The World's First System-wide Environmental Document:

Lessons for the Northwest (or the Canadian Southwest)

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Presentation Overview

- San Francisco Bay Area Water Transit Authority (WTA) certified a program-level environmental document for expanded ferry service in SF Bay in July 2003 – a first for the Nation
- Key driver for system expansion is TransBay traffic congestion: WTA's mandate is to increase regional mobility and encourage appropriate land uses. Reality: ferry system operational costs must be competitive with other transit modes
- SF Bay Area has an extremely active, informed, and vocal environmental community. Success: EIR certification was not challenged by law suites.
- How did system planning fare in light of environmental concerns?

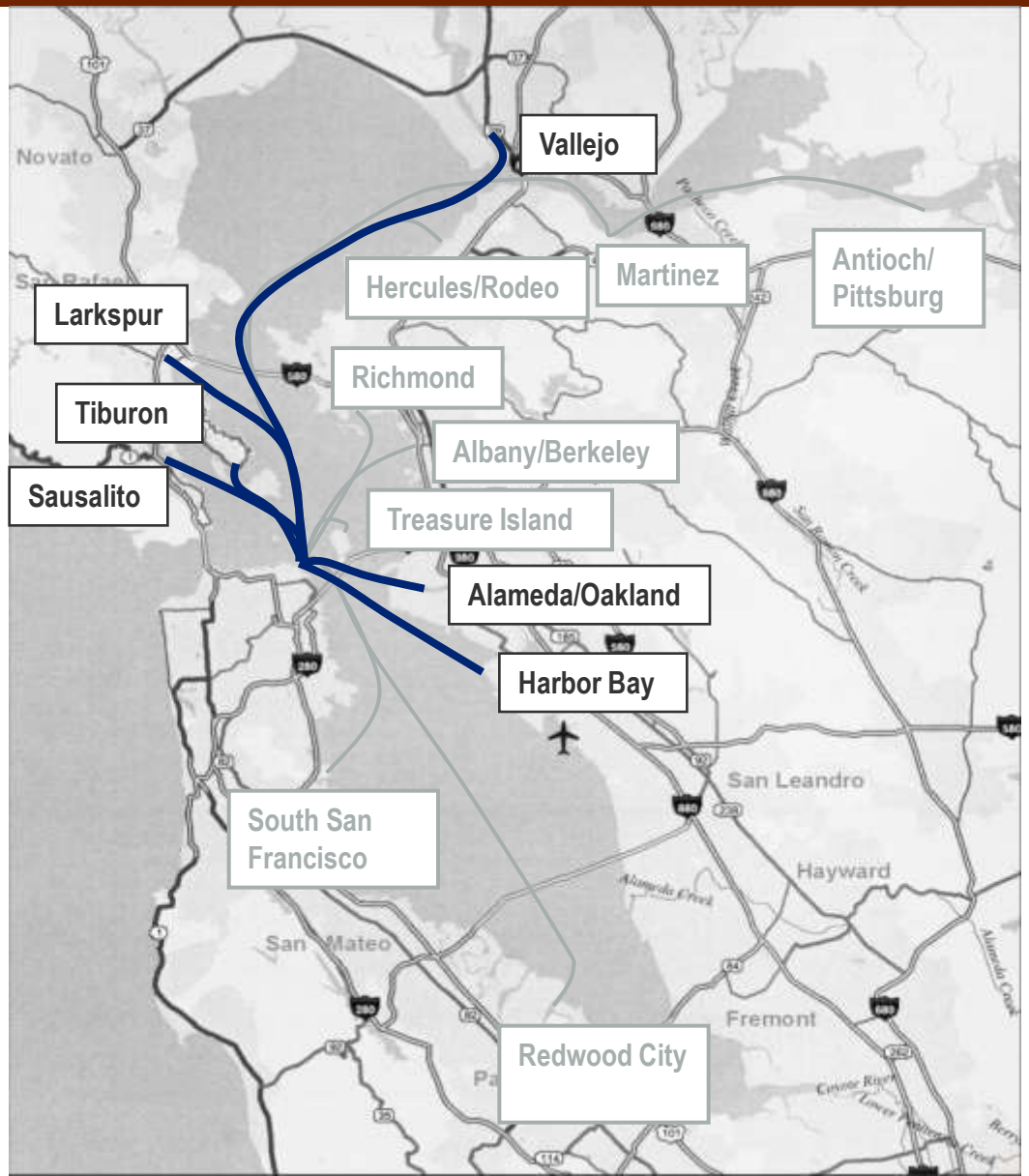
System Overview

- Existing 6 (briefly 7) service routes carry 4.5 million passengers/year

- Historical system in ‘20s and ‘30s carried 10 times as many passengers: 40 to 50 million pax/yr

- EIR Alternatives addressed between 35 (Alt 1) and 0 (Alt 3) terminals. Proposed project adds 9 terminals

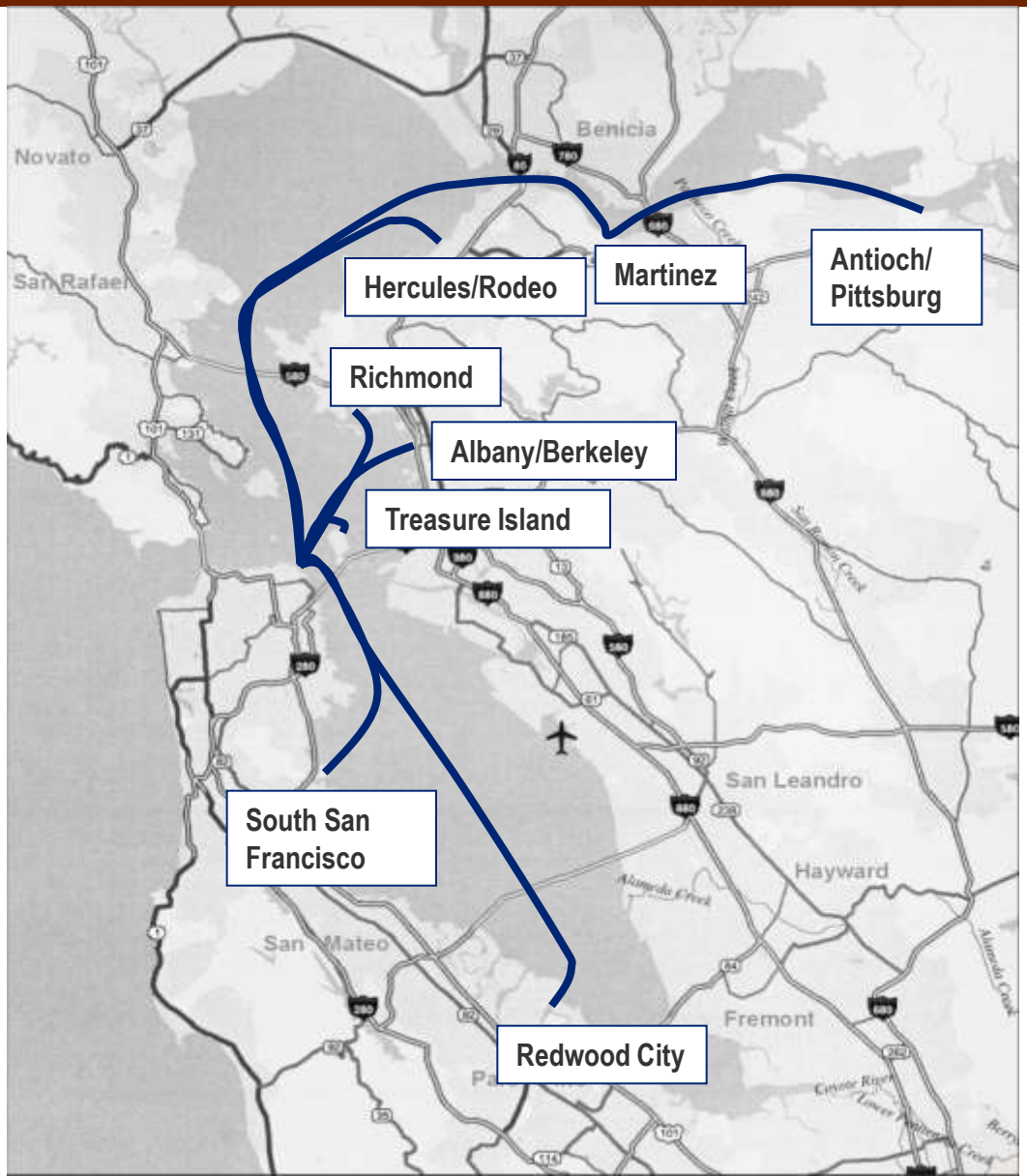
What is the proposed new system?



New Routes

Existing routes

What is the proposed new system?



New Routes

Existing Vessels...

PLANNING ISSUES

- **Linking Land**

  2 overriding issues

  - Use and Transportation: Adequate TransBay Capacity
  - Redevelopment of waterfront lands

- **Waterfront lands**
  - Local acceptance
  - Development potential
  - Environmental impacts
  - All dealt with as part of the environmental analysis

Planning Issues

Result:

- First cut of planning work was based on transportation potential, with a very limited concept of land use change, opportunities or impacts.

Planning Issues

Opportunity costs of additional TransBay Capacity

- Is there a market for ferries in the corridor?
- What are the gross operating and capital costs?
- How do they compared to the “alternatives?”

Planning Issues

What are the alternatives?

- More BART (rail) capacity
- More buses

What is the capacity of the alternatives?

- Rail – another 4-5 trains per hour is realistic (4,000 pax), cost marginal
- Bus – high limit, cost is additional queuing on bridge for autos

Planning Issues

Ferry Operating Costs –

• Balance the size of boat with the pax demand to achieve a cost effective system, but still allow for competitive travel times and headways

• Looking for a “transit mode” in the inner bay (headways every 15 minutes) and a commute rail mode from the more distance locations (demand driven in the peaks, hourly midday).

• Critical issue – speed of boat, size of boat, operating cost of boat. Must all be balanced. Out of balance => too much operating cost => no system

Planning Issues

Ferries do not operate in a vacuum

In Alameda, ferries are faster than buses or BART
In Berkeley, ferries are faster than buses or BART
In Vallejo, ferries are faster than buses or BART

But….
In other areas, ferries are *not* the preferred mode because:

- distant terminal locations on water but away from development make BART or buses a better choice
- environmental considerations lead to dropping terminals

EIR Evaluated by Subject Area

- Dredging
- Navigation
- Wake
- Water
- Resources
- Biology
- Air Quality
- Aesthetics
- Land Use
- Cultural Resources
- Geology
- Noise
- Transportation
- Energy
- Growth Inducement

Environmental Issues

Previous planning (TRB 2000) and State-required (CEQA) scoping processes identified key potential environmental issues:

- air emissions - unregulated marine diesels
- biology
  - whale strikes
  - rafting birds
  - T&E species and habitat
- dredging – disposal and contaminated sediments
- navigation – safety and recreation
- wake wash – shoreline erosion and habitat impacts

Environmental Issues

Challenge:

How to meaningfully address issues and produce a useful planning document?

No use in producing a program-level document which concludes every terminal site and route needs to address all issues at a site specific level

Particularly wanted to arrive at consensus on route-related impacts and mitigation

Environmental Issues

Need different strategies for different issues:

- Is issue real or perceived?
- Is science solid or subjective?
- How active is lobby group?
- Do agency controls govern issue?

Environmental Issues

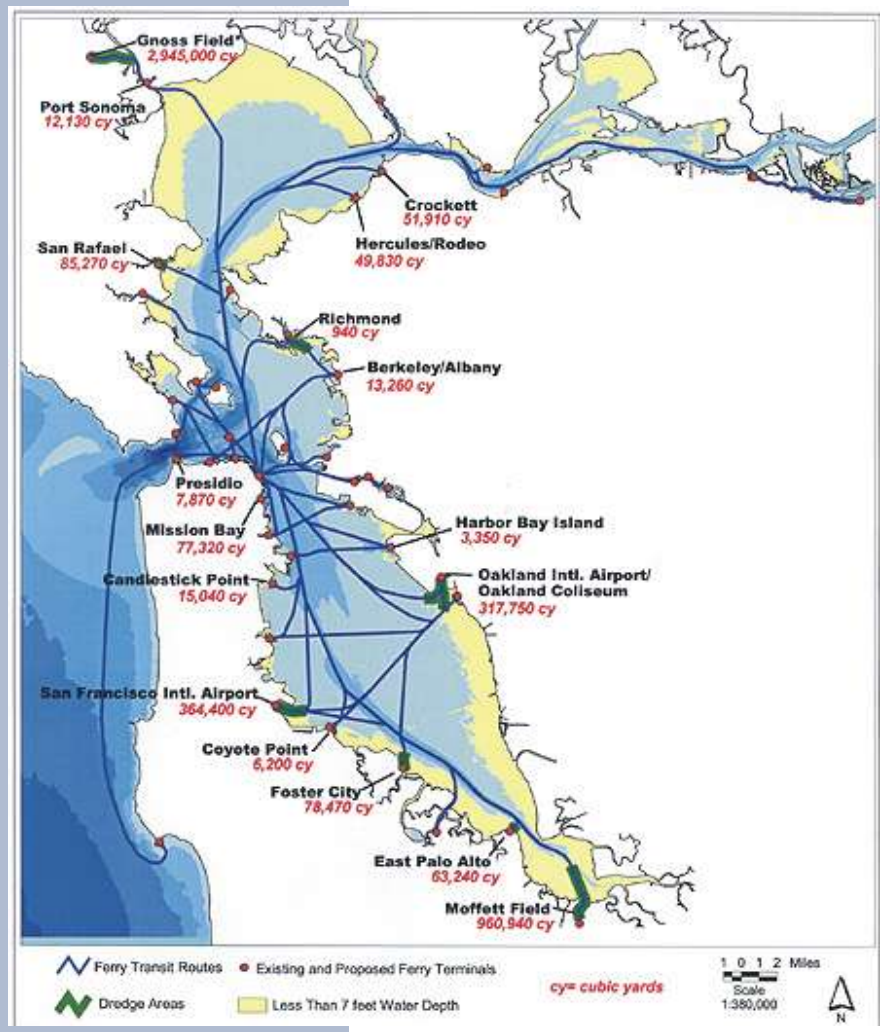
3-level strategy (ranking strategy):

"Routine" – established evaluation criteria
- use established approach and science

"Innovative" – new approach and science needed
- consensus building required for evaluation criteria and acceptance of approach

"Contentious" – consensus building was key:
- North Bay terminal site
- air emissions
- rafting birds
- land use (East Shore Park)

Potential Dredging Impacts



- New channel and maintenance dredging were evaluated against the Bay Area dredging goals
- Potential for adverse impacts to water quality

Dredging Mitigation

- Eliminate or mitigate (using low draft vessels) the highest contributing routes: Gnoss Field, Moffett Field, Airports.
- Doing so can achieve less than 1% of annual Bay Area dredging goal volumes
- Identified opportunities for dredge management and disposal

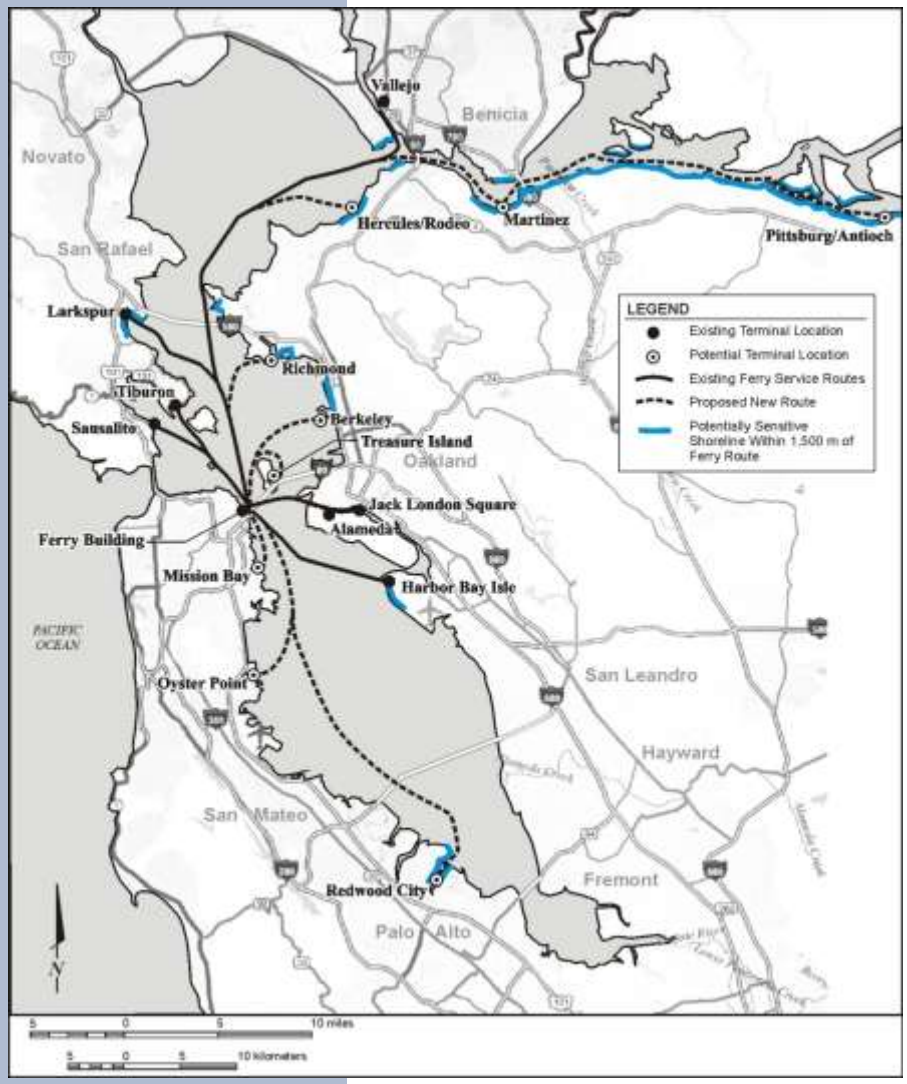
Potential Navigation Impacts

- Risk of conflicts is influenced more by safety procedures than vessel traffic
- WTA conducted a risk assessment of the ferry system and vessel interactions

Navigation Mitigation

- Implementation of recommended best practices
- Designation of traffic lanes and compliance with IMO guidelines

Potential Wake Impacts



- Potential for increase in wave energy at some shorelines
- Identified shoreline areas with the highest sensitivity to increased erosion

Wake Mitigation

Measures to achieve non-significant levels (using 27 cm wake @ 300 m):

- Operate routes more than 1,500 meters from sensitive shorelines
- Operate vessels to maintain wake height less than 16 cm at the shoreline (1,500 m criteria)

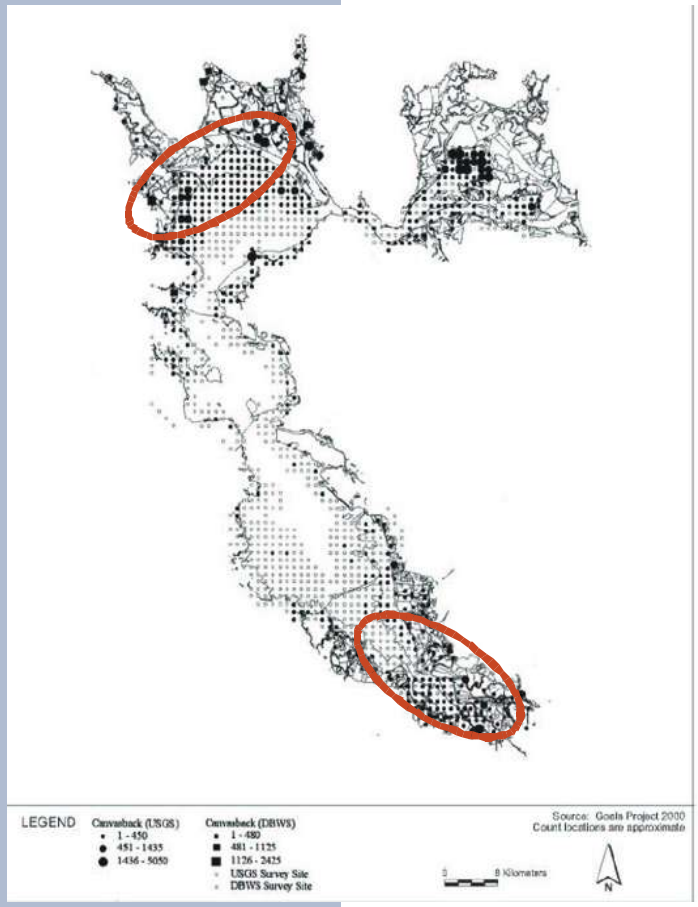
Potential Impacts to Wetland Habitat from New Construction

Terminals with potential for impact identified: Gnoss Field, Port Sonoma, East Palo Alto, Moffett Field

Mitigation:

- Avoidance through site design or elimination of sites from consideration
- Offsetting restoration consistent with regional program

Potential Impacts to Aquatic Bird Habitat ('rafting' birds)



Potential effect of repeated 'flushing' – after extensive consultation, unable to quantify

- Primarily from South and North Bay routes (e.g. Moffett Field, Port Sonoma)

Mitigation:

- Consolidate routes or shift routes away from most concentrated rafting areas
- Develop long term monitoring plan

Air Quality Impacts

- Cumulative emissions from mobile sources increase overall, primarily due to frequency of service levels
- NO_x has the highest increase
- Potential for localized cold start emission impacts

Air Quality Mitigation

- Focus on highest ridership routes
- Target 85% *below* Tier II standards
- Apply emission controls, such as SCR and Particulate Traps
- Controls achieve:
  - Net decrease in NOx and particulates
  - Slight increase in SO_2 (0.6%), carbon monoxide (0.007%), and reactive organic gases (0.04%)
  - CO2 increases 215 tons daily.

Integration

Impact of environmental issues on system planning

Example: Air emissions

- weight of emissions controls reduces carrying capacity
- increases wake
- therefore, smaller vessels
- higher operating cost per passenger

Back to the future ...