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Grant for hydrofoiling fast passenger ferry prototype

New technologies have matured that would enable a hydrofoiling fast passenger ferry to decrease fuel consumption up to ~50% while increasing operating speed to ~50 knots (57mph) vs status quo, vastly reducing commute times and easing roadway congestion. A prototype is necessary to demonstrate these capabilities.

Additional submitted attachment is included below.

A \$5M CEC grant to prototype a next generation hydrofoiling fast passenger ferry could reduce ferry carbon emissions by 50%+ and dramatically reduce ferry route times

- We propose setting aside **\$5 million** to prototype a **next-generation hydrofoiling passenger ferry** that can deliver **operating speeds up to 50 knots** (58 mph) while **reducing fuel consumption by 50%** or more compared to the best diesel fast catamaran passenger ferries planned or in use in the SF Bay Area
- **Multiple technologies have matured over the past decade** to the point where they can be integrated and demonstrated in a passenger ferry prototype, but no such vessel has yet been built or demonstrated
 - Lightweight composite hull design
 - Advanced hydrofoils
 - Electric drive propulsion
 - Alternative fuel sources or diesel/electric hybrid
- This means **California can be the global leader** in safe, high speed, fuel-efficient, low emission water transportation that can truly substitute for vehicles and reduce CA's carbon footprint
- The combination of **high speed** and **low operating cost** enabled by such a design would:
 - (1) make commuting on **long ferry routes more competitive with driving**, like **Vallejo to San Francisco in 30 minutes** vs 60-70 currently on 34-knot vessels
 - (2) enable new routes, like Vallejo to Redwood City in 60 minutes, or Antioch to SF in 60 minutes
- The technologies are sufficiently mature to prototype, but not sufficiently demonstrated in passenger ferries for transit authorities to order outright. A 50-passenger ferry could be prototyped for \$5M to demonstrate these capabilities, which can then be scaled up for customers to order ~150-450 passenger production versions to replace their current fleets over time
- Expanding passenger ferry use is highly equitable because it serves commuters unable to live in High Cost of Living areas (e.g. SF and Peninsula), saving up to an hour per commuter per day, in addition to reducing Bay Area road congestion
- This investment would be cost neutral for production vessels over their service life, with fuel savings offsetting the higher up front manufacturing costs associated with the new design

Benefits of a Next Generation Hydrofoiling Passenger Ferry



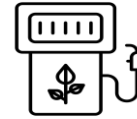
40-60kts

cruising speed



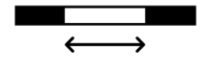
50-450

passengers



30-50%

fuel reduction vs
diesel fast catamaran



~400nm

range



low draft

retractable foil enables berthing
and shallow-water operations



low wake

enables additional routes
and high-speed last-mile



smooth

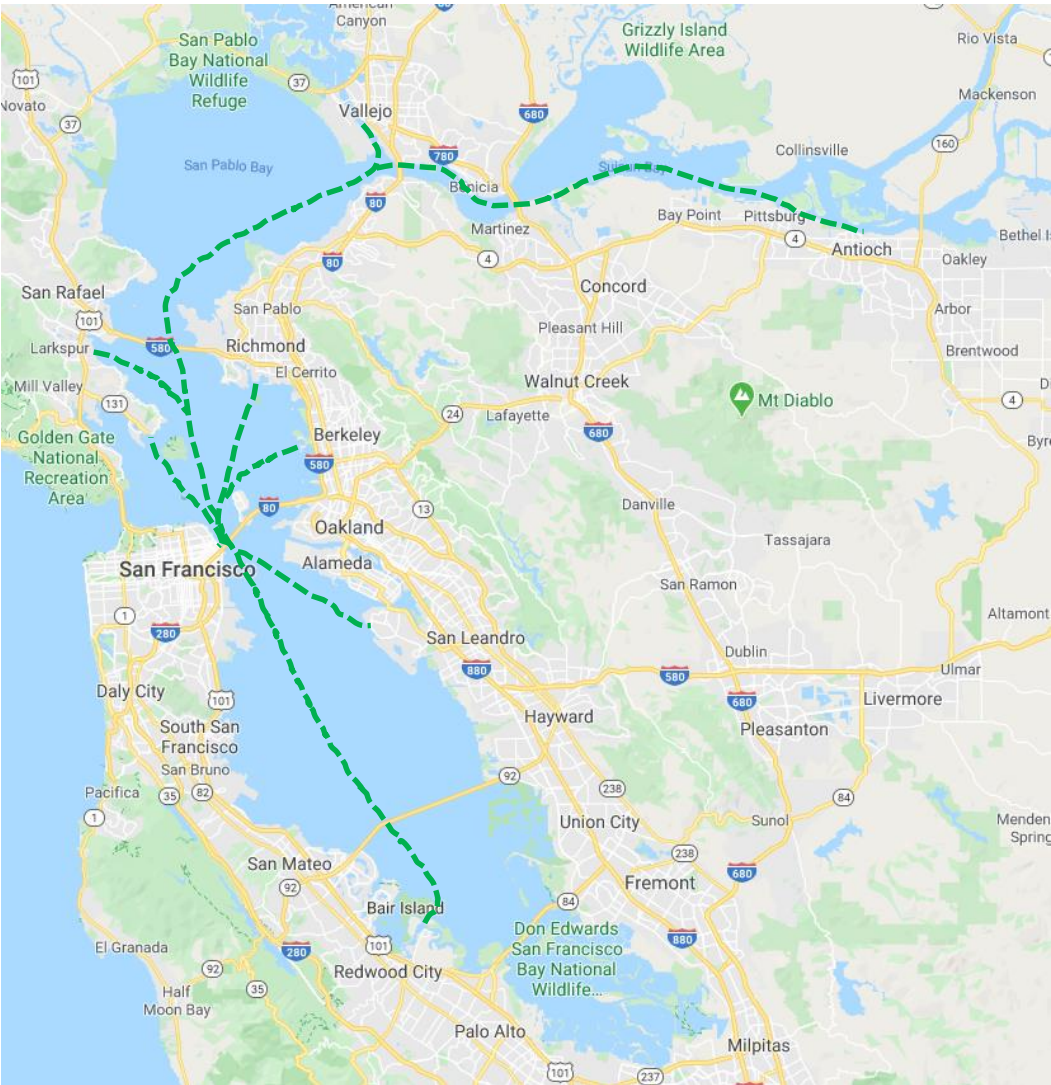
hydrofoils ride
like a bullet train








affordable

similar or lower total
cost of ownership

Trip times can be reduced by up to 50% on existing and potential Bay Area passenger ferry routes, making ferries more competitive with on-road vehicle traffic



| Example Route | Operator | Current Duration (minutes) | Potential Duration |
|------------------------|---|----------------------------|--------------------|
| Vallejo – SF* |  San Francisco Bay Ferry | 60-70 | 30 |
| Richmond – SF |  San Francisco Bay Ferry | 35 | 15 |
| Harbor Bay – SF |  San Francisco Bay Ferry | 25 | 15 |
| Tiburon – SF |  | 30 | 15 |
| Larkspur – SF* |  | 30 | 15 |
| Redwood City – SF | <i>new route</i> | ~60 | 30 |
| Antioch – SF | <i>new route</i> | ~100 | 60 |
| Vallejo – Redwood City | <i>new route</i> | ~120 | 60 |

Note: *Potential duration assumes regulatory relief from slow speed zones where wake is no longer an issue (near-zero wake when hydrofoiling); may require a medium-wake deceleration zone