Jim Morgan

NORTH MARINE DRIVE WIDENING AND RAIL RELOCATION PROJECT

PROJECT DEVELOPMENT SUMMARY AND STAFF RECOMMENDATIONS

City of Portland
Port of Portland
April 1998

Prepared by

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PROJECT DEVELOPMENT SUMMARY
and
STAFF RECOMMENDATIONS

*Also see: **North Marine Drive Project Report 1998**

I. PROJECT DEVELOPMENT SUMMARY

The City of Portland entered into an Intergovernmental Agreement with the Port of Portland on November 27, 1996 (Ordinance 170729) to perform engineering and construction services for the 2.5 mile widening of North Marine Drive to five lanes and relocation of an at-grade crossing to be paid for by the Port of Portland. As part of the services, the City and Port engaged in a year long public involvement effort to address the complex issue of balancing policy conflicts in the Rivergate Industrial District adjacent to Smith and Bybee Lakes, a regionally significant natural area.

The Project Development Summary and Staff Recommendations and corresponding Project Report reflect the year long contributions of the Citizen and Technical Advisory Committees analysis balancing, economic development, transportation and environment goals for the project.

The widening of North Marine Drive will continue the connection of Rivergate Industrial District to I-5, initiated by the City in 1982. This section of North Marine Drive is the final link in the system improvement identified in the Transportation Element of the City Comprehensive Plan (see Figure 1). The City of Portland recently completed the management of the design and construction of the $25 million North Marine Drive Project connecting Rivergate Industrial District to I-5. A more complete history is provided in the Project Report.

The initial Port recommendation for the project included the roadway widening and the relocation of the Burlington Northern Santa Fe Railroad line to the south side of the existing two lane section of North Marine Drive adjacent to Smith and Bybee Lakes. At the initial project open house held in January, 1997, there was a significant amount of public concern regarding the potential impacts of the proposed project on the Lakes, specifically the painted turtle nesting habitat thought to be located between the existing roadway and the Lakes.

Project staff worked with the affected neighbors and interest groups to identify individuals to serve on the Citizen and Technical Advisory Committees. These participants included representative of two Neighborhood Associations, Peninsula Transportation Network, Friends of Smith and Bybee Lakes, Audubon Society, Columbia Corridor Association and three property/business owners from Rivergate and representatives of the Port, City bureaus, regional, state and federal agencies. There was an effort to create balanced advisory committees to assist the project staff in developing a recommended alignment that addressed the complex balancing of interests in Rivergate.

The Advisory Committees met monthly and developed a series of eleven initial alternative alignments, short listed six options and participated in two Open House public meetings in July, 1997 and January, 1998. The Advisory Committees, with input from various interest groups, developed criteria for evaluating the alternatives and ultimately ranked six alignments. The criteria and rankings are provided in the Project Report.

The Project Development Summary and Staff Recommendations and Project Report have been submitted to the Citizen and Technical Advisory Committees for review. Presentation of the Summary and Recommendations have also been provided to the Port of Portland Commission, Executive Director Mike Thorne and staff.

A final Advisory Committee meeting was held May 7, 1998. The meeting was a joint meeting of the Citizen and Technical Advisory Committees. The Port of Portland, City of Portland and Metro officials had an opportunity to hear the final thoughts of the Committee participants.

The Port of Portland Commission has adopted * and therefore recommends to the City of Portland Council *.

II. STAFF RECOMMENDATIONS

The effort to balance the economic development, transportation needs of the Rivergate Industrial District and protect the natural resources located within and adjacent to the District was thoughtful and, at times, painstaking as the Advisory Committees struggled to understand a host of highly complex issues. The areas of analysis included study and staff reports regarding: land and rail development; traffic forecasts and models; recreational/educational uses of Smith and Bybee Lakes; rail and shipping markets and growth; environmental/ecological analysis and studies; hazardous materials transport, handling and response practices; design elements relative to stormwater, streetscape, pedestrian and bicycle improvements and roadway configuration options and process for decision-making.

The ranking criteria developed by the Advisory Committees focused on the provision of a transportation system that provided safe mobility for multi-modal users, was protective of the environment, sustained the community integrity of the area and provided for a safe, fundable, practicable roadway alignment. The criteria developed by the Advisory Committees was one of the factors in making the staff recommendation stated below.

Staff recommends the "Road Over Rail" alignment for the following reasons:

- This alignment is consistent with state, regional and local land use and transportation policies.
- The alignment supports the long-term development of Rivergate as a significant industrial sanctuary in the region.
- The alignment minimizes intrusion into the open spaces, potential turtle habitat and avoids buffers of the Natural Resource Area of Smith and Bybee Lakes.
- The alignment is consistent with the Transportation Element of the Comprehensive Plan in the provision of transit, bicycle and pedestrian improvements in Rivergate.
- The alignment allows for the development of the 40-Mile Loop Trail adjacent to Smith and Bybee Lakes, consistent with agreements with Metro, Bureau of Parks and Recreation, and the Port in Rivergate. Rail crossing protection may be required at the newly constructed trail crossing of the Burlington Northern Santa Fe Railroad.
- Right-of-way dedication and acquisition will be required along the the existing road right-of-way.
- Widening shall occur substantially to the north of the existing roadway. Staff will work with adjacent industrial business owners to minimize the damages to their on-going operations.
- Stormwater collection, detention and treatment systems will improve the quality of stormwater runoff into the lakes.

- Hazardous materials spill containment systems will provide options to control potentially contaminated spills and runoff from street improvements prior to discharge into stormwater detention ponds.
- An analysis of suitable noise abatement measures shall be conducted during the engineering phase of the project. Project staff shall seek advice and guidance from the Smith and Bybee Lake Management Committee regarding possible design treatments.
- Streetscape along the south side of the new roadway adjacent to the Lakes shall guided by maintenance of habitat quantity, increased habitat quality, preservation of native habitat and protection to turtle nesting habitat.
- Streetscape, including street trees, shall be provided between the curb and sidewalk west of the rail crossing and along the south side of the roadway. East of the rail crossing, along the north side, the sidewalk shall be adjacent to the roadway.
- The bridge over the rail tracks shall be a free-standing structure, not supported on an earthen fills.

The "Road over Rail" alignment ranked second overall by the Citizen and Technical Advisory Committees. It successfully meets the criteria developed by the Committees and the established land use and transportation grid in Rivergate. It is consistent with the City's $25 million investment in the North Marine Drive Project linking Rivergate to I-5.

III. RECOMMENDED DESIGN ALTERNATIVE AND COSTS - "ROAD OVER RAIL"

The "Road over Rail" alternative would include construction of a new roadway along the existing North Marine Drive corridor with a bridge overcrossing of the existing rail line (see Figure 2). The project limits extend from the Columbia Slough bridge crossing easterly 2.5 miles to connect to the newly completed North Marine Drive roadway at the entrance to Rivergate. It is recommended that the roadway contain the following features:

Design

1. A 74-foot wide roadway, curb to curb (64-foot wide roadway at the proposed bridge) including:
    - Four 12-foot wide traffic lanes - two lanes eastbound and two lanes westbound.
    - One 14-foot wide median - a continuous left-turn lane (4-foot wide median at bridge).
    - Two 6-foot wide bicycle lanes - one eastbound and one westbound.
    - See Figures 3 and 4 for typical road sections.
2. A traffic signal at the intersection of North Marine Drive and Terminal 6.
3. A 10 to 12-foot wide trail along the south side of the road (40 Mile Loop Trail) adjacent to Smith and Bybee Lakes connecting to Kelly Point Park.
4. A 5.5-foot wide separated sidewalk along the north side of the road. The sidewalk will be adjacent to the roadway east of the railroad crossing.

5. Native landscape/streetscape separating the 40 Mile Loop Trail from the roadway.

6. Domestic landscape/streetscape separating the sidewalk from the roadway west of the bridge (no streetscape east of the bridge). The sidewalk will be adjacent to the roadway east of the railroad crossing.

7. The bridge crossing of the railroad will be a structure.

8. Stormwater collection should include a hazardous material spill containment system and passive treatment prior to discharge.

9. Adjacent to Smith and Bybee Lakes, the roadway will be widened substantially to the north to minimize intrusion into the resource area. An allowance for minor adjustments required for continued successful operations of adjacent business along the north side will be made.

10. All existing railroad tracks remain in current location.

Project Costs

Cost estimates based on conceptual engineering for the recommended alternative have been prepared. Costs for constructing the entire project and phasing the project are shown below. Project phasing may be dictated by available funding for the project. In the event sufficient funds are not available to finance the entire project, it could be built in phases. A likely phasing scheme would include:

Phase 1: Construct the roadway improvements, except for the approach structures and bridge. Maintain the existing at-grade crossing with minimal improvements.

Phase 2: Construct the approach structures and bridge over the existing rail line.

Roadway (Phase 1):	$9,000,000
Bridge (Phase 2):	$18,000,000

There would be an estimated $1million savings if the project is built at once under one contract. The savings would be generated from the efficiencies of utilizing one contractor within a specified time frame.

Roadway and bridge	$26,000,000

These costs include estimates of the construction cost, engineering, right-of-way and contingency. The costs reflect estimates made without detailed engineering or appraisal data and represent order of magnitude cost estimates. Refined cost estimates will be prepared during preliminary and final engineering phases.

VI. POLICY and PLANNING ISSUES

The North Marine Drive widening project involves a balancing of local and regional goals and policies relating to transportation, economic development and the environment.

Transportation Goals and Policies

North Marine Drive is designated in the National Highway System, the Regional Transportation Plan and the Portland Comprehensive Plan, as a key intermodal corridor for movement of freight and traffic. The Transportation Element of Portland's Comprehensive Plan is intended to direct future investment and use of Portland's transportation systems. The Transportation Element (TE) indicates which types of improvements are appropriate for different streets. North Marine Drive carries a number of designations in the TE, reflecting the importance of the facility as a multi-modal corridor:

- Major City Traffic Street and Transit Street
- Through Truck Route
- Bicycle Route and Boulevard

(*Refer to the North Marine Drive Project Report for a more complete explanation of these policies.)

The recommended improvement of North Marine Drive to a 5-lane facility, including bike lanes, sidewalks and extension of the 40-Mile Loop Trail, is consistent with the TE designations. The improvements will largely be located within existing right-of-way and will follow the existing roadway alignment. The improvements will link with and continue the recent improvements to North Marine Drive between 1-5 and the Rivergate Industrial District and will also retain options for a future bridge connection to West Hayden Island.

Economic Development Goals & Policies

The recommended improvement of North Marine Drive consistent with the TE also supports Portland's Comprehensive Plan Policy 5.4: "Promote a multi-modal regional transportation system that encourages economic development." Two related economic development objectives support the recommended North Marine Drive improvement:

"A. Support regional transportation improvements to facilitate efficient movement of goods and services in and out of Portland's major industrial and commercial areas. Ensure access to the Port of Portland's marine and air terminals and related distribution facilities."

"B. Support the maintenance and efficient use of the transportation infrastructure for national and international distribution of goods and services."

The recommended improvement of North Marine Drive and separation of the at-grade crossing of the railroad will improve safety, reduce delays and improve the efficiency of the transportation infrastructure at Rivergate for distribution of goods and services. The Rivergate Industrial District is designated and protected as a key industrial sanctuary in the Portland Comprehensive Plan, as it serves as a vital link for the region and state export and import economic strategy. Rivergate is home to Terminal 5 and 6 the deep water ports providing the critical connection for Columbia Basin products to the world.

Metro's 2040 Plan also recognizes the importance of the Rivergate District as an industrial/employment area. Serving industrial facilities and intermodal areas with adequate transportation infrastructure is a key to making the 2040 Plan work. There is a projected volume of 2 to 3 times as much freight in the region by the year 2040. The region has concerns about the viability of industrial areas because they are key component of the local, regional and statewide economy, employment base and quality of life.

Environment Goals & Policies

The existing alignment of North Marine Drive parallels the north side of Smith and Bybee Lakes, a regionally significant natural area. The Lakes are designated "Open Space" on the Portland Comprehensive Plan Map. A Natural Resources Management Plan (NRMP) for Smith and Bybee Lakes was adopted by City Council in 1990 to "implement the management framework, provide the funding, and institute the processes needed to restore and maintain the lakes to the extent possible in a way that is faithful to their original natural condition." Metro staff, together with a Management Committee, manages the Smith and Bybee Lakes NRMP area. North Marine Drive is located adjacent to, but outside, the northern boundary of the Smith and Bybee Lakes NRMP.

The 2100 acres of marshlands and lakes are home to hundreds of species of birds, reptiles and animals. Despite all of the cumulative impacts associated with a location in an urban industrial area with significant infrastructure, the lakes support a viable and diverse population of flora and fauna. Smith and Bybee Lakes is a regional treasure that provides unique accessibility to recreational and educational opportunities. A parking lot and trail system to the lakes have been developed to the south side of North Marine Drive. Over 1300 students used and visited the area last year, as part of an ongoing environmental curriculum.

Port staff initially proposed widening of North Marine Drive, relocating of the rail line to the south side of the road to eliminate the road/rail conflict and relocating of the parking lot serving Smith and Bybee Lakes. Representatives of the Smith and Bybee Lakes Management Committee and others raised concerns regarding the potential impacts of the road/rail improvement project on:

- Environmental resource and habitat areas, particularly painted turtle nest sites
- Safety
- Access to the Interlakes Trail
- Educational Programs

Balancing

The recommended improvement of North Marine Drive is consistent with a range of local plans and reports that date back more than 20 years, including:

- Rivergate and North Portland Peninsula Report (1967)
- Plan for the North Portland Peninsula (1972)
- Rivergate Policy and Development Plan (1976)
- Arterial Streets Classification Policy (1977, 1983, 1992, 1996)
- Regional Transportation Plan (1982, 1995, 1998)

1. The recommended alignment maximizes the use of existing public right-of-way and also ties with and continues the recently completed improvements of North Marine Drive between the entrance to the Rivergate Industrial District and I-5.

2. The recommended improvements remove conflicts associated with the existing road/rail crossing with the construction of a bridge over the rail. This will enhance safety, reduce delays and improve the efficiency of the transportation system to support the Rivergate Industrial District.

3. The recommended improvements include provisions for pedestrian, bicycle and transit use and enhance the "multi-modal" character of the corridor.

4. By following the existing alignment of North Marine Drive, the proposed improvements avoid displacement of existing businesses and improve the transportation system to support and enhance the Rivergate District industrial sanctuary.

5. By choosing a "road over rail" alternative, the City avoids potential environmental impacts that would have been associated with construction of the rail line to the south side of North Marine Drive and adjacent to Smith & Bybee Lakes.

6. By focusing the widening of North Marine Drive to the north, the City can provide for the enhancement of native vegetation and provide protection of sensitive painted turtle nesting habitat.

7. The City recognizes that the loading and shipping areas in front of buildings to the north side of North Marine Drive are critical to the viability of the businesses. City staff will work with these businesses during the design phase to minimize the damages and business disruptions associated with the road widening. This may include a reduction of the typical landscape buffer to the north side of the roadway east of the rail crossing.

8. The existing access to the Interlakes Trail system is retained with the recommended alternative. Construction of a center turn lane will provide a safer turning refuge for vehicles and school buses turning into the Smith and Bybee Lakes parking lot serving the trail head.

9. The recommended alternative will include extension of the 40-Mile Loop Trail as a component of the project. The specific location and design of this segment of the 40-Mile Loop will be refined during project design.

10. The recommended alternative will include water quality facilities in the final design. This will provide required treatment of stormwater run-off prior to discharge into the receiving body.

IV. ENGINEERING ISSUES - Staff & Advisory Committee

There are a number of issues that would need to be addressed when project engineering begins:

1. Drainage/Water Quality/Hazardous Materials Spill Containment Facilities
2. Pedestrian/Bicycle Safety
3. Utility Conflicts
4. Construction Staging
5. Noise Mitigation

1. Drainage/Water Quality/Hazardous Materials Spill Containment Facilities

Staff: Stormwater from the project will be directed into water quality swales and/or ponds adjacent to the roadway. In some locations where swales or ponds may not be appropriate, engineers would evaluate the use of water quality manholes prior to discharge into a water body. This method is in compliance with current approved standards developed by the City of Portland Bureau of Environmental Services.

Advisory Committee: Recommends that stormwater from this project be conveyed north to the Oregon Slough, rather than to Smith and Bybee Lakes. There are a number of engineering issues that need to be evaluated based on this recommendation. The Oregon Slough is approximately 1400 feet to the north of the project. The project site is generally flat, limiting the opportunity to convey stormwater over long distances with a gravity-based piping system. Gathering drainage from the project and directing it to the Oregon Slough would require that the stormwater be pumped and requires boring to place pipe under an existing rail yard.

Staff: The Lakes are generally 200 to 300 feet from the project. Based on our current understanding of the project area drainage requirements, gravity conveyance to existing stormwater outfalls is a cost-effective and simple method of discharging treated stormwater. Pumping stormwater to the Oregon Slough would be cost prohibitive.

Hazardous Materials Spill Containment Facilities: The stormwater facilities will include engineered measures to contain materials which may enter the treatment area. The measures will include manually operated valves incorporated into swales, ponds to allow containment of spill prior to discharge into the adjacent water bodies.

2. Pedestrian/Bicycle Safety

Staff: Pedestrians would be accommodated the entire length of the project. The construction of a separated 40-Mile Loop Trail along the south side of the entire project adjacent to Smith and Bybee Lakes leading to a connection at Kelly Point Park. Bicycle lanes would be provided on the roadway for bicyclists.

The north side of the project will provide a separated sidewalk west of the rail crossing. The sidewalk will be adjacent to the roadway east of the rail crossing. Due to adverse impacts of the roadway widening to the north side on existing business operations, there will not be adequate room to accommodate the additional streetscape.

Advisory Committee: Recommends that the trail alignment follow along the base of the bridge approach to cross the existing rail line. This at-grade crossing would need to be given special attention to provide adequate site distance and safety for the users. This crossing would require an ODOT Rail Crossing Permit.

3. Utility Conflicts

Staff: Based on a cursory review of the utilities in the area, there likely would be inadequate vertical clearance between the road and the overhead power lines on the east bridge approach. The power lines would need to be raised to construct the approach to the bridge. Other underground utility conflicts may arise during the design. A utility conflict assessment should be performed during the preliminary and final engineering phase of the project.

Advisory Committee: No comments.

4. Construction Staging

Staff: Construction staging focuses on maintaining a safe work environment for the construction operations and protecting the environment while providing reasonable and safe accommodations for the traveling public. Construction staging for the roadway should not pose significant issues. In most cases, the issues to address will be maintaining access during construction to the Terminal 6 main entry gate and other street and private access points along the project.

Construction staging for the approach structures and bridge over the existing rail line would present the most significant issues. Construction of the approaches and bridge where the existing road is located would require the construction of a temporary road to detour traffic around the work zone. A conceptual design for a temporary detour road along the north has been developed. Further engineering and discussions with affected property owners would be necessary to refine this concept.

Advisory Committee: Recommends all efforts be undertaken to minimize any intrusion into the buffers around Smith and Bybee Lakes.

5. Noise Mitigation

Staff: Preliminary noise analysis suggests that noise walls could be effective at reducing the noise in some areas of Smith Lake, however further analysis is required. Design issues to be addressed include: location; style of berm/wall; safety issues; parking lot access; and site distance need to be balanced against the level of benefit. The project staff will seek advise and guidence from the Smith Bybee Lakes Management Committee during preliminary and final design regarding this issue.

Advisory Committee: Recommends the project construct a noise wall adjacent to Smith Lake between the existing bridge and the recommended overcrossing.

V. ENVIRONMENTAL ISSUES

The following efforts were undertaken as part of the project development work:

- A vegetation study was performed to identify existing vegetation types within the recommended alignment corridor.
- A turtle study was performed to provide data regarding nesting and habitat areas.
- Noise levels were measured along the existing North Marine Drive.

General environmental objectives of the staff include:

- Habitat Quantity - Maintain as much upland habitat as possible between the edges of Smith and Bybee Lakes and the road right-of-way.
- Habitat Quality - Maintain available habitat within the upland buffer in a condition to enhance habitat features for nesting painted turtles.
- Habitat Accessibility - Realizing that competing human land uses are often incompatible with native wildlife habitat needs, limit human access to painted turtle nesting habitat areas.

Ecological considerations and project features should be further refined and expanded as the project is developed adjacent to Smith and Bybee Lakes. Future project development should refine the following specific design features:

1. Human recreational features, including the 40-Mile Loop, should be designed to use existing upland areas between the right-of-way and the lakeshore.

2. Landscaping on upland areas should maximize the use of herbaceous grasses and forbs to create a gently sloping meadow as the predominant habitat type in areas of known or suspected turtle nesting.

3. Plantings of large trees or shrubs within the open meadow area should be minimized since these features can serve as perching and lookout sites for avian predators.

4. Shrub buffer-barriers should be established and maintained along the edge of the 40-Mile Loop to limit access to the open meadows adjacent to Smith and Bybee Lakes. Limiting human access, vehicular access, and access for domestic pets would preserve habitat conditions and reduce nest predation from domestic pets and from urban wildlife, which is often attracted to areas of human activity.

5. Signage along paths may be necessary to limit access to turtle habitat during critical nesting periods.

6. In areas immediately adjacent to the roadway, parking areas and 40-Mile Loop, native trees and shrubs should be planted, where practical, to enhance the natural character of the lakeshores corridor.

7. Wetland drainage swales should be vegetated with native, herbaceous species, but may incorporate shrub buffer-barriers if access to the open meadow areas is a possibility.

Advisory Committee: Recommends that additional efforts be undertaken to complete a comprehensive long-term study of turtle habitat around Smith and Bybee Lakes Resource Area adjacent to the proposed roadway project. This study would provide ecological information for turtle management in the Smith and Bybee Lakes area.

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APPENDIX

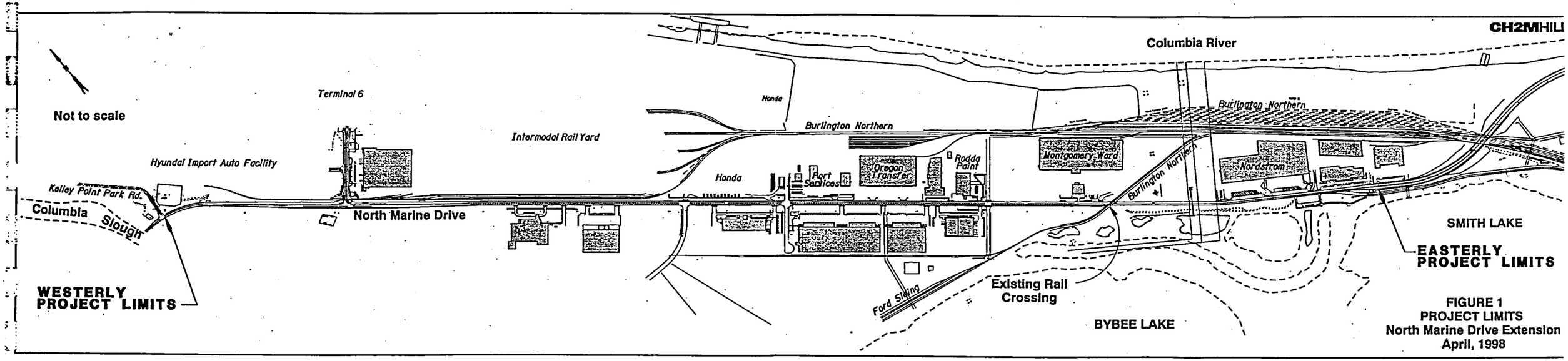
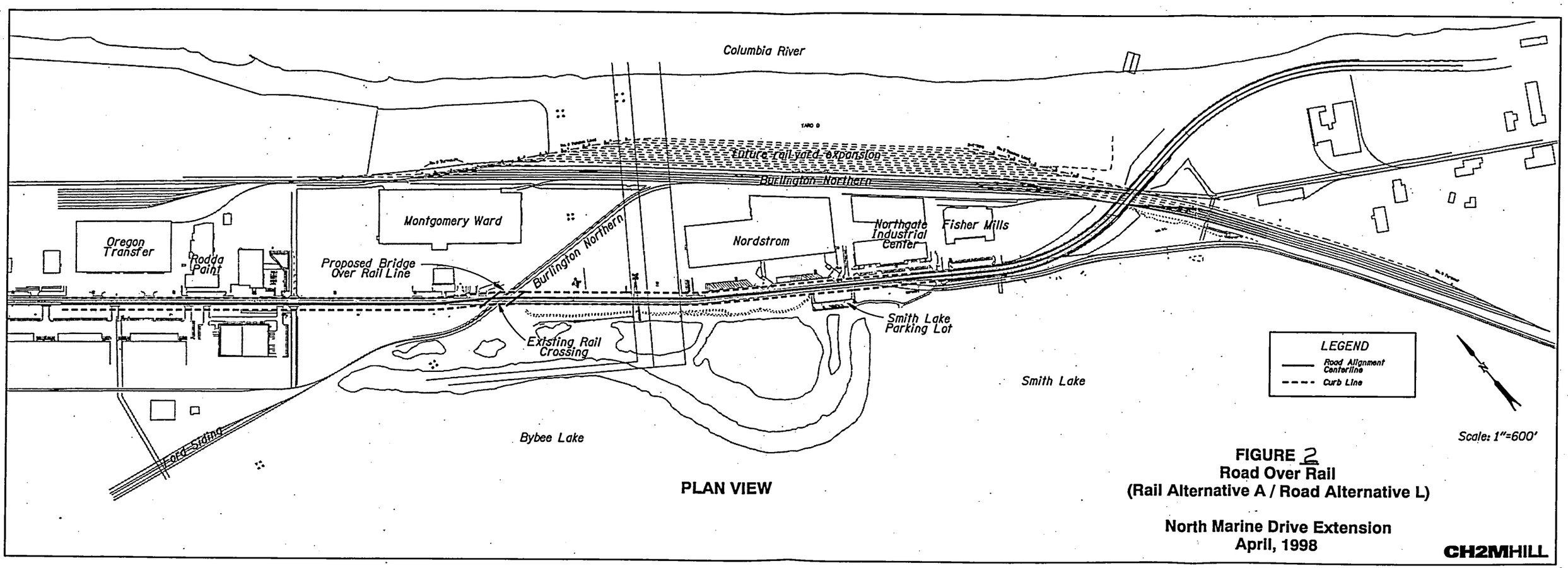


FIGURE 1
PROJECT LIMITS
North Marine Drive Extension
April, 1998



PLAN VIEW

FIGURE 2
Road Over Rail
(Rail Alternative A / Road Alternative L)

North Marine Drive Extension
April, 1998

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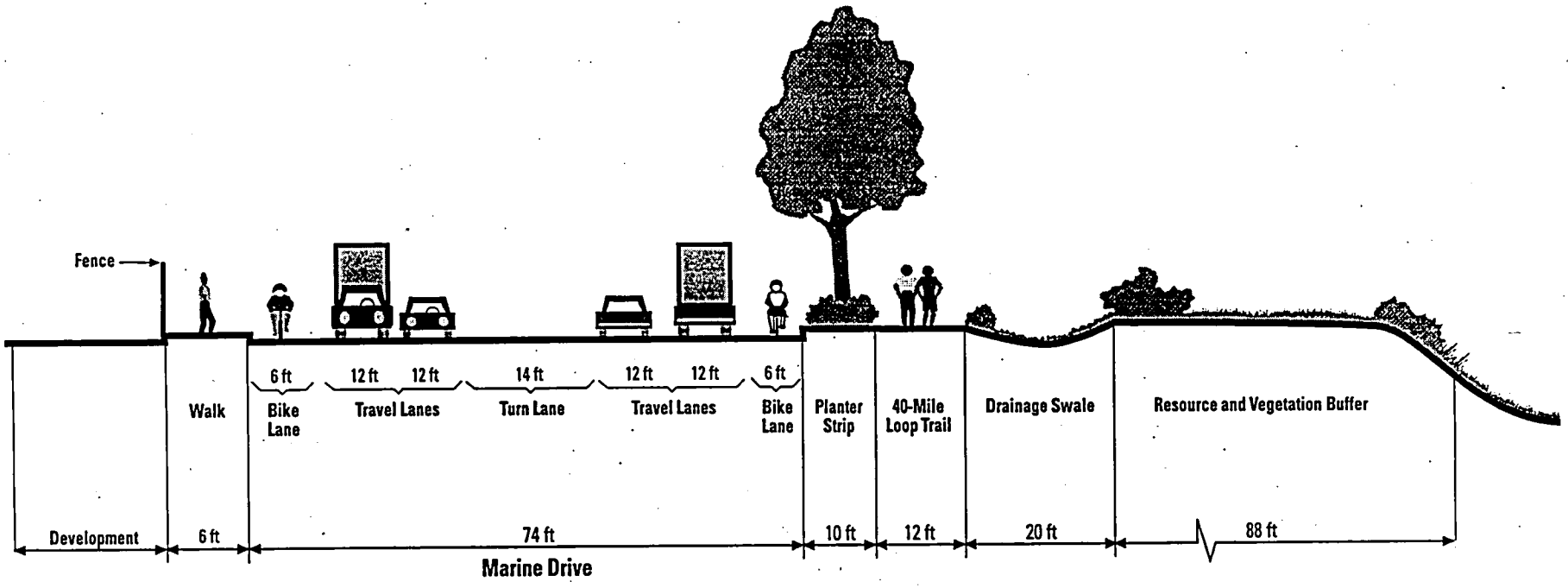

Figure 3
Road Over Rail
Section East of Rail Line

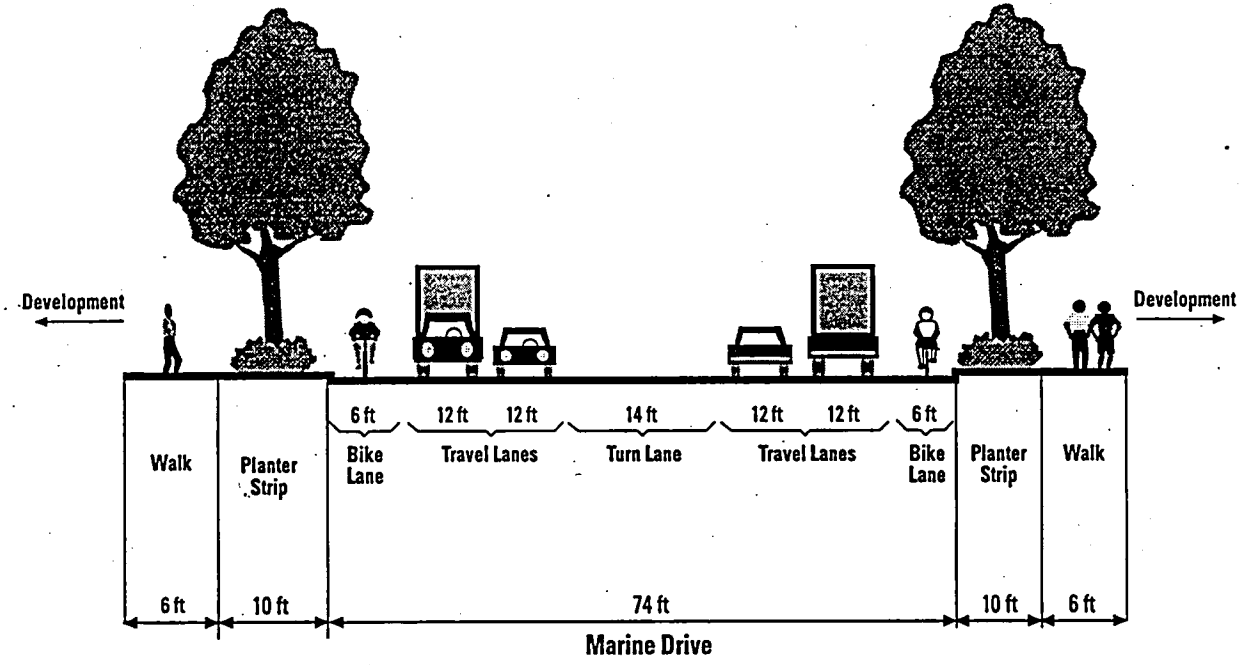

Figure 4
Road Over Rail
Section West of Rail Line

To: Jeann e Caswell
From: Nancy Hendrickson NH
c: Emily Roth
Date: May 15, 1998
Re: North Marine Drive Widening and Rail Relocation Project; Project Development Summary and Staff Recommendations

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Jeann e, here are my comments on your draft report. I am commenting as the BES representative to the Smith & Bybee Lakes Management Committee. The Committee has not yet met to discuss the report or comment on it as a body.

I have divided the comments up by subject, in order to make them more succinct. I don't expect you to incorporate all of these comments into your final report; some of them are too detailed and will be (hopefully) addressed at a later date. I did want to state them now however, as they do pertain to the subject matter.

Representation
I know I wear a few different hats, but in the Technical Advisory Committee meetings, I represented the Smith and Bybee Management Committee, not BES *per se*. Tammy Cleys represented BES at these meetings. If you could change this on the first page of the report, I would appreciate it.

There are a few times in the report where you mention that the project staff will seek guidance from the Smith and Bybee Lakes Management Committee. It seems clear from the meeting on May 7th that guidance should be sought instead from some configuration of the Marine Drive TAC/CAC.

Stormwater runoff
Smith and Bybee Lakes are water quality-limited, listed on the 303(d) list for Oregon. Because there has not been a TMDL (total maximum daily load) established for the lakes, by Oregon law no new or increased discharges are allowed until such time as TMDL's are established. At that time, new or increased discharges would be allowed if they could conform to an assigned load allocation. DEQ regulates this statute (OAR 340-41-026(3)B&C). The Oregon Slough, as part of the Columbia River, is also listed, but the TMDL has been established there. It is for dioxin, so the project won't be likely to run into load allocation problems if discharging there.

As far as BES' permitting requirements, these continue to change faster than the handbook can be updated. For example, the latest requirement for stormwater runoff to urban streams requires 50% reduction in total suspended solids. This will not be achieved by using sedimentation manholes, so you may want your engineers to get the latest facts in this area before they start designing.

In general, to say: "Stormwater collection, detention and treatment systems will improve the

quality of stormwater runoff into the lakes" (p.2) is erroneous. The project will be adding to the stormwater load into the system by building more impervious area, having more lanes of traffic, etc. The additional stormwater load can be reduced by water quality facilities that are properly maintained. However to imply that stormwater runoff after the project is completed will be improved upon the current conditions is misleading, particularly the way it was presented at the meeting on May 7th.

"Water quality manholes" are really sedimentation manholes. These types of facilities provide very marginal treatment. Also, if these are not properly maintained - which means cleaned of sediment regularly - they do not work *at all.* Maintenance of all the water quality facilities is an important component of this plan. As part of the maintenance considerations, the agency who will own the facilities and be responsible for the maintenance should be named.

Because of the project's proximity to the Smith and Bybee Lakes, erosion control and stormwater runoff need to be addressed very seriously during the construction part of the project as well as for the final product.

Trees

You may or may not know that none of the trees on the Approved Street Tree List are native. This would make native streetscaping on the south side a bit difficult. However, the Urban Forester will often approve native trees for streetscaping, so don't limit the landscaping to the Street Tree List. Furthermore, consider planting native shrubs (elderberry, spirea, nootka rose, etc.) in addition to or instead of trees. Many of the native shrubs grow extremely well in the Columbia Slough watershed, and would provide better noise abatement, screening, erosion control and stormwater treatment than trees placed on 30' centers. For excellent advice on native tree and shrub planting, including sources of materials and even implementation, you may contact BES' Columbia Slough Forester: George Kral, at 823-7116.

MEMORANDUM **CH2MHILL**

North Marine Drive Extension Project
Ranking of Alternatives - Summary

TO: Citizen Advisory Committee Members

COPIES: Jeanne Caswell/City of Portland
Jean Wallace

FROM: David Simmons
Jennifer Staley

DATE: February 13, 1998

The results of the ranking process are shown in Table 1. This is the outcome of the quantitative ranking process where criteria was developed, weighted and then applied to each of the alternatives.

Table 1

Ranking of Alternatives Summary - CAC

Alternative	Raw Score	Ranking
Adjacent Slough Route (A/M2)	4890	1
Rail Through Terminal 6 (E/K)	4070	2
Road over Rail (A/L)	3949	3
No Build (A/J)	3651	4
Rail over Road (C/K)	3032	5
Road North/Rail South (B/K)	2276	6

As discussed previously, this ranking process and the results should be viewed as a tool. As a group, you will be discussing the outcome of this process and will have the opportunity to make changes at our final meeting on Wednesday, February 18, 1998. You will also have an opportunity to identify features that would make each alternative better and those features which make a particular alternative unacceptable.

Hope to see you all on the 18th.

Mobility	1	2	3	4	5	6	7	8	9	10	11	12	13		Ave
Provide safe and controlled road and rail access to S&B Lakes and businesses along N. Marine Drive (NMD).(Safe is defined as being able to enter and exit facilities in a timely manner and at a safe speed)	7	6	5.5	6	6.5	4	7	6	7	4	5	5	5	74	5.7
Provides a multi-modal transportation system, including pedestrian and bicycle circulation, including connections w/the 40-mile loop.	6.5	7	6	5	4.8	6	6	6	6	7	7	6	3	76.3	5.9
Separate train and road traffic on NMD (Rivergate) to allow efficient movement of vehicles.	6	5	5	5	5.9	1	6	7	7	2	5	4	7	65.9	5.1
NMD handles the projected traffic volume for increased development for its major arterial designation.	6	7	3.5	3	2.8	1	7	7	6	6	2	3.5	1	55.8	4.3
Environmental															
Corresponds to the goal statement of the S&B Lakes Management Plan with special emphasis on the western painted turtle.	7	5.5	6.5	7	6.7	7	6	4	2	7	5	7	4	74.7	5.7
Provide an engineered transportation system utilizing best technology available for spill containment and an effective and adequate access, response and containment program	7	6	7	7	3.8	7	3	2	3	5	3	5	6	64.8	5.0
No encroachment on existing buffer areas, where possible expand and enhance the effectiveness of the buffer, and maintain wildlife corridors to and between S&B Lakes.	7	7	6.5	7	6	7	4	5	4	7	7	6.5	2	76	5.8
Using best technology available, minimize or improve untreated stormwater input into S&B Lakes.	6.5	5.5	6	6	4.5	5	5	6	5	5	3	6	5	68.5	5.3
Maximize restoration opportunities in S&B Lakes.	6.5	5.5	5	5	1.5	6	2	1	2	3	5	5.5	3	51	3.9
Community															
Sustains or replaces environmental education programs presently ongoing at S&B Lakes.	6.5	6	6.5	6	6.2	6	4	4	2	7	5	4.5	1	64.7	5.0
Does not eliminate options for the proposed West Hayden Island development.	6	5	4	4	3.7	4	3	1	1	1	2	3.5	5	43.2	3.3
Preserves and enhances safe recreational opportunities to S&B Lakes.	6.5	7	5	6	4.6	6	5	3	3	5	6	5	4	66.1	5.1
Minimizes, reduces or compensates for noise and visual	6.5	5	6	5.5	1.7	7	2	2	3	5	7	6	6	62.7	4.8
The alignment is not constructed within the S&B Lakes Wildlife Area	7	5	7	7	5.9	7	6	5	4	7	6	6.5	7	80.4	6.2
Financial/Economic															
Chosen alignment, including community and environmental aspects is fundable. (Completing the alignment in a series of stages is acceptable).	7	7	5	5	5.1	5	7	7	7	7	7	5	7	81.1	6.2
Doesn't require loss or payback of federal dollars from NMD overpass.	5.5	6	3.5	4	3.2	1	7	6	6	1	2	4	5	54.2	4.2
Minimizes economic impacts to existing industry.	6	5	3	2	6.8	1	6	6	6	4	5	3	3	56.8	4.4

Rail Over Road	Adjacent Slough Route	Road Over Rail	Road North/Rail South	No Build	Poor	Fair	Excellent	Ratings
					O	●	▶	Rating Value
								Rating
								Provide safe and controlled road and rail access to S&B Lakes and businesses along N. Marine Drive (NMD)
								Rating
								Provides a multi-modal transportation system, including pedestrian and bicycle circulaiton, including connection w/the 40-mile loop
								Rating
								Separate train and road traffic on NMD (Rivergate) to allow efficient movement of vehicles.
								Rating
								NMD handles the projected traffic volume for increased development for its major arterial designation
								Rating
								Corresponds to the goal statement of the S&B Lakes Manageemnt Plan with special emphasis on the western painted turtle
								Rating
								Provide an engineered transportation system utilizing best technology available for spill containment and an effective and adequate access, response and containment program
								Rating
								No encroachment on exising buffer areas, where possible expand and enhance the effectiveness of the buffer, and maintain wildlife corridors to and between S&B Lakes
								Rating
								Using best technology available, minimize or improve untreated stormwater input into S&B Lakes
								Rating
								Maximize restroation opportunites in S&B Lakes
								Sustains or replaces environmental education programs presently ongoing at S&B Lakes
								Does not eliminate options for the proposed West Hayden Island development
								Preseves and enhances safe recreational opportunites to S&B Lakes
								Minimizes, reduces or compensates for noise and visual impacts
								The alignment is not constructed within the S&B Lakes Wildlife Area
								Choosen alignment, including community and environmental aspects is fundable (completeing the alignment is a series of statges is acceptable)
								Doesn't require loss or paybeack of federal dollars from NMD overpass
								Minimizes economic impacts to existing industry

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