

This document addresses the potential environmental impacts and mitigation of those impacts resulting from expansion of ferry service defined in the San Francisco Bay Area Water Transit Authority's (WTA) December 2002 Implementation and Operations Plan (IOP). The IOP defines a focused set of routes, terminals, and service improvements for expanded ferry service that will be presented to the California Legislature in 2003, in accordance with the implementing legislation that originally established the WTA.

## 1.1 INTRODUCTION

When the California Legislature created and directed the WTA to adopt a ferry transit expansion plan, no direction or funding was made available at the time to develop or implement specific routes, terminals, or other associated elements. Once the overall program was defined, priorities would be determined for further action. Therefore, this document is a program Environmental Impact Report (EIR), prepared to comply with the California Environmental Quality Act (CEQA). CEQA defines a program EIR as "an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either:

1. Geographically;
2. A logical part in the chain of contemplated actions;
3. In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
4. As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways"(CEQA Guidelines Section 15168).

The WTA's program has elements of all of the above criteria, which effectively summarize the overall proposed action.

1. The proposed program considers alternatives that can expand ferry transit use throughout the greater San Francisco Bay Area.
2. The individual elements of the program are part of a potential series of actions consisting of new routes, terminals, and design criteria that can be implemented as ridership, funding, environmental mitigation, and local interest and planning successfully merge.
3. This proposed expansion of water transit service has been designed to advance in connection with the implementation of the IOP and the studies that support it, which are summarized below.
4. Finally, many of the actions associated with expanded ferry transit service have similar impacts, and can and should be studied in similar ways over a regional area to provide a basis for consistent evaluation and consideration of regional cumulative impacts.

This FEIR and the associated IOP are *not* the final steps in the consideration, evaluation, and possible advancement of expanded ferry transit service. Section 2 of this FEIR describes the alternatives, each of which is a regionwide set of routes, terminals, and service. The routes and terminals are identified and evaluated at a generalized level, and have intentionally not been specifically defined in this FEIR or in the IOP. As routes or terminals are advanced for further consideration, they would be further defined based on site-specific studies and evaluations, may

be subject to subsequent environmental review consistent with CEQA, and, if federal approval or involvement is necessary, may require environmental review consistent with the National Environmental Policy Act (NEPA).

As noted above, this FEIR is part of number of studies performed by WTA specifically to evaluate the need and feasibility of expanded ferry transit service. Other WTA-sponsored studies include topics such as the following:

- Ridership surveys and modeling that estimate potential demand for and use of an expanded system;
- New technologies, alternative fuels, and the range of engine, fuel, and propulsion options;
- Architectural criteria, addressing the overall design concepts for terminals (appearance and function);
- Intermodal criteria, addressing recommendations for compatibility and linkage with other passenger and transit modes and systems;
- Vessel criteria, dealing with the design options for the passenger vessel fleet;
- Safety plan, regarding recommendations and plans for safe operation of the system; and
- Financial plan, addressing the cost and economic feasibility of system expansion and operation.

These studies can be found at the WTA website, [www.watertransit.org](http://www.watertransit.org), or by contacting the WTA at:

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120 Broadway  
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The following subsections describe the purpose and objectives of the WTA program and the need and background for expanded ferry service in the Bay Area. The system alternatives, including routes and terminals, are described in Section 2. Section 3 describes and evaluates the environmental setting, impacts, and mitigation by subject area or discipline. Section 4 evaluates growth inducement potential and other environmental impact issues. Section 5 evaluates impacts and mitigation for other ferry alternatives that were initially considered. Section 6 lists the primary consultation and coordination activities involved with the EIR process and lists the preparers of this FEIR. Section 7 provides a list of acronyms and technical terms used in this document. Technical appendices appear under separate cover. Public comments to the DEIR and revised DEIR and the WTA's responses to those comments are included as a separate volume.

## 1.2 PURPOSE AND OBJECTIVES

The primary purpose of the WTA IOP 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.

### **1.3 NEED FOR THE PROPOSED PLAN**

The existing Bay Area transportation network of roads, bridges, rail and bus systems, and ferry service must include plans for future expansion to serve existing and planned growth. The Bay Area is home to a highly diverse population and historically strong economic activity that is served by a complex transportation network. The existing transportation system is overwhelmed at many locations during peak periods, especially those routes and systems that cross the Bay. The ability to expand the capacity of this system is limited by many factors, among them funding and environmental constraints. In addition, commute patterns within the Bay Area are extremely diverse as housing and job centers have increasingly become geographically widespread. These issues all contribute to a need to plan for further improvements to and options for the region's existing transportation systems.

The WTA Bay Area ferry system expansion plan addresses several major Bay Area transportation needs and problems. The following sections describe each of these issues.

#### **1.3.1 Bay Area Highway System is Unable to Meet Current and Future Demand**

The 1990s witnessed one of the greatest economic expansions in decades. With an imbalance in the number of new jobs compared to the number of new housing units, people are commuting long distances, with the result of rising levels of travel on all of the region's highways, rail, and transit systems. Between now and 2025, the Bay Area is projected to gain 1.4 million residents and 1.2 million jobs (MTC 2001). This is a population increase of 19 percent and a job number increase of 33 percent. This projected imbalance of jobs and housing will lead to a net in-commute of some 300,000 workers a day from outside of the region, an increase of more than 75 percent from about 170,000 net in-commute daily trips in 2000.

Travel by Bay Area highway commuters has steadily risen by nearly 20 percent in total vehicle miles traveled between 1990 and 2000, and it is predicted to increase by about 48 percent from 2000 to 2025 (MTC 2001). The average hours per day of delay is predicted to increase by 248 percent between 1990 and 2020. In its 2002 San Francisco Bay Crossing Study, the Metropolitan Transportation Commission (MTC) predicted that the next 25 years may experience a 30 percent increase in regionwide travel and a 40 percent increase in transbay travel. The result of this congestion is an increase in travel time for Bay Area motorists. MTC's Regional Transportation Plan (RTP) estimates that an automobile trip from Mountain View to Hayward in the afternoon peak period, a distance of about 25 miles, commonly takes about 74 minutes (20 miles per hour [mph]). A trip from Union City to Moffett Field will take about 50 minutes by 2020. The RTP also estimates that the San Rafael to San Francisco commute will increase from an average of 41 minutes to 62 minutes by 2020 and that the Oakland to San Francisco trip time will slow from 34 minutes to 51 minutes. Overall, the average commute time in the Bay Area is expected to increase by about 25 percent between 2000 and 2025. Travel delays at current conditions already result in substantial frustration among the region's motorists; a 2001 MTC survey found that over 70 percent of Bay Area residents considered traffic, transportation, and congestion among their major issues of concern.

#### **1.3.2 Transbay BART and Bridges Are at Capacity**

Of the 10 worst Bay Area congestion locations, three involve approaches to the Bay bridges.

Furthermore, daily transbay trips over the Bay bridges are expected to increase by more than 46 percent in 2025. More specifically, daily transbay travel is expected to increase 42.5 percent over the San Francisco-Oakland Bay Bridge (Bay Bridge) corridor (including bridge traffic, Bay Area Rapid Transit [BART] and ferries), 47.8 percent over the San Mateo and Dumbarton Bridges, and 79.1 percent over the Richmond-San Rafael Bridge (MTC 2001).

MTC has nearly completed its San Francisco Bay Crossings Study and issued draft findings in July 2002. The evaluation identified operational strategies such as expanded bus and carpool networks that could help and be relatively inexpensive. Recommendations for further study included improvements to the approaches of the Dumbarton Bridge, new carpool lanes and carpool connections, and improving the capacity at existing BART stations. Major long-term projects such as a new mid-Bay bridge, widening of the San Mateo-Hayward Bridge, and rail line improvements were noted as having high costs and potential environmental and community constraints.

BART serves crossbay destinations very effectively and carries a substantial number of passengers. The BART transbay tube currently has a capacity of 30 trains per hour – only eight more than BART currently operates during the peak hour. MTC’s Bay Crossings Study noted that the BART system will be able to handle demand between now and 2025, but capacity of the transbay trains and San Francisco stations will be a concern in the future.

In the last 10 years, the number of vehicles crossing the Bay Bridge has increased by more than 30,000 per day, or about 12 percent. Total daily travel along the Bay Bridge corridor is about 274,000 vehicles on the bridges, approximately 134,000 BART passengers, 14,000 AC Transit bus passengers, and 4,000 ferry passengers (Vallejo, Alameda/Oakland, and Harbor Bay Isle). Even a 10 percent increase in vehicle counts in the next 10 years (less than one percent annually) would generate about 28,000 new trips, severely limiting travel in the corridor even with improvements planned by BART and AC Transit.

### **1.3.3 Coping with Accidents, Natural Disasters, and Other Travel Disruptions**

Millions of dollars are being invested in the Bay Area transportation system to strengthen bridges, highways, and rail systems to minimize damage from major earthquakes. The Bay Area is crossed by a number of active faults, including the San Andreas and Hayward faults, which are capable of causing significant damage. An earthquake on the San Andreas Fault (the Loma Prieta event in 1989) caused significant temporary damage to the Bay Bridge, and commuters shifted to other options including ferry service. Since 1979, a number of events have disrupted travel across the Bay, resulting in significant use of ferry service:

- 1979 BART tube fire
- 1982 Marin County mudslides (Golden Gate Bridge)
- 1989 Loma Prieta earthquake (Bay Bridge)
- 1997 BART strike
- 1998 BART power outage
- 2001 Events Related to Terrorist Threats in the Bay Area (Bay and Golden Gate Bridges)

These situations have underscored the viability and important benefits of having a variety of transportation options that include ferry services.

Water transit also has the greatest ability to serve as a primary transportation service in times of emergency – such as a major earthquake – because of its inherent flexibility. It is also less likely than other transportation modes to experience severe damage and disruption. On September 11, 2001, the New York Waterway ferry service responded to the destruction of the World Trade Center towers with 23 of their 24-boat fleet within 15 minutes of the attack. Ferry service helped to evacuate more than 160,000 people from Manhattan that day, including over 2,000 injured persons within the first hour. This compares to an average daily service of about 34,000 (Smith 2001). Prepared with a comprehensive water transit system in place, the Bay Area will be better poised to respond to and cope with disruptive events.

## **1.4 BACKGROUND**

### **1.4.1 Establishment of WTA for Expansion of Water Transit System in the Bay Area**

During 1996 and 1997, the Bay Area Council (BAC) and the Bay Area Economic Forum (BAEF) cooperatively convened a wide spectrum of regional experts, stakeholders, and key decision-makers in a series of symposia, interviews, and fact-finding sessions to discuss transportation and mobility problems and the potential role of a water transit system in the Bay Area. These efforts resulted in the California State Senate unanimously passing Senate Resolution 19, which directed the BAC and the BAEF to form a Blue Ribbon Task Force to study and explore the feasibility of greatly expanding water transportation in the Bay Area.

The 52-person Blue Ribbon Task Force assembled by the BAC and the BAEF launched the Bay Area Water Transit Initiative. Together, the Task Force guided the production of the “Action Plan” and investigated whether a viable water transit plan could be developed that would add significant capacity to the regional transportation system, improve mobility, relieve congestion, and provide a viable alternative to driving alone, while minimizing environmental impacts. Based on its investigation, analyses, and public input, the Blue Ribbon Task Force recommended creation of an authority that would oversee expansion of ferry service in the Bay Area.

The WTA was established as a direct consequence of legislation developed from recommendations contained in the Bay Area Water Transit Initiative Action Plan. The charter of the WTA is to develop a Bay Area water transit IOP. The WTA was not granted the authority to implement specific projects at this time. The legislation also does not restrict future implementation of routes or terminals; specific projects could be implemented by others not under WTA jurisdiction.

### **1.4.2 Summary of Legislation**

Based on the recommendations given in the Action Plan developed by the Blue Ribbon Task Force, the California Senate passed Senate Bill No. 428 (Chapter 1011 of the Statutes of 1999), which created the WTA and empowered it to develop a water transit plan for the Bay Area. Funding for the Authority is provided in Chapter 656 of the Statutes of 2000.

As a result of this legislation, WTA is required to prepare and adopt a Bay Area water transit implementation and operations plan, and to operate a comprehensive Bay Area regional public

water transit system. This plan will include all appropriate landside, vessel, and support elements, operational and performance standards, and policies. As part of the preparation of the plan, WTA will review and consider, in addition to other materials and information, the findings presented in the document entitled “San Francisco Bay Area Water Transit Initiative,” dated February 1999, prepared by the BAC and the BAEF. The adoption of the plan will be subject to public hearings within the Bay Area, and will be reviewed by the MTC.

The primary focus of WTA and its plan will be to provide new or expanded water transit and related ground transportation terminal access services that were not in operation as of June 30, 1999. As part of the implementation planning and operations, WTA will seek cooperative involvement from existing water transit services and related ground transportation agencies in whose jurisdictions existing or planned water transit terminals are located. Additionally, WTA will avoid impacting water transit services and related ground transportation terminal access services that were in existence as of June 30, 1999.

In connection with the plan, WTA is required to produce a system-wide program EIR and study of the plan, in accordance with the requirements of CEQA. Although the plan does not require formal approval by a federal agency, it should also be consistent with NEPA.

### **1.4.3 History of Ferry Service in the Bay Area**

At one time, the Bay Area had one of the most extensive water transit systems in the world. From the Gold Rush until the completion of the Bay and Golden Gate Bridges, ferries provided the only transportation of goods and people across the Bay waters. In addition to playing an important transportation role in the development of the Bay Area, ferries also served recreational purposes.

The first recorded ferry system on the Bay was established in 1850. By the late 1800s, 22 passenger cross-bay ferry companies were in operation, and five other companies carried only automobiles. Together, the ferries served approximately 30 destinations, about half of them on the San Francisco-Oakland corridor. By the early 1900s most ferry operators had consolidated, and in 1921, the three largest ferry operators together carried about 49 million passengers in the Bay Area.

The ferry transit service peaked between 1935 and 1936, with 50 to 60 million people crossing the Bay annually on almost 50 ferries. Scores of ferry routes traveled between San Francisco and the East and North Bays, and ferries traveled as far north and east on the Bay as Vallejo, Benicia, and Martinez. During this time, San Francisco’s Ferry Building had 250,000 passengers flowing through it on a daily basis. On the waterside, ferries made 340 arrivals and departures daily. On the landside, connecting streetcars left every 20 seconds.

The demise of the ferries started with the building of the Golden Gate and Bay Bridges in the 1930s. By 1958, ferry service on the Bay had ceased. Moreover, regulations related to construction of the bridges and the rapid growth of automobile use discouraged entrepreneurs from operating ferry services.

By the late 1950s and early 1960s, the Legislature recognized that congestion within the Bay Area, especially on bridges crossing the Bay, would reach a critical stage and authorized the BART system. The BART transbay tube was paid for with bridge tolls, as compensation for the two bridge railway tracks removed from the lower deck in the early 1960s.

Over time, assisted by mounting traffic congestion, transit system emergencies and natural disasters (most notably the 1979 BART transbay tube shutdown and the 1989 Loma Prieta earthquake), ferry service slowly started returning to the Bay Area. These difficult times demonstrated the viability and benefits of ferry service and highlighted the role of ferries as important emergency links across the Bay. In response to the 1989 Loma Prieta earthquake, the Legislature repealed the prohibitions against other competing transportation modes, removing the last of the “passive” constraints to increased ferry service.

At the same time, ferry technology has made rapid progress toward achieving higher speeds with lower operating costs. Until the mid-1980s, the fastest ferry operated at about 18 knots (20 mph), too slow to effectively compete with highway travel. The introduction of the high-speed catamaran, powered by conventional diesel engines, brought ferries into the universe of marketable, competitive, and financially viable transit options. Ferries can now routinely achieve speeds of more than 40 mph, substantially increasing their marketability. Modern high-speed catamarans now combine fast speeds with a more stable, comfortable ride. These improvements now enable ferry services to effectively compete for passengers between certain origin and destination points. For example, existing ferry service from Larkspur (Marin County) to the downtown San Francisco ferry terminal on a high-speed catamaran vessel is about 30 minutes. The primary alternative transportation options for this route are automobile and bus service, which must travel the congested routes of U.S. 101, the Golden Gate Bridge, and downtown San Francisco.

**References**

Bay Area Council (BAC). 1999. Water Transit Initiative Action Plan.

California Department of Transportation (Caltrans). 1998. Highway Congestion Monitoring Program, Annual Monitoring Report for the Bay Area Freeways.

Caltrans. 2000. Traffic Volumes on the California State Highway System. 2000 Volumes.

Metropolitan Transportation Commission (MTC). 1999. Average Weekday Vehicle Miles Estimates Based on ABAG Projections '98 Forecasts. <http://www.mtc.ca.gov/datasmart/stats/vmt9095.htm>

MTC. 2001. Draft 2001 Regional Transportation Plan for the San Francisco Bay Area.

Smith, Pat. 2001. Spokesman for the New York Waterway ferry service. Personal Communication with Ian Austin, URS. October 1.