

Tristan Bettencourt

From: corinnelouise paff [corinnelouisedesign@yahoo.com]
Sent: Thursday, January 30, 2003 1:52 PM
To: castleberry@watertransit.org
Cc: bettencourt@watertransit.org; N.laforce@attbi.com; afeinstein@goldengateaudubon.org
Subject: proposed expansion of ferry transit service to gilman street/north basin and other berkeley waters

To: WTA, Steve Castleberry, and other concerned parties

> The EIR and IOP for the proposed ferry transit service expansion to Berkeley waters, especially plans for a terminal at Gilman Street, fails to address the immediate and cumulative negative impacts that installation of such a structure and accompanying activity will have on wildlife that utilizes the rocky shore and waters of the North Basin.

>> In addition, the Plan is inadequate regarding protection of specific Species of Special Concern and Federally Endangered Species that reside and utilize this area. Failure to properly protect the habitat and these species is in contradiction to the requirements of CEQA regulations.

>> The State Parks Commission, U.S. Fish and Wildlife Services, and California Department of Fish and Game have been notified of the protected species.

>> The North Basin waters is under the jurisdiction of Eastshore State Park, whose mandate is to protect wildlife; the ferry service plans intrude into this, and ignores the fact that any activity in an area of protected species is subject to protection requirements.

>> Protected species endangered by the expansion of ferry transit service plans, because of direct disruption by ferry itself, such as problems from frequent and repeated wake action, or impacted by ferry expansion because of disruptions to habitat by increased traffic and human activity to get to area:

>> 1. Double Crested Cormorant, California Species of Special Concern, utilize the Basin waters for feeding and resting for many months of the year

>> 2. California Least Tern, Federally Endangered Species, breeds nearby, and utilizes the Basin waters for foraging for themselves and young.

>> 3. Northern Harrier nest in the Berkeley Meadow almost at the water boundary and forage throughout the meadow... increased traffic/activity will negatively impact them, perhaps to the point of disrupting and finally discouraging courting, nesting, breeding, and raising young there.

4. White Tail Kites court and forage in the meadow, and have been known to nest there... the same problems exist for them as for the Northern Harriers.

>>

Some of the Migrating waterfowl threatened by the Ferry Plans:

> >
 > > 1. Scaup, whose populations are in continent-wide
 > > decline, and who reside, feed, rest, and sleep in
 > > great numbers (hundreds at a time)
 > > 2. Ruddy Ducks; many rafts numbering in the
 > > hundreds can be seen through out the fall, winter,
 > > and spring... some continue their migrations after
 > > crucial stopovers for food and rest after journeys
 > > of thousands of miles; some remain in the area for the
 > > season.
 > > 3. Surf Scoters, whose populations are suffering
 > > a world-wide decline, dive for food and rest in the
 > > North Basin and Marina waters fall through spring.
 > > 4. Western Grebes, Clark's Grebes, Pied Billed
 > > Grebes, Horned Grebes, Eared Grebes also migrate
 > > here and use the waters, while Western Sandpipers,
 > > Least Sandpipers, Whimbrels, Curlews, Godwits, Dowitchers,
 > > Stilts, Willets, Yellowlegs, Black Turnstones,
 > > Ruddy Turnstones migrate here and use the shore
 > > and rocks at lower tide times.

> >
 > > These birds will suffer negative impact from
 > the Ferry Plan. Hundreds of birds have been
 > flushed by as few as one kayak. These and other
 > water
 > sport activities will interfere with crucial
 > feeding,
 > rest, and recuperation needs. The intensity of
 > disruption from ferry wakes and frequency of service
 > will supercede and compound those by kayak or boat.
 > If there is consistant disruption, survival can be
 > effected. How frequent and wide a width of flush will
 > result in permanent departure of rafting ducks?

> >
 > > I urge you to cease and desist from
 > > implementing this harmful and poorly conceived
 > > water usage plan.

> > > >
 > > > Thank you for your consideration.
 > > > Sincerely,
 > > > Corinne Greenberg, M.A.
 > > > Environmental Educator
 > > > Sierra Club and
 > > > Golden Gate Audubon Society
 > > > Conservation Committee Member

> > > > >
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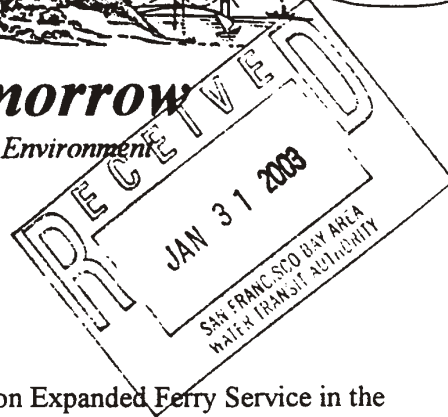


San Francisco Tomorrow

Since 1970, Working to Protect the Urban Environment

January 29th, 2002

Water Transit Authority
150 Broadway
San Francisco, CA 94111



Re: Comments on Draft Program Environmental Impact Report on Expanded Ferry Service in the San Francisco Bay Area.

Dear Commissioners:

San Francisco Tomorrow is pleased to offer the following comments on the Draft EIR for the Water Transit Authority's Ferry Service Plan, as well as the proposed Implementation and Operations Plan. These comments are meant to supplement the public comment already offered at two public hearings.

One general note on the EIR; we recommend that the tables in each chapter be placed in proximity to the descriptive text. Bunching all of the tables at the end of the chapter makes it difficult to relate facts to the narrative.

1

Alternatives

In order to accurately compare the relative impacts and benefits of ferry service, an alternative transit option should be studied that uses existing and new foreseeable land transit options to cover the same routes. Alternatives that just look at different levels of ferry service are not effective comparisons. Also, since the ferry system will be competing with other transit services for capital and operational funding, it is appropriate to compare the effectiveness of this service with other forms of transit that can carry the same ridership. For instance, in the IOP, the cost effectiveness of the ferry system is compared with various capital projects around the Bay Area. But virtually all of the ferry routes in the plan have a terminus in San Francisco, where an abundance of transit alternatives exist which could be expanded with much less capital investment. The major transit alternative to ferry service is, in most cases, Bart. Would Bart require additional capital investment to handle these customers? Would AC Transit require new equipment and new routes? The Metropolitan Transportation Commission expressed concern that this project would divert capital and operational funds from MTC projects. Analyzing a transit alternative could allay these fears.

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2.4 Terminal Function and Design

The IOP states that the new terminals will be designed as a sort of modular unit, with the same basic design to be fit into different locations. But although the EIR states that design work has

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been done, no information on the design, the footprint, or relative features are included in this document. Since this is a standardized design intended to help streamline the approval process, it is appropriate and necessary to include more information about its design features and impacts in this programmatic document.

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Dredging

A list of possible sites for beneficial reuse of dredge material is shown in Table 3.1-4, but no projected volumes for the amount of dredge material each site could accept is included. Also, landfills are noted as sites for dredge material - but what constraints are they operating under? There must be some number for the volume of dredge material that the landfills can accommodate. And if these landfills are to be listed as possible dredge material sites, this EIR must also list the possible sites at which dredge material can be located during the drying process.

7

Mitigation D.1-1 is faulty, because it state that the LTMS target volume is sufficient mitigation for the amount of dredge material. How can that be? If you build a route, but can't dredge it, the route can't be used. The amount of dredge material produced by this project is a large percentage of the target volume, so it is conceivable that dredging will regularly have to be postponed at some sites to accommodate the target volumes. What impact could that have on ferry service? What other dredge projects could be impacted if ferry routes are given preference? Is it possible in such circumstances that necessary dredging will be done and the dredge material placed at a land site until it can be disposed of? Again, possible storage sites for dredge material need to be included.

8

Impact D-4 is incomplete. Although this is a programmatic EIR, the impact of dredging activities on marine life is an extremely important issue which is barely mentioned here. There should be table of what species are likely to be impacted, whether any of those species are considered endangered, and what general BMPs could be used to mitigate the impacts.

9

I see no mention of the sustenance fishing that occurs on the shoreline throughout the Bay Area. Are any of these dredge sites adjacent to areas where sustenance fishing occurs? Will any dredging activities impact fish that are consumed by sustenance fishermen?

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Water Resources

Impact W-1 is incomplete. A major concern of environmental organizations about the ferry plan is the fact that it will bring more cars to the Bay shoreline and increase the amount of polluted runoff and air pollution entering the Bay. Nothing is done to address these concerns in this document. There is no information about the amount of runoff that would occur at the sites of the new ferry terminals and parking lots, nor is there information about the likely pollutants contained in that runoff. Since information is already available about the building design and the

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amount of parking that would be required, there is no reason why that information can't be supplied in this document. In addition, the examples of BMPs listed on Page 3.4-19 seem to apply only to construction runoff, not operational runoff. We would suggest looking at more progressive and aesthetically pleasing BMPs for the sites - such as creating stormwater wetlands at appropriate locations, routing rooftop runoff directly to the Bay or to the wetlands, and/or building vegetated swales in and around parking lots to carry and treat runoff

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Biology

Please expand the discussion of mitigation B-1.1. Is the "Goals Project" a list of wetlands restoration sites that the project would pay money to in proportion to the amount of habitat lost to construction of the terminals? And is such mitigation generally done on an acre-to-acre basis? In the general wetlands mapping that was done for this document, did it appear that any access roads might have to go through rather than around sensitive sites? If so, that is an impact that should be noted and studied in this document.

12

Figures 3.5-2 through 3.5-6 would be more helpful if the different habitat types could be distinguished. Were these meant to be color plates? While not wishing to waste public money, it would be helpful if a way could be found to differentiate these land types more clearly.

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Air Quality

Mitigation A-1.2 is confusing. The IOP states that all of the ferries used will be cleaner than required by the EPA's 2007 emission rules. But the EIR doesn't reflect this statement in its analysis. We understand the need to analyze the most conservative alternative, but the proposal in the IOP should be studied as a mitigation measure for the air quality impacts of the project. Since the impacts of ROG, CO, and SO2 are still significant with the proposed mitigation, why isn't a further mitigation measure studied - such as using zero emission vehicles?

14

For all of the impacts in this section, please consider tabulating the impacts before and after mitigation to make them easier to compare.

15

Land Use

The discussion of environmental and social justice in the EIR is interesting, but doesn't seem applicable to the project. The greatest threat of this project to minority or low income communities is not necessarily direct. Rather, this is an expensive project, construction and operation of which will divert funds that might otherwise have funded improved transit for such communities. And the beneficiaries of this project are the ridership - which has not been characterized in this document (but should be), but which might be assumed to be mostly white, mostly middle or upper middle class commuters. A more appropriate discussion in the EIR would

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be a comparison of the ridership to the adjacent communities. Will the ridership be driving through low-income communities to reach any of these sites? And what are the impacts of that increase in traffic in those neighborhoods. The impacts of increased traffic congestion and pollution in the community will be exacerbated if those in the community are unable to afford or enjoy the benefits of the service.

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San Francisco’s Ferry Building is the terminus for a majority of the ferry trips; the IOP would significantly impact the current layout of the ferry piers just built at the Ferry Building as well as the Golden Gate Ferry Terminal. Is the IOP being realistic in its use of the Ferry Building for virtually all trips into San Francisco? The EIR should analyze any potential conflicts between existing and proposed ferry service.

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Aesthetics

Mitigation V-1 1 states that the WTA has established Intermodal and Design Guidelines. They should be included in this document, at least in summary form, so that the public can comment on them.

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Transportation

The EIR lacks information on landside transportation options. Figure 3.12-1 is much too general. Since transit access to the ferry terminals is a key component in the plan, this is a significant oversight. This section of the EIR should include maps of existing transit lines, with ridership and frequency of service, and then show the impacts of ferry ridership on these lines.

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Table 3.12-16 shows the modal split of riders, and it’s obvious that several terminals will not generate sufficient traffic to support land transit. Is there adjacent development in existence or being planned for these sites? Is the creation of routes at any of these sites contingent on transit-oriented development? In a previous section, the development plans of communities adjacent to proposed terminals are listed. A similar review of the transportation plans of these communities seems like a logical inclusion in this section.

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Please clarify the meaning of Table 3.12-18 - what does “Parking Demand Percentage” mean? Does it mean that there are only enough spaces to supply 64% of the vehicles using the terminal (looking at line 1)? Another column showing the number of cars using the lot on a daily basis would be helpful.

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The EIR states that the reduction in pollution from autos as a result of this project is insignificant, while the increase in pollution from buses is significant. But this is not a correct comparison. What should be compared are actual emission figures. What is the actual projected reduction in

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emissions from autos, and is it more or less than the actual increase in emission from buses? Is the result a net increase or decrease in overall emissions as a result of this project?

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The complete lack of mitigation for the transportation impacts is disappointing, especially since a major source of our concern is the increase in Bay pollution that will occur with the increase of cars at the shoreline. While some mitigation measures may be site specific, many are common to each site, and should be listed here. For instance, the \$2 parking fee is an appropriate mitigation and should be listed as such. Other mitigation measures could include the establishment of free off-site parking lots with shuttle service (like the Golden Gate Transit Park & Ride lots), the establishment of Car Share programs at each site, free bicycle rental and/or parking, and the sale of transit passes at each terminal.

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There is no mention of pedestrian access in the EIR, even though table 3.12-16 indicates that 9000 passengers per day will be accessing the ferry terminals on foot. Of course, several of these are in urban settings that already have pedestrian amenities; but it would be nice to see standards set for pedestrian access and safety - such as traffic calming measures and speed limits on access roads and in parking lots; appropriate lighting and landscaping, and minimum sidewalk widths.

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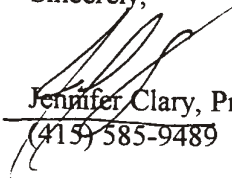
Hovercraft.

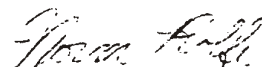
Hovercrafts are mentioned as options to dredging and wake problems, but there seems to be no analysis of this vehicle in the EIR. It would be helpful to have a table reviewing the different vehicles under consideration and their impacts.

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Thank you for the opportunity to comment on these documents. We look forward to your responses to these as well as to our oral comments.

Sincerely,


Jennifer Clary, President
(415) 585-9489


Norman Rolfe, Transportation Chair
(415) 775-9167

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EIR 223



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January 28, 2003

Thomas G. Bertken, Chief Executive Officer
San Francisco Bay Area Water Transit Authority
IOP and DEIR Comments
120 Broadway
San Francisco, CA 94111

Dear Mr. Bertken:

Ducks Unlimited, Inc. is the world's foremost private waterfowl conservation organization. We are very aware of the great importance of San Francisco Bay to wintering and migrating waterfowl of the Pacific Flyway. We have previously shared our concerns on the impact on waterfowl and wetlands of the proposed expansion of ferry service, and we provided URS Corporation with extensive scientific literature on the topic of waterfowl disturbance. Ducks Unlimited appreciates the effort that the Water Transit Authority, URS Corporation and others have put into this stage of consideration of expanded ferry transit service. However, we believe that the impacts of ferry expansion on waterfowl, wetlands and habitat have been insufficiently described and evaluated in the DEIR. Furthermore, we believe new studies of waterfowl distribution and habitat usage are necessary in order to adequately characterize these impacts.

1

The DEIR contemplates system expansion that could greatly increase ferry traffic on San Francisco Bay. This level of expansion is likely to result in more significant impacts on wildlife than the current draft acknowledges. These impacts should be assessed in greater detail in the EIR at the programmatic level. Combined impacts to these resources from a proposed ferry system expansion could be significant, even if a particular site-specific impact is not significant, and the cumulative impact might be impossible to mitigate.

2

Operation of ferries may have detrimental impact on sensitive wetland habitat and wildlife, both from their transit through waters frequented by wildlife, and from wakes that accelerate erosion of shorelines and damage fringing marshes, as well as levees that protect important wetland and salt pond habitat. Wakes may contribute to erosion of levees that are essential to current and future wetland restoration projects around San Francisco Bay. A large wetland restoration project is underway at Bair Island within the San Francisco Bay NWR, in close proximity to proposed ferry service at the Port of Redwood City. Levees at Sonoma Baylands near the mouth of the Petaluma River, and at the mouth of

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Tolay Creek are close to a proposed ferry terminal at Port Sonoma, and salt pond levees are found throughout the South Bay; these salt pond levees protect habitat that is of great value to shorebirds and waterfowl.

3

General Recommendations:

a) The EIR should analyze in greater detail the impacts of increased ferry activity on waterfowl, especially diving ducks (scaup, scoter, canvasback), that rest and forage on the open Bay. Several of the proposed ferry routes pass through the largest concentrations of waterfowl in the North and South Bays, as well as the major concentrations on the Contra Costa shoreline. This impact is not sufficiently recognized in the DEIR. A comprehensive, not site-specific, examination of the cumulative impacts on the San Francisco Bay's waterfowl population should be made now to provide public disclosure on significant system impacts and to assist in the determination of alternatives for system expansion. In order to do this, new comprehensive aerial surveys of waterfowl use patterns will be required. We recommend that veteran waterfowl biologists with USGS-BRD be funded to perform at least two years of bi-weekly surveys, using the protocols used in Accurso 1992. Such as study would provide a baseline condition for future monitoring of changes in waterfowl distribution, and assist in the development of mitigation measures.

4

b) The EIR should analyze wake impacts for each proposed route and terminal where new service or altered service may occur. Wake impact analysis should include impacts on existing tidal marsh, areas where restoration is underway, areas where restoration is planned, and levees that may provide habitat values. It is not appropriate to defer such analysis to a future site-specific EIR for a particular ferry terminal or route. Instead, that wake impact analysis should be conducted in this programmatic EIR to assist in the determination of alternatives for system expansion, and to provide public disclosure on significant system impacts.

5

c) The EIR should analyze in greater detail the impacts of dredging and ferry c) activity on the amount and quality of waterfowl and shorebird habitat. In particular, the system-wide impacts on all shallow water habitat, including mud-flats and eelgrass beds. These impacts must consider impacts from destruction of habitat, as well as the rendering of habitat as inaccessible through repeated disturbance. A comprehensive, not site-specific, examination of the cumulative impacts on the San Francisco Bay's waterfowl population should be made now to provide public disclosure on significant system impacts and to assist in the determination of alternatives for system expansion. In order to do this, new comprehensive aerial surveys of waterfowl use patterns are required.

6

Specific Recommendations re: Section 3.5 Biology

3.5.1.2 Habitat Types

Bayflats

Bayflats are used by waterfowl, for both foraging and roosting.

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Salt Ponds

Salt ponds are used by waterfowl for foraging as well as roosting. Salt ponds provide abundant populations of invertebrates (e.g. brine shrimp, brine flies, benthic mollusks, etc.) that are exploited by a wide range of waterfowl species. Three additional duck species (that are not mentioned in the DEIR) which occur on the salt ponds in large numbers are ruddy duck, bufflehead, and northern shoveller.

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3.5.1.3

North Bay

The importance of the North Bay to canvasback needs to be explicitly stated; the San Pablo Bay NWR was established by the U.S. Fish and Wildlife Service to protect wintering habitat for the canvasback. The geographic extent of the North Bay should be clearly defined; this section references the Suisun Marsh and farmed wetlands of the Delta, neither of which are typically considered part of the North Bay.

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3.5.2.6 Potential Effects on Birds

Construction could also result in loss of habitat for waterfowl.

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Ferry traffic could disturb waterfowl in the North, Central, and South Bay, as well as the Contra Costa shoreline. This impact would not be limited to the South Bay as implied on page 3.5-39. To illustrate this, we suggest you develop (and include in the final EIR) a series of figure which overlays the proposed ferry routes on the waterfowl distribution maps from Accurso (1992). This would clearly demonstrate the locations and ferry routes with the highest potential for waterfowl disturbance.

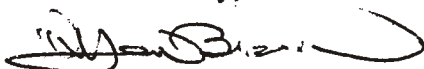
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The impact of ferry traffic on San Pablo Bay is not adequately recognized. Just because “large areas of San Pablo Bay would remain undisturbed” does not mean that the impact is not significant. Significant impacts may apply to the species that primarily use San Pablo Bay. As stated previously, the San Pablo Bay NWR was established by the U.S. Fish and Wildlife Service to protect wintering habitat for the canvasback. Canvasback populations are currently well below goals set by the North American Waterfowl Management Plan. For this reason, the U.S. Fish and Wildlife Service closed the hunting season on canvasbacks throughout the United States in 2002-2003. Protection of areas used by canvasback must be a high priority.

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Thank you for the opportunity to provide input to the WTA.

Yours Sincerely,



Ryan Broddrick
Director of Conservation, Valley Bay/CARE

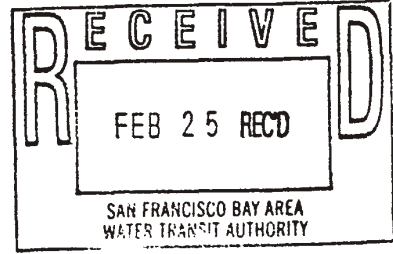
Cc: Robert Floerke, CDFG
Bob Hight, CDFG



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

February 20, 2003

EIR 224



Thomas G. Bertken
Chief Executive Officer
Water Transit Authority
120 Broadway
San Francisco, CA 94111

Dear Mr. Bertken:

The Bay Area Air Quality Management District has completed its independent air quality analysis of the Water Transit Authority (WTA) Implementation and Operations Plan (IOP). A copy of the completed analysis is enclosed. Our analysis was reviewed at public meetings held on February 13 and 19, 2003, and was approved by the Air District's Board of Directors. We believe that this analysis fulfills the requirements of the California Health and Safety Code Section 66540.22k.

1

As noted in our report, the expansion of ferry service proposed in the WTA's IOP should result in less emissions than the current passenger ferry services in the Bay Area. However, there is a potential for concentrations of nitrogen dioxide and particulate matter at the San Francisco terminal to be above state and federal ambient air quality standards.

2

We recommend that the WTA examine the potential for further reductions in emissions from future ferry vessels by scaling back non-peak service on some routes and through the use of alternative diesel fuels, such as water emulsion fuels and biodiesel. We also recommend that vessel design, pier design, and system operations be carefully planned to minimize local exposure to air pollutants and associated cancer risk.

3

I would like to express my appreciation for the efforts of you and your staff in providing technical data for our work and comments on our draft analysis. I look forward working with the WTA in its ongoing efforts to expand ferry service in the Bay Area in a manner that minimizes impacts to the region's air quality.

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Please contact Michael Murphy, Principal Planner, at 415/749-4644, if you have any questions regarding the enclosed analysis.

Sincerely,

William C. Norton
Executive Officer/APCO

Enclosure

WCN:MRM

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- ALAMEDA COUNTY
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(Chairperson)
Nate Miley
Sheila Young
- CONTRA COSTA COUNTY
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Mark Ross
Gayle Ulkema
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- SONOMA COUNTY
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Pamela Torliatt
- William C. Norton
EXECUTIVE OFFICER/APCO

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Memorandum

To: Chairperson Smith and
Members of the Mobile Source Committee

From: Thomas Perardi
Director of Planning

Date: February 6, 2003

Re: Independent Analysis of the Bay Area Water Transit Authority's
Implementation and Operations Plan

RECOMMENDED ACTION:

Consider recommending to the Board of Directors that the Executive Officer forward the Air District's independent analysis of the air quality impacts from the Bay Area Water Transit Authority's (WTA) *Implementation and Operations Plan – December 2002* to the Water Transit Authority. The WTA will include the independent analysis in their final plan to the Legislature when it is submitted in Spring 2003.

BACKGROUND

The WTA was created in 1999 by SB428 (Perata). The WTA was created to "... operate a comprehensive San Francisco Bay regional public water transit system, that includes water-transit terminals, feeder buses and any other transport and facilities supportive of the system." (Health & Safety Code §66540.24) The legislation also directed the WTA to "... prepare and adopt a San Francisco Bay Area Water Transit Implementation and Operations Plan. The plan shall include all appropriate landside, vessel, and support elements, operational and performance standards, and policies." (Health & Safety Code §66540.20) A draft Implementation and Operations Plan (IOP) was submitted to the Legislature on December 13, 2002. A final plan, along with environmental documentation, is due to the legislature by the Spring 2003.

The final plan is to be accompanied by "... an independent evaluation conducted by the Bay Area Air Quality Management District to assess the air quality impacts of the complete water transit system, as set forth in the ... Implementation and Operations Plan, in comparison to transporting the same number of people over the same distance by motor vehicles and other modes of transportation." (Health & Safety Code §66540.22(k)) This staff report represents the independent evaluation of the WTA's IOP and covers both regional and localized impacts from the proposed expansion of ferry service in the Bay Area.

SUMMARY FINDINGS

1. Implementation of the WTA's proposal will result in overall emissions that are lower than those attributable to current passenger ferry service.
2. If the future ferry service passengers used automobiles and other modes of transportation (rail, bus, carpools), regional emissions would also be less than current emissions from passenger ferry service. In comparison to the WTA's proposal, regional emissions of

oxides of nitrogen and particulate matter would be less, but hydrocarbon emissions would be higher.

3. The proposed increase in ferry service at the San Francisco Ferry Building has the potential to increase local concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀ & PM_{2.5}). Future impacts will depend on actual design of boats and piers, and future operating procedures. Based on available information and reasonable assumptions, the NO₂ concentrations could exceed California’s ambient air quality standard, unless dockside operations are limited to approximately 5 minutes per landing. The State PM₁₀ & PM_{2.5} standards are already exceeded in most urban areas of California, including San Francisco. The Air District staff’s analysis shows that the WTA proposal could add from 6 to 55% to existing concentration values, depending on pollutant, boat design, and dockside idle time. Additionally, the Air District staff’s analysis indicates that the potential for localized increases in exposure to particulate matter at the San Francisco terminal could lead to a significant increase in cancer risk. Boat design and exhaust height specifications could be used to mitigate local air quality impacts and risk.

DISCUSSION

During the two-year development of the IOP, the WTA studied four alternatives for service expansion: 1) A comprehensive region-wide system based on the Water Transit Initiative developed by the Bay Area Council and Bay Area Economic Forum; 2) an expanded region-wide system that could be implemented within 10 years; 3) enhancements to the existing ferry system; and 4) A “No-Build” scenario based on the Metropolitan Transportation Commission’s 2001 *Regional Transportation Plan (RTP)*, which envisions future ferry service to be similar to today’s ferry routes and frequencies.

The current WTA proposal in the IOP is a subset of the second studied alternative -- enhancements to services on existing routes, plus new services between San Francisco and terminals in San Mateo, Alameda, Sonoma, and Contra Costa Counties. As shown in Table 1, the WTA is proposing more frequent service on six existing routes and new service on eight routes.

**TABLE 1
PROPOSED FERRY ROUTES AND PROJECT 2025 DAILY RIDERSHIP**

Existing Routes	Oakland – Alameda – San Francisco	4032
	Bay Farm Island – San Francisco	679
	Vallejo – San Francisco	4411
	Sausalito – San Francisco	5118
	Larkspur – San Francisco	6576
	Tiburon – San Francisco	2649
New Routes	Berkeley – San Francisco – Mission Bay	2357
	Richmond – San Francisco	1780
	Treasure Island – San Francisco	2485
	Antioch/Pittsburg – Martinez – San Francisco	2038
	Hercules/Rodeo – San Francisco	933
	South San Francisco – San Francisco	2496
	Redwood City – San Francisco	1420
	Port Sonoma – San Francisco	1657
<i>Total Daily Ridership</i>		38,631

Source: WTA, *Implementation and Operations Plan – December 2002*, page2

Building on MTC's regional transportation model, WTA has projected that the IOP would result in 38,631 weekday ferry passengers in 2025 (See Table 1). This is approximately 14,000 passengers more than the ridership level projected in the 2001 RTP. The WTA assumed that ferry service would operate on an hourly basis on most routes. Service would be provided for 14 to 16 hours per day. They also assumed that bridge tolls will be \$3.00 per vehicle and that parking at BART stations will be \$2.00 per car.

Integral to the WTA's plan is the deployment of ferry vessels with engines that are 85% cleaner than the EPA's 2007 marine engine emissions standards. In making this commitment, the WTA is following the recommendations of a 1999 study by the California Air Resources Board (CARB). In their study, CARB staff projected significant increases in overall emissions unless the engines in the ferry vessels were very low emitting.

A comprehensive examination by the WTA of potential emission control technologies concluded that several different mixes of engine and fuel types could achieve the very-low-emission goals adopted by the WTA. Rather than select a preferred approach to controlling the emissions from the future ferry vessels, the WTA proposes to set forth their emission goals in the design specifications for new ferries and leave selection of engines and fuel types to the boat building industry.

Regional Air Quality Impacts

In order to assess the potential impact on regional air quality, Air District staff assessed the potential net emissions of oxides of nitrogen (NO_x), hydrocarbons (HC) and particulate matter (PM₁₀) for the following scenarios:

- 1) Existing ferry service (excluding recreational/tourist services);
- 2) IOP proposed service in 2025 with engines 85% cleaner than the EPA 2007 emissions standards;
- 3) IOP projected ferry passengers in 2025 travel by motor vehicles, buses and rail transit – with no ferry service provided.

Results of our analysis are shown in Table 2. For each scenario, Air District staff determined net emissions by estimating the emission reductions that will occur from reduced automobile travel by ferry passengers and then added back in the estimated emissions that will occur from the ferry vessels and from the transit and shuttle buses servicing the ferry terminals. A positive number in Table 2 indicates that emissions reductions achieved by removing vehicles from the roadways are exceeded by emissions from the vessels and/or buses. A negative number (shown in parentheses) indicates that the emissions reductions achieved by removing vehicles from the roadways are greater than the emissions from the vessels and buses.

TABLE 2
ESTIMATED EXISTING AND 2025 EMISSIONS (tons/day)

Scenario	NO _x	HC	PM ₁₀	PM _{2.5}
Existing ferry service (excluding recreational/tourist services)	2.32	(0.02)	0.12	0.12
IOP proposed service in 2025 with engines 85% cleaner than the EPA 2007 emissions standards	1.04	(0.42)	0.02	0.02
IOP projected ferry passengers in 2025 travel by motor vehicles, buses and rail transit – no ferry service.	0.29	0.07	0.02	0.02

* PM emissions will be fine particulate < 2.5 micrometer, so PM₁₀ = PM_{2.5}

Current weekday ferry service contributes 2.32 tons per day (t/d) of NO_x and 0.12 t/d of PM₁₀ emissions to the Bay Area, while providing a net reduction of 0.02 t/d of HC. The WTA proposed expansion of ferry service would decrease the amount of NO_x and PM₁₀ that ferry service contributes to the region, and further reduce hydrocarbon emissions. If the same number of ferry passengers as projected by the WTA instead used automobiles (either alone or as carpools) or rode on transit buses, BART and Caltrain, then regional emissions of NO_x and PM₁₀ would be further reduced, but HC emissions would increase.

While Air District staff has generally used data on ridership, service frequency and vessel characteristics provided by the WTA, there are differences in several assumptions between Air District staff's analysis and the analysis in the DEIR:

- 1) Air District staff used only weekday travel and hours of operation; the DEIR included weekend service.
- 2) Air District staff used lower daily ridership numbers, as provided by the WTA, and less frequent headways than those used in the DEIR analysis.
- 3) Air District staff assumed longer idling times for some routes, because the WTA's DEIR contained idling times on these routes of less than five minutes.
- 4) Air District assumed that the future engines would be 85% cleaner than future EPA standards, while the DEIR assumed the engines would be approximately 90% cleaner.

Despite the differences in these assumptions, the results of Air District staff's analysis show the same relative conclusions as the analysis in the WTA's DEIR and CARB's 1999 study: the deployment of very-low-emitting ferry vessels would result in a reduction of the current regional emissions attributable to passenger ferry service.

Localized Air Quality Impacts

In addition to examining the regional impacts of the WTA's IOP, Air District staff analyzed the potential for increases in localized concentrations of three pollutants – carbon monoxide (CO), NO₂ and particulate matter (both PM₁₀ and PM_{2.5}) – at the proposed ferry terminals. A review of the proposed ferry service indicated that only the San Francisco terminal would have sufficient numbers of vessel operations to warrant additional consideration. Air District staff used currently available data and computer models to predict pollutant concentrations under three scenarios: existing conditions, one that assumed idling times consistent with the

regional analysis of the IOP discussed above and another that limited dock-side idling under the IOP proposal to five minutes per vessel operation.

Methodology

The computer model chosen to predict the localized impact is an EPA Guideline Model, the Industrial Source Complex Version 3 Model. This is a Gaussian air quality model routinely used to model impacts from a variety of sources.

Two meteorological data sets were considered for use in modeling the impacts at the terminal: data from the San Francisco International Airport (SFO) and data from the Oakland International Airport (OAK). Meteorological data from other Bay Area monitoring stations were analyzed and determined not to be representative of the area around the ferry Terminal. Modeling was performed using both data sets: the latest three years available from SFO (1989-1991) and from OAK (1981-1983). Receptors were placed on all of the gates and other locations around the terminal, inland to a distance of 0.8 miles, to model exposure to passengers and others that would frequent the areas around the San Francisco terminal. Receptors were not placed over San Francisco Bay.

The Air District maintains and operates regional air monitoring stations around the Bay Area. The closest monitoring station, San Francisco - Arkansas Street, is located just 2 miles south of the Terminal. As a regional monitoring station, it is believed that the Arkansas Street monitoring station provides a good representation of the background concentrations around the San Francisco terminal area. Background PM₁₀, PM_{2.5}, CO and NO₂ data were available for the last three years (1999-2001). To represent a worst-case situation, background concentrations were assumed to remain constant into the future.

It is important to point out that this analysis of localized impacts, while complete, is only a preliminary analysis. As such it may reflect an overestimation of future pollutant concentrations. With the dedication of more resources and more site-specific information regarding meteorological and ambient air quality conditions, vessel characteristics, and terminal layout, the analysis could be refined to provide better estimates of the potential impacts.

Existing Conditions

For the analysis of the existing situation, we used the current physical layout of the San Francisco terminal and the current vessel fleet. The current fleet consists of a mix of vessel designs – single hull and catamarans – and most significantly for our analysis, varying locations of exhaust pipes. Some of the single hull vessels have exhaust pipes located mid-vessel 24 feet or higher above the water, while others have exhaust pipes located at the rear of the vessels, at about six to eight feet above the water. The catamaran vessels have their exhaust pipes either in the rear, approximately three feet above the water line, or vent exhaust into the space between the two vessel hulls. As discussed below, localized pollutant concentrations are sensitive to the location of the engine exhaust pipes: venting emissions higher above the water tends to lessen concentrations of pollutants at dockside. Emission rates for the current engines were derived from test data published by engine manufacturers and the WTA. Emission rates take into account the benefits achieved through recent engine replacements on a number of current ferry vessels via funding from the Air District's Carl Moyer Program.

Table 3 shows the predicted maximum air quality impacts for the existing fleet of vessels at the existing San Francisco Ferry terminal. Currently, concentrations of particulate matter exceed the California 24-hour and annual PM₁₀ standards and the California annual PM_{2.5} standard.

TABLE 3
MAXIMUM EXISTING CONCENTRATIONS
AT SAN FRANCISCO FERRY TERMINAL (µg/m³)

Pollutant/Averaging period	Maximum impact	Max. 3-year background	Impact plus Background ¹	California Standard	Federal Standard
CO					
1-hour	306.1	6,111	6,417	23,000	40,000
8-hour	87.3	4,090	4,177	10,000	10,000
NO ₂					
1-hour	127.2	193.6	321	470	-
annual	6.3	39.5	46	-	100
PM ₁₀					
24-hour	2.0	77.9	80	50	150
annual	0.37	26	26	20 ²	50
PM _{2.5}					
24-hour	2.0	45.1	47	-	65
annual	0.37	12.6	12.6	12 ²	15

¹ Concentrations exceeding a standard are shown in bold type

² Adopted by CARB on June 20, 2002; final approval by the Office of Administrative Law is pending.

Future Conditions – WTA IOP

For the two IOP idling scenarios, the future physical layout of the San Francisco terminal was based on a figure in the Draft IOP, published in September 2002. This layout, while very conceptual, reflects the configuration of two recently constructed gates at the terminal. Ferry vessels were modeled as point sources adjacent to each side of six gates (two ferry vessels per gate). Hourly emission rates were calculated based on the estimated number of ferry vessels per hour that would dock to load and unload passengers at each gate.

For the purposes of our analysis, we have assumed that all existing vessel would have been retired from service. Ferry vessels in 2025 would use diesel engines that are compliant with EPA's 2007 emission standards, in conjunction with selective catalytic reduction (SCR) devices and diesel particulate filters (DPF). The use of the SCR and DPF control devices would reduce NO_x and PM₁₀ from engine exhaust by at least 85%. We selected these control devices to be consistent with the DEIR and the IOP. It should be noted that by assuming the use of diesel engines, we are modeling a reasonable worst-case scenario in terms of exposure to diesel particulate. The use of other engine types and/or cleaner fuels might show different results.

Vessel characteristics were based on conceptual designs published by the WTA in the technical appendix to the IOP. The newest ferries operating on the Bay have exhaust points located approximately three feet above the water. This design was incorporated into the modeling analysis for future local impacts.

Tables 4 and 5 show the predicted maximum air quality impacts for the two future idling scenarios. Table 4 shows that for the regional analysis idling scenario the federal 24-hour and annual PM_{2.5} standards and four California ambient air quality standards could be exceeded -- the one-hour NO₂ standard, the 24-hour and annual PM₁₀ standards, and the annual PM_{2.5} standard. Table 5 shows that if the idling for each ferry is limited to a maximum of five minutes at each of the gates, the California 24-hour and annual PM₁₀ standards, and California annual PM_{2.5} standard could be exceeded; and the margins would be much smaller.

**TABLE 4
MAXIMUM CONCENTRATIONS FROM IOP
IDLING SCENARIO – WITH LOW EXHAUST HEIGHT (µg/m³)**

Pollutant/Averaging period	Maximum impact	Max. 3-year background	Impact plus Background ¹	California Standard	Federal Standard
CO					
1-hour	2,970.1	6,111	9,081	23,000	40,000
8-hour	1016.3	4,090	5,106	10,000	10,000
NO ₂					
1-hour	430.6	193.6	624.2	470	-
annual	33.8	39.5	73	-	100
PM ₁₀					
24-hour	24.3	77.9	102.2	50	150
annual	6.7	26	32.7	20 ²	50
PM _{2.5}					
24-hour	24.3	45.1	69.4	-	65
annual	6.7	12.6	19.3	12 ²	15

1 Concentrations exceeding a standard are shown in bold type.
2 Adopted by CARB on June 20, 2002; final approval by the Office of Administrative Law is pending.

**TABLE 5
MAXIMUM CONCENTRATIONS FROM IOP IDLING SCENARIO, WITH IDLING TIME
LIMITED TO 5 MINUTES – WITH LOW EXHAUST HEIGHT (µg/m³)**

Pollutant/Averaging period	Maximum impact	Max. 3-year background	Impact plus Background ¹	California Standard	Federal Standard
CO					
1-hour	927.6	6,111	7,039	23,000	40,000
8-hour	338.8	4,090	4,429	10,000	10,000
NO ₂					
1-hour	192.1	193.6	386	470	-
Annual	18.1	39.5	58	-	100
PM ₁₀					
24-hour	7.9	77.9	86	50	150
Annual	2.3	26	28	20 ²	50
PM _{2.5}					
24-hour	7.9	45.1	53	-	65
Annual	2.3	12.6	15	12 ²	15

1 Concentrations exceeding a standard are shown in bold type.
2 Adopted by CARB on June 20, 2002; final approval by the Office of Administrative Law is pending.

Health Risk Screening

A health risk screening -- consisting of a screening cancer risk analysis¹ and a chronic health risk analysis² -- was also conducted for the existing ferry service and terminal configuration, the IOP scenario, and the IOP scenario with idling limited to five minutes. Under the Air District's *CEQA Guidelines*, a project is acceptable if the associated incremental cancer risk is equal to or less than ten in a million. Additionally, a chronic hazard index of 1.0 or above is considered significant. Table 6 shows the incremental cancer risk and chronic hazard index associated with the existing conditions and the two future IOP idling scenarios.

The estimated existing incremental cancer risk from ferry operations at the San Francisco terminal currently exceeds the Air District's threshold for risk from exposure to diesel particulate matter. Incremental cancer risk is estimated to increase significantly in the future under both IOP idling scenarios because of the increase in ferry operations that is proposed by the WTA. It is estimated that there is not currently nor under the IOP scenarios significant risk for non-cancer health problems due to exposure to diesel particulate matter.

**TABLE 6
SUMMARY OF HEALTH RISK ASSESSMENT RESULTS**

	Existing idling scenario	IOP idling scenario low exhaust height	IOP scenario with idling limited to 5 minutes low exhaust height
Incremental Cancer Risk	3 in a million	58 in a million	20 in a million
Chronic Hazard Index	0.003	0.059	0.020

As noted above, the results of the health risk assessment were sensitive to the height of the exhaust pipes above the waterline. The higher location of the exhaust pipes on some of the existing vessels, as compared to the assumed height of three feet for future vessels, explains why potential cancer risk under the IOP scenarios is higher than under existing conditions. Since we estimated that future emissions would be less than under existing conditions, we would expect future cancer risk due to exposure to diesel particulate matter to also be lower than under existing conditions.

To test the assumption that the height of the exhaust pipes influenced the Incremental Cancer Risk results shown in Table 6, we conducted a separate health assessment wherein we assumed that for all three scenarios exhaust pipes were located 20 feet above the water. As can be seen from the results shown in Table 7, assuming higher exhaust heights significantly reduces the estimated Incremental Cancer Risk. It should also be noted that higher exhaust locations also should result in lower concentrations in PM₁₀ and PM_{2.5}.

Although the WTA has already committed to very-low-emission engines in future vessels, the health risk assessment suggests that additional actions and emissions controls to reduce diesel particulate may be warranted.

¹ A screening risk analysis estimates the maximum offsite cancer risk from exposure to toxic air pollutants.

² A chronic health risk analysis is used to estimate the risk of the development of long-term non-cancer health issues, such as asthma, emphysema, high blood pressure, etc. The result of this analysis is expressed in terms of a risk index to allow comparisons between different scenarios and projects.

TABLE 7
SENSITIVITY MODELING OF HEALTH RISK ASSESSMENT
 (WITH EXHAUST STACKS AT 20 FEET ABOVE THE WATER)

	Existing idling scenario	IOP idling scenario	IOP scenario with idling limited to 5 minutes
Incremental Cancer Risk	3 in a million	2.6 in a million	1.3 in a million

CONCLUSIONS

The implementation of the WTA’s IOP, including the deployment of low emitting ferry vessels, should result in a reduction of current emissions attributable to passenger ferry service. It is recommended that the WTA examine the potential for further reductions in NOx and particulate matter emissions from the ferry vessels by scaling back non-peak service on some routes and through the use of alternative diesel fuels, such as water emulsion fuels and biodiesel.

There is a potential for localized increases of concentrations of NO₂ and particulate matter (PM₁₀ and PM_{2.5}) above applicable state and federal ambient air quality standards at the San Francisco terminal. Boat design, pier design, and system operations should be carefully planned to minimize local exposure and associated cancer risk.

The WTA should specifically examine the feasibility of reducing local impacts through the use of alternative fuels and through the location of exhaust points on future ferry vessels. It is also recommended that a more thorough examination of localized impacts be conducted once the WTA’s operational plans, ferry vessel design and gate layout for the San Francisco terminal are finalized.

BUDGET CONSIDERATIONS/FINANCIAL IMPACT

Staff resources were drawn from Program 605 – Mobile Source Measures, using General Fund revenues. Subsequent work, if any, will draw upon the same resource. State law required the Air District to perform this analysis, but our requests for state funding of the work were not successful.

Respectfully submitted,

Thomas Perardi
 Director of Planning

Prepared by: Michael Murphy and Glen Long

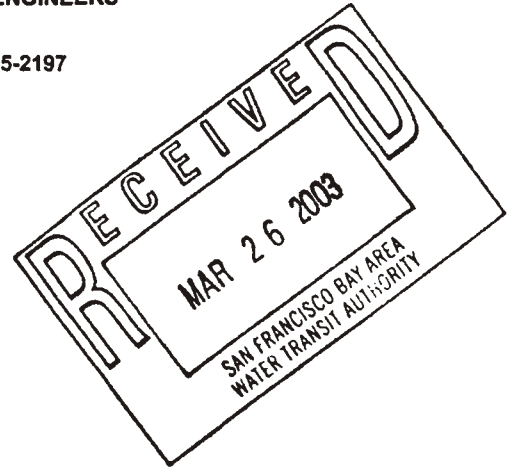
Forwarded _____

EIR 225



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
333 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94105-2197

MAR 25 2003



Regulatory Branch

SUBJECT: File Number 27272S

Mr. Thomas G. Bertken
San Francisco Bay Area Water Transit Authority (WTA)
120 Broadway
San Francisco, California 94111

Dear Mr. Bertken:

Your request for comments on behalf of the Water Transit Authority concerning the Expansion of Ferry Transit Service in the San Francisco Bay Area project, dated August 23, 2002, has been received by the Corps of Engineers. This project is located at multiple sites around the Bay area, in Marin, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco Counties, California. The construction of marine terminals and associated dock structures for ferry service facility installation will impact waters of the United States, and thus require review by the Corps of Engineers.

1

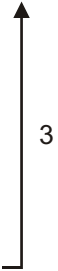
The Corps of Engineers is concerned about the environmental impacts associated with building a ferry terminal facility in Redwood City. The Corps has noticed that a number of commercial and municipal projects at the Port of Redwood City and nearby locales have been developed, are in development, or have been proposed. Previously permitted projects include the Port Yacht Harbor Public Launch Ramp Expansion Project (File # 22835S). The Corps is currently reviewing the 408-boat slip Westpoint Marina and Boatyard Project (USACE File # 22454S), and the proposal by RMC Pacific Materials (Harbor Sand and Gravel) to install mooring dolphins and a spud barge platform in Redwood Creek (File # 26735S). In the near future, Hanson Aggregates, Inc. will also apply for a permit to build a marine terminal and install spud barges on Redwood Creek (File #27694S). Lastly, with the present request it appears that the Water Transit Authority may propose to develop ferry services from Redwood City to other areas on San Francisco Bay.

2

We have concerns that these activities will result in an increase in the amount of barge, ferry, and recreational boat traffic on Redwood Creek and Westpoint Slough. In particular, this increase in boating traffic will generate additional boat wake frequency and energy, given the existing and planned activities. The high quality salt marshes of Fair and Greco Islands surround the entrance to Redwood Creek, and they form one of the shorelines of each creek. Federally protected species such as the western snowy plover (*Charadrius alexandrinus nivosus*), the California clapper rail (*Rallus longirostris obsoletus*), and the salt marsh harvest mouse (*Reithrodonomys raviventris raviventris*) are known to use these islands for breeding, nesting, and/or foraging.

3

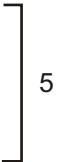
The Corps of Engineers has determined that the effects of these activities, considered together, are cumulatively significant and are likely to have an adverse impact upon the Federally protected species that reside on Bair and Greco Islands. As such, the Corps will henceforth require that all applications involving activities that will directly or indirectly result in boat traffic increases on Redwood Creek or Westpoint Slough be accompanied by an analysis of boating trends and wake impacts on these protected species and their salt marsh habitat before being given a permit.



All proposed work and/or structures extending bayward or seaward of the line on shore reached by: (1) mean high water (MHW) in tidal waters, or (2) ordinary high water in non-tidal waters designated as navigable waters of the United States, must be authorized by the Corps of Engineers pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Additionally, all work and structures proposed in unfilled portions of the interior of diked areas below former MHW must be authorized under Section 10 of the same statute.



All proposed discharges of dredged or fill material into waters of the United States must be authorized by the Corps of Engineers pursuant to Section 404 of the Clean Water Act (CWA) (33 U.S.C. 1344). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands.



Your proposed work appears to be within our jurisdiction and a permit may be required. Application for Corps authorization should be made to this office using the application form in the enclosed pamphlet. To avoid delays it is essential that you enter the file number at the top of this letter into Item No. 1. The application must include plans showing the location, extent and character of the proposed activity, prepared in accordance with the requirements contained in this pamphlet. You should note, in planning your work, that upon receipt of a properly completed application and plans, it may be necessary to advertise the proposed work by issuing a public notice for a period of 30 days.



If an individual permit is required, it will be necessary for you to demonstrate to the Corps that your proposed fill is necessary because there are no practicable alternatives, as outlined in the U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines. A copy is enclosed to aid you in preparation of this alternative analysis.

Should you have any questions regarding this matter, please call Andrew Muss of our Regulatory Branch at 415-977-8442. Please address all correspondence to the Regulatory Branch and refer to the file number at the head of this letter.

Sincerely,

Handwritten signature of Edward A. Wylie in black ink.

Edward A. Wylie
Chief, South Section

Enclosures

Copy Furnished (w/o encl.):

US FWS, Sacramento, CA Attn: Dan Buford