.67 - \$0.74
2. THE PROJECT SHOULD BE FISCALLY RESPONSIVE AND MAXIMIZE REGIONAL RESOURCES					
GOAL 2A. FISCALLY RESPONSIVE					
Minimize capital cost (millions \$)	\$36.2 M	\$41.3 M	\$39.4 M	\$28.8 M single track \$21.7 M double track	\$34.1 M
Maximize local match potential	\$20,147,519	\$20,147,519	\$20,147,519	\$29,003,666	\$3,562,679
3. MAXIMIZE THE ECONOMIC DEVELOPMENT POTENTIAL					
GOAL 3A. MAXIMIZE THE ECONOMIC DEVELOPMENT POTENTIAL					
Maximize development potential	Add'l 1,827,000 sf development 740 housing units 2,170 jobs	Add'l 1,744,000 sf development 710 housing units 2,070 jobs	Add'l 1,827,000 sf development 740 housing units 2,170 jobs	Add'l 1,563,00 sf development 620 housing units 1,890 jobs	Add'l 1,957,00 sf development 840 housing units 2,230 jobs
GOAL 3B. MAXIMIZE THE ACCESSIBILITY TO PROMOTE REDEVELOPMENT					
Optimize bicycle and pedestrian access to stops and the Willamette Riverfront	Greater proximity and visibility to both sides of Macadam from Boundary to Carolina; no/minimal potnetial impact to access to riverfront	Good proximity and visibility from Macadam; increased crossing distance to and from west side of Macadam for pedestrians; no/minimal potential impact to access to riverfront	Greater proximity and visibility to both sides of Macadam from Boundary to Carolina; no/minimal impact to access to riverfront	Less visibility and greater distance from existing bicycle and pedestrian network; controlled access to riverfront	Greater proximity and visibility to both sides of Macadam; no/minimal impact to access to riverfront
Maximize access to commercial, residential & employment nodes	Good proximity to commercial nodes and residences on both sides of Macadam	Good proximity to commercial nodes and residences on both sides of Macadam	Good proximity to commercial nodes and residences on both sides of Macadam	Furthest from commercial nodes and residences on both sides of Macadam	Greater proximity to commercial nodes and residences on both sides of Macadam
4. BE SENSITIVE TO THE BUILT AND SOCIAL ENVIRONMENT.					
GOAL 4A. MINIMIZE TRAFFIC IMPACTS					
Maintain traffic progression	Potential change in green bandwidth on Macadam from Boundary to Carolina	No change to traffic progression on Macadam	Potential change in green bandwidth on Macadam from Boundary to Carolina	No change to traffic progression on Macadam	Potential change in green bandwidth on Macadam from Bancroft/Hamilton to Nevada
Minimize auto travel time	Some potential travel time impacts on Macadam from Boundary to Carolina	No impact on auto travel time on Macadam	Some potential travel time impacts on Macadam from Boundary to Carolina; potential improvement in NB direction	No impact on auto travel time on Macadam	Some potential travel time impacts on Macadam from Bancroft/Hamilton to Nevada - concerns with South Portal/congestion
Maintain acceptable intersection LOS	Maintains acceptable intersection LOS	No impact on Macadam LOS	Maintains acceptable intersection LOS	No impact on Macadam LOS	Maintains acceptable intersection LOS
Minimize traffic signal modifications required	Traffic signal modifications at Boundary and new signal at Carolina	No traffic signal modifications required	Traffic signal modifications at Boundary and new signal at Carolina	No traffic signal modifications required	Traffic signal modifications at Bancroft/Hamilton and Nevada
Minimize work aone/construction staging impacts	Potential construction impacts between Boundary and Carolina	Minimal potential construction impacts on existing traffic operations	Potential construction impacts between Boundary and Carolina	No construction impacts on existing traffic operations	Greatest potential construction impacts to Macadam and traffic operations
Promote safe operations for bicycles and motorcycles	Streetcar track in roadway from Boundary to Carolina	Exclusive transit right of way reduces potential track conflicts with bicycles and motorcycles	streetcar track in roadway between Boundary and Carolina; more potential conflicts with SB traffic	Exclusive transit right of way reduces potential track conflicts with bicycles and motorcycles	streetcar track in roadway from Hamilton to Nevada
GOAL 4B. SUSTAIN EXISTING NEIGHBORHOODS					
Compatibility with existing development	Minimizes impacts to existing residences and supports development on Macadam	Potential impacts to existing residences	Minimizes impacts to existing residences and supports development on Macadam	Greatest potential impacts and proximity issues to existing residences	Minimizes impacts to residences, commercial/office and supports development on Macadam
Minimize ROW impacts	Potential right of way impacts - some right of way at transitions	Potential impacts to the parking/vegetation at the residetns	Potential impacts to the parking/vegetation at the residents	Potential right of way impacts with single track only at stop locations; potential right of way impacts if double track only at stops	Potential right of way impacts at transitions
Minimize off-street parking impacts	Potential parking impacts at Carolina	60 potential parking spaces lost; loss of vegetation	Reconfiguration of parking sizes to maintain parking spaces; loss of vegetation	Potential impacts to parking - condo parking located across WSL right of way - may have potential impact	No parking impacts
Minimize noise impacts	Minimal potential noise impacts to residences	Potential noise impacts due to and gates proximity and loss of vegetation/barrier	Minimal potential noise impacts to residences adjacent to Macadam	Most potential noise impacts due to proximity to condos and gates with single track option (no gates with double track option)	Minimal potential noise impacts
Minimize visual impacts	Minimal potential visual impacts to residences	Potential visual impacts to residences adjacent to Macadam	Minimal potential visual impacts to residences adjacent to Macadam	Most potential visual impacts to development adjacent to WSL - condos were designed to face the water	No/minimal potential visual impacts
Minimize bicycle & pedestrian conflicts	Minimal potential change to bicycle and pedestrian environment	Potential increased bicycle and pedestrian crossing distance on Macadam and separated guideway	Less potential change to bicycle and pedestrian environment; increased crossing distance on Macadam	Most potential conflict; would require seperated guideway and separated crossings on the WSL	Minimal potential change to bicycle and pedestrian environment
Minimize impacts to Lake Oswego-to Portland Trail	Greater opportunity to utilize WSL for trail	Greater opportunity to utilize WSL for trail	Greater opportunity to utilize WSL for trail	If double tracked; would require using existing greenway, street connections, and additional right of way for trail	Greatest opportunity to utilize WSL for trail; however, ownership issues to be resolved
5. BE SENSITIVE TO THE NATURAL ENVIRONMENT					
GOAL 5A. MINIMIZES IMPACTS TO THE NATURAL ENVIRONMENT					
Minimize impacts to streams, wetlands and waterways	Alignment is moved away from the Willamette River between SW Julia and SW Carolina Sts.	Alignment is moved away from the Willamette River between SW Julia and SW Iowa Sts.	Alignment is moved away from the Willamette River between SW Julia and SW Carolina Sts.	Close proximity to the Willamette River.	Alignment is moved away from the Willamette River between South Waterfront and SW Nevada St.
Minimize construction in or proximity to the FEMA 100-year floodplain	Similar to the WSL between South Waterfront and Julia St and from Carolina St south. Bypasses potential impacts to floodplain between SW Julia and SW Carolina Sts.	Similar to the WSL between South Waterfront and Julia St and from Iowa St south. Bypasses potential impacts to floodplain between SW Julia and SW Iowa Sts.	Similar to the WSL between South Waterfront and Julia St and from Carolina St south. Bypasses potential impacts to floodplain between SW Julia and SW Carolina Sts.	Greatest potential floodplain concerns due to proximity to the Willamette River and the FEMA 100-year floodplain	Least amount of potenail concerns regarding Willamette River and FEMA 100-year floodplain between South Waterfront and Nevada. Potential concerns south.
Mimize impacts to Metro Title 3 lands (Water Quality, Flood Management and Fish and Wildlife Conservation)	Similar to the WSL between South Waterfront and Julia St and from Carolina St south. Bypasses small segments of Title 3 lands between SW Julia and SW Carolina Sts.	Similar to the WSL between South Waterfront and Julia St and from Carolina St south. Bypasses small segments of Title 3 lands between SW Julia and SW Iowa Sts.	Similar to the WSL between South Waterfront and Julia St and from Carolina St south. Bypasses small segments of Title 3 lands between SW Julia and SW Carolina Sts.	WSL alignment through some segments of Title 3 lands including a large segment in Willamette Park.	Alignment is outside Title 3 lands from South Waterfront to SW Nevada.
Minimize impacts to parklands, recreational areas and other Section 4(f)	Utilizes right of way in/adjacent to Willamette Park and Butterfly Park	Utilizes right of way in/adjacent to Willamette Park and Butterfly Park	Utilizes right of way in/adjacent to Willamette Park and Butterfly Park	Utilizes right of way in/adjacent to Willamette Park and Butterfly Park	Minimizes the use of right of way in/adjacent to Willamette Park. Utilizes the right of way in Butterfly Park.

This evaluation matrix is based on analysis completed during the Alternatives Analysis process conducted summer 2005 through December 2007 and some addition refinement work done in 2009. Alternatives selected to advance into the Draft Environmental Impact Statement will be analyzed further and in greater detail.

