TO: Colleagues at the Berkeley Space Center, NASA Ames and UC Berkeley
FROM: Martin Bagadion, Raelin Angulo, and Sidney Curven
RE: Ferrying the Future: Smooth Sailing to the Berkeley Space Center (BSC)

METHODOLOGY

The methodology for this proposal follows a structured, multi-step approach of integrating qualitative and quantitative research techniques to assess the feasibility of a multi-modal, shuttle and ferry-based transit system for riders traveling between UC Berkeley and the Berkeley Space Center (BSC). First, there needed to be a literature review and data collection of existing transportation plans and concerns. Thus, analysis of the transportation plans from the Metropolitan Transportation Commission (MTC) and Bay Area transit agencies were important to understanding what methods of transportation are readily available. After the selection of water-based transportation due to alignment of lower-cost and transit agency partnerships. Reviewing case studies: Staten Island Ferry, Kitsap Fast Ferries, and Oakland Alameda Water Shuttle "Woodstock" built further considerations for planning this transit system. Review of these case studies included S.W.O.C. analysis in relation to the BSC Project, with considerations of fare costs, operating costs, and travel-time minimizations. Stakeholder interviews with transportation planners, NASA Ames employees, and BSC students were essential in including riders' commuting challenges at the forefront of planning decisions of comfortability and desired travel timeframe. Centering route feasibility was significant in influencing this proposal through an evaluation of different route options for the ferry and shuttle integration. Pushing for a modeled estimated travel time and comparing with current transit options were essential to the water-based travel decision for riders' goals of comfort, time, and cost-friendly accessibility. Assessing the environmental benefits of an electric ferry system and a cost-friendly service helps to diversify commuter groups and encourage less reliance on auto-based transit.

KEY ISSUES AT STAKE & FUTURE CONDITIONS

Key Issues at Stake: We are seeking to improve transportation between UC Berkeley and the Berkeley Space Center for ~600 people at full capacity, along with other key issues (CITE). These other issues include the facilitation of collaboration between campuses, as well as attracting the best minds while not deterring them through long inconvenient commutes (D. Dufreese, personal communication, Feb. 13, 2025). Furthermore, goals include creating cost effective, fast, and productive transport for students and faculty alike.

Future Conditions: Commuting between UC Berkeley and NASA Ames Campus/Berkeley Space Center (BSC) will be more convenient and reliable than before. Future travelers will commute from UC Berkeley to the Oakland ferry terminal via shuttle, which will be available to the public for a fee but is free for Berkeley students and staff. This shuttle will make multiple stops around campus to collect travelers but after will directly commute to the terminal making no other stops in around 18-20 minutes. Then users will board an eco-friendly high speed ferry to Redwood City; this ferry will be a nice way for users to rest, get fresh air, scroll, or even get some work done over the 40-50 minute ride. After this, commuters will board a private shuttle at the Redwood City terminal that takes them directly to BSC/NASA Ames in about 18-20 minutes. Commuters can then ride this system the other direction as well to get back to Berkeley. This trip will take around an hour and 30 minutes consistently, which will be far nicer to travelers than the 1.5hr minimum via car or the former 3.5hr public transit ride minimum (See Attachments #5-9).

KEY FINDINGS FROM CASE STUDIES

The effectiveness of water-based transportation is demonstrated by the following case studies. Each case study showcases that water-based transportation is often implemented as two-stop transit systems that minimizes route complications (consistent schedules and less stops) and reduces travel time for geographically separated employment. The ease of navigating these stops for one-stop riders causes ferry systems to serve a loyal and substantial commuter base. For example, Kitsap Fast Ferries and Woodstock both experienced a rapid increase in ridership demand within the first 6 months of development. Furthermore, ferries are easily integrated into existing transit networks due to community-driven plans and first-mile, last-mile connectivity. Woodstock's success highly relied on riders' and bicyclists' demand for its crossing, and provided an easier method of transportation to the ferry. Providing first-mile, last-mile plans for ferry transit retains loyal riders. Ferries are often also required to align with environmental plans to contribute to sustainable transit solutions, such as the SF Bay Ferry's pre-existing plan to transition to all-electric vessels by 2050. Potential barriers for this implementation is the need for public-private support in maintaining and funding ferry services, and marketing these systems as reliable forms of daily transportation–rather than luxurious–for non-local riders.

EVALUATION CRITERIA & FINDINGS FROM ANALYSIS

The following criteria was applied to determine the success of the chosen transit system:

- **The minimization of transit travel time to increase efficiency**. The transit system must have a reduction in commute time compared to existing options of transit through a consideration of consistency through high-traffic times and schedule reliability.
    - *Analysis:* The proposed ferry-based transit system would reduce commute times to about 90 minutes, significantly improving the current 3.5-hour public transit.
- **The prioritization of user experience and accessibility.** Riders' main concerns are convenience, comfort, cost, and access to amenities during transit. The transit system should prioritize these points for high ridership.
    - *Analysis:* Integration with existing transit systems would funnel transit costs into a proposed plan of discounted or free fares for Berkeley Space Center faculty and students rather than infrastructure development. Other funds would be aimed towards comfortable designs, reworking shuttle stop signs, and a Wi-Fi or VPN amenity for NASA Ames staff on-board these systems.
- **The environmental impact of the services.** The transit system must plan to reduce carbon emissions and comply with national pollutant discharge per the Clean Water Act.
    - *Analysis:* Adopting high-speed, electric ferries aligns with California's Carbon Neutrality by 2025 initiative, and enhancing shuttle services would reduce automobile carbon emissions.

RECOMMENDATIONS & NEXT STEPS

This memorandum recommends the utilization of the San Francisco Bay Ferry (SFBF) system and first/last mile shuttle services to address medium-term need for public transportation to the BSC at NASA Ames from UC Berkeley's main campus. These recommendations complement a vision of UC Berkeley as a pioneer for multimodality in the state, starting with BSC commuters.

- Partner with UC Berkeley Parking & Transportation to establish a free shuttle ride from UC Berkeley to the Oakland Ferry Terminal using existing shuttle stops.

    - Utilize the timetable in Attachment #7 to inform the timing of shuttle arrival and departure as they will be aligned with the ferry schedule.
    - Explore the possibility of charging individuals not affiliated with UC Berkeley/BSC through Clipper card.
- Construct a long-term relationship with SFBF and WETA as they begin the development of the Oakland to Redwood City route. BSC and UC Berkeley may:
    - Leverage public/private support and funding for the construction and upkeep of the Redwood City Terminal.
    - Co-create a departure/arrival schedule, such as Attachment #6, that falls in line with the work hours of BSC students and staff.
    - Provide amenities to support said commuters stated in Attachment #5.
    - Support the SFBF system and WETA staff with environment, commuter, and demand analyses and to better inform any changes in the ferry service.
    - Fund the commute of students through the continued support of UC Berkeley BayPass, a transit fare subsidy paid by student tuition.
- Expand the current NASA shuttle service to provide a ride from the Redwood City Ferry Terminal to the NASA Ames/BSC Campus.
    - Utilize the timetable in Attachment #8 to inform the timing of shuttle arrival and departure as they will be aligned with the ferry schedule.
    - Ensure security for passengers through providing encrypted WiFi service and limited access to NASA Ames/BSC Employees.

ATTACHMENTS

Attachment #1: Case Study 1 - Staten Island Ferry

Staten Island Ferry passing the Statue of Liberty (*Schulz)*

The Staten Island Ferry is a ferry system operated by the NYC DOT that runs between Staten Island and Lower Manhattan (New York City) on a 5.2 mile route *("Staten Island Ferry Facts")*. Carrying around 24 million passengers annually and 45,00 passengers daily it is the most used ferry system in America (*NYCEDC)*. Furthermore, it operates 365 days a year with a fleet of 7 ferries as well as rescue boats *("Staten Island Ferry Facts")*. Not all 7 boats are always in use, 5 boats rotate through the schedule on a typical week day, 3 boats on the weekend, and during weekday rush hour 4 boats are in constant cycle of transiting passengers *("Staten Island Ferry Facts")*. This has worked exceedingly well for NYC DOT as 94% of trips run on schedule *("Staten Island Ferry Facts")*. The ferries maintain a 30 minute headway except during rush hours when that time is brought down to 15 minutes *("Ferry Schedule and Times")*. This project proposal for the Berkeley Space Center, Oakland to Redwood City ferry, aspires to be as strong of a transportation option as the Staten Island Ferry has become.

Strengths:

The Staten Island Ferry is for the most part an idyllic ferry; running on time a strong majority of the time while carrying thousands of passengers a day. This ferry system runs 24/7 making it a

very reliable source of travel for commuters *("Staten Island Ferry Facts")*. On top of that, the ferry is free for all who want to use it, attracting not only commuters but also tourists *("Welcome to the Staten Island Ferry")*. Considering these elements, ferry ridership had been increasing year to year pre COVID, but did drop during the pandemic, however is almost back to pre pandemic levels of ridership *(Spivack)*. The Berkeley Space Center ferry project can understand these logistical strengths in order to successfully execute their project on a smaller scale.

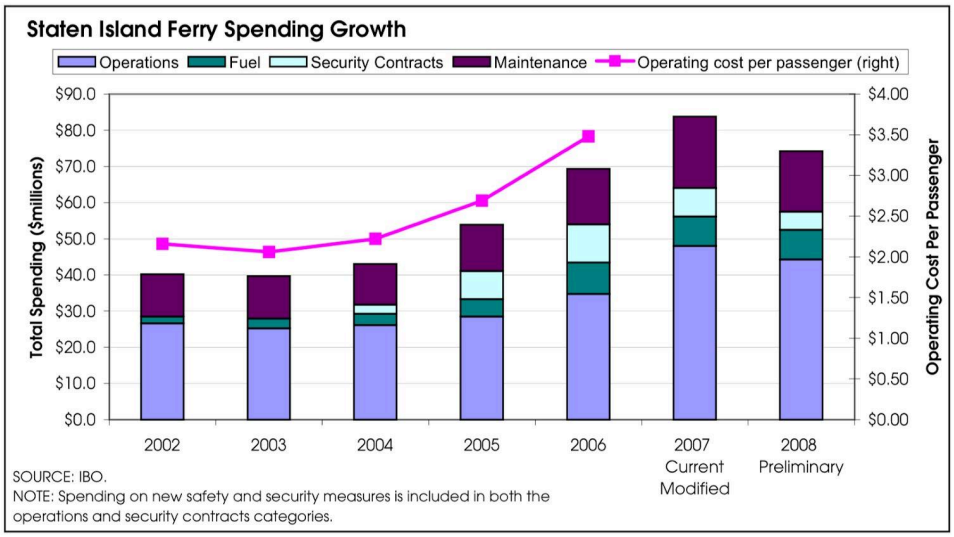
Travelers on the ferries have access to many amenities (notably the newest ferries have the most amenities and are the largest boats), these amenities range from WiFi which is standard on all boats to an outdoor track/walking loop that travelers can stretch their legs on *("The Future")*. There are also snack and refreshment bars as well as outlets to make riders' travels smoother and more enjoyable*("The Future")*.

Not only is the schedule user friendly and the boats nice to ride on, but there are ferry terminal supervisors whose job it is to make sure the ferry runs on time and smoothly. This dedicated job makes travelers feel more cared for and encourages riders to use this transportation system more heavily *("Staten Island Ferry Facts")*.

Lastly, the ferries are all required to be compliant with the national pollutant discharge elimination system as part of the clean water act. This means that the ferries are constantly identifying operational discharges, doing onboard inspections, documenting non-compliance, working to keep the passenger safety up to date, and using their best practices *("Staten Island Ferry Facts")*. This is a strong environmental policy for a non-electric ferry system, however, the BSC ferry route seeks to use electric high speed ferries and will thus be even more environmentally friendly than the Staten Island Ferry.

Weaknesses:

The Staten Island Ferry System is extremely costly to facilitate and considering that it does not charge riders for use it relies on majority city funding to facilitate this service. The cost to run the ferry is also rising every year, from 2002 to 2007 the annual cost rose from 40.2 million to 83.8 million dollars *("The Staten Island Ferry: An Overview of Service and Funding")*. Now the cost comes in at 282.5 million dollars annually *("Fiscal Year 2024 Executive Budget")*.



Actual spending breakdown from 2002-2007, and a minimalist projection for 2008 *("The Staten Island Ferry: An Overview of Service and Funding")*

This spending continued to increase despite the 2008 projection *("The Staten Island Ferry: An Overview of Service and Funding")* as can be observed from the 282.5 million that it currently costs to facilitate the Staten Island Ferry *("Fiscal Year 2024 Executive Budget")*. This rise in cost can be attributed to safety upgrades, boat maintenance, and operations themselves. However, due to the rising number of passengers the cost per passenger is rising much more slowly than it would have otherwise, with the most updated source reporting that it costs $3.48 per trip, which is slightly higher than other transit trips in NYC *("The Staten Island Ferry: An Overview of Service and Funding")*.

While safety upgrades, boat maintenance and operating costs can not be avoided, by charging for this service the cost to the city would be far lower. The ferry could accrue over 83.5 million dollars annually from fares (if there are 24 million passengers annually and a trip charge is $3.48) (*NYCEDC)("The Staten Island Ferry: An Overview of Service and Funding")*. In the vision for BSC Oakland to Redwood City Ferry, the Berkeley Space Center/NASA would be paying for their students, researchers, and staff's commute with annual passes on the ferry. The hope is that this service would appeal to other tech companies in the area increasing ridership and the farebox recovery rate; making this a more financially feasible project for the Bay Area.

Opportunities:

The opportunities the NYC DOT sees for the Staten Island Ferry includes:

- Preserving the history of the ferry service as it was originally a steam boat that served travelers starting in 1817 *("The Past")*
- Additional drop off and/or pick up points *("The Future")*
- Adding three new ferries to the fleet *("The Future")*
- And continued great customer service *("The Future")*

What the BSC Oakland to Redwood City Ferry could also see as an opportunity:

- Having ferry terminal attendants to help live up to the great customer service of the Staten Island Ferry and assist with the timeliness of departure.
- Popularize the ferry service so that in the future there is a great history of Bay Area ferries to uphold.
- Create buy in from other big Silicon Valley companies to expand the ferry service so that employees can choose to live in the East Bay while working in the South Bay as well as creating a stronger connection between UC Berkeley and Stanford, just as Staten Island and Manhattan have strong ties.
- Generate revenues from fares from big companies to keep the service cheap for riders but still have revenue to help overcome the major costs that come with a practical ferry service (unlike the free ridership of the Staten Island Ferry).

Challenges:

The Staten Island Ferry Presents some challenges that this project can learn from:

- The Staten Island Ferry is highly used but as a big lumbering ship it does not move that quickly, however the distance it travels is far shorter than the distance that the Oakland to Redwood City Ferry will travel making its travel time still very reasonable *("Staten Island Ferry Facts").*
    - From this observation the Oakland to Redwood City Ferry will need to be high speed, more dynamic, and is going to be electric for environmental reasons, meaning that all of these factors will be even harder to align yet it is necessary to do so.
    - Luckily, the ridership will be far lower, at least in the foreseeable future, so the ferry can be much smaller.
- Rush hour will certainly need to have shorter headways for this to be a more convenient service for commuters *("Ferry Schedule and Times")*.
    - As the Staten Island Ferry fleet has 7 ships and only circulated 5 during the day it is apparent that to achieve the desired schedule and reliable timing there will need to be more than 2 ferries in rotation *("Staten Island Ferry Facts")*.
- Cost continues to be a challenge that resurfaces in almost every section of this evaluation and it is of note that transportation systems are expensive but necessary. However, with charging rates to employers it is likely that the BSC Oakland to Redwood City ferry service could have a decent farebox recovery rate.
    - Investing in this service despite its cost is incredibly important. This service, in no sense of an exaggeration, can bring some of the brightest minds in the country together in an easy and practical sense, improving innovation for the rest of the world.

Recommendation based on the Staten Island Ferry:

Based on this evaluation of the Staten Island Ferry there are a few key takeaways that should be noted in the creation of the BSC Oakland to Redwood City Ferry:

1. Charging companies for the ferry service for their employees will make this a more practical financial endeavor for the Bay Area while keeping the service fees non-existent

for its riders working and learning in Silicon Valley and cheap for those who ride the ferry for other reasons.
2. Having multiple ferries, 3 or more, will keep the service running more smoothly making it a reliable and predictable service for commuters; which is something that commuters long for in current public transit.
3. Ferry terminal attendants can keep services running smoothly and aid travelers with their questions and needs making the experience more enjoyable for riders, just as the Staten Island Ferry has done.
4. A modern electric ferry fleet will add the the efficiency of this mode of travel, essential for enticing riders for a trip that is much longer than the Staten Island Ferry.

Bibliography:

"The Future." *Staten Island Ferry*, https://statenislandferry.com/history/the-future/. Accessed 10 Mar. 2025.

"The Past." *Staten Island Ferry*, https://statenislandferry.com/history/the-past/. Accessed 10 Mar. 2025.

"The Staten Island Ferry: An Overview of Service and Funding." *Independent Budget Office of New York City*, Aug. 2007, https://www.ibo.nyc.ny.us/newsfax/insidethebudget149.pdf. Accessed 10 Mar. 2025.

"Fiscal Year 2024 Executive Budget: Transportation." *New York City Council*, May 2024, https://council.nyc.gov/budget/wp-content/uploads/sites/54/2024/05/DOT-1-1.pdf. Accessed 10 Mar. 2025.

"Ferry Schedule and Times." *Staten Island Ferry*, https://statenislandferry.com/ferry-schedule-and-times. Accessed 10 Mar. 2025.

"Navigating New York City's Waterways to Become Cleaner and Greener." *New York City Economic Development Corporation (NYCEDC)*, 16 May 2023, https://edc.nyc/press-release/navigating-new-york-citys-waterways-become-cleaner-and-greener-staten-island-ferries. Accessed 10 Mar. 2025.

Schulz, Dana. "Full 24-Hour Staten Island Ferry Service Resumes Today." *6sqft*, 22 Sept. 2022, https://www.6sqft.com/full-24-hour-staten-island-ferry-service-resumes-today/. Accessed 10 Mar. 2025.

"Staten Island Ferry Facts." *NYC Department of Transportation (DOT)*,

https://www.nyc.gov/html/dot/html/ferrybus/ferry-facts.shtml. Accessed 10 Mar. 2025.

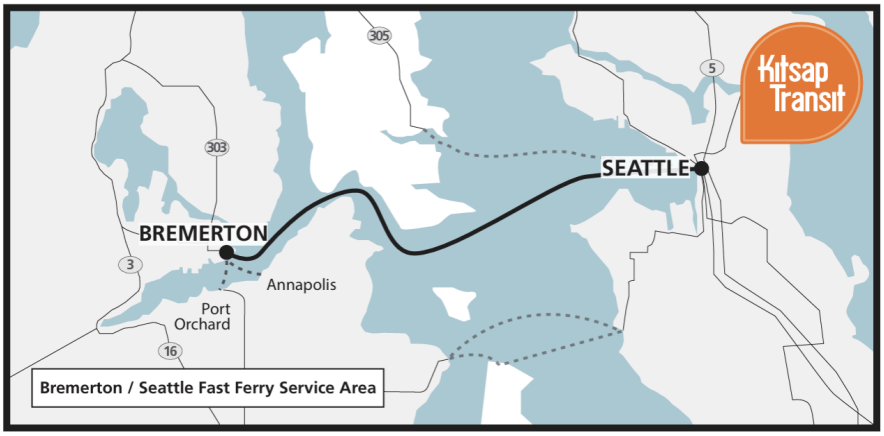
Spivack, Caroline. "Staten Island Ferry Ridership Has Nearly Doubled Since 2020, New Data Shows." *Staten Island Advance*, 18 Jan. 2025, https://www.silive.com/news/2025/01/staten-island-ferry-ridership-has-nearly-doubled-since-2020-new-data-shows.html. Accessed 10 Mar. 2025.

"Welcome to the Staten Island Ferry." *Staten Island Ferry*, https://statenislandferry.com/welcome/. Accessed 10 Mar. 2025.

Attachment #2: Case Study 2 - Kitsap Fast Ferries (Bremerton/Seattle, WA Service)

Introduction to Kitsap Transit - Kitsap Fast Ferries (Bremerton/Seattle)

Kitsap Fast Ferries is a passenger-only, high-speed ferry service operated by the Kitsap Transit Agency in the state of Washington (Kitsap Transit). The ferries are a vital service for connecting the suburbs of Bremerton, Kingston, and Southworth to downtown Seattle. The suburb of Bremerton is located on the Kitsap peninsula, which is 65.2 miles away via the fastest land and bridge highway route. Utilizing the Kitsap Fast Ferries service, the distance traveled is reduced to 16 miles (Google Maps).



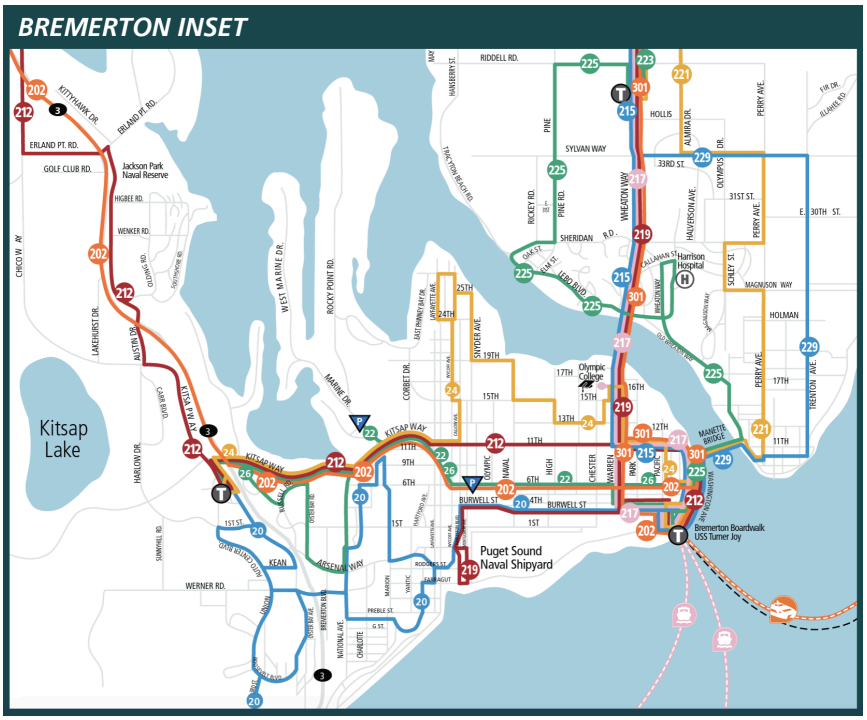
Bremerton/Seattle Service Map

The Bremerton Fast Ferry service operates Monday through Saturday from 4:40 AM to 10:10 PM on weekdays and 10:50 AM to 9:00 PM on Saturday (*Bremerton/Seattle Ferry Timetable)*. The service takes approximately 30 minutes to cross the Puget Sound and dock at Seattle's Pier 50. Utilizing the fastest land and bridge route on WA-16 E and I-5 N would take 1 hour and 8 minutes in total (Google Maps). Kitsap Fast Ferries saves around 40 minutes of a commute into Seattle's downtown core.

Kitsap Fast Ferries first began service in July 2017, with the Bremerton/Seattle service, and has been serving the region ever since. The Bremerton/Seattle service has a 40-45 minute headway and operates vessels that travel at 34-37 knots. Kitsap Transit is integrated into the Seattle region's transit service card system, ORCA, and also offers monthly passes for frequent users to use for payment and employer coverage for transit fees. Both sides of the service, Bremerton and Seattle, are heavily integrated with other public transportation forms; Seattle's Pier 50 has 7 bus connections with 2 rapid bus lines, while Bremerton Transportation Center has 13 bus connections (Google Maps). In 2024, Kitsap Fast Ferries carried over 850,000 passengers on 3 routes (Kitsap Transit).

WEEKDAYS			
Bremerton to Seattle (Eastbound)		Seattle to Bremerton (Westbound)	
Depart Bremerton Ferry Dock	Arrive Pier 50 Seattle Ferry Dock	Depart Pier 50 Seattle Ferry Dock	Arrive Bremerton Ferry Dock
AM 4:40	AM 5:10	AM 5:20	AM 5:50
5:25	5:55	6:05	6:35
6:05	6:35	6:45	7:15
6:45	7:15	7:25	7:55
7:25	7:55	8:00	8:30
8:05	8:35	8:40	9:10
8:35	9:05	9:10	9:40
9:15	9:45	9:50	10:20
9:50	10:20	10:25	10:55
10:25	10:55	11:00	11:30
PM 1:50	PM 2:20	PM 2:25	PM 2:55
3:05	3:35	3:45	4:15
3:45	4:15	4:25	4:55
4:25	4:55	5:05	5:35
5:00	5:30	5:40	6:10
5:45	6:15	6:25	6:55
6:20	6:50	7:00	7:30
7:05	7:35	7:40	8:10
7:40	8:10	8:20	8:50
9:00	9:30	9:40	10:10

Bremerton/Seattle Ferry Timetable



Bremerton Transportation Center (T) Bus Connectivity

Currently, the full fare for Kitsap Transit Fast Ferries is $2 eastbound (to Seattle) and $12 westbound (to Kitsap Peninsula suburbs). With the Kitsap Transit Monthly Trip Passes, the Fast Ferry is $196 per month. With a roundtrip price of $14, the Monthly Pass is equivalent to 14 trips across the Puget Sound. For those qualifying for a reduced fare, the price is half of the full fare: $1 and $6, respectively. This includes individuals with a valid Medicare card, Regional Reduced Fare Permit (RRFP), or any low-income passengers already receiving reduced fares via ORCA.

Kitsap Fast Ferries also allows free rides for any personal care attendants, children/youth under 18, and public safety officers (Kitsap Transit).

Kitsap Transit's Fast Ferries is not the only ferry service provider in the Puget Sound region. The largest ferry provider is the Washington State Department of Transportation's Washington State Ferries. These ferries are notably different as the entire fleet has larger ferries and provides both auto and passenger transit across water (WSDOT). This is another choice for individuals commuting via car.

Importance to the Berkeley Space Center Project

The Kitsap Fast Ferry from Bremerton to Seattle is a prime example of a well connected, established, and utilized public ferry service in the United States that prioritizes interconnectivity of multiple modes of transit. As a passenger-only service, passengers may drive and park at the ferry terminals or take advantage of the multiple bus lines that stop at the terminals on either side of the Puget Sound. The downtown core of Seattle also hosts many employment opportunities where commuters utilize Kitsap Fast Ferries as a public transit option to and from work.

This case study is important to the Berkeley Space Center (BSC) project as the SF Bay Ferry System is also a passenger-only ferry service that has similar connectivity on both sides of the bay for existing terminals. As the project plans to take advantage of the new Redwood City Ferry Terminal, the location of both BSC and the ferry terminal mirrors the importance of Seattle as an employment hub; Silicon Valley, the location of BSC and the ferry terminal, is the technology hub of the world. Not only will Berkeley affiliates be able to utilize the SF Bay Ferry to commute to BSC, but workers located in the East Bay will also have the opportunity to commute to the countless tech companies in the area via ferry.

S.W.O.C. Analysis

Strengths

- Kitsap Fast Ferries, such as the Bremerton/Seattle service, mirror the SF Bay Ferry system and the transportation option it provides to passengers commuting to and from the downtown core and employment hub of Seattle, WA.
- Ferry service is widely available and utilized in the Puget Sound region, with 12 different services available. Kitsap Fast Ferries is one of two passenger-only services connecting Seattle to other cities within the region.
- Kitsap Fast Ferries is interconnected with public transportation as both terminals can accommodate bus and other transit connections. The service is also incorporated into the region's transit card service, ORCA.

Weaknesses

- The Bremerton/Seattle route covers a shorter distance to Seattle as the central Puget Sound is not as large of a body of water.
- Kitsap Fast Ferries only provides a Monday-Friday/Saturday service as a publicly voted tax adjustment to support the system could not support a service 7 days a week.

- According to Kitsap Transit, malfunctions of the fast-ferries and a lack of available spare vessels to support the routes have occurred, leading to higher rates of cancellations in 2024.
- Kitsap Fast Ferries accommodates about half of the number of passengers of SF Bay Ferry and provides half the number of routes.

Opportunities

- SF Bay Ferry and Kitsap Fast Ferries share very similar characteristics in the services they provide. This includes:
    - Regional transit card integration
        - Option for employer coverage of employee transit fees
    - Passenger-only, high-speed service
    - Connection to employment hubs
    - Bus connectivity at ferry terminals
- BSC has the opportunity to look at Kitsap Fast Ferries as a foundation for the type of service expected from a partnership with SF Bay Ferry.
    - UC Berkeley BayPass, if instated, covers transit fees for students and Berkeley employees. Otherwise, BSC may cover transit fees for students and Berkeley employees.
    - SF Bay Ferry plans to provide all-electric and high-speed ferry service throughout the entire system by 2050. The ferries already accommodate passenger-only travel.
    - BSC is located in Silicon Valley, a major employment hub in the Bay Area. Utilization of the SF Bay Ferry system will make transit to BSC and other companies easier for those located in Berkeley, Oakland, and other cities in the East Bay.
    - The ferry terminals for Kitsap Fast Ferries accommodate bus service. The new Redwood City Ferry Terminal that will be incorporated into the SF Bay Ferry System should accommodate bus service so BSC can provide a direct shuttle service to and from the terminal and the BSC campus.

Challenges

- Ferry transit to BSC will be a longer distance and time than the Bremerton/Seattle service by Kitsap Fast Ferries.
    - The distance between the terminals within the SF Bay is about 10 miles longer than the distance between the terminals within the Puget Sound (Google Earth). The ease of access between Oakland/Redwood City, when compared to Bremerton/Seattle, may be overstated.
    - The current vessels utilized by Kitsap Fast Ferries are not electrified and faster than the new vessels that the SF Bay Ferry System plans to utilize on all routes.
- The unreliability of ferry transit seen in Kitsap Fast Ferries
    - If SF Bay Ferry faces similar issues of a lack of spare vessels and general malfunctions, it may become an unreliable transit option for BSC as seen with Kitsap Fast Ferries and the potential cancellation of trips. SF Bay Ferry must have a sufficient number of spare vessels to ensure reliability for BSC to utilize the ferry as the main transportation option, especially being a larger system.

Overall Recommendations

Kitsap Fast Ferries (Bremerton/Seattle service) serves as a valid case study and potential for the SF Bay Ferry system as the Seattle-area ferry provides rapid transit across the Puget Sound, saving commuters around 40 minutes of driving. Both systems are passenger-only and operate a similar fleet of vessels. Berkeley Space Center should utilize the operations and system design of Kitsap Fast Ferries as a comparable system as a recommendation tool for how the SF Bay Ferry system should operate to accommodate the Berkeley affiliates transiting the San Francisco Bay to Silicon Valley. This includes the timing of headways and ability of the new Redwood City terminal to allow bus transit connectivity. BSC should continue to support SF Bay Ferry's participation in the UC Berkeley BayPass program or develop a separate partnership for Berkeley affiliates to have ferry costs subsidized by BSC. Lastly, BSC should also hold SF Bay Ferry accountable to possess spare vessels in the case that the new, all-electric ferries face any technical challenges.

Bibliography

Friedrich, Ed. "First Fast Ferry Sailed at Sunrise." *Kitsap Sun*, Kitsap, 10 July 2017, www.kitsapsun.com/story/news/2017/07/10/first-fast-ferry-sailed-sunrise/464144001/. Accessed 10 Mar. 2025.

Kitsap Transit. "Our Ferry Fleet | Kitsap Transit." *Www.kitsaptransit.com*, www.kitsaptransit.com/agency-information/our-ferry-fleet.

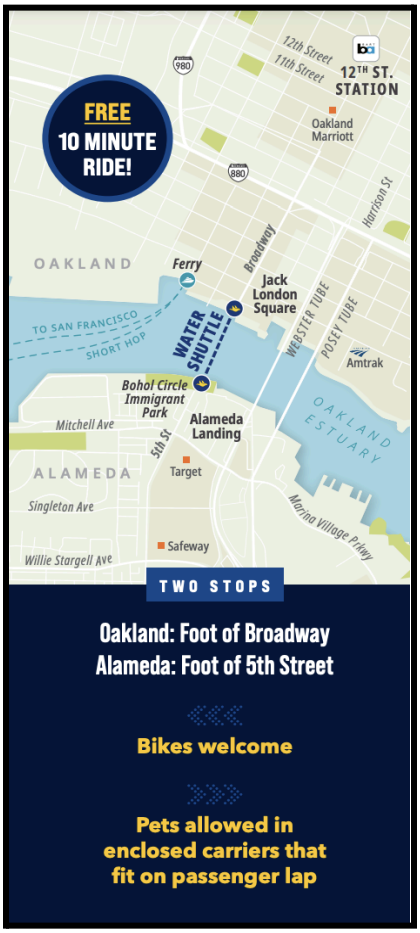
Kitsap Transit. "Kitsap Transit Ferries Carried More than 1.22 Million Passengers in 2024 ." *Kitsap Transit Press Release*, 2025.

Kitsap Transit. "Long-Range Transit Plan 2022-2042." *Kitsap Transit*, 2022, www.kitsaptransit.com/uploads/pdf/planning/lrtpreport_6dec2022.pdf.

Kitsap Transit. "Potential Service Disruptions on Kingston, Southworth Ferry Routes." *Kitsap Transit Press Release*, 2024, www.kitsaptransit.com/uploads/pdf/news-releases/20240730release_kingston_southworth_nospares.pdf.

Washington State Department of Transportation. "Ferries & Terminals | WSDOT." *Wa.gov*, 2025, wsdot.wa.gov/travel/washington-state-ferries/ferries-terminals.

Attachment #3: Case Study 3 - Oakland Alameda Water Shuttle (Woodstock)



Woodstock "Two Stops" Route Map

The Oakland Alameda Water Shuttle, or Woodstock, is a newly-developed, free ferry service that connects passengers between Oakland's Jack London Square and Alameda Landing. Just shy of a year ago, this project was launched on July 17, 2024 to improve sustainable transportation options and reduce vehicle traffic. The 45-foot yellow pontoon vessel initially began as a project under Bike Walk Alameda that aimed to implement a service between the two now-existing stops with minimum of 20-minute headways (Bike Walk Alameda). In 2009, the shuttle as the form of transit for this crossing was identified as the main alternative for bicyclists traveling this route. Thus, the City of Alameda placed this project within its priority for its Transportation Choices Plan (City of Alameda, 2018). Woodstock closes the one-mile distance across the Oakland-Alameda Estuary (City of Alameda, 2018) from a varying 30 minute route into a 5 to 10 minute crossing.

The ADA-accessible, pilot shuttle carries around 30 passengers and 15 bikes per trip (Port of Oakland, 2024), offering 37 trips per day. The water shuttle was a collaborative effort between Bike Walk Alameda, the Port of Oakland, City of Alameda, Alameda Transportation Management Association (ATMA), SF Bay Berry, and private partners like CIM Group (City of Alameda, 2023). These coalition of groups argued that there is no adequate, safe, or convenient access for pedestrians to cross the Oakland Alameda Estuary Crossing. Thus, they decided that the water shuttle should be the short- to medium-term solution for this gap (City of Alameda City Council 2023). The SF Bay Ferry manages the operation of the OAWS Woodstock (Port of Oakland, 2024). The project was launched in 2024 as a pilot project scheduled for two years (Alameda Post, July 2024). Within the first 3 months, the operation carried over 34,000 riders and 7,400 bikes (Alameda Post, October 2024), causing a winter expansion to an additional 52 more trips.

The pilot had a capital stack of the City of Alameda's one million dollar grant from the Alameda County Transportation Commission to fund 25-percent of the operating costs and the remaining 75-percent receiving local matches covered by the City of Alameda's Measure BB funds and other private partners. The funding from this program were relatively low-cost despite its free

fare to its riders. Additionally, from this project, there was a reduction in auto-reliance for pedestrians, with 22-percent of riders investing in bicycles (Rudick 2024).

WEDNESDAY - THURSDAY		FRIDAY		SATURDAY - SUNDAY	
LEAVES OAKLAND	LEAVES ALAMEDA	LEAVES OAKLAND	LEAVES ALAMEDA	LEAVES OAKLAND	LEAVES ALAMEDA
7:00am	7:15am	8:00am	8:15am	8:00am	8:15am
7:30am	7:45am	8:30am	8:45am	8:30am	8:45am
8:00am	8:15am	9:00am	9:15am	9:00am	9:15am
8:30am	8:45am	9:30am	9:45am	9:30am	10:35am
9:00am	9:15am	10:00am	11:05am	10:50am	11:05am
9:30am	9:45am	11:20am	11:35am	11:20am	11:35am
10:00am	11:05am	11:50am	12:05pm	11:50am	12:05pm
11:20am	11:35am	12:20pm	12:35pm	12:20pm	12:35pm
11:50am	12:05pm	12:50pm	1:05pm	12:50pm	1:05pm
12:20pm	12:35pm	1:20pm	1:35pm	1:20pm	1:35pm
2:20pm	2:35pm	4:00pm	4:15pm	2:20pm	2:35pm
2:50pm	3:05pm	4:30pm	4:45pm	2:50pm	3:05pm
4:10pm	4:25pm	5:00pm	5:15pm	5:05pm	5:20pm
4:40pm	4:55pm	5:30pm	5:45pm	5:35pm	5:50pm
5:10pm	5:25pm	6:00pm	6:15pm	6:05pm	6:20pm
5:40pm	5:55pm	6:30pm	6:45pm	6:35pm	6:50pm
6:10pm	6:25pm	7:00pm	7:30pm	7:05pm	7:35pm
6:40pm	6:55pm	7:45pm	8:00pm	7:50pm	8:05pm
7:10pm	7:25pm	8:15pm		8:20pm	

OAKLAND · ALAMEDA · WATER SHUTTLE

FREE 10 MINUTE RIDE!

NO SERVICE MONDAY & TUESDAY

OAWS Woodstock Original Shuttle Schedule

LEAVING ALAMEDA		LEAVING OAKLAND	
WED / THURS	FRI / SAT / SUN	WED / THURS	FRI / SAT / SUN
7:30am	8:30am	7:41am	8:41am
7:52am	8:52am	8:03am	9:03am
8:14am	9:14am	8:25am	9:40am
8:36am	9:51am	8:47am	10:02am
8:58am	10:13am	10:25am	11:10am
10:36am	11:22am	11:33am	11:34am
11:45am	11:46am	11:57am	11:58am
12:09pm	12:10pm	12:36pm	12:22pm
12:48pm	12:49pm	1:00pm	1:01pm
1:12pm	1:13pm	1:54pm	1:25pm
2:05pm	1:37pm	2:16pm	1:49pm
2:27pm	2:01pm	2:38pm	2:13pm
2:49pm	2:25pm	3:16pm	3:07pm
3:27pm	3:19pm	3:38pm	3:31pm
3:49pm	3:43pm	4:46pm	4:10pm
4:58pm	4:22pm	5:10pm	4:34pm
5:22pm	4:46pm	5:34pm	4:58pm
5:46pm	5:10pm	5:58pm	6:07pm
6:10pm	6:19pm	6:22pm	6:31pm
6:34pm	6:43pm	6:46pm	6:55pm
7:13pm	7:07pm	7:25pm	7:34pm
7:37pm	7:46pm	7:49pm	7:58pm
8:01pm	8:10pm	8:13pm	8:22pm
	8:34pm		8:46pm
	8:58pm		

GREY LINES = SERVICE BREAK

OAKLAND · ALAMEDA WATER SHUTTLE

FREE 7 MINUTE RIDE!

NO SERVICE MONDAY & TUESDAY

OAWS Woodstock Expanded Shuttle Schedule

Importance for the NASA Ames Berkeley Space Center Development

With a high ridership of nearly 775 passengers per day for free, OAWS Woodstock is a leading water transportation example in the Bay Area of cost-friendly, environmentally-aware, community-driven transportation project. By closing the waterfront terminal gap between frequent riders of the SF Bay Ferry, Woodstock provides a solution for both first mile, last mile transportation planning as well as reducing parking demand for transportation developments. Due to the Berkeley Space Center estimating an exponential growth in riders to travel through the SF Bay Ferry system to the new Redwood City terminal development, the already-existing model of high ridership within Woodstock showcases how riders will utilize projects that minimize their travel time to ferry systems. Projects that are community-demanded, such as the desire for a quicker method of transportation across the East Bay to the South Bay, represents the estimated success of implementing a water-based transportation system for traveling to the Berkeley Space Center. Not only this, the excited surrounding the community's use of this is celebrated due to its community-driven roots. Thus, ensuring a community-based participatory development like a shuttle to the SF Bay Ferry would determine high ridership status.

Additionally, the public-private partnerships demonstrate a successful collaborative funding and operations model that resulted in free fares, high ridership, reliable access, and low-cost infrastructure. Because the development of the NASA Ames Berkeley Space Center project is already underway as a public-private partnership with SKS Partners, this financial operation allows for a modeling of the method of establishing a public-private partnership for transportation as well, and how it would benefit both parties.

S.W.O.C. Analysis

Strengths:

- *Cost-Effectiveness*: Woodstock itself was low-cost in relation to its infrastructure and provided a solution to high-demand in minimal timing. The quick implementation of the program launched within 12 months of governmental planning, although beginning as a bike-pedestrian movement.
- *Community Participation*: Not only in ridership, but the community-based participation in the planning process–starting as a grassroots demand–showed that communities have a voice in their preferred method of transportation. Community-based participation leads to direct community participation in transportation.
- *Accessibility to Shuttle Service:* The expanded schedule is able to accommodate for more riders, the shuttle is ADA accessible, and also prioritizes transporting bicycles for pedestrians. The shuttle is free for all riders, which does not limit the demographic of any riders and minimizes riders' costs.

Weaknesses:

- *Capacity Constraints:* High-utilization of Woodstock leads to frequent overcrowding given the 31-person limitations. This may lead to the need for frequent repairs and maintenance. If ridership continues to increase steadily, schedule expansion might also be in-demand.
- *Weather Vulnerability:* There is limited infrastructure at the docks that provide shelter for riders during winter weather conditions. High winter winds disrupts the service provided, which may push away riders for its reliability during this particular season. This also affects maintenance of water-based transportation.

Opportunities:

- *Test-Based Services:* Following suit of Woodstock, starting with a pilot program of a land-based shuttle service to the ferry terminal for the route to Berkeley Space Center would allow room for expansion or reduction of service times. This room for growth ensures that riders are being heard in the continuous development of this transportation system.
- *Timeframe for Implementation:* Woodstock was implemented within 12 months of planning, which could be mimicked through Berkeley Shuttles service expansion. Quick implementation of the plans would increase riders' trust in this transportation service.
- *Public-Private Partnership Financial Model:* Already reflecting a public-private partnership financial model, Berkeley Space Center could benefit from expanding its plans to include transportation in its existing plan with SKS Partners. The capital stack of City of Berkeley grants and private funding would further minimize costs of the shuttle services. Further, water shuttles are significantly more expensive than land-based shuttles due to water-based infrastructure and maintenance. The BSC proposed project aims to utilize land-based shuttles to transport riders to the ferry terminal, which would minimize estimated costs greatly.
- *Bike and Pedestrian-Focused:* This project aligns with Berkeley's goals to reduce autocentric infrastructure and support sustainable transportation to the waterfront ferry terminal. This could also increase utilization of bicycles in the Berkeley Space Center campus overall.

Challenges:

- *Parking management:* Determining the parking space of expanded Berkeley Shuttles would be important to plan for. Additionally, the need for transit-adjacent parking might be in-demand with the idea of 54-percent of projected Berkeley ferry riders may drive to the terminal stop (City of Berkeley, 2025).
- *Capacity Constraints:* Existing Berkeley shuttles have limited capacity and are for smaller designs. The land-based shuttles would need to ensure comfortability and larger

space to accommodate for ADA accessibility and a longer travel time—relative to around campus—to the ferry terminal.

- *Schedule Design:* In order for riders to choose the shuttle to SF Bay Ferry route as the engaged form of transportation within the pilot program with minimal marketing, there would need to be an implementation of this transportation within transit applications such as Transit. This would increase reliability and show real-time transportation information for breaking trust barriers and increasing ridership.

Overall Recommendations:

Reflecting on the Woodstock plan, there are three main points to consider when implementing the Berkeley Space Center transportation project:

1. Launch a pilot program with a single vessel to test routes and schedules before larger-scale development. This would prioritize the Berkeley and East Bay staff and students that travel to NASA Ames on a weekly basis already.
2. Secure multi-agency funding to incorporate different transportation plans and private developers to minimize costs and generate excitement and management over the transit service. This would also create sub-projects available for students to develop a GIS mapping system for real-time transportation information and application usage of shuttles and ferry-based transportation.
3. Include Berkeley students and faculty in the planning process of this transit project to center the transportation method around what students and faculty are interested in riding. Pushing for water-based transportation would increase student awareness of the SF Bay Ferry as reliable methods of transportation, especially used by workers as their main form of transportation. This would close the bridge between Berkeley students and the SF Bay Ferry, while also ensuring their own voice represented in the plans.
4. Ensure that the shuttles and shuttle stops are visible and accessible for the Berkeley riders. Similar to Woodstock's nickname and yellow design, this would generate excitement over the use and reliability of the transit form.

Already existing trust in Berkeley shuttles are great for students and faculty to generate more use of the proposed transportation plan. Woodstock's community-driven roots are reflective of this plan's commitment to community-driven usage.

Bibliography

City of Alameda. (2024). *Oakland Alameda Water Shuttle trifold brochure.* https://www.alamedaca.gov/files/assets/public/v/1/departments/alameda/transportation/water-shuttle/oaws_trifold_forprint_ver_2024-07-17.pdf?ref=themorningbun.com

Alameda Post. (2024, July 17). *New water shuttle "Woodstock" launches July 17.* Alameda Post. https://alamedapost.com/news/new-water-shuttle-woodstock-launches-july-17/

Port of Oakland. (2024, July 17). *Oakland-Alameda Water Shuttle launches July 17.* https://www.portofoakland.com/oakland-alameda-water-shuttle-launches-july-17/

City of Alameda. (2023). *Oakland-Alameda Water Shuttle to launch July 17.* https://www.alamedaca.gov/Shortcut-Content/News-Media/Oakland-Alameda-Water-Shuttle-to-Launch-July-17

City of Alameda. (2022). *Legislation Detail: Estuary water shuttle service agreement.* Alameda Legistar. https://alameda.legistar.com/LegislationDetail.aspx?ID=5688913&GUID=8087B86E-0D6F-4748-883A-8E8BFA39B148&FullText=1

City of Alameda. (2023). *Legislation Detail: Estuary water shuttle service agreement.* Alameda Legistar. https://alameda.legistar.com/LegislationDetail.aspx?ID=6254491&GUID=4D4A8581-B11A-4160-B4E7-0D121F0A2B6B&FullText=1

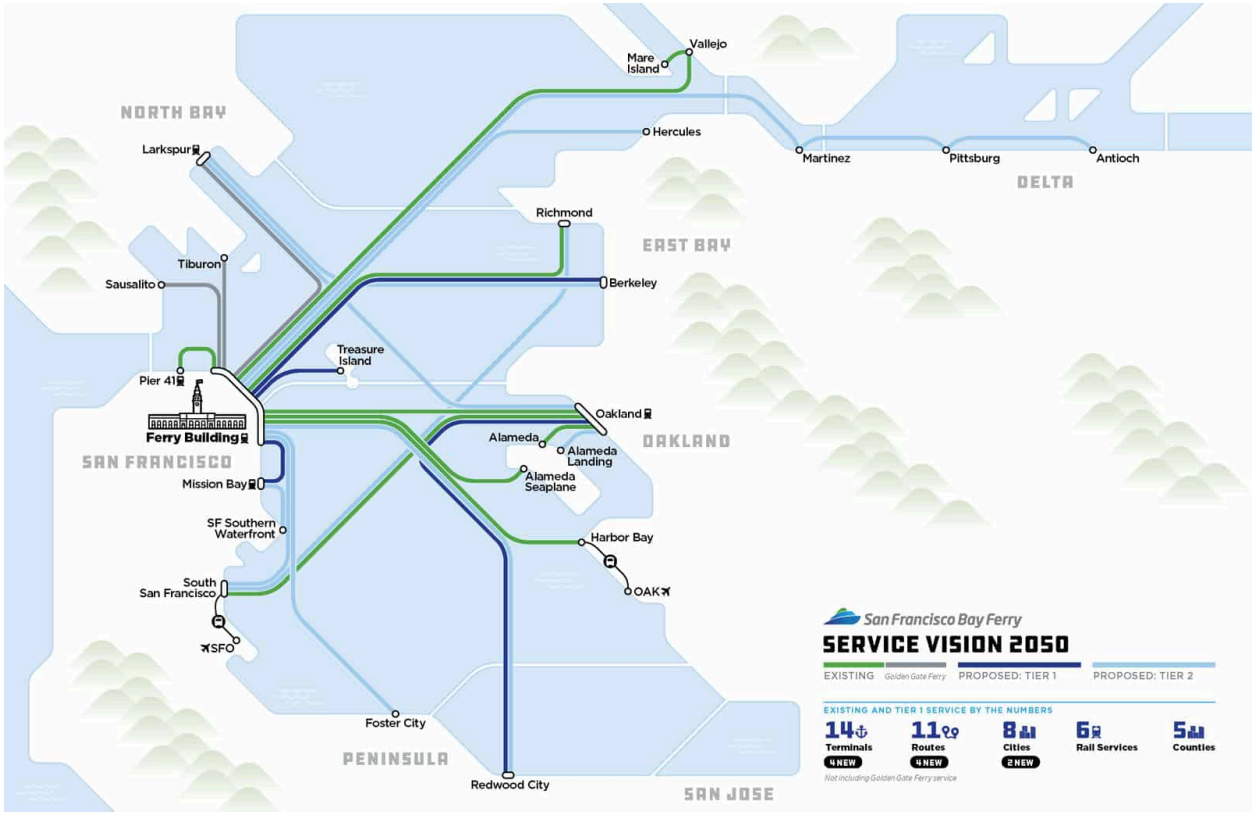
Bike Walk Alameda. (n.d.). *Estuary water shuttle.* https://bikewalkalameda.org/estuary-water-shuttle/

City of Alameda. (n.d.). *Transportation Choices Plan.* https://www.alamedaca.gov/files/sharedassets/public/v/1/public-works/climate-action-page/transportation-choices-plan.pdf

Alameda Post. (2024). *Woodstock update: More trips, new expanded schedule.* Alameda Post. https://alamedapost.com/features/alameda-life/woodstock-update-more-trips-new-expanded-schedule/

Streetsblog SF. (2024, August 28). *Commentary: Let's talk about Woodstock—the Water Shuttle V2.0.* Streetsblog San Francisco. https://sf.streetsblog.org/2024/08/28/commentary-lets-talk-about-woodstock-the-water-shuttle-v2-

Attachment # 4: San Francisco Bay Ferry Service Vision 2050 Map



Attachment #5: Ferry Design and Amenities

Amenities:
The ferries will have plenty of outdoor seating for passengers to enjoy nice weather as well as comfortable areas to work and socialize inside. Furthermore, there will be an indoor area with snacks and refreshments for passengers to purchase. This includes alcoholic beverages as many of these passengers will not need to use a car for personal transportation throughout the entirety of the trip.

The ferry fleet will also have WiFi for general travelers to use and encrypted WiFi for the NASA AMES/BSC employees and students so they can work during the ride. The encrypted specific WiFi may be available in office areas in the boats where there will be desks, outlets, and if desired, can be utilized as a conference room to accommodate meetings or post-work happy hours.

Notably, there will be a bike parking area for bike users to leave their bikes for the trip on the ferry.

Below is a rendering of the Rapid Electric Emission Free Ferry (REEF) - to be launched in 2026 and utilized by the SF Bay Ferry program. This falls in time for implementing the new Oakland to Redwood City route.

New unveiled high-speed electric ferry design (*Post Staff Reporting)*

Attachment #6: Ferry Schedule and Technical Ferry Details

Every 60 minutes (in the morning and evening), 2 ferries alternately leave each port at the same time and cross paths. Both ferries will take a midday stop at their arrival port in order to be cleaned, serviced and refueled for 100 minutes.

The ferries will be able to travel at 24 knots, powered by dual 625 kilowatt electric motors. They will be 100 feet long, have a beam of 26 feet, and a draft of 5.9 feet.

Key:
Yellow - represents times that the ferry has a headway of 150 minutes due to being cleaned, refueled, and serviced.

Projected Ferry Schedule:

Oakland to Redwood City		Redwood City to Oakland	
Depart Oakland	Arrive Redwood City	Depart Redwood City	Arrive Oakland
5:00 AM	5:50 AM	5:00 AM	5:50 AM
6:00 AM	6:50 AM	6:00 AM	6:50 AM
7:00 AM	7:50 AM	7:00 AM	7:50 AM
8:00 AM	8:50 AM	8:00 AM	8:50 AM
9:00 AM	9:50 AM	9:00 AM	9:50 AM
10:00 AM	10:50 AM	10:00 AM	10:50 AM
11:00 AM	11:50 AM	11:00 AM	11:50 AM
1:30 PM	2:20 PM	1:30 PM	2:20 PM
2:30 PM	3:20 PM	2:30 PM	3:20 PM
3:30 PM	4:20 PM	3:30 PM	4:20 PM
4:30 PM	5:20 PM	4:30 PM	5:20 PM
5:30 PM	6:20 PM	5:30 PM	6:20 PM
6:30 PM	7:20 PM	6:30 PM	7:20 PM
7:30 PM	8:20 PM	7:30 PM	8:20 PM
8:30 PM	9:20 PM	8:30 PM	9:20 PM

Attachment #7: Shuttle Schedule (Berkeley/Oakland Ferry Terminal) and Technical Details

The shuttle will stop first outside of BAMPFA near Li Ka Shing, then at the bus/shuttle stop at College Avenue and Bancroft Avenue, and again on Dana Street and Bancroft Avenue before directly heading to the Oakland Ferry Terminal.

This shuttle route takes 20 minutes one way and 40 roundtrip, in order to meet the first ferry of the day it starts running at 4:30am (Berkeley to Oakland) and will make its last trip at 9:20pm (from Oakland to Berkeley) in order to accommodate the last ferry out of Oakland. The shuttle will continue with a headway of 40 minutes throughout the entire day in order to encourage more people to use the ferry system (the Oakland ferry terminal has routes all over the Bay Area including into San Francisco).

Two shuttles will be necessary to make this schedule work in order to make the ferry the most practical and efficient way for commuters to travel to and from the two identified locations.

These shuttles are able to take bikes in front of the shuttle on the bike rack.

Key:
Yellow - Deadhead
* *Shuttle cleaned/refueled in Berkeley*
** *Shuttle cleaned/refueled in Oakland*

Projected Shuttle Schedule:

Berkeley to Oakland (Pick Up Only)		Oakland to Berkeley (Drop Off Only)	
Depart from BAMPFA Stop	Arrive at Oakland Ferry Terminal	Depart from Oakland Ferry Terminal	Arrive at BAMPFA Stop
4:30 AM	4:50 AM	5:50 AM	5:10 AM
5:30 AM	5:50 AM	6:00 AM	6:20 AM
6:30 AM	6:50 AM	7:00 AM	7:20 AM
7:30 AM	7:50 AM	8:00 AM	8:20 AM
8:30 AM	8:50 AM	9:00 AM	9:20 AM
9:30 AM	9:50 AM	10:00 AM	10:20 AM
10:30 AM	10:50 AM	11:00 AM	11:20 AM
11:30 AM	11:50 AM	12:00 PM	12:20 PM*

1:00 PM	1:20 PM	1:30 PM	1:50 PM
2:00 PM	2:20 PM	2:30 PM	2:50 PM
3:00 PM	3:20 PM	3:30 PM	3:50 PM
4:00 PM	4:20 PM	4:30 PM	4:50 PM
5:00 PM	5:20 PM	5:30 PM	5:50 PM
6:00 PM	6:20 PM	6:30 PM	6:50 PM
7:00 PM	7:20 PM	7:30 PM	7:50 PM
8:00 PM	8:20 PM**	9:30 AM	9:50 PM

Attachment #8: NASA Berkeley Space Center Shuttle Schedule and Technical Details

Two shuttles will be necessary to make this schedule work in order to make the ferry the most practical and efficient way for commuters to travel to and from the two identified locations. These shuttles, since private, should be equipped with encrypted and secured WiFi so that NASA and Berkeley Space Center employees and students can work even briefly on this ride which is 20 minutes one way (the shuttles take a round trip of 40 minutes). Headway will be 40 minutes during rush hours and 80 when the ferry slows down mid day.

Key: Yellow - Deadhead
** Shuttle cleaned/refueled at Redwood City Ferry Terminal*
*** Shuttle cleaned/refueled at Nasa Ames/BSC*

These shuttles are able to take riders' bikes on a front of shuttle bike rack.

Projected Shuttle Schedule:

Redwood City to Nasa Ames/BSC (Drop Off Only)		Nasa Ames/BSC to Redwood City (Pick Up Only)	
Depart from Redwood City Ferry Terminal	Arrive at Nasa Ames/BSC	Depart from Nasa Ames/BSC	Arrive at Redwood City Ferry Terminal
X	X	4:30 AM	4:50 AM
5:00 AM	5:20 AM	5:30 AM	5:50 AM
6:00 AM	6:20 AM	6:30 AM	6:50 AM
7:00 AM	7:20 AM	7:30 AM	7:50 AM
8:00 AM	8:20 AM	8:30 AM	8:50 AM
9:00 AM	9:20 AM	9:30 AM	9:50 AM
10:00 AM	10:20 AM	10:30 AM	10:50 AM
11:00 AM	11:20 AM	11:30 AM	11:50 AM
12:00 PM	12:20 PM	1:00 PM	1:20 PM*
2:30 PM	2:50 PM	3:00 PM	3:20 PM
3:30 PM	3:50 PM	4:00 PM	4:20 PM

4:30 PM	4:50 PM	5:00 PM	5:20 PM
5:30 PM	5:50 PM	6:00 PM	6:20 PM
7:30 PM	7:50 PM	8:00 PM	8:20 PM
8:30 PM	8:50 PM	9:00 PM	9:20 PM
9:30 PM	9:50 PM**	X	X

Attachment #9: Ferry, Berkeley Shuttle and NASA Shuttle Financing

Ferry:

- $5 One Way Tickets: for the public
- $2,000 Yearly Pass: can be bought by public and is mostly meant for daily commuters - the expectation is that the Berkeley Space Center/UC Berkeley/NASA Ames/Involved Private Investors will be paying this fee for their employees
    - At full functioning capacity, the estimate is that 600 people daily will be using the ferry, which will total $1,200,000 in fees that are collected in farebox recovery fees.
- For UC Berkeley students, the UC Berkeley BayPass may cover ferry rides and is prepaid for in tuition

Berkeley to Oakland Ferry Terminal Shuttle:

- Standard fares for shuttle will charge $2.25 via Clipper card for the public
    - The Clipper card is currently paid for in tuition for UC Berkeley students so this will remain free for students

Redwood City Ferry Terminal to NASA Ames/BSC Shuttle:

- A free service for those who are affiliated with NASA Ames/Berkeley Space Center
    - Both employees and students proved with work/school IDs
    - Financed through NASA Ames/SKS Partners

Overall Bibliography*

"Oakland & Alameda Ferry Route." *San Francisco Bay Ferry*, sanfranciscobayferry.com/routes-schedules/oakland-alameda/.

Post Staff Reporting. "SF Bay Ferry Unveils Design for First High-Speed Electric Vessels." *Alameda Post*, 12 Aug. 2024, alamedapost.com/news/sf-bay-ferry-unveils-design-for-first-high-speed-electric-vessels/.

"San Francisco Bay Ferry Agrees to Purchase Nation's First Battery-Electric Ferries from All American Marine." *San Francisco Bay Ferry*, 12 Dec. 2024, sanfranciscobayferry.com/san-francisco-bay-ferry-agrees-to-purchase-nations-first-battery-electric-ferries-from-all-american-marine/.

UC Berkeley Parking & Transportation. *BayPass Pilot*. UC Berkeley, 2021. https://pt.berkeley.edu/BayPass_Pilot.

Water Emergency Transportation Authority. *2025 Service Vision and Expansion Policy*. Water Emergency Transportation Authority, 2024. Retrieved 19 Feb. 2025, from https://drive.google.com/file/d/1oUU9-b9tB3UzBeSntqVKf2k74VwQcqlw/view.

* Find case study sources attached in Individual bibliographies at the end of each case study attachment