Innovative Clean Transit Plan and Emission Zero Program Update

Topics

- Innovative Clean Transit (ICT) Regulation/ICT Plan
- Emission Zero Program Update
  - Fleet
  - Infrastructure at North Base (NB) and South Base (SB)
- ICT Plan Estimates for Vehicles & Infrastructure
- Funding, Risks and Mitigation

ICT Regulation

- 2018: California Air Resources Board (CARB) adopted Innovative Clean Transit Regulation (ICT)
- Requires transit agencies to transition their fleets to zero emission (ZE) technology by 2040
- ZEBs include Battery Electric Buses (BEBs) and Hydrogen Fuel Cell Buses (FCEBs)
- SamTrans developed ICT Plan for compliance
- Board approved initial ICT Plan in 2020 and revised ICT Plan in 2023

SamTrans ICT Plan

SAN MATEO COUNTY TRANSIT DISTRICT

SAMTRANS INNOVATIVE CLEAN TRANSIT ROLLOUT PLAN

NOVEMBER 2023

samTrans

Board Adopted ICT Plan

- Elimination of diesel procurement; accelerated fleet conversion to 100% ZEV to 2034, compared to 2038 in the original ICT Plan
- Included BEB and FCEB technologies to provide resiliency and operational flexibility compared to using BEB as single technology
- Shifted 2023-2025 bus procurements to evaluate ZEB technologies and align construction of ZE infrastructure
- Increased focus on workforce development

Emission Zero Program

Evaluation Criteria for Mix of ZEBs

- Operating Costs & Flexibility
- Infrastructure Cost & Footprint
- Maintenance Costs & Requirements
- Energy Consumption & Cost
- Reliability of Energy Supplier
- Emerging and Evolving Technologies

ICT Vehicle Procurement

- SamTrans Fixed Route Fleet: 322 buses (inc. 155 ZEBs)
  - NB (140), SB (111), and CUB (71)
- BEBs (37)
  - 17 BEBs from New Flyer (16 in revenue service, 1 in revenue service mid-2025)
  - 20 BEB from Gillig LLC (10 on site, 10 scheduled for delivery; all to be operational by late-2025)
- FCEBs (118)
  - 10 FCEBs from New Flyer (10 delivered, in revenue service)
  - 108 FCEBs ordered from New Flyer (delivery 2025-2026)
- Remaining (167) buses: Technology and quantities to be determined

Fleet Replacement Plan

Procurement Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
FCEBs (No. Base)	0	10	0	108	29	0	0	0	0	0	0	31	178
BEBs (So. Base)	7	30	0										37
ZEBs (So. Base)				0	0	33	0	0	50	0	0	24	107
Total	7	40	0	108	29	33	0	0	50	0	0	55	322
Delivery	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
BEBs		1	16	10	10								37
FCEBs			2	8	13	95							118
Total		1	18	18	23	95							155

Hydrogen Fuel Cell Electric Bus (FCEB)

Battery Electric Bus (BEB)

Zero Emission Bus (ZEB) - TBD

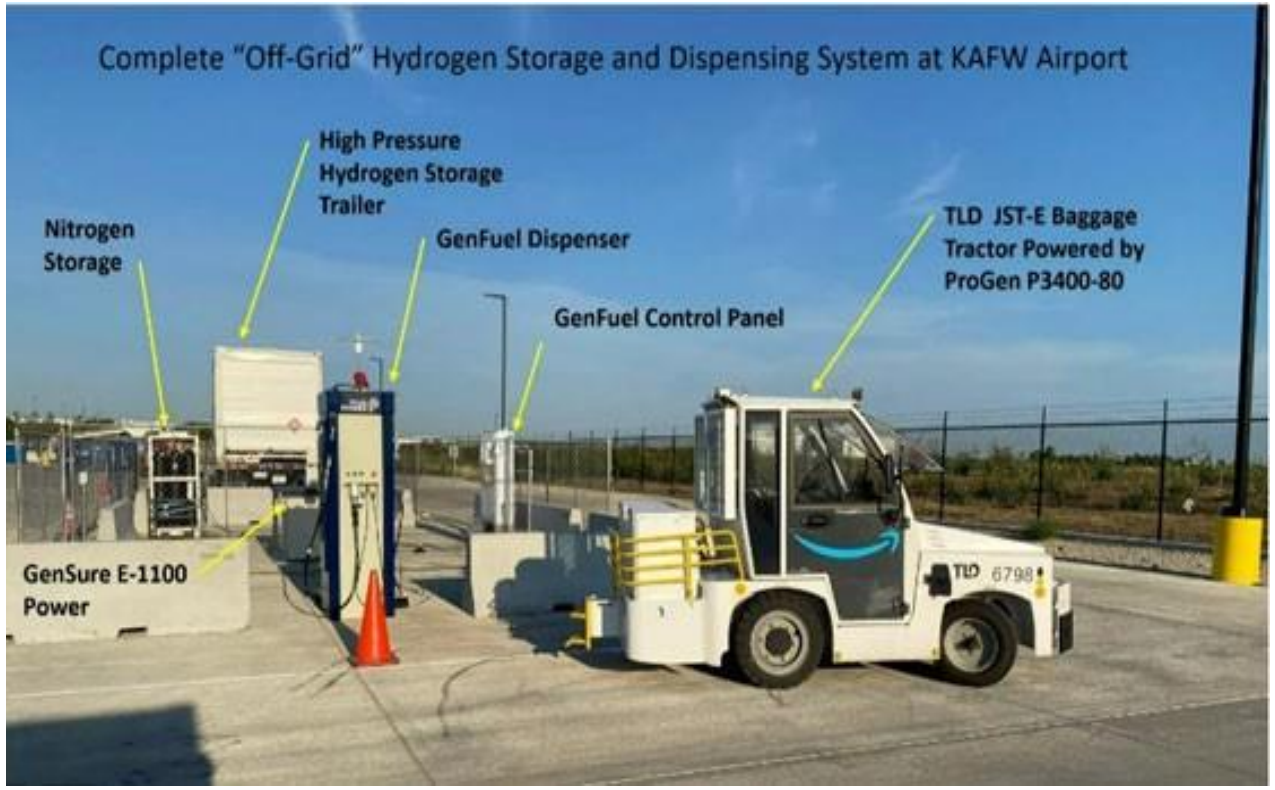
Infrastructure at North Base (NB)

Item	Status	Cost (in $M)
10 Plug-in BEB Chargers	In Service	$2.3
Mobile Hydrogen (Liquid) Refueler	In Service	$4.9
Back-up Hydrogen (Gaseous) Refueler	In progress	
4 Maintenance Bay Modifications (NB)	Completed	$2.4
Permanent Hydrogen Fueling Station	Procurement/Design	$25.8
19 Maintenance Bay Modifications	Conceptual Design	$14.6

NB Mobile Refueler

- October 2024: Board approved purchase of temporary liquid hydrogen refueler from Plug Power
- Contract provides hydrogen fuel for initial 2-year term

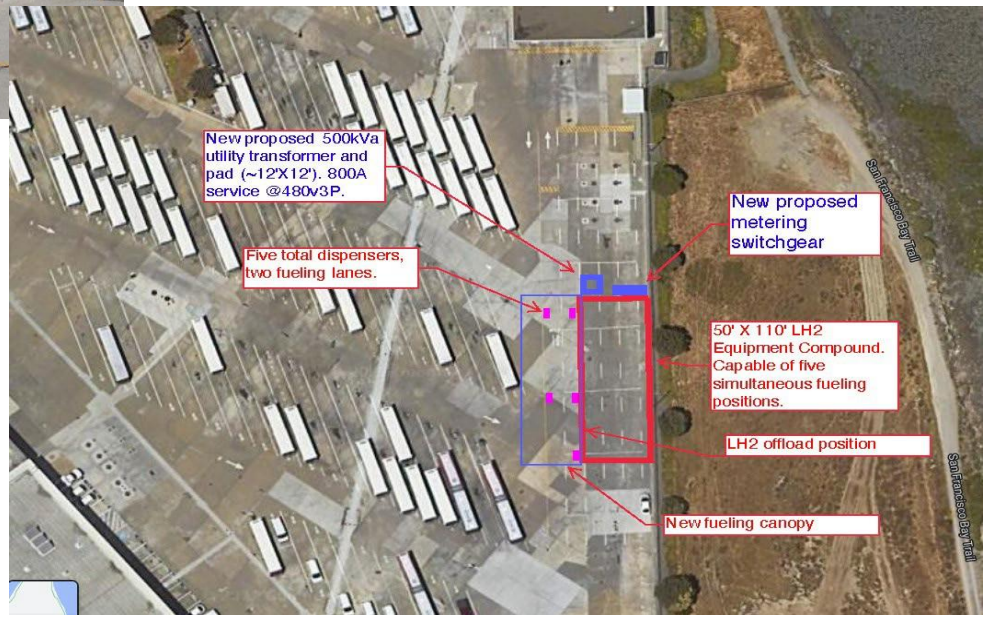
NB Back-up Hydrogen Refueler



- Gaseous hydrogen station
- Limited-capacity stand-alone fueling station that provides business continuity for mobile refueler

NB Permanent Hydrogen Station

Photo of OCTA's Hydrogen Fueling Station



NB Permanent Hydrogen Station

- December 2022: Board adopted California Environmental Quality Act (CEQA) Clearance
- December 2024: Board adopted the CEQA addendum for NB adjacent property
- Pending: FTA's NEPA approval for adjacent property

- Design-Build Contract Award expected by mid-2025 with completion expected in winter 2026
- Capacity: Up to 175 FCEBs at North Base

Infrastructure at South Base (SB)

SB Power Infrastructure

- Switchgear replacement to bring power to SB
- Construction performed by Anvil Builders: $2.6 M, completion mid 2025
- Board-approved accelerated contract completion

SB Plug-In Chargers

- 10 Depot Chargers
- Needed to operate 20 Gillig BEBs, currently being delivered

SB Pantograph BEB Charging Stations

- Pre-Construction Phase for 37 BEBs pantograph stations completed
- Anticipated Construction Contract Award: July 2025; estimated construction completion 24-28 months
- PG&E infrastructure upgrades will be required for additional electrical power requirements beyond 37 BEB permanent stations

Federal Funding, Risks and Mitigation

ICT Plan Cost Estimates

Item	Year of Expenditure	Estimate (in $M)	Grants and Incentives
Zero Emission Buses (ZEBs)			
108 FCEBs	FY24	$167.7	FTA + State Grants + District Funds + HVIP[1]
FCEBs	FY26-FY29	$203.8	FTA + State Incentives + District Funds
ZEBs (TBD)[2]	FY26-FY34	$203.3	FTA + State Incentives + District Funds
Paratransit	FY25-FY35	$53.7	FTA + State Incentives + District Funds
Total – ZEBs		$628.5	
ZEB Infrastructure			
No. Base – FCEB Infrastructure	FY24-FY26	$47.9	State Grants + ARCHES[3] Grant + District Funds
So. Base – BEB	FY24-FY27	$37.5	Federal + State Grants + District Funds
So. Base – ZEB (TBD)[2]	FY26-FY31	$106.7	Apply for Competitive Grants + District Funds
Total – ZEB Infrastructure		$192.1	
Total		$820.6	

[1] HVIP - CA Hybrid & Zero Emission Truck & Bus Voucher Incentives

[2] Cost Estimates assume remaining ZEBs are BEBs

[3] ARCHES – Alliance for Renewable Clean Hydrogen Energy Systems (D.O.E. Hydrogen Hub Grant Recipient)

108 FCEBs Funding Plan

Funding Source	Amount	Status	Risks	Potential Mitigation
FTA Funding through FY24	$107.4M	Grant agreement executed; funds available for expenditure	– Disbursements could be withheld	– Keep current buses longer – Consider legal action – Cover lost funds with sales tax
State & Local Grants	$42.2M	Grant agreements executed; funds available for expenditure	– Meeting timely use of fund requirements	– Work with manufacturer to ensure timely delivery – Apply for extensions as-needed
State HVIP Incentives	$18.1M	70 vouchers secured; requesting 38 additional vouchers; discount available after delivery	– Funds for 38 vouchers may be unavailable	– Coordinate with state transit association
Total	$167.7M			

North Base FCEB Infrastructure Funding Plan

Funding Source	Amount	Status	Risks	Potential Mitigation
ARCHES	$34M	Pending signed grant agreements	– Federal portion of funding removed, state reallocating funding away from transit	– Seek funding from state and local sources
State Grants	$3.1M	Programming and allocation request scheduled for March	– Low/No risk	
Local Funds	$10.8M	Approved	– Low/No risk	
Total	$47.9M			

Risks (Near Term)

Risks	Potential Mitigation
Loss/reduction in Federal formula funds through FY24 to purchase ZEBs	– Keep current buses longer, consider major component overhauls – Cover lost federal funds with sales tax, up to $107.4M
Funding for NB permanent hydrogen fueling station (175 FCEBs)	– Seek funding from other state and local sources if planned funding becomes unavailable

Risks (Future)

Risks	Potential Mitigation
Reliable energy to operate the fleet of BEBs	– Diversify contract with multiple suppliers – Partner with PG&E for additional infrastructure
Future federal funding reduction/elimination	– Delay ordering new buses – Seek an exemption from CARB and purchase a small quantity of diesel buses
Obtain hydrogen supply/delivery to operate a large fleet of FCEB buses/vehicles	– Establish multiple hydrogen delivery contracts – Participate in a hydrogen consortium with other Bay Area transportation providers