

WHITE PAPER ON PROPOSED FERRY FOR BERKELEY

Jim McGrath

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INTRODUCTION

A ferry terminal in Berkeley is one of those things that looks good in concept, but scrutiny reveals a host of problems.

A closer look reveals these problems:

- Ferries require a massive subsidy. In 2022, taxpayers contributed \$50 million so that an average of 6200 people could ride the ferry. That's over \$8,000 a seat, or \$32 a ride each way. There is no end in sight to these subsidies.
- While marketed as a sustainable transit mode, ferries at existing ridership levels generate about 3 times the CO2 of a person driving.
- While the Water Emergency Transportation Authority (WETA) promised to help rebuild Berkeley's beloved fishing pier, the result would be a pier about 1/3 the length of the existing pier, and Berkeley would pay nearly as much as it would cost to fix the pier.
- WETA is considering a future Berkeley terminal carrying 4000 people two ways, or 2000 people competing for the 250 spaces proposed—and overwhelming the existing activities at the marina.
- While ferries are touted as congestion relief, in 2022 they only provided 2.6% of the transbay commute.
- While a ferry terminal has been touted as a solution for the marina's fiscal problems, the underlying studies show only a minor potential for increase in restaurant use, while WETA expects Berkeley to subsidize operations and parking, perhaps as much as \$6 million a year, and pay even more for the \$100 million terminal.
- While the city claims that a new ferry terminal will advance equity by providing job opportunities for those living in West Berkeley, 71% of those using the system report incomes over \$100,000 and 31% report incomes over \$200,000.

Each of these problems is discussed in greater detail below.

ECONOMICS AND FEASIBILITY

This is the third attempt to locate a ferry terminal in Berkeley. The first effort proposed a terminal near the end of Gilman Street—to take advantage of the acres of parking at Golden Gate Fields. The second proposal, included a no-cost lease for 380 parking spaces, essentially all the parking near the H's Lordships restaurant. (Berkeley Albany Ferry Terminal Study Draft EIR/EIS, URS, 2008). That effort was abandoned because of

cost and environmental issues without ever finalizing the EIR. Berkeley and WETA completed a feasibility study, at a conceptual level in 2021. A summary of that effort was presented to the City Council at a work session on December 7, 2021, (Large Scale Ferry Feasibility Study—A Preferred Concept) but the underlying studies were not released until recently. Some of those studies are incomplete, or still being withheld.

The December 2021 estimate for the cost of a new ferry terminal located approximately where the current recreational pier is located, was \$121.7 million, including two electric ferries, at \$38.2 million. WETA has access to \$300 million in capital funding from Regional Measure 3, as well as an annual allocation of \$35 million to subsidize operations. WETA announced plans to update its 2016 Business Plan during 2022, but the pandemic and a lawsuit over Regional Measure 3 have postponed that effort. The 2016 Business plan only reserves \$30 million for a Berkeley terminal. WETA has finally started work on an updated business plan—but faces a “fiscal cliff” with the available subsidies not covering the shortfall in funding.

The city signed an MOU with WETA that committed the city to the cost of all recreational improvements, estimated at \$29 million. Berkeley has not identified funding sources for \$29 million for a ferry terminal, or the remaining \$115 million in infrastructure identified in the initial stages of the BMASP plan. In addition, the Berkeley Marina currently has a structural deficit of about \$1.4 million per year. In 2018, Berkeley started work on what was then called the Berkeley Marina Area Specific Plan (BMASP), which was intended to update the plans for the marina area and identify feasible measures to increase revenue. After making a presentation to a Council workshop on March 20, 2023, some of the work products of the consultant team were finally made public. Those studies indicated that over a twenty-year period, the market could accommodate a new hotel of between 120 and 200 rooms, and some additional restaurant space, for a potential lease revenue estimated at \$930,000. However, those projects would displace existing leases that generate about \$340,000, so the net revenue would only be about \$580,000, not enough to cover the current structural deficit. With the H’s Lordships building still vacant and in need of at least \$5 million in repairs, and the hospitality industry still recovering from the pandemic, no additional revenues will be available in the short term. Perhaps reflecting that, Berkeley has now pivoted to a “Waterfront Specific Plan” that it expects to analyze only at a programmatic level. That would leave any future development plans responsible for compliance with the California Environmental Quality Act (CEQA) and the city with a deficit of about \$1.5 million a year, no longer covered by Federal pandemic relief funding.

Currently, WETA is operating at about 31% capacity in the morning. A September 13, 2022, article in the East Bay Times identified the per-passenger cost for the San Francisco Bay Ferry (WETA) at \$33. While WETA’s policies require them to capture 40% of their operating costs from fares, their fare recovery for the last fiscal year was 19%. Note that the fare recovery calculations WETA uses include no capital cost depreciation for the existing improvements or sinking fund accumulation for replacement of facilities that wear out. WETA lowered fares during the pandemic to compete with BART. For example, prior to the pandemic the adult fare from Oakland to San Francisco was \$7.20,

and estimates of the subsidy involved were about \$8.00. Current fare from Oakland is \$5.75, which captures only a small fraction of their operating costs. The shortfall has been made up by Federal pandemic relief funding, but that funding is ending. Polls commissioned by WETA show that lowering fares convinced some riders to switch from BART to the ferry, but most will return to BART if fares rise or parking fees are established.

Any consideration of feasibility must consider the planning and permitting hurdles that a project like a new ferry terminal will encounter. For example, BCDC's Bay Plan only allows dredging where "the siting and design of the project will result in the minimum dredging volume for the project" (Dredging Policy 2(d)). Similar policies in the Clean Water Act and the Porter Cologne Act, California's water quality statute, discourage dredging and filling unless there are no practicable alternatives. Those specific policies will be discussed below in the Environment section.

ENVIRONMENT

Development of a ferry terminal outside of the marina basin raises environmental issues. Such a location would require substantial dredging and fill, and would require permanent maintenance dredging of a new area of the bay. All but one of the existing WETA ferries are powered by diesel engines, which emit particulate matter and CO₂. The site proposed for the ferry terminal parking was filled under a permit from BCDC expressly for the purpose of increasing recreational access to the bay; a commuter terminal is not consistent with that purpose. Currently, Berkeley's parking lots supporting recreational use are full on weekends. The 2008 proposal involved a lease for 380 parking spaces, which would have required eliminating much of the park's vegetation and eliminated all recreational parking on the peninsula. The current proposal is for 250 spaces to accommodate what is described as 1,000 unique passengers.

A. Emissions. The December 7, 2021, staff report claims that commuting by ferry is a sustainable way of travel. Several studies of ferry emissions have been completed. One, "Air Pollution from Passenger Ferries in New York Harbor", calculated CO₂ emissions from ferries at 3 to 10 times greater per passenger mile than land transport. One example is the Weehawken ferry, which generates 2800 grams of CO₂ per passenger mile, compared to 170 g/mile for land transport. In my comment letter on the 2008 EIR by WETA, I cited a study by TPL, "Employee Commuter and Business Travel Footprint", June 28, 2007, which rated the carbon signature of a ferry about twice that of a bus and about 3.4 times that of a subway. Paul Kamen, marine architect and former Chair of the Waterfront Commission, calculated the energy consumption per mile in BTU's, using readily available fuel use. High speed ferries are particularly inefficient in fuel use because they travel through a dense fluid, and drag increases with speed. His calculations compared a WETA ferry at the expected load at 15,435 BTU/passenger mile with a single occupancy car at 7,000 BTU per mile. For comparison, BART is at 136 BTU/passenger mile at a 50% load. Of course, the actual impact depends on ridership, so a ferry transporting passengers that is only at 31% capacity has three times the theoretical emissions per passenger. No calculations of emissions have been released.

The December 2021 staff report estimated costs based on electric ferries. This is a departure from the original plans of WETA, and their comments before the Parks and Waterfront Commission. When asked about emissions, concerns about particulate matter, and how they compared to auto travel, at a meeting of the Parks and Waterfront Commission, WETA representative Matt Gaugherty stated that they currently operate diesel power plants on all ferries, and that they would install diesel particulate filters if required to do so by the Bay Area Air Pollution Control District. Diesel particulate devices are effective at removing about 95% of carcinogenic fine particles. While this would reduce risk for passengers and employees, it would not reduce the CO2 emissions.

During the preparation of the feasibility study, WETA and city staff began to talk about employing electric ferries on the route, and WETA is seeking input on electrification of its fleet. WETA currently has a single electric ferry. Most electric ferries have a speed of about 12 knots, compared to the WETA Gemini, which travels at 25 knots. WETA refused to consider any locations for a ferry terminal inside Berkeley marina because it would increase travel time by 5 minutes. However, a slower electric ferry would not satisfy the objective of rapid travel and turn around. While there is developmental work being done on faster electric ferries, such ferries have no potential to serve a Berkeley terminal by 2027, or most likely 2030. The newest fast ferry, the [Candela P-12](#) will start running a trial service from the Swedish capital, Stockholm, to the island suburb of Ekerö in 2023. It has a capacity of 30 passengers and travels on foils. Another zero emission technology ferry, a 75-passenger ferry named *Sea Change*, has begun shake down cruises in San Francisco. The *Sea Change* has a top speed of 20 knots, well under the speed for the desired turn around time. This developmental technology was heavily subsidized by air quality grants, and has cost and capacity issues as well as a lower speed than diesel ferries. Other work on electric ferries seems promising, but there are no commercially available ferries with the capacity WETA proposes for the Berkeley route.

The December 2021 city staff report had no information about either the emissions from current ferries, or the feasibility of electric ferries. The information that the staff relied on has not been published on the city web site. No details have been provided by either WETA or the City of Berkeley about the current feasibility of electric ferries for the proposed terminal.

B. Marine Habitat and Recreation. The reports issued to date, a series of Power Point slides and the December 7, 2021, city staff report, do not provide any details about the construction impacts or footprint of a new terminal. Background studies that were finally released have different dredging volumes, some as high as 250,000 cubic yards, to create the terminal basin, but a specific volume was not identified. A similar design was analyzed for the 2008 URS EIR. Alternative B, a similar design, involved 60 acres of benthic disturbance, with an initial dredging volume of 150,000 cubic yards. Both Federal and state law prohibit new dredge and fill projects if there are practicable alternatives. BCDC's Bay Plan policies governing dredging provide:

Dredging should be authorized when the Commission can find: (d) the

siting and design of the project will result in the **minimum** dredging volume necessary for the project.

Similar policies exist in Federal law, most particularly in Section 404(b) of the Clean Water Act. The guidelines, which can be found at 40 CFR Part 230, describe a three part test before any permit for dredging or fill can be issued.

- First, it must be shown that there are no alternatives that avoid the dredging and fill.
- Second, measures to minimize the impacts must be carefully evaluated.
- Third, mitigation measures that fully offset the impacts must be adopted.

In 2008, WETA was seeking funding from the Federal Transit Administration. Such funding is limited by Section 4(f) of the Transportation Act. That law provides, in relevant part:

...the Secretary shall not approve any program or project---which requires the use of any publicly owned land from a public park [or] recreation area ...unless there is no feasible and prudent alternative to the use of such land...

During preparation of the preliminary studies WETA rejected out of hand consideration of any alternative locations for the ferry terminal. Earlier studies had estimated that locating a ferry terminal within the existing Berkeley marina, where a new dredged basin and breakwaters would not be required, would only add an additional five minutes in travel time. It is difficult to imagine that this cursory analysis will qualify for permitting a \$100 million project, or justify funding by demonstrating that sites within the marina are not prudent alternatives.

The area proposed for the terminal is used for recreation by people fishing and engaging in watersports. While the location of the proposed terminal is less damaging to those resources than previous designs, it still will restrict most navigation within about 700 feet of the shore, and will reflect both wind and waves well beyond its direct footprint. The current fishing pier is 3000 feet long, as proposed the replacement for that pier beyond the breakwater that would protect the newly dredged ferry basin is only 540 feet. No focus groups involving people who historically fished from the pier have been used to determine whether the proposed project will provide fishing opportunities comparable to the existing pier, or that of a longer pier. But it is clear that if a ferry terminal is built under the existing MOU and design, the city will pay at least \$29 million for a 540 foot segment of recreational pier. The city hired GHD consultants to study rehabilitating the existing pier and replacing it. Cost estimates in the study, titled "City of Berkeley, Berkeley Municipal Pier, draft structural assessment", November 2017, estimated the cost of a new recreational pier 3000 feet long would be less than \$30 million. (page 76) That cost estimate was updated in

report for the March 20 council workshop and is now \$37 million, It is clear that the current proposal would provide less recreational benefits at a comparable cost to simply replacing the existing pier.

Adverse recreational impacts are not limited to the inferior pier length and disturbance to benthic habitat. The single concern expressed most often by current users is the impact on parking. Their concerns are borne out by the approval of two small scale ferry operations. That approval was done administratively, without Council action or adoption of CEQA findings, and without consideration of BCDC policies that protect recreational parking at the marina. Ferry patrons immediately filled the new parking area in the south basin that had been funded by grants for improving recreational access.

Since any new ferry terminal or pier will require permits from the Bay Conservation and Development Commission (BCDC), their Bay Plan policies represent regulatory standards that must be met . BCDC has designated all of Berkeley Marina a waterfront park, and adopted this specific policy:

Ferry terminals may be allowed in waterfront park priority use areas and marinas...provided the development and operations of the ferry facilities do not interfere with current or future park and recreational uses...**Facilities provided for park and marina patrons, such as parking, should not be usurped by ferry patrons.**

Background documents anticipate 1000 unique passengers arriving to commute to San Francisco by ferry. Berkeley has updated the projection of passengers now to 1910 boardings or 955 unique passengers. WETA proposes only 250 spaces to accommodate those commuters, a reduction from their 2008 proposal of 380 spaces. The December 7, 2021, city staff report states that “in the next phase of preliminary design and permitting, plans will be developed for managing parking, which could include parking fees and time restrictions that place a premium on parking next to the ferry terminal while still providing access for recreational users.” During the summer of 2022, the parking spaces for the two parking lots in the South Basin were often fully occupied. The only current WETA terminal that charges for parking is the one at Jack London Square. However, the Port of Oakland provides validation for much of that cost, at an annual cost of over \$200,000. With current ferry tickets set at \$5.00, and WETA surveys indicating riders would shift back to BART, it is not clear that WETA would agree to a parking fee as low as \$5.00 per day. That would represent a 50% increase in the cost of a round trip. There is no indication that such a fee would be sufficient to cover the administrative costs of parking management by the city. No details about parking management have been released.

Review of the existing mode splits at WETA terminals indicates that far more people would drive to the marina and seek a parking space than could be accommodated with 250 spaces. The lowest number of passengers driving and

parking is 39% for Oakland, with Richmond at 74% including carpools and kiss and ride. At a 50% split, there are about half as many parking spaces available as the likely drivers seeking a spot. Berkeley has permitted two small ferry services, but has not released information about the pattern of access and parking that would provide more detailed and site specific information. Studies done as part of the BMASP show that 94% of the people that go to Berkeley marina travel there by car.

WETA has begun discussing their long term, 2050 vision for a Berkeley terminal. On April 12, 2023, WETA staff presented the initial stages of planning for the future, with Table 11 a series of forecasts for 2050 ridership. That table has four possible ridership numbers for Berkeley: 1800, 2500, 2600, and 4000. If those are two way trips, WETA is considering planning for 2000 passengers, competing for 250 spaces.

In addition to the provisions of state and Federal law, in 1986 Berkeley adopted by referendum the Berkeley Public Parks and Open Space Preservation Ordinance, Measure L, which requires a public vote for any disturbance to parks and open space. The specific requirement in the measure is:

no public parks ... or public open space ... **shall be used for any other purpose than public parks and open space**, without The Berkeley City Council first having submitted such use to the citizens for approval by a majority of registered Berkeley voters voting at the next general election.

The December 7, 2021 staff report claims that “the project is likely consistent with measure L.” However, as proposed the project would use public open space for parking for a commuter terminal, and would result in substantial grading and removal of park vegetation and mature trees.

FISCAL IMPACT TO THE MARINA

As noted above, the City of Berkeley has already agreed to pay at least \$29 million for the recreational facilities if a ferry terminal is built. The result would be a shorter recreational pier, at about the same cost as building a new pier that is 3,000 feet long. While the State of California has appropriated \$15 million that could cover approximately half the cost of a replacement pier, the city does not propose to use any of that money for replacing the pier. Instead, the city has asked for a grant of nearly \$3 million to fund design and environmental studies that WETA had agreed to pay for.

In March and April, WETA began briefings with their board to discuss the use of Regional measure 3 funds and the possibility of expanding the system. Those discussions make it clear that even without Berkeley, the existing funds are not

sufficient to cover the operational shortfall. The overall cost for operations in 2022 was \$62 million, with only \$12 million recovered in fares. The operational subsidies are only \$38 million, leaving a \$12 million shortfall—without a Berkeley route. Table 14 from the April WETA board packet lists the additional subsidy needed to support a Berkeley route at \$12 million. That is currently not available from Regional Measure 3, and board discussion has indicated that they expect Berkeley to pay as much as half of that amount.

The peninsula sought for use by WETA for a ferry terminal was created by filling the bay expressly for recreational purposes under a permit by the newly created BCDC. As such, BCDC retains jurisdiction over the site. The project purpose for that fill was recreation, to create parking for Shorebird Park and the facilities in the South Basin and for a restaurant to help pay for maintenance of public areas at the marina. The site is large enough for some additional commercial recreational facilities like another restaurant. Currently, the lease for the smaller Skate’s restaurant generates \$280,000 a year for the marina fund, but the city has not been able to lease the facility that once housed H’s Lordships restaurant. WETA has not offered the city rent for their use of the parking area, so granting a no-cost lease to WETA would eliminate the possibility of increased revenues. As noted above, it is not clear that parking fees would be acceptable to WETA, or would cover the cost of administering parking management programs. No information about the nature or cost of those programs, or their impact on ridership, have been released. The city has not provided any information that might show that the ferry terminal would generate any additional revenue. The Port of Oakland, with a much larger land base and many restaurants and shops, continues to subsidize parking for ferry passengers.

CONGESTION

Currently the average daily ridership is about 6200 passengers. Prior to the pandemic it was about 8600. Not all of the routes go to San Francisco, but comparing the ridership to that of BART and AC Transit will provide a perspective on the impact of the ferry system on congestion.

AVERAGE DAILY TRANSBAY PASSENGERS CARRIED

WETA	6200
BART	160,000
AC TRANSIT	63,000

That makes WETA ridership about 2.6% of the transbay traffic. Perhaps a useful

metric for comparing these transportation means would be a comparison of capital and operational cost per ride.

EQUITY

City applications for grants argue that a new ferry route in West Berkeley would advance equity by providing better paying job opportunities in San Francisco. But they have provided no analysis to back this argument. There has been a ferry terminal in Jack London Square, walking distance to residential areas, since the mid 1990's. None of the studies to date have evaluated the equity benefits of that terminal. Of the small number of people who ride the existing system, 71% report an income over \$100,000, and 30% report an income over \$200,000. (2022 Onboard Passenger Survey, November 2022) Clearly the equity benefits claimed are speculative and not supported by evidence.