



## *Preface*

### **2007: Port of Redwood City Ferry Terminal Locational Analysis, Environmental Assessment, & Conceptual Design**

In 2007, the Water Transit Authority and the Port of Redwood City completed an evaluation of three potential ferry locations to determine if there were any issues that made either site impractical. This report is called the “Port of Redwood City Ferry Terminal Locational Analysis, Environmental Assessment and Conceptual Design” (Report). The Report identified which of the three sites was most optimal for a ferry service. It also performed a preliminary review to determine if there were any significant planning, legal, operational or environmental obstacles preventing the use of the most optimal location. The Report did not evaluate the feasibility of ferry service, which is typically done through a financial feasibility study (see below).

While the Report included environmental assessments, it did not include an Environmental Impact Report (EIR). A Biological Resources Assessment and Preliminary Wake Wash Impact Analysis were prepared to identify potential major obstacles in any of the three potential ferry locations. An EIR is an in-depth document that is required as part of the California Environmental Quality Act to identify potential significant adverse environmental impacts and propose mitigations or alternatives to reduce the impacts of a potential project. While an EIR was not included in the 2007 Report, the Report identified the need to prepare one in future analysis.

### **2019: Financial Feasibility Study and Cost Benefit & Economic Impact Analyses**

In February of 2019, the City initiated a Financial Feasibility Study and Cost Benefit & Economic Impact Analyses (Study). The goal of this Study is to understand if a ferry service to and from Redwood City is viable based on ridership. In other words, it seeks to answer whether there will be enough riders. Additionally, the Study will estimate operational costs, capital costs, and look to see if there are added societal benefits for providing a ferry service. If the Study shows potential ridership is significant enough, then City Council and the Port Commission will consider how to proceed with the next step in pursuing a ferry service. Next steps may include a Business Plan (required by the San Mateo County Transportation Authority) and a Conceptual Design, followed by an EIR.

# Port of Redwood City Ferry Terminal Locational Analysis, Environmental Assessment, & Conceptual Design



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# 1.0 Executive Summary

## 1.1 Background and Study Purpose

In conjunction with the San Francisco Bay Area Water Transit Authority (WTA), the Port of Redwood City (Port) is seeking to establish a ferry terminal site on land within its jurisdiction. The ultimate goal is to establish high-speed commuter ferry service connecting Redwood City with San Francisco and the East Bay. Prior studies have narrowed the range of potential sites for the ferry terminal and have clarified many of program details including demand projections, the approximate dimensions and capacity of the ferry boats, the potential frequency of near-term (2012) and longer-term ferry service, and related matters.

At the conclusion of the most recent prior study, there were three remaining sites considered potentially viable and preferable to others that were under consideration earlier. Each of these final three are either on or adjacent to land under the jurisdiction of the Port of Redwood City. They are referred to as F Dock, Wharf 5, and Westpoint Slough.

The F Dock and Wharf 5 alternatives have been characterized previously as less desirable primarily because of the over-riding concern that the duration of the ferry trip be minimized. Both F Dock and Wharf 5 would require an additional 5+ minutes of total travel time for traveling an additional 0.7 to 1.2 miles at reduced speeds through the Redwood Creek channel. This additional time element would be acceptable only if the shorter-duration alternative – Westpoint Slough – were knocked out of consideration for some reason.

Consequently, the focus of this study is to see whether there are any ‘fatal flaws’ or ‘showstoppers’ – both of which terms are euphemisms for insurmountable environmental, planning, legal or other issues that could potentially make the Westpoint Slough site infeasible.

## 1.2 Major Tasks Accomplished in this Report

- Develop preliminary design concepts for landside access, vehicle parking, terminal location and dock configuration.
- Assess applicable land use restrictions and site availability.
- Prepare inventory of biological resources and assess the potential for significant impacts.
- Undertake wake and wave analysis to determine likely point at which ferry speed would need to be reduced in order to avoid wave impacts on sensitive beach areas and habitats.
- Define the regulatory framework for obtaining federal environmental clearance and permits.

### 1.3 Findings and Conclusions

- Overall, the consultant team found no significant planning, legal, operational or environmental obstacles that would prevent ultimate use of the Westpoint Slough location. An environmental impact report (EIR) will have to be prepared detailing potential environmental impacts and mitigation measures.
- The width of Westpoint Slough, while limited at low tide, is wide enough for vessel access and turning movements without undue conflicts with foreseeable boat traffic on Westpoint Slough. The proposed dock location current has an unused fixed dock that would be removed as part of the project.
- Sufficient site area can be made available by the Port for start-up and near-term operational requirements (3 to 4 acres). Approximately six acres would be required for the build-out terminal.
- The amount of dredging required to provide sufficient room for a vessel to dock, back and turn at all tidal conditions is estimated at 13,000 cubic yards. An additional 4,000 cubic yards need to be dredged to deepen the shallow area at the confluence of Redwood Creek and Westpoint Slough to permit ferry and Westpoint Marina operations at all tidal conditions.
- Use of Lot 13 on the Pacific Shores property for terminal-related parking and/or access would require the consent of the property owner, an amendment to the Pacific Shores Development Agreement, and approval by Bay Conservation and Development Commission (BCDC) of an amendment to its Permit #21-98 regarding the Pacific Shores project. All of these approvals appear achievable.
- Use of the Port property would not require an amendment to the Seaport Plan, administered by BCDC.
- Regulatory approvals for dredging of Westport Slough, filling wetlands and for potential impacts to endangered species can be obtained from the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service and California Fish and Game Department.
- The number of ferry trips proposed would change the wave environment to sensitive Bair and Greco Island habitats if current design ferry vessels operated at high speed in the Redwood Creek channel. Reducing wake impacts to acceptable levels will require vessels to reduce speed to low-wake levels approximately 1.2 to 1.5 nautical miles from the proposed docking location.
- A Biological Resources Assessment and Preliminary Wake Wash Impact Analysis are included for your review.
- Vehicular access to the terminal and passenger drop-off/pick-up location might require a legal right of access through a small portion of the Pacific Shores property; such access would not interfere with non-ferry related Pacific Shores traffic.
- A build-out terminal would cost about \$13.5 million and would include a standard WTA floating dock, gangway, modest terminal building, space for vehicular and bus circulation as well as parking for up to 500 vehicles. (does not include land value and potential mitigation measures)
- A Conceptual Design report including a cost estimate is included for review.



## 2.0 Project Description

### 2.1 Background

The Bay Area has investigated the potential for water transit for some time, including studies by the Metropolitan Transportation Commission (MTC), the Bay Area Council, and the creation of the WTA. In 2000, PTM (which merged into CHS Consulting Group in 2001) prepared the Redwood City Ferry Terminal Analysis, a preliminary examination of site location alternatives and initial environmental review. The WTA has investigated the feasibility of an expanded Bay Area water transit network, and concluded that an expanded ferry network would provide a cost effective and environmentally beneficial extension of the Bay Area transportation network. A key benefit of a ferry network is its flexibility and ability to serve as a valuable contingency mode if bridges, highways, or transit systems are disrupted by natural or man-made disasters. In 2002, the WTA produced its Initial Operating Plan (IOP), which identified a network of potentially feasible new routes. A Redwood City to San Francisco route was among those considered feasible. As a next step, the Port of Redwood City and the WTA convened a Water Transit Discussion Group that conducted further analysis of site alternatives.

At this point, the Port needs to select a site for a future ferry terminal, and refine an estimate of the type and cost of facilities required. The starting point includes the prior work. Based on WTA planning criteria and environmental assessment, this analysis is designed to hone in on the most desirable site, and begin the conceptual design work, both for required landside and waterside facilities. Vehicular access and parking, shuttle bus parking, sheltered waiting areas, a transition structure to a floating dock, and a floating dock of the standards desired by the WTA need to be conceptualized, costed, and reviewed for environmental compatibility. In addition, this analysis includes several architectural renderings to give the Port and the community a better image and expectation of how the Redwood City ferry terminal may look. The analysis includes a review of terminal needs, the environmental assessment, and a conceptual design and initial cost estimate.

The following are key issues that are addressed in this study:

- Is the Westpoint Slough terminal location identified in prior studies the most feasible site for a ferry terminal?
- Do permits and entitlements allow a potential terminal location along Westpoint Slough either on Pacific Shores or Port-owned parcels?
- Are available roadways (with funded improvements) adequate to handle the traffic associated with the ferry terminal?
- Are there any environmental issues that could preclude the nature of development and ferry service required to initiate a successful Redwood City service?
- What are the costs associated with developing the required facilities?
- Would joint use facilities enhance the potential for a terminal?
- What is the potential timeline to funding and development of the terminal?

## 2.2 Terminal Needs

Redwood City ferry service would require construction of a terminal and the operation of vessels - probably two vessels operating up to 14 hours a day to and from San Francisco by 2025, and the possibility of an additional vessel or two operating to the East Bay as well, but probably only during peak periods. Maximum level of service would thus involve 28 to 40 vessel movements a day - either outbound or inbound. An initial operating profile would probably have 6 to 12 daily trips to and from San Francisco.

The WTA terminal criteria indicate a floating docking facility that can accommodate two vessels concurrently, with a dock design for side loading vessels. The first two 150-passenger vessels ordered by the WTA are approximately 116 feet long, 28 feet wide, and have a draft of approximately six feet. The larger 300 to 350 passenger vessels operated by Vallejo and Golden Gate are approximately 132 to 140 feet long, 34-38 feet wide, with a four to five foot draft.

A standard rectangular shape dock design will accommodate the specified vessels. The floating dock needs to be long enough to safely dock 120 to 140 foot vessels. Some overhang is possible at the stern so the dock should be at least 110 feet in length, and probably 40 to 45 feet wide. An 80 to 100 foot ADA accessible gangway/transfer span is required to connect the dock to either a fixed pier or the shoreline if the later is at the appropriate height that will allow the gangway to provide dock access at all tidal ranges. A minimum channel water depth of 10 feet (-10 MLLW) is required for operations and a bottom elevation of -12 feet MLLW is desired within the area of the float, according to the standards prepared for the WTA's Oyster Point/South San Francisco terminal. A 200 to 250 foot diameter turning circle should be available near the terminal for the ferry vessels to change course as required during arrival or departure. A sheltered passenger waiting area, either on the shore or on a fixed pier, will make it possible for patrons to wait under cover until the vessel arrives and the crew opens the gate to allow patrons to access the gangway and float, and board the vessel.

The ridership projections prepared by WTA consultants (Cambridge Systematics, Alternative 18 ridership, provided by John Szindinski, January 26, 2007) indicate a potential Redwood City ferry ridership of 1,950 trips a day between Redwood City and San Francisco by 2025 (based on a projected 51 minute travel time), and an additional 460 a day for a possible route between Oakland and Redwood City. For the San Francisco service, which is projected to operate every 60 minutes, the majority of the daily trips are expected to start in Redwood City, and for Oakland service, which would operate every 60 minutes during peak periods only, most of the riders would start in the East Bay and commute to jobs in Redwood City or nearby areas. Transit service should connect the terminal with local jobs as well as residential areas, so space should be provided for three to four buses to park and transfer passengers. In addition, the WTA patronage forecasts suggest a maximum on-site parking demand for 468 vehicles.

Parking alone would require approximately four acres to accommodate the spaces and circulation. Thus, a minimum facility size with public access, waiting areas, amenities, etc. as described above, would require five-six acres at build-out. A start-up facility could be developed with 200 to 250 parking spaces, thus requiring a minimum of three acres.

The passenger waiting area, besides sheltering patrons, should have space for restrooms if possible, an information kiosk, ticket vending equipment, change machines, telephones, and newspaper vending machines. If space and funding allow, additional modules could include space for concessions/vendors, a small staff office, and a maintenance/operations/ storage area. For further specifics on terminal criteria, see the Water Transit Authority's website: [www.watertransit.org](http://www.watertransit.org). Within the library category, look for technical publications and the following three documents:

- Terminal Design Guidelines
- Generic Terminal Design Prototypes
- Preliminary Terminal Assessment Report.

The WTA and Port of Redwood City convened a Redwood City Water Transit Discussion Group which held meetings in 2004. In addition to those agencies, participants included consultants, Redwood City staff and Council members, property owners, and representatives of environmental groups and political leaders. They confirmed the three sites identified in the August 2000 *Redwood City Ferry Terminal Analysis* and raised the following key issues to be resolved:

***Wharf 5 (Site 1 on Figure 1)***

- parking needs and availability
- potential for cars to conflict with large trucks on frontage road
- potential for vessels to conflict with larger vessels and marine industrial uses
- relationship with adjacent land uses

***F-dock (Site 2 on Figure 1)***

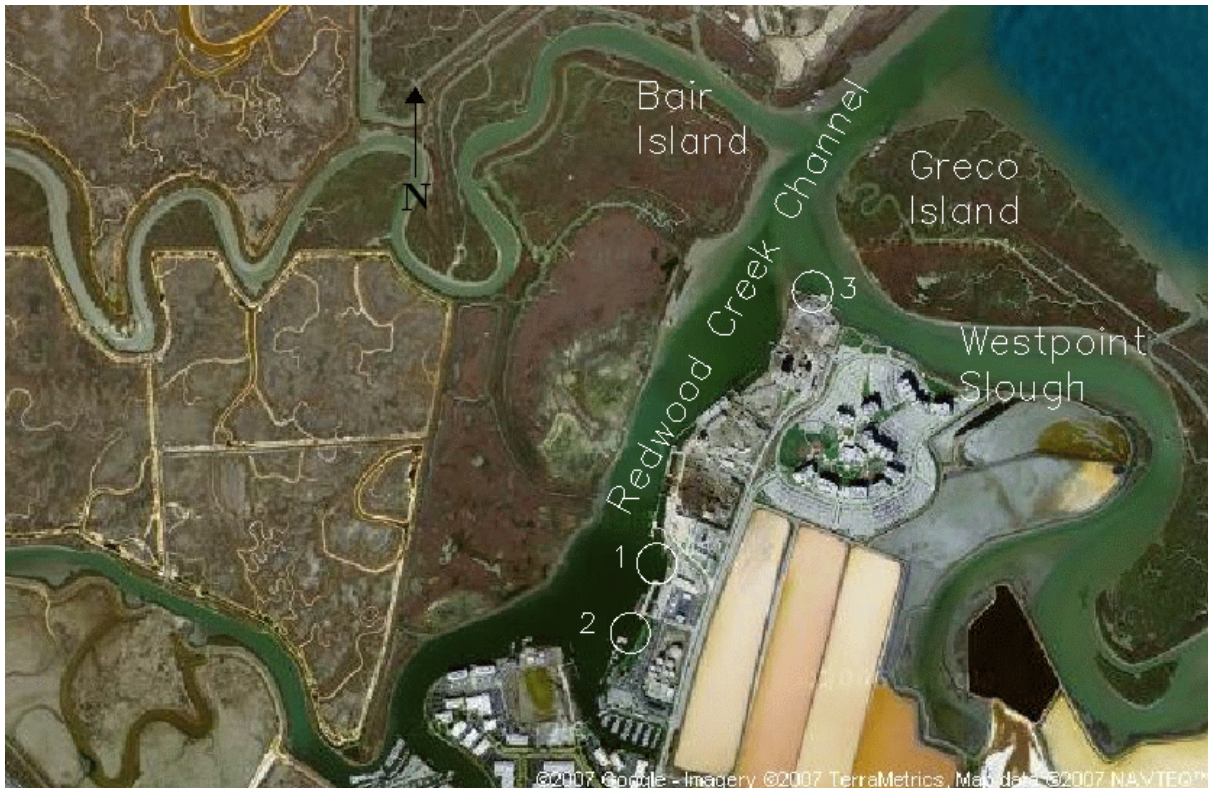
- parking needs and availability
- conflicts with recreational uses of the channel
- longer ferry travel time

***Pacific Shores/Westpoint Slough (Site 3 on Figure 1)***

- parking needs
- potential impacts on wetland and adjacent habitats
- need for dredging at berthing area
- interest of adjacent property owners

Because of the advantage of reduced ferry travel time and fewer conflicts with nearby usages afforded by the Westpoint Slough site, the primary focus of the analysis became determining whether there were any planning or environmental “fatal flaws” or “showstoppers” that would force the terminal to one of the less favored sites. While the initial review indicated that

**Figure 1. Aerial View of the Final Three Ferry Terminal Site Alternatives**



Westpoint Slough width may be limited at low tide, making it difficult for a vessel to back out of a dock, turn, and proceed out the channel, laying out a potential terminal and calculating required turning width indicated that the needs can be met with minimal dredging, and totally avoiding the need for dredging on the Greco Island side of the channel.

Alternative Westpoint Slough terminal locations and orientations were developed by the interdisciplinary planning team assembled for the project, based on criteria provided by Port and San Francisco Bay Area Water Transit Authority staff. Based on review, the selected site provides for the required size dock, illustrates the areas that would need to be dredged for the dock, turning circle, and at the confluence of Westpoint Slough and Redwood Creek. The following reviews the planning and traffic issues associated with the Westpoint Slough site.

### **2.3 Property Availability and Ownership**

Areas under consideration for a Westpoint Slough ferry terminal are either under the jurisdiction and ownership of the Port (northern portion) or under the jurisdiction of Redwood City and ownership of Starwood Capital Group, the new owner of the Pacific Shores Development. It is possible to locate the floating dock with access either from the Port parcel or the Pacific Shores “Lot 13” which presently contains a 70 spaces public parking lot and landscaped public area along the water. However, given the parcel configuration and location of the Pacific Shores ring road, there is insufficient space to locate the two/three (interim) to five acre landside needs exclusively on the Pacific Shores parcels. There is sufficient land on

the Port parcel to locate all the landside needs, or the property usage could be split between the two parcels. There is, however, a small wetland parcel just north of the boundary which would need to be bridged or eliminated (with permitting implications) in order to use both parcels.



## 3.0 Planning and Site Access Considerations

### 3.1 Terminal Usage and traffic

The current WTA forecasts show WTA Alternative 18 would generate approximately 1,950 weekday passenger trips between Redwood City and San Francisco in year 2025. Approximately 10 percent would be kiss and ride and average vehicle occupancy rates would be 1.57. Ridership by mode of access is shown as 205 people with walk access, 1,642 with auto access, and 102 with transit access. Assuming peak travel patterns similar to existing Bay Area ferry services, the most utilized AM trip (3-4 trips with hourly service) is likely to be a departure within the 6:45-7:00 AM range, with perhaps 200 passengers maximum. Even if no passengers walk or take transit, this would translate to about 130-150 cars arriving at the terminal, of which 20 or so would be round trip kiss-ride and the remaining 110-130 would park at the terminal (auto occupancy tends to be lower for peak period trips and higher for midday). The peak afternoon trip is likely to be one arriving at Redwood City at approximately 6 PM, which could generate up to 150-170 vehicles leaving the terminal.

Preliminary traffic analysis suggests that sufficient roadway capacity currently exists on Seaport Boulevard during the times the peak traffic flow would move toward or away from the ferry terminal. Utilizing the two lane truck-oriented route that splits from the main road at Seaport Court would generate auto-truck conflicts that would be avoided if the primary route to and from the terminal utilized the four-lane route that leads to Pacific Shores Center. Figure 2 illustrates the vehicular route that would be used to access a Westpoint Slough Ferry Terminal, using the 4-lane portion of Seaport Boulevard, the Pacific Shores ring road, and entering the terminal parking via a new connection from the existing quasi-public parking lot at the northerly corner of the Pacific Shores development.

There is some peak period congestion at Seaport and Chesapeake and at the Seaport/Woodside Road interchange with Route 101. Funding has been allocated for Route 101 interchange improvements in the San Mateo County Measure A program, but improvements are yet to be designed, so it is not possible to know with certainty whether the traffic bursts to and from the ferry terminal would deteriorate the level of service at the interchange.

At 2025 or 2030, build-out forecasts for the area east of 101 indicate that there would be periods of congestion and level of service D or E during peak periods. The traffic surges that occur before or after a peak period ferry would exacerbate the level of traffic during a 10-minute period. However, since it is probable that a significant portion of those driving to the ferry terminal would otherwise be driving to San Francisco there would be little difference in the traffic level approaching the Route 101 interchange with Woodside Road.

**Figure 2. Potential Access Route to Westpoint Slough Ferry Terminal**



### **3.2 Existing Plans and Policies**

#### **3.2.1 BCDC Seaport Plan**

The 2003 amendments to the BCDC and MTC Seaport Plan specifically call out ferry service as a permitted use within Port Priority Use Areas. On page 9 of the Seaport Plan, finding # 6 under the category of Port Priority Use Areas states:

“Passenger ferry service may increase in the Bay Area as one means of alleviating growing traffic congestion. Some port priority use areas may offer locations considered appropriate for the development of ferry terminals. Ferry terminals and ancillary uses, such as parking and transit stop facilities, in port areas require careful planning and design to ensure that ferry use is safe and does not interfere with existing or potential port-related uses.”

Policy # 3 within the same category states:

“Within port priority use areas, passenger ferry terminals and ancillary uses may be allowed, provided the development and operations of the ferry facilities do not interfere with ongoing or future port-related uses, and navigational and passenger safety can be assured.”

The portion of the ferry terminal that would be located on land presently leased to Cemex would be within the area designated as “Port Priority Use Area” while use of land owned by the Pacific Shores development would not be within such designation. Discussion with BCDC staff (Joe LeClair, April 17, 2007) indicated that an amendment to the Seaport Plan would not be required, but that the Commission would need to make findings as cited above.

It has been suggested that the Port investigate the potential for a joint use facility at the ferry terminal. Compatible uses would include a new and expanded Port Office, environmental information center, or potentially a restaurant. These uses would require little increase in parking supply; the latter uses would have peak parking demands at times when the ferry terminal parking has lower demand. A joint use facility would consolidate permit and construction costs and would provide site security through greater activity levels.

### **3.2.2 Pacific Shores Development Agreement**

The 1998 Development Agreement for Pacific Shores cites the following as benefits to the City of annexation and development:

- G.2. Mitigation by Pacific Shores of its own traffic impacts and contribution by Pacific Shores to both local and regional traffic facilities to meet needs associated with cumulative growth and development;
- G.6. Development of innovative transportation systems management (TSM) plans to minimize the amount of traffic generated by the Project;

The agreement has the following definition:

Waterfront Park. That portion of the Project open space parallel to and along Westpoint Slough dedicated to open space and recreational uses, which may include limited buildings and facilities such as but not limited to a marine resource center, an aquatic center, a boat dock, a conference facility, café/restaurant, a retreat center and various paths, trails and similar facilities, comprising that Common Parcel designated as lot D and those Accessory Building Parcels designated as Lots 13, 14, 15, and 16, as shown on Exhibit B-1. (*note: lots 13-15 are the three parcels from north to south along Westpoint Slough*).

Amendments are covered in Section 23.

23. Amendments. This Agreement may be amended by mutual consent of both parties in writing, confirmed by ordinance of City’s City Council.

### **3.2.3 BCDC Permit No 21-98 for the Pacific Shores Development**

- 1. The proposed Westpoint Slough Ferry Terminal site might utilize a portion of Lot 13 in the Pacific Shores Center development. Lot 13 is located at the northerly corner of the Pacific Shores site. Lot 13 is adjacent to the existing sand and gravel operation located on property owned by the Port of Redwood City.

2. The site development plan for the Pacific Shores Center contemplated, and the BCDC Permit authorized [but did not require] construction of up to four buildings in the north corner of the site to be located on Lots 13, 14, 15 and 16. These lots are within the shoreline band jurisdictional area of BCDC, lying between the access road that encircles the Pacific Shores development and the edge of Westpoint Slough. The buildings were to comprise a cluster of public uses that relate in varying ways to the intrinsic waterfront and public-access character of the location:
  - a 2-story 28,000 sq. ft. marine sciences building, contemplated for Lot 13;
  - a 2-story 28,000 sq. ft. aquatic center, with a floating dock and boat access, on Lot 14;
  - a 2-story 15,000 sq. ft. conference center and restaurant on Lot 15, and
  - a 1-story 2,000 sq. ft. retreat facility on Lot 16.
3. Each of the buildings was to be sited within prescribed 40' or 30' setbacks from the top of bank adjacent to Westpoint Slough. None of the buildings have been constructed.
4. The BCDC Permit provided (Section II-D-10) that during the design review of a proposed building on Lot 13, the Design Review Board would determine whether a bicycle trail was necessary along the northwest edge of Lot 13, connecting to Seaport Blvd. It also provided that "If these proposed buildings are not constructed, native or drought-resistant landscaping, including drought-resistant turf, shall be planted, where possible."
5. Condition II-D-11 provides: "The project site shall be designed to maximize pedestrian access to transit stops." Use of a portion of Lot 13 for a Ferry Terminal would be consistent with this condition.
6. In Section III, Findings and Declarations, the BCDC Permit provides detailed discussion of the design of the pile-supported and floating docks contemplated for the marine sciences and aquatic center buildings, and for how the shoreline is to be stabilized in that area. The entire discussion is cited at the end of this Memo.
7. Excerpts from Permit 21-98

The following is a verbatim excerpt from Section III (B) of Permit 21-98, entitled "Findings and Declarations, Fill."

"The permittee will place a total of approximately 4,900 square feet of new, pile supported and floating fill for boat docks associated with the marine sciences center and the aquatic center and a new net total of approximately 956 cubic yards of submerged fill covering approximately 4,302 square feet for shoreline protection. The permittee will remove approximately 12,450 cubic yards of existing riprap covering approximately 6,525 square feet from below the mean high tide line to install new

shoreline protection. Therefore, the net increase in new Bay fill will be approximately 9,202 square feet of Bay.

The pile-supported and floating fill for boat docks will be for water-oriented uses. The dock at the marine sciences center will be used to dock a vessel for marine research and education purposes and the dock and launching platform associated with the aquatic center will be used to launch hand-held boats. The submerged fill for shoreline protection will improve the appearance of and stabilize the shoreline and ensure that the new public access areas are adequately protected from stormwater runoff and erosion. Because the docks and shoreline protection must be located over the Bay or at the Bay's edge to serve their respective functions, there is no alternative upland location for the uses for which the fill will be placed.

To ensure that the fill for the boat docks is the minimum amount necessary, the permittee will confine the dock size to only that required for water-oriented uses and the dock length to that needed as a result of tidal movement at the site. To ensure that the fill for shoreline protection is the minimum amount necessary, the permittee will re-engineer the shoreline following the natural contours to achieve a stable slope of 2:1. Placement of concrete riprap would potentially impact some wildlife use along the shoreline. Alternative to standard concrete riprap, such as honeycomb structures that form a medium for marsh plant establishment, will be used by the permittee, if determined to minimize fill and provide a stable, permanent shoreline.

The Commission generally does not require mitigation for pile-supported fill of this size used for water-oriented recreation. The Commission's Mitigation practices Guidebook states that, "mitigation has rarely been required for floating boat docks...the Commission has required mitigation for floating boat docks, however, when either construction or use of the dock(s) would adversely impact a sensitive or endangered wildlife resource..." The Guidebook also states that "mitigation has not been required for pile-supported structures associated with recreational boat docks. However, such fill have generally been small (less than 9,000 square feet )..." The Final EIR for the project found that no significant impacts to biological resources would result from the construction of the docks and boat launching platform, although indirect disturbance effects from the use of the facilities (i.e., dispersal as a result of noise and activity) will be expected...

### **3.3 Summary of Planning and Site Access Considerations**

A review of the BCDC Permit does not reveal anything that would be fundamentally inconsistent or potentially prohibitive of a ferry terminal located on a portion of Lot 13. The fact that none of the water-oriented buildings on Lots 13 – 16 have been constructed should make for easier negotiations with both BCDC and Pacific Shores regarding the detailed design, location and orientation of the ferry terminal and associated land-side improvements. The design of the terminal facility should anticipate how it would function relative to the marine sciences building, should it ever be built, as there appear to be opportunities for these two uses to be complementary and mutually supportive.



Another potential argument in support of the ferry terminal is that the 4,900 square feet and 956 cubic yards of Bay fill authorized for the aquatic center's boat dock and launching facility could potentially be 'transferred' to the ferry terminal project if Pacific Shores determines to forego that part of its permit. Thus, the amount of Bay fill required for the ferry terminal could perhaps be seen as not increasing the amount already authorized under the BCDC permit for Pacific Shores.

The issue of a potential bike trail along the boundary with the Port property does not appear to be a material problem.



## 4.0 Environmental Assessment

The assessment considered analysis of proximity and potential impacts associated with construction and operation of a ferry terminal at the Port of Redwood City. While Redwood Creek is dredged for much larger vessels and is utilized by approximately 150 large ship movements a year, as well as smaller recreational vessels, the channel is bordered by Bair and Greco Islands, which are part of a National Wildlife Refuge.

High-speed ferry transit of the channel could impact sensitive biological communities and special status species that are known to inhabit the channel and its environs. Ferry operating procedures elsewhere in the Bay Area and other areas that have utilized high-speed ferries call for reduced speed zones to mitigate the potential impacts of ferry wake wash on sensitive communities.

In order to test for potential environmental impacts, two specialist firms were engaged to prepare technical memoranda on wake wash and other environmental issues. These analyses are included as appendices and summarized below.

Coast and Harbor Engineering prepared a *Preliminary Wake Wash Impact Analysis*. The analysis methodology consisted of characterization of the shoreline based on site visit observations and analysis of existing data, numerical modeling and statistical evaluation of base conditions, analysis and characterization of proposed ferry wakes, and comparison of ferry wake potential impacts with impacts calculated for base conditions. Base conditions include the influence of current wind direction and velocity, tidal analysis, and the effects of storms and current vessel traffic. This methodology is typical for wake wash analysis.

The potential impacts of ferry wake wash on shorelines or biological resources near the site were evaluated using calculations of swash zone sediment transport (CHE, *Preliminary Wake Wash Impact Analysis*, April 1, 2007, page 1).

The analysis was based on the potential wake impacts of 35-knot catamarans operating in the Bay Area, specifically the M.V. Mendocino, operated by Golden Gate Transit. The preliminary assessment indicated that no significant shoreline impacts would be anticipated for much of the route between San Francisco or Oakland and Redwood City, including portions south of the San Mateo Bridge that were evaluated in this assessment. However, a slow-travel zone would be required specifically to minimize potential erosion impacts on Greco Island because of the presence of fine-grained material and erosive scarps at the shoreline. According to this assessment, the slow-travel zone should start at a point 2.4 km or 1.3 nautical miles from the confluence of Redwood Creek and Westpoint Slough (CHE, page 11). Operating at 8-10 knots for 1.3 nautical miles would add about 5-6 minutes to vessel travel time compared to operating at 35 knots over this route segment. Operating at this speed for an additional 1 – 1.5 miles to the alternative sites would thus add six to nine minutes to the travel time in each direction.

WRA Environmental Consultants prepared an assessment of biological resources for the proposed Redwood City ferry terminal. This assessment determines the potential for sensitive biological communities and special status species to occur at a project site based on the site

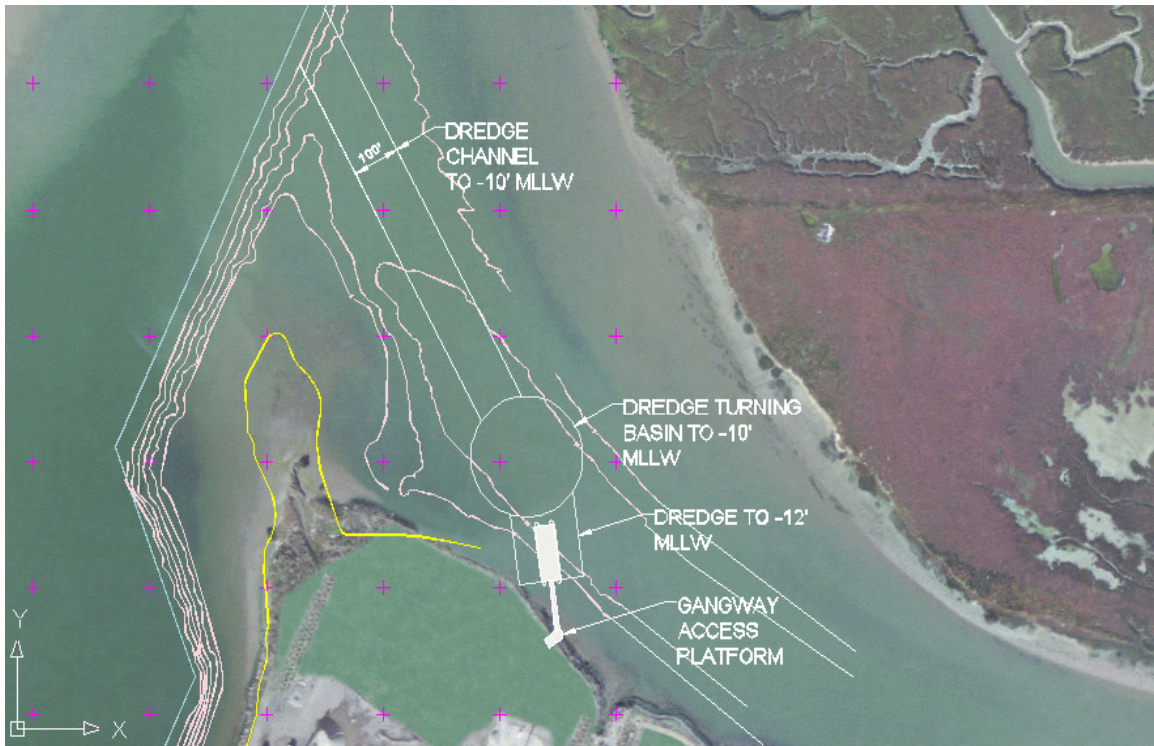
visit and review of background literature. Sensitive biological communities or special status species observed during the site visit were noted. However, the biological assessment does not constitute full protocol level surveys.

This assessment examined the preferred terminal site at Westpoint Slough and surrounding areas along the proposed ferry route for the potential presence of sensitive biological communities and special status species. The assessment also considered the alternative terminal locations described previously in this analysis. Based on the results of the biological assessment, two sensitive communities – tidal wetlands and tidal waters – are present in the project area, and the area has the potential to support Essential Fish Habitat, another sensitive biological community. The project area also contains suitable habitat for four special status plant species and 21 special status wildlife species. An additional seven special status wildlife species may occur in areas adjacent to the project area, and two special status wildlife species were observed adjacent to the project area during the site visit (WRA Environmental Consultants, Biological Resources Assessment Redwood City Ferry Terminal, June 6, 2007, page 1). The technical appendix contains a summary of potential impacts that could occur as a result of the project, and mitigation measures to compensate for those impacts. Based on the Biological Assessment, it appears that there are no “show stopper” environmental conditions, and that following Best Management Practices would allow for the construction of the Redwood City Ferry Terminal at the recommended Westpoint Slough site.

Approximately 17,000 cubic yards of material would need to be dredged to accommodate the terminal, space for vessels to maneuver, and to ensure that sufficient depth exists at the junction of Westpoint Slough and the dredged Redwood Creek channel. The dredging would be located along the south shore of Westpoint Slough to maximize the distance between ferry operations and the Greco Island shoreline located on the north side of the Slough.



**Figure 3. Proposed Terminal Location**



## 5.0 Conceptual Design, Schedule, and Funding

The Moffatt & Nichol Conceptual Design appendix lays out the parameters of the recommended terminal.

The recommended Westpoint Slough dock site currently has a long, narrow, fixed pier of 400 to 500 feet, which has been used for barges but has not been used for some time. The current lessee of the site, Cemex, has a replacement facility on the Redwood Creek side of the property that has fixed dolphins and a conveyor belt to move bulk materials to and from vessels. As shown on figures in the appendix, the uplands portion of the proposed site is presently used for storage of sand and gravel materials.

The proposed ferry terminal would include a float, gangway, gangway access platform, and backlands structures include passenger shelter, fare vending equipment, information kiosks, and potentially space for a small office. In view of the distance of the ferry terminal site from San Francisco, the WTA recommends that there be an overnight storage and maintenance facility for vessels. Preliminary discussion with Port staff indicates that such use would be better accommodated at another more industrial portion of the Port's property. Alternatively, it might be possible to have overnight storage and maintenance functions at the new Westpoint Marina.

The WTA plans to utilize a standard float design at each of its terminals, for efficiency of boarding and disembarking. This would require a float 110 feet long and 42 feet wide. Because the tidal range in Redwood City is greater than in San Francisco, a longer 92 foot gangway would be required to satisfy ADA access requirements at the full tidal range.

Figure 4 shows a potential interim facility that would provide parking for up to 254 vehicles, while Figure 5 shows a potential build-out terminal conceptual design. The interim facility would require four acres, including 2.8 acres of parking. It would be located entirely on the Port-owned property. As shown, the build-out terminal would be similar, but would require a total of 5.7 acres of which 4.5 acres would be used to accommodate 500 parked cars. Access would be provided with a counter-clockwise loop lane around the parking lot which would serve drop-off and pick-up traffic as well as space for shuttle buses and vans which would deliver and/or distribute ferry riders.

**Figure 4. Interim Ferry Terminal Concept Layout**



**Figure 5. Build-out Ferry Terminal Concept Layout**



Because the existing Seaport Boulevard is narrow and is utilized by heavy industrial trucks accessing the bulk terminals of the Port, it is recommended that vehicular access to the terminal and the parking lot should utilize the 4-lane portion of Seaport Boulevard which serves the Pacific Shores Center. Upon reaching the Pacific Shores ring road, vehicles accessing the ferry terminal would turn left and use the ring road in a clockwise direction, then turning left again onto a new access lane using the fire lane break in the berm which separates the Port property from the Pacific Shores property. The lane is located at the southwestern corner of the 65 space public access parking lot located on Lot 13 of the Pacific Shores Center, which is designated for quasi-public uses in BCDC Permit # 21-98 which allowed the development of the Pacific Shores Center. Vehicles leaving the ferry terminal would make the reverse of this movement.

Turning movement conflicts between terminal-bound vehicles and Pacific Shores Center bound vehicles appear to be minimal. Because AM peak period in-bound trips to the terminal would be occurring at the same time as AM peak period in-bound trips to the Pacific Shores Center, left-turn movements from the Pacific Shores ring road to the terminal access road would encounter minimal conflicts with out-bound traffic. Similarly, PM peak period out-bound trips from the terminal would merge without significant conflict with outbound PM peak period vehicles leaving the Pacific Shores Center.

### 5.1 Implementation Schedule

The minimum time required to complete a Redwood City Ferry Terminal would be 36-42 months assuming that funding is forthcoming and the environmental review, design and permitting, and construction proceed without delay. However, a specific schedule cannot be

developed once a funding plan is in place. Key steps and time sequence would be the following:

- Environmental Impact Report/Environmental Impact Statement: 12 to 18 months
- Final Terminal Design, Permitting, and Contracting: 12 months
- Terminal Construction: 12 months

In order to initiate service on this schedule, vessel design and construction would have to occur concurrently with terminal construction in order to complete in 12 months.

The environmental review and design of a separate Redwood City maintenance/lay berth facility should be included concurrently with terminal review and design. Construction of the maintenance/lay berth facility could lag behind the terminal if funding is limited, but should proceed as soon as funding can be procured in order to keep deadhead operating costs to a minimum. Further study should determine whether there is sufficient space and water depth to accommodate the maintenance functions at the nearby Westpoint Marina which is currently under construction.

## **5.2 Cost Estimate and Funding**

Moffatt & Nichol have prepared a concept level cost estimate for the Redwood City ferry terminal as described in this report and in Appendix 3. The terminal facilities including the waterside facilities and the parking lot and access loop are estimated to cost approximately \$13.5 million in 2007 dollars. While the estimate includes 35 percent for design and construction contingency, it is possible that future cost escalation or future environmental regulations could increase costs significantly. This cost estimate also does not include a factor for the land value. The reduction of five to six acres of land from port priority uses would reduce the potential income stream to the Port.

In addition to the operating terminal, WTA staff has suggested locating maintenance/support facilities in Redwood City. Substantial deadhead trips would be required if vessels were not based locally. Facilities should include 10,000 gallons of fuel storage, 10-15,000 square feet of office/workshop/storage space, secure parking and delivery access for five to 10 vehicles, lay berths for up to three to four vessels, and one berth for heavy work (with ability to crane an engine out). Port staff have identified a potential site between berths 4 and 5. The large fixed pier of berth 4 could accommodate a portable crane and there is room at the west end of the pier to attach a floating pier to tie up vessels for routine maintenance activities and overnight storage. According to an order of magnitude cost estimate prepared in 2005 for an eight-vessel maintenance facility at Alameda Point, a four-vessel facility at Redwood City would cost \$6 to \$9 million.

Cost Item Breakdown for terminal and Vessels

Environmental & Permitting	\$1,050,000
Terminal Design	\$1,250,000
Terminal Construction	
o Waterside	\$8,400,000
o Landside	\$2,800,000
Vessels	<u>\$25,000,000</u>
Total	\$38,500,000

Potential Funding Sources

San Mateo County Measure A	\$14,000,000
Federal Ferry Boat Discretionary	\$10,000,000
State Emergency Preparedness (SB 88)	\$12,000,000
Private contributions	\$2,500,000





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REBORNS CITY FAMILY LOUNGE 7/30/07 "TERRAZZO PAV"



100% DESIGN APPROVAL

REDWOOD COZY FERRY LAUNCH 7/30/07 "TOWARDS SHORE"

5.0



## **APPENDICES**

1. Biological Resources Assessment Redwood City Ferry Terminal  
WRA Environmental Consultants, June 6, 2007
2. Preliminary Wake Wash Impact Analysis Redwood City Ferry Terminal  
Coast & Harbor Engineering, April 1, 2007
3. Conceptual Design for the WTA Ferry Terminal at the Port of Redwood City  
Moffatt & Nichol, August x, 2007