

# **Errata for the Final Program Environmental Impact Report and Public Comments and Responses**

**Expansion of Ferry Transit Service in the  
San Francisco Bay Area**

*Prepared by:*  
**URS Corporation**

*July 2003*

*Prepared for:*  
**WATER TRANSIT AUTHORITY**



## **PREFACE**

This document includes minor technical changes and additions to the Final Environmental Impact Report (FEIR) and Public Comments and Responses issued by the Water Transit Authority in June 2003. These changes were made as a result of comments received after the close of the formal comment period on May 16, 2003. The changes were made following consultation with the individuals who made the comments, and were considered and reviewed by the WTA Board of Directors prior to their taking action on the Final EIR and Statement of Overriding Considerations in July 2003. The following pages present the text changes in the FEIR as a result of the comments.

## CHANGES TO THE FEIR TEXT

### EXECUTIVE SUMMARY

**Table ES-1, page ES-13, Impact WW-1, Level Of Significance After Mitigation is amended to read:**

L (Less Than Significant)

### SECTION 3.2 NAVIGATION

**Section 3.2.1.4 page 3.2-7, paragraph 2 under “Vessel Incidents” is amended to read:**

Baseline statistics for incidents on the Bay were obtained from the VTS website for 1997, 1998, and 1999. The data were evaluated to determine the number of incidents per ~~1,000~~ 100,000 transits. The total average yearly transits and the incidents per ~~1,000~~ 100,000 transits were compared to other ports of both larger and smaller size than San Francisco Bay. These ports include Berwick Bay, Houston/Galveston, New York, Sault Sainte Marie, and Los Angeles/Long Beach (Table 3.2.4). This comparison shows that the number of vessel incidents varies widely and independently of the number of vessel transits. On San Francisco Bay, the average number of collisions per ~~1,000~~ 100,000 transits is 1. Four near misses, 2 groundings, and 5 allisions (an allision occurs when a moving vessel strikes an inanimate object such as a pier) occur on average for every ~~1,000~~ 100,000 transits on the Bay. Vessel incidents are recorded and reported as “casualties,” a broadly applied term that technically includes violations of load lines and discharge of garbage, personal injury, or property damage.

**Section 3.2.1.4 page 3.2-7, Footnote 2 is amended to read:**

Approximately 31 vessel casualties occur for every ~~1,000~~ 100,000 transits, Title 46 Code of Federal Regulations (CFR) Part 4 defines a reportable marine casualty as: (1) groundings - whether intentional or not; (2) bridge strikes; (3) loss of main propulsion, steering, or associated components, which resulted in a reduction of a vessel's maneuverability; or (4) occurrences affecting seaworthiness or fitness for service (fire, flooding, lifesaving equip, bilge pumping, etc.); (5) loss of life; (6) injury: (a) beyond first aid or (b) to a crew-member on commercial vessel unfit for routine duties; (7) damage to property greater than \$25,000; (8) alleged misconduct or negligence by Coast Guard licensed, certified, or documented members of the Merchant Marine; (9) damage to aids to navigation; (10) certain recreational boating deaths, waterfront facility casualties, and others as directed; (11) reports of load line violations; and (12) marine pollution: discharges of oil, hazardous materials, or garbage into the navigable waters of the United States.

### SECTION 3.3 WAKE WASH

#### **Section 3.3.2.2, page 3.3-12, Impact After Mitigation (WW-1) is amended to read:**

Impact WW-1 would be less than significant with successful implementation of one or more of the above mitigation measures (or other site-specific mitigations such as shoreline protection). ~~However, if there are situations where it is not possible to implement the mitigation measures, impacts would be potentially significant. The proposed routes with potentially significant erosional wake wash impacts could be removed from consideration or terminal locations could be changed. Until final routes and terminal locations are determined, this impact is considered potentially significant.~~

~~The routes that are most likely to have unmitigable wake wash impacts are those traversing the Carquinez Strait to Pittsburg/Antioch. These routes are within 1,500 meters of the shoreline and adjacent to long stretches of tidal marsh. Site specific studies of the existing natural wave climate and wake wash from existing vessels would be required to determine whether impacts would be significant. Use of low wake vessels may be feasible for this route, but site specific study would be required to make that determination.~~

### SECTION 3.5 BIOLOGY

#### **Section 3.5.2.6, page 3.5-40, 1st full paragraph, last 2 sentences are amended to read:**

~~This disturbance would not result in a permanent loss of habitat, but rather the area of habitat where disturbance may take place. Waterfowl may use these areas when ferries are not present.~~

This disturbance would result in a permanent abandonment of the disturbance area by waterfowl as long as the ferry service is in existence. This is equivalent to a loss of habitat.

#### **Section 3.5.2.6, page 3.5-40, Mitigation B-11.2 is amended to read:**

Response of waterfowl to new ferry routes in shallow North and South Bay roosting, rafting, and foraging habitat shall be evaluated by monitoring. Evaluation could include observations of ferry operations and waterfowl responses by an authority such as the Point Reyes Bird Observatory (PRBO). If such evaluation reveals impacts to waterfowl then the following mitigations should be implemented; 1) The CDFG should be consulted to identify possible rerouting so as to avoid the impacts to these roosting, foraging or rafting areas or, 2) If rerouting proves infeasible, then compensatory mitigation should be implemented consisting of the creation of new roosting, rafting or foraging waterfowl habitat. Examples of such compensatory mitigation are the removal of abandoned piles and piers in the Bay or through other means of restoring Bay waters.

## CHANGES TO RESPONSES TO PUBLIC COMMENTS

### **Comment Response ROUTES-6 is amended to read:**

~~The Proposed Project does not include at terminal at Berkeley/Gilman. As noted in the DEIR (DEIR at 2-4), Alternatives 1 and 2, which potentially could include a terminal at the Gilman or Buchanan Street sites, have numerous potentially significant impacts beyond those of the proposed project. For this reason, the DEIR found that Alternatives 1 and 2 would not meet CEQA's requirements that alternatives be designed to reduce or avoid project impacts. Further, Alternatives 1 and 2 could not be determined to be feasible without extensive additional study (ibid.) For this reason, the EIR has not fully evaluated the potential impacts of a terminal site at Gilman or Buchanan Street.~~

If, at some future time, the WTA determined to further consider a Gilman or Buchanan Street terminal, it would be necessary to fully study the impacts related to such a project, including those identified in the comment. Further, it appears that mitigation of the already identified impacts at these sites (e.g., erosion impacts – see DEIR Figure 3.3.3) would require compromises to project service and/or cost that might make such service infeasible. For a Gilman or Buchanan Street terminal to merit further project-level analysis, all these issues would need to first be fully addressed.

### **Comment Response ROUTES - 29 is amended to read:**

~~The DEIR identified potentially significant impacts of a Gilman Ferry terminal. These included wake wash (Figure 3.3.2), impacts on rafting birds (Figure 3.5.7), and dredging impacts (Figure 3.1.3). These impacts would all be lessened or eliminated by locating the terminal at University rather than at Gilman. Ridership to a University terminal would be different than that to a Gilman terminal. However, since the WTA's ridership forecasts identified a significant number of riders from Emeryville to a Berkeley terminal, it is not clear whether the change in ridership will be significant. A future site specific EIR will need to evaluate a number of alternative sites, and would likely include further analysis of sites at Buchanan and Gilman. Those studies would analyze issues such as access, parking availability, variations in ridership, as well as environmental issues. Without that site specific analysis which might identify advantages of sites other than University, it did not appear appropriate to make findings of over riding concern related to the significant environmental impacts of a Gilman terminal site.~~

A future site specific EIR will need to evaluate the Berkeley route(s) and associated terminal. The project level EIR will consider those issues that could not be fully addressed at the general programmatic level, including potential ridership and catchment area and specific project impacts. However, the impacts identified for the Gilman or Buchanan Ferry terminal site are unlikely to be any more mitigable at the project level. Selection of a Gilman or Buchanan Street terminal would therefore require adoption of a Statement of Overriding Considerations. Such a statement would be difficult to support, given the feasibility and lesser impacts of the University Avenue terminal site.

Thus, unless conditions change significantly from those studied in the DEIR, it appears that a Gilman or Buchanan Street terminal would not meet CEQA's requirements that

alternatives be designed to reduce or avoid project impacts. (See DEIR's discussion of Alternatives 1 and 2 at page 2-4.)

If, at some future time, the WTA determined to further consider a Gilman or Buchanan Street terminal, it would also be necessary to fully study the impacts related to such a project. Further, it appears that mitigation of the already identified impacts at these sites (e.g., erosion impacts – see DEIR Figure 3.3.3; see also letter EIR 1004, comment 5) would require compromises to project service and/or cost that might make such service infeasible. For a Gilman or Buchanan Street terminal to merit further project-level analysis, all these issues would need to first be fully addressed.

**Comment Response PROJ-72 is amended to read:**

The purpose and need of the WTA ferry expansion plan is to "increase Bay Area regional mobility and transportation options by providing new and expanded water transit services and related ground transportation terminal access in the San Francisco Bay Area". This mission was developed based on legislative direction including Section 66540.24 of the WTA's enabling legislation, which states "The primary focus of the authority shall be the provision of services through the development and operation of a comprehensive water transit system".

As part of the project planning, the WTA evaluated ferry expansion in comparison to several alternative mode investments that were developed by MTC and other transportation planning organizations. This evaluation, summarized in Table 2.2, looked primarily at cost effectiveness measures of ferries compared to other transit investments. In general, most of the other transit investments included in the table are feasible, cost effective, and will reduce vehicle travel in the bridge corridors. For that reason, the express bus/BART capacity, TSM, and Smart Growth alternatives are being further investigated and pursued for implementation by other transportation agencies, such as MTC. In addition, the WTA does not have the jurisdiction to implement the non-ferry alternatives. The merit of these other projects do not diminish the ferry expansion's ability to increase regional mobility and transportation options. For that reason, investments in other modes were not considered further in this document, but are being pursued by other appropriate agencies.

Because it would not be the lead agency to implement those alternatives, this EIR has not given in depth consideration to the potential impacts of the non-ferry project alternatives described in Section 2 of the EIR. Any consideration of the relative merits of the Proposed Project compared to the non-ferry alternatives sketched out in the EIR would require a full analysis of potential benefits and impacts. Such an analysis was beyond the scope of this EIR.





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To Tristan	From S. Baiguera		
Cc/Dept WTA	Co. BAQMID		
Pages 1	Page 2		

Ms. Charlene Haught Johnson  
San Francisco Bay Area Water Transit Authority  
120 Broadway  
San Francisco, CA 94111

Subject: Water Transit Authority Revised Draft Program Environmental Impact Report

Dear Ms. Haught Johnson:

On November 25, 2002, Bay Area Air Quality Management District (District) staff submitted a comment letter in response to the Water Transit Authority's (WTA) Draft Program Environmental Impact Report (DEIR) for the expansion of ferry transit service in the San Francisco Bay Area. The DEIR and the Draft Implementation & Operations Plan (IOP) describe expanded water transit systems for the region. District staff have received a Revised DEIR, and we have the following comments.

We note considerable improvement in the organization and readability of the Revised DEIR and are especially pleased that the WTA has included the IOP ferry system as the proposed project alternative. This provides a logical comparison between the environmental impacts from the proposed project and no project alternatives. We are also glad that your agency included a copy of the District's Independent Analysis of the WTA's Implementation and Operations Plan in the Revised DEIR (*Appendix AIR-B*). Our analysis was approved by our Board of Directors on February 19, 2003, and we believe it fulfills the requirements specified by the California Health and Safety Code Section 66540.22k. As noted in our report, we concluded that the expansion of ferry service proposed in the WTA's IOP should result in less emissions than the current passenger ferry system.

While the Revised DEIR is an improvement over the earlier environmental document, we still have some questions about the WTA's analysis. First, the *Program Description* section does not mention the Alcatraz route; however this route is included in the *Air Quality* section and *Table 3.6.1*, which summarizes the proposed ferry power usage. Please clarify whether the Alcatraz route is considered part of the proposed project.

In our November 25, 2002 comment letter, we recommended a discussion of the air quality impacts from dredging. The Revised DEIR still does not address this issue. According to the *Dredging* section, the proposed project alternative would call for construction dredging at the Hercules/Rodeo terminal, amounting to approximately 49,830 cubic yards of dredged material. The kinds of dredging tools listed in *Table 3.1.2* are primarily diesel powered, and with continuous use, can lead to significant particulate matter emissions. We urge the WTA to require the





Ms. Charlene Haught Johnson

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May 13, 2003

implementation of all feasible control measures. Some of our suggested mitigations include: use diesel oxidation catalyst or particulate filters on dredging equipment; use alternatively fueled equipment (CNG, biodiesel, water emulsion fuel, electric); minimize idling time of equipment; maintain properly tuned equipment; and limit hours of operation of heavy duty equipment.

As we mentioned in our earlier comment letter, we are concerned about potential land use conflicts that might arise from the development of new terminals and residential units in areas with existing sources of air pollutants. Air quality problems arise when sources of air pollution and sensitive receptors are located near one another. If there are nearby industrial uses, ferry riders and new residents may be affected by odors, dust, and diesel exhaust impacts from activities associated with those existing uses. Citizen complaints can lead to nuisance cases that are difficult and expensive to resolve. We suggest that the WTA's environmental document contain a screening level analysis of potential land use conflicts between existing sources of pollutants/odors and proposed terminals and residences. A screening level analysis will indicate if more detailed review will be needed in subsequent site-specific environmental impact reviews.

In our independent analysis, we assumed that an appropriate No Project Alternative would use regional vehicle miles traveled (VMT) projections from the Metropolitan Transportation Commission's most recent Regional Transportation Plan (RTP) as the most likely scenario for future transportation projects and activity in the region. However, in reviewing MTC's 2001 RTP, we note that their No Project VMT figures for 2025 are significantly higher than those listed in your Revised DEIR. This leads us to believe that the WTA has a different set of assumptions about the No Project Alternative than what has been forecasted in the RTP. We recommend that the WTA's environmental document and the IOP use MTC's estimates for the No Project Alternative or provide an explanation for using different estimates.

As we commented in our earlier letter, the WTA should provide more information about the assumptions that were made concerning the transportation modal split for the proposed project. For example, the IOP states that the WTA has conducted ridership surveys which conclude that the new ferry system will "draw most of its riders from vehicles and that these are people who have proved unwilling to regularly use other forms of transit." However, *Table 3.12.3* shows ridership changes by alternative between different transit modes. The figures indicate that ridership from the majority of existing transit modes will decrease with the implementation of a more robust ferry service (except for an increase in commuter rail), indicating there would be a significant number of riders switching to ferries from other transit modes. Figures from *Tables 3.12.3* and *3.12.4* seem inconsistent, because the projected change in ridership on other forms of transit (12,243 riders) and the number of automobile trips reduced (9,058 trips) do not add up to the approximate number of projected new ferry riders (36,974 according to the Revised DEIR). We suggest that the WTA better explain the projected effect of the proposed ferry system on transit ridership, and how the WTA came to the conclusion that the majority of new ferry riders would come from single-occupant vehicles.

We are encouraged that the WTA intends to minimize cold-start emissions with *Mitigation A-2.1* which states that "cold-start emissions shall be reduced by encouraging non-drive access at the ferry terminals." However, it is not clear how this parking-related mitigation measure will be implemented. The amount of potential available parking spaces at the ferry



Ms. Charlene Haught Johnson

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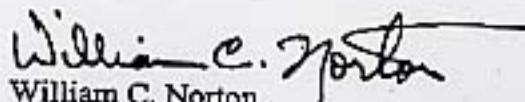
May 13, 2003

terminals and the projected demand for those parking spaces is provided in *Table 3.12.6*. However those demand figures do not coincide with the number of riders who are projected to be accessing the terminals in automobiles (*Table 3.12.5*). Please provide clarification about how many riders are expected to drive to and park at ferry terminals. According to the details provided in the earlier DEIR and its technical appendices, the WTA's ridership model is predicated on providing ample parking at the majority of the ferry terminals. Again, if this mitigation measure includes a reduction in the amount of available parking, the environmental document should analyze the effect upon projected ferry ridership.

The DEIR analysis estimates the overall mode split for accessing the ferry terminals to be: 66% drive, 16% bus/rail and 18% walk/bike. The WTA's environmental document should clearly show how these figures were determined and how they fit into the concept of creating more transit-oriented development near existing and new ferry terminals. If there is an expectation that a majority of ferry riders will be driving to terminals, please give more detail on how the areas surrounding terminals can provide adequate parking and also be appropriately transit-oriented.

If you have any questions regarding these comments, please contact Michael Murphy, Principal Planner, at (415) 749-4644 or Suzanne Bourguignon, Environmental Planner, at (415) 749-5093.

Sincerely,



William C. Norton  
Executive Officer/ APCO

WN:SB

cc: BAAQMD Board of Directors

## WTA

June 27, 2003

William Norton  
Executive Director  
BAAQMD  
939 Ellis Street  
San Francisco, CA 94109

Thank you for your comments addressing the revised draft Environmental Impact Report (EIR) dated April 2003, which addresses WTA's proposed Implementation and Operations Plan (IOP) to expand ferry service on the San Francisco Bay. We note that the BAAQMD letter is dated May 13, 2003. However, because the comment letter was addressed to the WTA Board President, the WTA point of contact designated to receive all EIR comment letters did not receive the BAAQMD letter until after the close of the comment period. The BAAQMD letter was faxed to the WTA point of contact on June 20, 2003.

We are very appreciative of the input provided by BAAQMD throughout the IOP and EIR planning process. Enclosed you will find WTA's responses to the comments submitted by BAAQMD on the April 2003 EIR. Please note that because these comments were received by the WTA point of contact after the close of the comment period, they were not included in the final EIR. However, the BAAQMD comments and comment responses will be entered into the administrative record during the next WTA Board meeting, and incorporated into the final EIR as an addendum.

Again, thank you for your review and input. If you have any questions please call Steve Castleberry at 415/291-3377.

Sincerely,

Thomas Bertken  
Chief Executive Officer



**Comment:** We note considerable improvement in the organization and readability of the Revised DEIR and are especially pleased that the WTA has included the IOP ferry system as the proposed project alternative. This provides a logical comparison between the environmental impacts from the proposed project and no project alternatives. We are also glad that your agency included a copy of the District's Independent Analysis of the WTA's Implementation and Operations Plan in the Revised DEIR (Appendix AIR-B). Our analysis was approved by our Board of Directors on February 19, 2003, and we believe it fulfills the requirements specified by the California Health and Safety Code Section 66540.22k. As noted in our report, we concluded that the expansion of ferry service proposed in the WTA's IOP should result in less emissions than the current passenger ferry system.

While the Revised DEIR is an improvement over the earlier environmental document, we still have some questions about the WTA's analysis. First, the Program Description section does not mention the Alcatraz route; however this route is included in the Air Quality section and Table 3.6.1, which summarizes the proposed ferry power usage. Please clarify whether the Alcatraz route is considered part of the proposed project.

**Response:**

Ferry service to Alcatraz is existing service. It is not, therefore, part of the Proposed Project. For the Air Quality analysis, emissions and energy usage from service to Alcatraz were included in all alternatives (including the No Project Alternative), as this service is anticipated to continue regardless of whether the Proposed Project is implemented.

**Comment:** In our November 25, 2002 comment letter, we recommended a discussion of the air quality impacts from dredging. The Revised DEIR still does not address this issue. According to the Dredging section, the proposed project alternative would call for construction dredging at the Hercules/Rodeo terminal, amounting to approximately 49,830 cubic yards of dredged material. The kinds of dredging tools listed in Table 3.1.2 are primarily diesel powered, and with continuous use, can lead to significant particulate matter emissions. We urge the WTA to require the implementation of all feasible control measures. Some of our suggested mitigations include: use diesel oxidation catalyst or particulate filters on dredging equipment; use alternatively fueled equipment (CNG, biodiesel, water emulsion fuel, electric); minimize idling time of equipment; maintain properly tuned equipment; and limit hours of operation of heavy duty equipment.

**Response:**

Evaluation of emissions from potential dredging has been included in the FEIR under Air Impact A-8. The impact states "Equipment and boats used for dredging of the harbor at the Hercules/Rodeo terminal would emit criteria air pollutants. These emissions would exceed the significance thresholds of 80 pounds per day for NO<sub>x</sub>, ROG, and PM<sub>10</sub> listed in the BAAQMD CEQA Guidelines." An analysis is included in the FEIR, which



concludes "Dredging for the Proposed Project would emit criteria air pollutants. These emissions would exceed the significance thresholds of 80 pounds per day for NO<sub>x</sub>, ROG, and PM<sub>10</sub> listed in the BAAQMD CEQA Guidelines. The exceedences would occur for approximately 12 days every 3 to 6 years. This is a potentially significant impact."

Two mitigation measures were included:

Mitigation A-8.1: Minimize required dredging for construction and maintenance, both in terms of dredge volume and maintenance dredging interval.

Mitigation A-8.2: Utilize dredging contractors with the best available emission controls on their equipment.

Impact After Mitigation: With implementation of Mitigations A-8.1 and A-8.2, Impact A-8 would be less than significant.

The additional suggestions included in the comment could be evaluated for implementation on specific projects.

**Comment:** As we mentioned in our earlier comment letter, we are concerned about potential land use conflicts that might arise from the development of new terminals and residential units in areas with existing sources of air pollutants. Air quality problems arise when sources of air pollution and sensitive receptors are located near one another. If there are nearby industrial uses, ferry riders and new residents may be affected by odors, dust, and diesel exhaust impacts from activities associated with those existing uses. Citizen complaints can lead to nuisance cases that are difficult and expensive to resolve. We suggest that the WTA's environmental document contain a screening level analysis of potential land use conflicts between existing sources of pollutants/odors and proposed terminals and residences. A screening level analysis will indicate if more detailed review will be needed in subsequent site-specific environmental impact reviews.

**Response:**

The FEIR does not include a screening level analysis of proposed terminal sites as the specific locations have not been finalized. Analysis of these potential impacts would be performed on a site specific basis once specific terminal locations and ferry services are proposed.

**Comment:** In our independent analysis, we assumed that an appropriate No Project Alternative would use regional vehicle miles traveled (VMT) projections from the Metropolitan Transportation Commission's most recent Regional Transportation Plan (RTP) as the most likely scenario for future transportation projects and activity in the region. However, in reviewing MTC's 2001 RTP, we note that their No Project VMT figures for 2025 are significantly higher than those listed in your Revised DEIR. This



leads us to believe that the WTA has a different set of assumptions about the No Project Alternative than what has been forecasted in the RTP. We recommend that the WTA's environmental document and the IOP use MTC's estimates for the No Project Alternative or provide an explanation for using different estimates.

**Response:**

Following publication of the DEIR, in a follow-up to consultation with MTC, the WTA did a comparison of VMT for the 2025 No Project Alternative between the WTA ferry ridership model and the MTC regional travel model (Cambridge Systematics, memorandum dated December 3, 2002). There are some differences in the results of each model, based on differences that are inherent in the model structures. The WTA model was developed using TransBay travel behavior and was designed to capture the TransBay trip movements compared to observed data. The WTA model relies on trip generation and distribution components of the MTC model for input. A direct comparison of the 2025 No Project output of both models shows that the WTA model predicts lower VMT compared to the MTC model by about 10 percent regionwide. This difference is primarily due to a lower prediction of vehicle trips in the mode-choice model and because the trips that are associated with the lower estimate are generally longer trips. The differences between the VMT results are considered reasonable based on the objective of the WTA model and the results of model validation.

**Comment:** As we commented in our earlier letter, the WTA should provide more information about the assumptions that were made concerning the transportation modal split for the proposed project. For example, the IOP states that the WTA has conducted ridership surveys which conclude that the new ferry system will "draw most of its riders from vehicles and that these are people who have proved unwilling to regularly use other forms of transit." However, Table 3.12.3 shows ridership changes by alternative between different transit modes. The figures indicate that ridership from the majority of existing transit modes will decrease with the implementation of a more robust ferry service (except for an increase in commuter rail), indicating there would be a significant number of riders switching to ferries from other transit modes. Figures from Tables 3.12.3 and 3.12.4 seem inconsistent, because the projected change in ridership on other forms of transit (12,243 riders) and the number of automobile trips reduced (9,058 trips) do not add up to the approximate number of projected new ferry riders (36,974 according to the Revised DEIR). We suggest that the WTA better explain the projected effect of the proposed ferry system on transit ridership, and how the WTA came to the conclusion that the majority of new ferry riders would come from single-occupant vehicles.

**Response:** The mode split, or percentage of commuters predicted to travel by each mode of transit, car, or pedestrian/bike is a result of the travel model output. The WTA developed a mode choice model specific to the water transit expansion project, based, among other factors, on survey results regarding peoples preferences about which forms of travel they would prefer to use, if available, to access terminals. These choices were applied in the model that generated the percentages by mode estimated to access the



terminals. These percentages are listed in FEIR Table 3.12.12 for all of the terminals considered. The proportion of each access mode (walk, drive, transit) listed in the table does vary by ferry route and terminal.

**Comment:** We are encouraged that the WTA intends to minimize cold-start emissions with Mitigation A-2.1 which states that "cold-start emissions shall be reduced by encouraging non-drive access at the ferry terminals." However, it is not clear how this parking-related mitigation measure will be implemented.

**Response:**

Encouraging non-drive access to terminals has been included in Transportation Mitigation T-2.2 in the FEIR, which states: Non-drive access could be encouraged through measures such as charging fees for parking, provision of preferential parking for carpools and vanpools, comprehensive shuttle access, land use scenarios that encourage non-drive access, and encouraging bicycle and pedestrian access.

**Comment:** The amount of potential available parking spaces at the ferry terminals and the projected demand for those parking spaces is provided in Table 3.12.6. However, those demand figures do not coincide with the number of riders who are projected to be accessing the terminals in automobiles (Table 3.12.5). Please provide clarification about how many riders are expected to drive to and park at ferry terminals.

**Response:**

Tables 3.12.5 and 3.12.6 in the Revised DEIR are now Tables 3.12.12 and 3.12.13 in the FEIR. For clarity, in Table 3.12.13, Proposed Project parking demand percentage has been replaced with Proposed Project parking demand in the FEIR. Available parking and parking demand are reported by number of parking spaces. Drive access is reported by number of people. Parking demand was developed from data on numbers of drive trips to a ferry terminal and factors from the on-board survey data that allowed conversion of those trips into numbers of vehicle that would park at a ferry terminal. These factors were derived for existing ferry terminals and applied to all terminals in a corridor for future alternatives. Average auto occupancy of drive access trips was applied to drive access trips to produce drive access vehicles for all ferry terminals. (The vehicle occupancy rate varies from site to site but varies between 1.5 and 2.) Trips that would park outside the ferry terminals (percent overflow) and trips that drive to the station to drop someone off (percent kiss and ride) were subtracted from the overall total of vehicles that would park at a station to produce the number of vehicles that would park on site.

This is described in more detail in the *Ridership Model Forecasts Draft Working Paper* prepared for the WTA by Cambridge Systematics. The paper is included as an appendix to the IOP and on the WTA website.

**Comment:** According to the details provided in the earlier DEIR and its technical appendices, the WTA's ridership model is predicated on providing ample parking at the majority of the ferry terminals. Again, if this mitigation measure includes a reduction in the amount of available parking, the environmental document should analyze the effect upon projected ferry ridership.

**Response:**

Reduction of available parking could lower potential ridership. However, encouraging carpooling, use of shuttle buses, and use of public transportation should not lower ridership. In addition, based on market based ridership studies, the WTA believes that a targeted marketing effort could increase ridership beyond the current forecasts. Potential impacts of possible mitigation measures would be analyzed on a site specific basis.

**Comment:** The DEIR analysis estimates the overall mode split for accessing the ferry terminals to be: 66% drive, 16% bus/rail and 18% walk/bike. The WTA's environmental document should clearly show how these figures were determined and how they fit into the concept of creating more transit-oriented development near existing and new ferry terminals. If there is an expectation that a majority of ferry riders will be driving to terminals, please give more detail on how the areas surrounding terminals can provide adequate parking and also be appropriately transit-oriented.

**Response:**

Mode splits are described in the *Ridership Model Forecasts Draft Working Paper* prepared for the WTA by Cambridge Systematics. The paper is included as an appendix to the IOP and on the WTA website.





Winston H. Hickox  
Agency Secretary

## Air Resources Board

Alan C. Lloyd, Ph.D.  
Chairman

1001 I Street • P.O. Box 2815 • Sacramento, California 95812 • [www.arb.ca.gov](http://www.arb.ca.gov)



Gray Davis  
Governor

EIR 1022



May 15, 2003

Ms. Charlene Haught Johnson  
San Francisco Bay Area Water Transit Authority  
120 Broadway  
San Francisco, California 94111

Dear Ms. Haught Johnson:

Thank you for providing us with the opportunity to review and comment on the revised draft Program Environmental Impact Report (EIR) prepared for the proposed expansion of the ferry transit service in the San Francisco Bay Area. Our review of the EIR was limited to the revised subject matter pertaining to air quality issues, since we understand that our previous comments on the earlier draft will also be addressed in the Final EIR.

Overall, we are supportive of revision to the EIR, which now focuses on the proposed project described in the Implementation and Operations Plan (IOP). In particular, we applaud the commitment to ferries that will exceed EPA's 2007 Tier II air quality standards by 85 percent, as described in Section 2 of the EIR. However, we do have one comment on the analysis in section 3.6. It appears from the discussion under "Ferry Emissions," that the air quality impacts are based on a 90 percent reduction in nitrogen oxides, and a 95 percent reduction in PM<sub>10</sub>. These higher emission reduction figures may alter the impacts of the project (see Impacts A-1, A-3, A-4, A-6). We suggest the analysis be based on the 85 percent emission reduction specified in the "Proposed Project," or else redefine the Proposed Project with these higher emission reductions.

Thank you again for this opportunity to provide comments. If you have any questions about our comments, please contact Mr. Daniel E. Donohoue, Chief of the Emissions Assessment Branch, at (916) 322-6023, or by email at [ddonohou@arb.ca.gov](mailto:ddonohou@arb.ca.gov).

Sincerely,

/s/

Peter D. Venturini, Chief  
Stationary Source Division

cc: Mr. Daniel E. Donohoue, Chief  
Emissions Assessment Branch  
Air Resources Board

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Website: <http://www.arb.ca.gov>.*

California Environmental Protection Agency





Paton H. Hickox  
Agency Secretary

# Air Resources Board

Alan C. Lloyd, Ph.D.  
Chairman

1001 I Street • P.O. Box 2815 • Sacramento, California 95812 • [www.arb.ca.gov](http://www.arb.ca.gov)

EIR #151



Gray Davis  
Governor

October 23, 2002

Ms. Charlene Haught Johnson  
San Francisco Bay Area Water Transit Authority  
120 Broadway  
San Francisco, California 94111



Dear Ms. Haught Johnson:

Thank you for providing us with the opportunity to review and comment on the draft Program Environmental Impact Report (EIR) and Implementation and Operations Plan (IOP) prepared for the proposed expansion of the ferry transit service in the San Francisco Bay Area. Our review of these documents was limited to the subject matter pertaining to air quality issues, and we have provided some technical comments in the enclosure to this letter, which we hope will be helpful.

As you know, air quality is intrinsically linked to transportation and land use decisions. Though California has successfully reduced mobile source smog-forming pollutants since the 1970's through new vehicle and fuel technologies, those gains have been eroded by dramatic growth in population and vehicle miles traveled (VMT). Reducing the growth in VMT is challenging, however research has helped demonstrate that one way to slow growth is to give people more transportation choices – choices that enrich their lifestyles and make their communities more livable and healthy. It has been our experience, however, that new transit services of any kind must be the cleanest possible in order to benefit clean air.

With that said, we want to commend WTA's effort to expand ferry transit in the San Francisco Bay Area and for the commitment to build the fleet at an emissions standard that is 85 percent lower than the United States Environmental Protection Agency's Tier II standards. We also want to acknowledge WTA's efforts to develop zero-emission ferries. For California to meet its long-term air quality goals, it is critical to move beyond traditional technologies to zero- and near-zero emissions technologies. Clearly putting a transit system in operation that demonstrates state-of-the-art emission control technology and the development of zero-emission ferries will help achieve our air quality goals and be a model for other regions to follow.

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Website: <http://www.arb.ca.gov>*

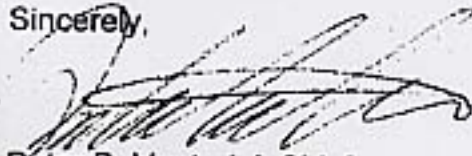
California Environmental Protection Agency

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Ms. Charlene Haught Johnson  
October 23, 2002  
Page 2

Thank you again for this opportunity to provide comments. If you have any questions about our comments, please contact Mr. Daniel E. Donohoue, Chief of the Emissions Assessment Branch, at (916) 322-6023, or by email at [ddonohou@arb.ca.gov](mailto:ddonohou@arb.ca.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Peter D. Venturini", written over a circular embossed seal.

Peter D. Venturini, Chief  
Stationary Source Division

Enclosure

cc: Mr. Daniel E. Donohoue, Chief  
Emissions Assessment Branch  
Air Resources Board



# **Comments on San Francisco Bay Area Water Transit Authority's Implementation and Operations Plan and Program Environmental Impact Report**

## **Comments on the Implementation and Operations Plan (IOP)**

### **Air Quality Benefits of the Proposed Ferry Expansion:**

There are several statements throughout the IOP describing the proposed expanded ferry service as a "strategy to improve air quality." However, there is no technical data in the IOP to support that claim, and it does not appear that the data in the EIR supports this claim (see comments on EIR below). In the event the WTA has technical data to support the claim, we recommend the IOP include that information, or reference the appropriate documents. If such data is available, we suggest adding an additional question to the IOP, such as "How and to what extent will the IOP improve air quality in the Bay Area?" In the event the data does not support this claim, we recommend the IOP place emphasis on the other positive aspects of the project.

In addition, while the IOP reflects a strong commitment to an 85% emission reduction goal below EPA Tier 2 standards, the EIR presents a different view. The ferry project emissions in section 3.6 under the section "Ferry Emissions" in the EIR are estimated assuming only that the EPA Tier 2 standards would be in effect. Under this scenario, all of the proposed ferry projects are correctly assumed to result in significant air quality impacts. The use of selective catalytic reduction and particulate traps (which could achieve an 85% emission reduction) is only listed as one possible mitigation option, not a commitment. We continue to believe that the best available technology should be used in the ferries. It has been our experience that new transit services of any kind must be the cleanest possible in order to benefit clean air.

### **In-Service Emissions Testing**

In Chapter 5, it is reported that the existing fleet of ferries is cleaner than previously reported. We do not believe the data presented in the IOP substantiates this. In particular, we have the following concerns with Figure 23 in the IOP, which compares reported in-use emissions values (based on the report entitled "Measurement of Air Pollutant Emissions from In-Service Passenger Ferries") to published values.

- All of the in-use values are based on the "high-speed cruise" operating condition, which generally results in the lowest emissions value on a grams per horsepower-hour basis. There appears to be no attempt to



incorporate the other operating conditions and arrive at a composite emission factor, which is the convention for reporting emissions factors. For example, the "published" oxides of nitrogen (NOx) emission factor in Figure 23 for the Cummins KTA 50 is based on the ISO 8178 E3 Cycle, which is a composite value using engine power at loads of 25%, 50%, 75% and 100%.

- References are not provided for the "published" values, making it difficult to verify their accuracy, and the conditions under which they were generated. Of the three engines, we were only able to find published data for the NOx emissions of the Cummins KTA 50 engine. Information was also provided to us by a Bay Area marine dealer on the MTU engine that is inconsistent with the published values in Figure 23.
- According to the emissions report prepared for the WTA by Engine, Fuel, and Emissions Engineering, Incorporated, the in-use particulate matter (PM) emission value for the Caterpillar engine is based on emulsified diesel fuel instead of conventional diesel fuel.
- The in-use hydrocarbon (HC) emissions value for the Cummins engine in the IOP does not correspond to the value in the emissions report prepared for the WTA by Engine, Fuel, and Emissions Engineering, Incorporated.
- The in-use emissions values presented in the IOP were generated using a testing methodology different from the standard laboratory testing for marine engines. The in-use testing methodology (referred to as "ride-along vehicle emission measurement" system or "RAVEM") has not been fully correlated to reference laboratory methods. Until this correlation is completed, it may not be correct to assume that the in-use emissions values based on the RAVEM test method most accurately represent the marine fleet's "true" emissions. It is possible that the test method itself is not as accurate as test procedures conducted in a laboratory setting (although satisfactory given the constraints of in-use testing).

## **Comments on the Program Environmental Impact Report (EIR)**

### **Emissions Estimates for Ferry Expansion Alternatives**

More information is needed to understand how the emissions figures provided in Tables 3.6-5, 3.6-6, and 3.6-7 were derived. In addition, it appears there are errors in the figures provided. For example, in Table 3.6-6, a *decrease* in NOx and PM is estimated for ferries under the expansion project termed "Reduced Routes" Alternative 2, as compared to the "No Project" scenario. It appears that the only way it is possible to achieve an overall emission reduction with more ferries (and disregarding cars and buses) is to add SCR and Traps to all ferries --



both for *existing* routes and the expanded routes the WTA is proposing. Our understanding is that the project does not include retrofit controls on ferries serving the existing routes.

#### Dredging

Due to the significant amount of dredging that would be required under ferry expansion alternatives #1 and #2, we recommend that the air quality impact of dredging operations be included in the EIR under either section 3.1, "Dredging," or section 3.6, "Air Quality." We also recommend that mitigation measures be investigated. Since most dredges are diesel powered, many of the same emission control options investigated for vessels in the John J. McMullen Associates, Incorporated report entitled "New Technologies and Alternative Fuels" could be applied to dredges. For example, selective catalytic reduction is being used to control NOx emissions on some dredges in California. Another option is electrically-powered dredges, which have been used at the Port of Oakland, and in other areas.

#### Auxiliary Engines

It is not clear in the EIR whether the ferry emissions figures include the emissions from on-board diesel generators. If not, we suggest the WTA include these emissions and their impacts in section 3.6 of the EIR, and investigate mitigation measures such as those investigated for vessels in the John J. McMullen Associates, Incorporated report entitled "New Technologies and Alternative Fuels."

## WTA

June 27, 2003

Mike Kenny  
Executive Director  
CARB  
1001 "I" Street  
PO Box 2815  
Sacramento, CA 95812

Thank you for your input and follow-up regarding ARB comments on the draft Environmental Impact Report (EIR) addressing the WTA's proposed Implementation and Operations Plan (IOP), which will expand ferry service on the San Francisco Bay. The ARB submitted a comment letter dated October 23, 2002 that addressed the August 2002 version of the draft EIR. Our understanding is that this letter was intended to include an enclosure that was inadvertently omitted from the transmittal. That enclosure, which includes comments on both the IOP and the EIR, was forwarded by ARB to the WTA on June 20, 2003.

ARB also submitted a comment letter dated May 15, 2003 which addressed the revised/recirculated draft EIR dated April 2003. Because this letter was addressed to the WTA Board President, WTA's designated point of contact did not receive this letter until after the close of the comment period.

WTA appreciates the input provided by the ARB. In that regard, we have drafted the attached responses to the comments submitted by ARB, which address both the draft (August 2002) and revised draft (April 2003) EIR. Because these comments were received by the WTA point of contact after the close of the comment period, they were not included in the FEIR. However, please note that they will be entered into the administrative record during the next WTA Board meeting and incorporated into the final EIR as an addendum.

Again, thank you for your review and input. If you have any questions please call Steve Castleberry at 415/291-3377.

Sincerely,

Thomas Bertken  
Chief Executive Officer



Revised Draft EIR Comments (ARB 5/15/03)

**Comment:** Thank you for providing us with the opportunity to review and comment on the revised draft Program Environmental Impact Report (EIR) prepared for the proposed expansion of the ferry transit service in the San Francisco Bay Area. Our review of the EIR was limited to the revised subject matter pertaining to air quality issues, since we understand that our previous comments on the earlier draft will also be addressed in the Final EIR.

Overall, we are supportive of revision to the EIR, which now focuses on the proposed project described in the Implementation and Operations Plan (IOP). In particular, we applaud the commitment to ferries that will exceed EPA's 2007 Tier II air quality standards by 85 percent, as described in Section 2 of the EIR. However, we do have one comment on the analysis in section 3.6. It appears from the discussion under "Ferry Emissions," that the air quality impacts are based on a 90 percent reduction in nitrogen oxides, and a 95 percent reduction in PM<sub>10</sub>. These higher emission reduction figures may alter the impacts of the project (see Impacts A-1, A-3, A-4, A-6). We suggest the analysis be based on the 85 percent emission reduction specked in the "Proposed Project," or else redefine the Proposed Project with these higher emission reductions.

**Response:**

In the DEIR, use of SCR and PM traps was included as mitigations for air quality impacts. As described under "Ferry Emissions" in Section 3.6.2 of the FEIR, ferry emissions were estimated assuming that USEPA Tier 2 standards would be in effect. These standards require that new diesel engines manufactured after the year 2007 meet lower emissions requirements than current diesel engines. The assumption was that all ferries in the year 2025, with or without the project, would have engines that would at least meet the USEPA Tier 2 standards. With the Proposed Project, the ferries would also have control devices to reduce the levels of NO<sub>x</sub> and PM<sub>10</sub>. Selective catalytic reduction (SCR) and particulate traps would reduce NO<sub>x</sub> emissions to 10 percent of Tier 2 levels and PM<sub>10</sub> emissions to 5 percent of Tier 2 levels. Therefore, for the Proposed Project emissions were assumed to be at least 85% below Tier 2 standards. These standards are included in the WTA Vessel Specifications. The WTA has mandated an emission target of 85% below EPA Tier 2 (2007) standards and the Vessel Performance Specification reflect this mandate.



Draft EIR Comments (ARB 10/23 Enclosure)

**Comment:** More information is needed to understand how the emissions figures provided in Tables 3.6-5, 3.6-6, and 3.6-7 were derived. In addition, it appears there are errors in the figures provided. For example, in Table 3.6-6, a decrease in NO<sub>x</sub> and PM is estimated for ferries under the expansion project termed "Reduced Routes" Alternative 2, as compared to the "No Project" scenario.

**Response:**

In the DEIR, use of SCR and PM traps was included as mitigations for air quality impacts. As described under "Ferry Emissions" in Section 3.6.2 of the FEIR, ferry emissions were estimated assuming that USEPA Tier 2 standards would be in effect. These standards require that new diesel engines manufactured after the year 2007 meet lower emissions requirements than current diesel engines. The assumption was that all ferries in the year 2025, with or without the project, would have engines that would at least meet the USEPA Tier 2 standards. With the Proposed Project, the ferries would also have control devices to reduce the levels of NO<sub>x</sub> and PM<sub>10</sub>. Selective catalytic reduction (SCR) and particulate traps would reduce NO<sub>x</sub> emissions to 10 percent of Tier 2 levels and PM<sub>10</sub> emissions to 5 percent of Tier 2 levels. Therefore, for the Proposed Project emissions were assumed to be at least 85% below Tier 2 standards. These standards are included in the WTA Vessel Specifications. The WTA has mandated an emission target of 85% below EPA Tier 2 (2007) standards and the Vessel Performance Specification reflect this mandate.

**Comment:** It appears that the only way it is possible to achieve an overall emission reduction with more ferries (and disregarding cars and buses) is to add SCR and Traps to all ferries, both for existing routes and the expanded routes the WTA is proposing. Our understanding is that the project does not include retrofit controls on ferries serving the existing routes.

**Response:**

The Proposed Project includes increased service on some existing routes. The WTA does not have the authority to mandate requirements, such as SCR and PM traps for existing ferry service and vessels. Existing operators would be affected by the WTA recommendations only if they wanted to use the WTA's program EIR to cover future expanded service. However, the WTA will seek to work cooperatively with the operators of those services in implementing recommendations contained in the IOP as they may apply to their operations.

**Comment:** Due to the significant amount of dredging that would be required under ferry expansion alternatives #1 and #2, we recommend that the air quality impact of dredging operations be included in the EIR under either section 3.1, "Dredging," or section 3.6,



"Air Quality," We also recommend that mitigation measures be investigated. Since most dredges are diesel powered, many of the same emission control options investigated for vessels in the John J. McMullen Associates, Incorporated report entitled "New Technologies and Alternative Fuels" could be applied to dredges. For example, selective catalytic reduction is being used to control NO<sub>x</sub> emissions on some dredges in California. Another option is electrically-powered dredges, which have been used at the Port of Oakland, and in other areas.

**Response:**

Evaluation of emissions from potential dredging has been included in the FEIR under Air Impact A-8. The impact states "Equipment and boats used for dredging of the harbor at the Hercules/Rodeo terminal would emit criteria air pollutants. These emissions would exceed the significance thresholds of 80 pounds per day for NO<sub>x</sub>, ROG, and PM<sub>10</sub> listed in the BAAQMD CEQA Guidelines." An analysis is included in the FEIR, which concludes "Dredging for the Proposed Project would emit criteria air pollutants. These emissions would exceed the significance thresholds of 80 pounds per day for NO<sub>x</sub>, ROG, and PM<sub>10</sub> listed in the BAAQMD CEQA Guidelines. The exceedences would occur for approximately 12 days every 3 to 6 years. This is a potentially significant impact."

Two mitigation measures were included:

Mitigation A-8.1: Minimize required dredging for construction and maintenance, both in terms of dredge volume and maintenance dredging interval.

Mitigation A-8.2: Utilize dredging contractors with the best available emission controls on their equipment.

Impact After Mitigation: With implementation of Mitigations A-8.1 and A-8.2, Impact A-8 would be less than significant.

**Comment:** It is not clear in the EIR whether the ferry emissions figures include the emissions from on-board diesel generators. If not, we suggest the WTA include these emissions and their impacts in section 3.6 of the EIR, and investigate mitigation measures such as those investigated for vessels in the John J. McMullen Associates, Incorporated report entitled "New Technologies and Alternative Fuels."

**Response:**

On-board generator power was considered negligible compared to the power output of the ferry engines (e.g. 100 kW of generator power compared to roughly 2,400 kW of engine power). As such, emissions from these generators would be negligible as well when compared to emissions from the ferry engines.



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