



GOLD COAST TRANSIT DISTRICT

OJAI
OXNARD
PORT HUENEME
VENTURA
COUNTY OF VENTURA

July 7, 2023

**VCTC Commission
Meeting Presentation**



OUR MISSION

**Serving, Moving, and Connecting
People to Opportunity –
One Ride at a Time.**

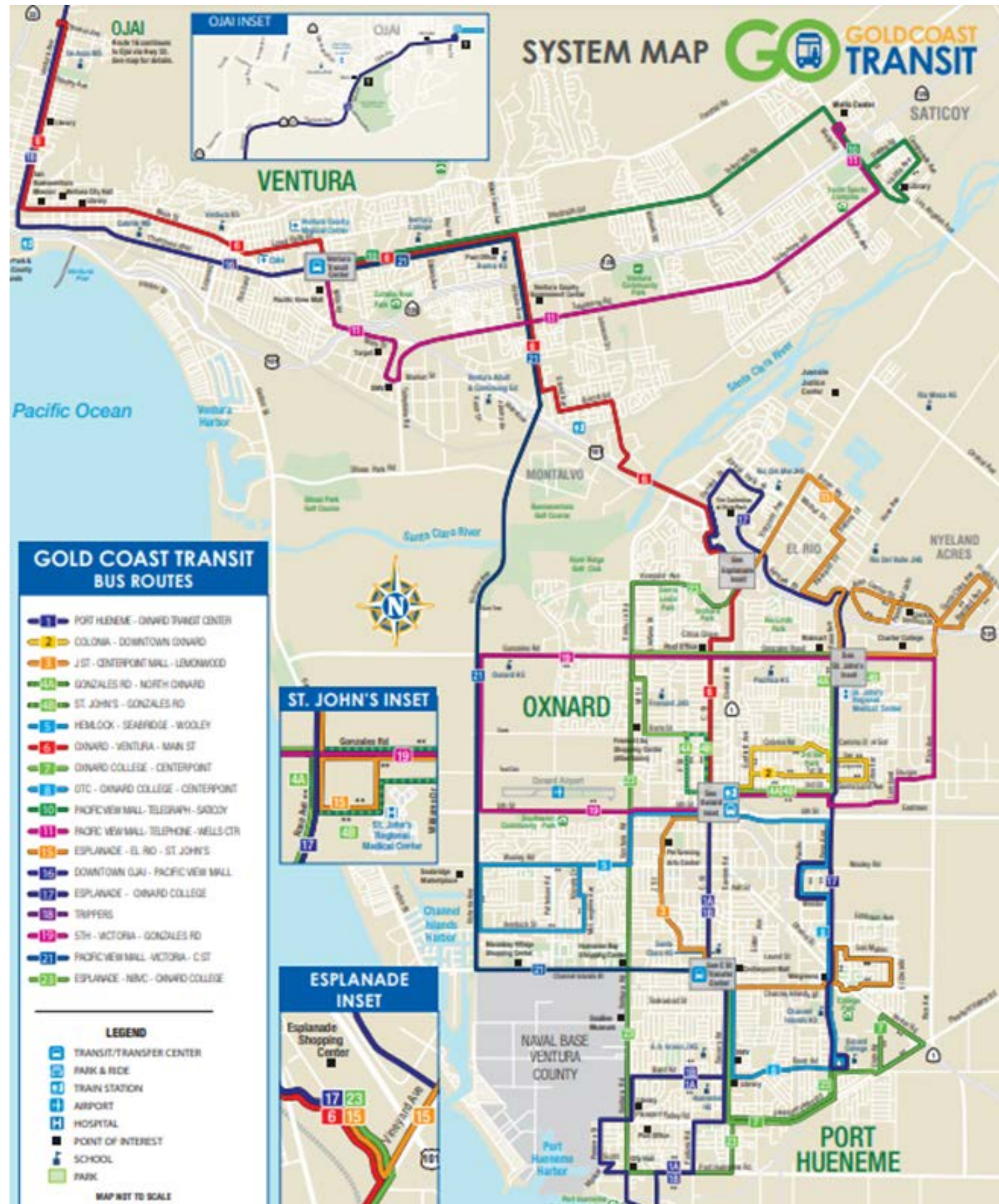


OUR VISION

**Revolutionize transportation in Ventura County by
leading initiatives that improve the rider experience,
achieve clean air, and drive economic vitality.**

ABOUT US

QUICK GLANCE



SERVICE AREA

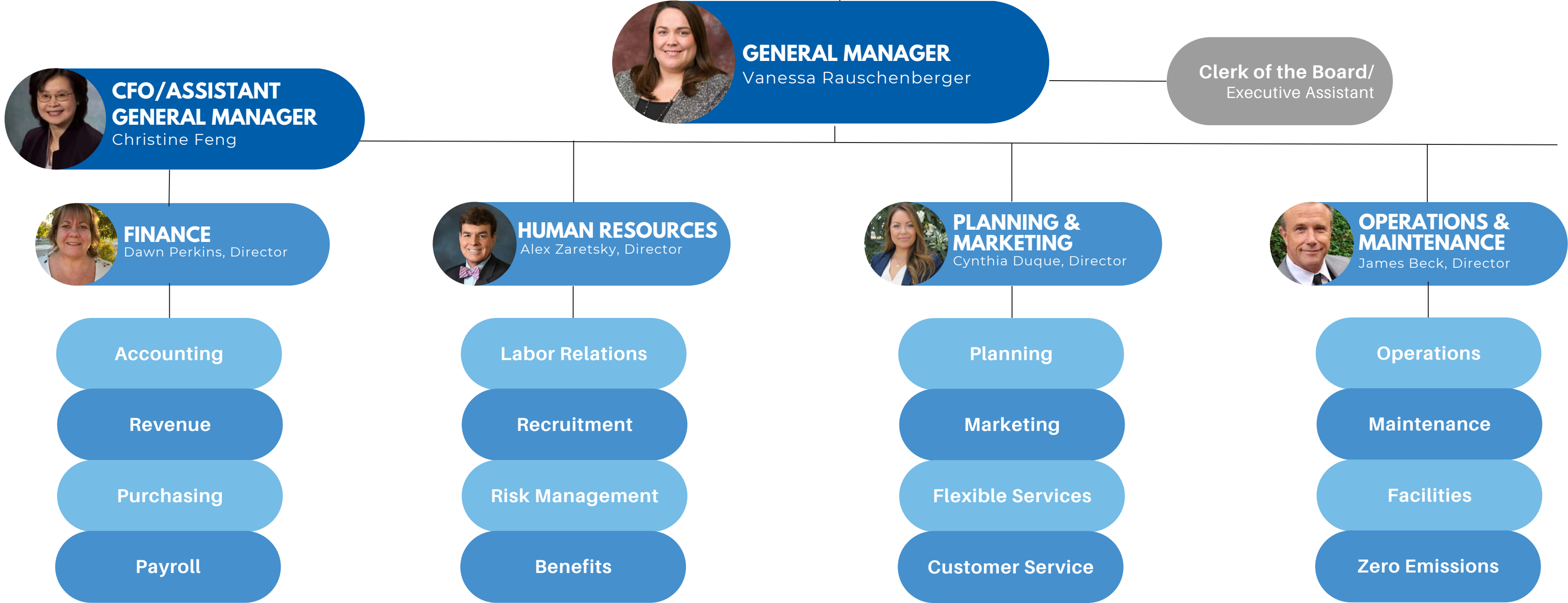
- Ojai
- Oxnard
- Port Hueneme
- Ventura
- County of Ventura areas in between the cities

QUICK FACTS

- Ridership: Nearly 3 million
- Fleet Size: 61 Fixed Route + 28 Paratransit
- Employees: 206 + 40 Contract Employees
- 2024 Annual Budget: \$37.1
- Named "Best Place to Work" in 2022 by the West Ventura County Business Alliance

ORGANIZATION CHART

Board of Directors
Ojai • Oxnard • Port Hueneme • Ventura • County of Ventura



ABOUT US

MEET THE TEAM



A LITTLE HISTORY

Gold Coast Transit District

CELEBRATING 50 YEARS



1973 Formation of South Coast Area Transit, "SCAT"

1995 Transitioned to Compressed Natural Gas.

1996 Launched "ACCESS", a demand-response service for Seniors over 65 years of age and individuals with disabilities.

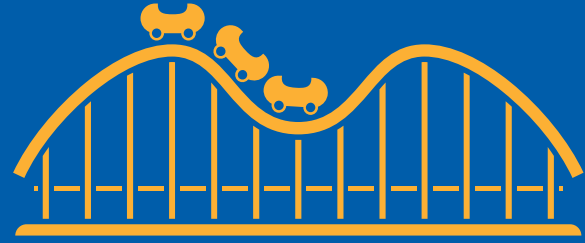
2014 Governor Brown signed into law Assembly Bill AB 664, which formed the Gold Coast Transit District.

2019 GCTD opens new 15-acre Operations and Maintenance Facility in Oxnard.

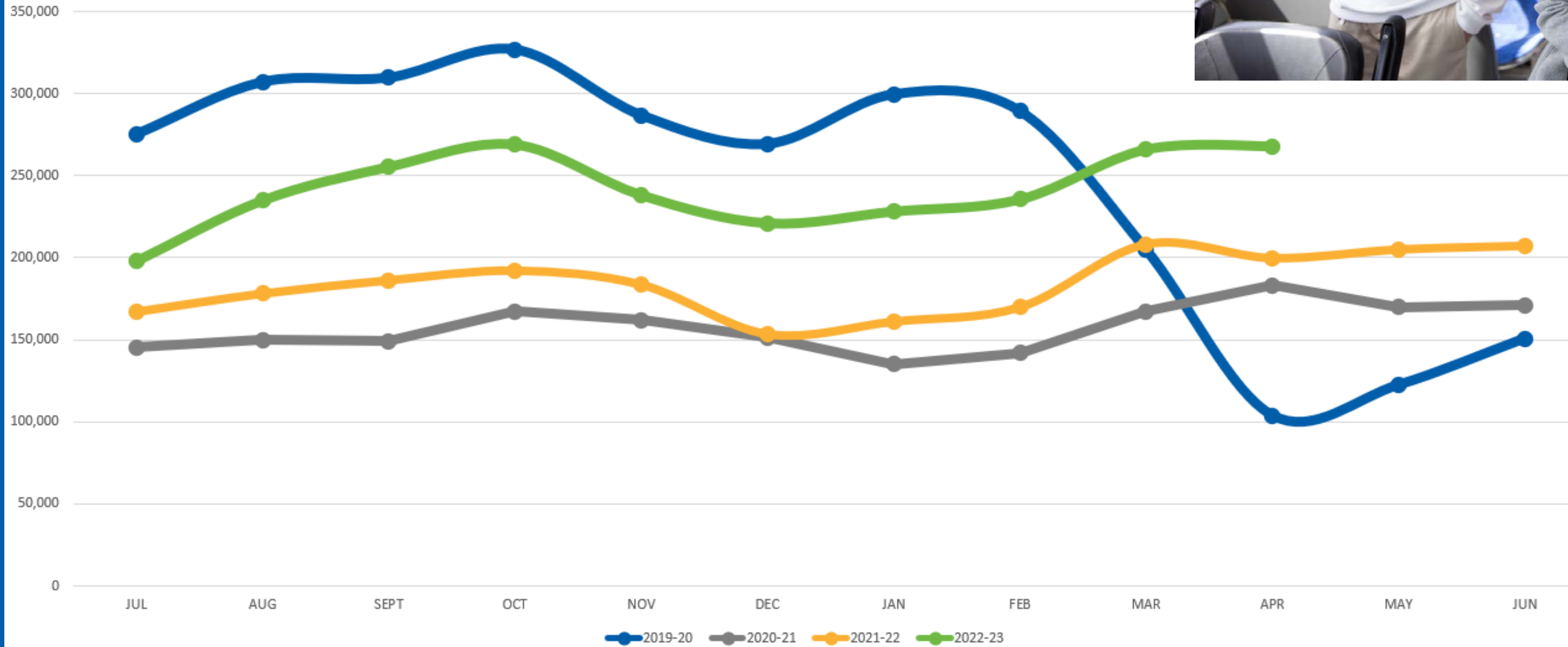
2021 Zero Emissions planning begins to meet CARB's goal of zero-emissions by the year 2040.



COVID - 19 Recovery



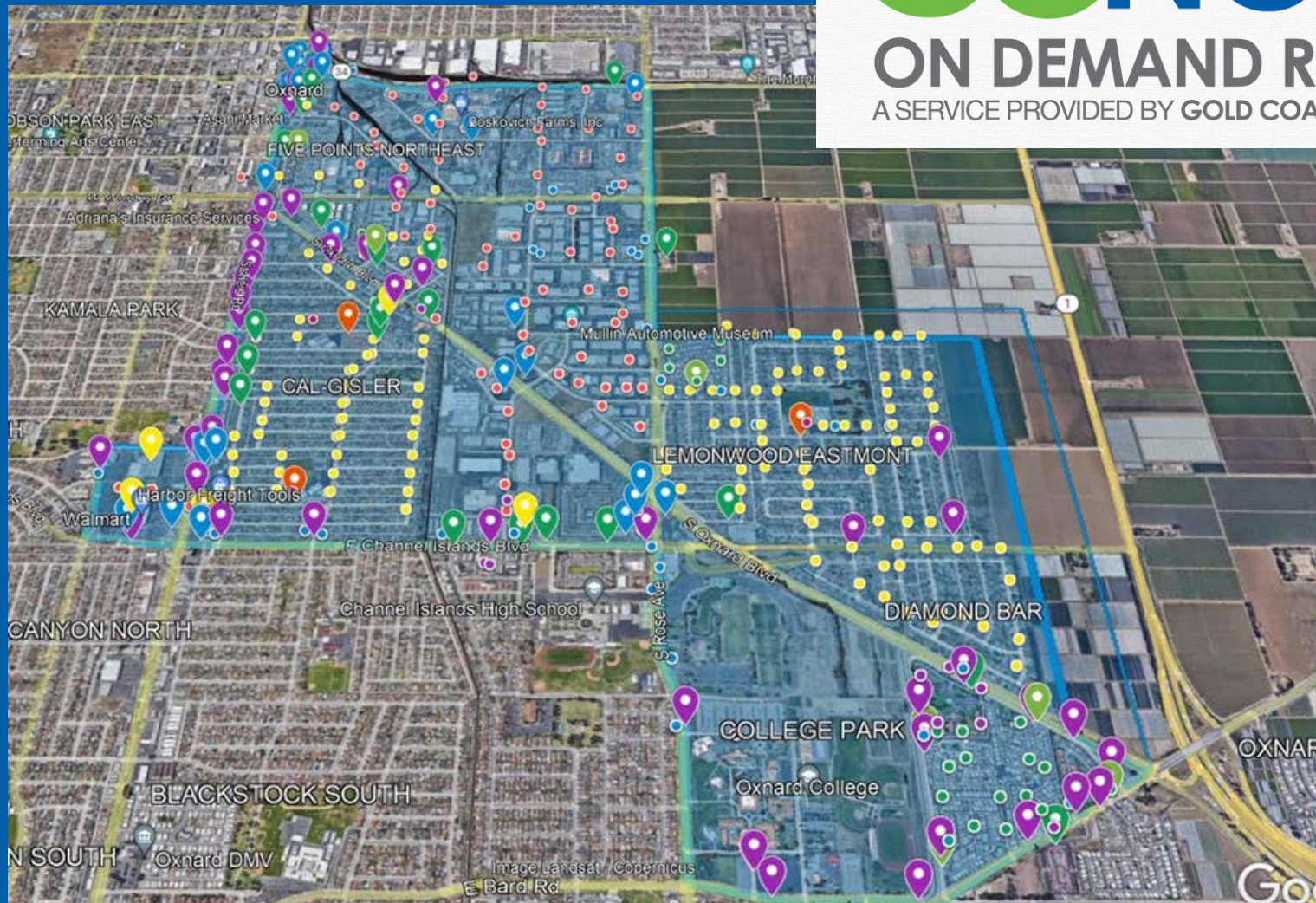
GCTD MONTHLY RIDERSHIP 2019-2023



NEW PROJECTS AND SERVICES

FLEXIBLE SERVICES

Go Now Microtransit



Late Night Safe Rides - Demo



- Open to anyone over the age of 14.
- \$2 per ride
- Daily 7am - 7pm, Book Ride on TransLoc App

- Open to anyone over the age of 16.
- \$2 per ride
- Nightly 7pm - Midnight

NEW PROJECTS AND SERVICES HIGHLIGHTS

GCTD leading zero emissions transition planning in Ventura County.

In 2022, GCTD hosted its first Clean Air Summit. Along with its event partner, the Ventura County Transportation Commission (VCTC), the event gathered over 100 guests including industry leaders, stakeholders, elected officials, community leaders, and members of the public.



CARB's "ICT" RULE & WHAT IT MEANS?

- In 2018, California Air Resources Board (CARB) adopted "Innovative Clean Transit" Rule (ICT)
- GOAL: Transition to Zero Emissions by 2040
- TRANSITION PLAN DUE IN 2023



ZERO EMISSIONS PLANNING HIGHLIGHTS

Zero Emissions Transition Planning

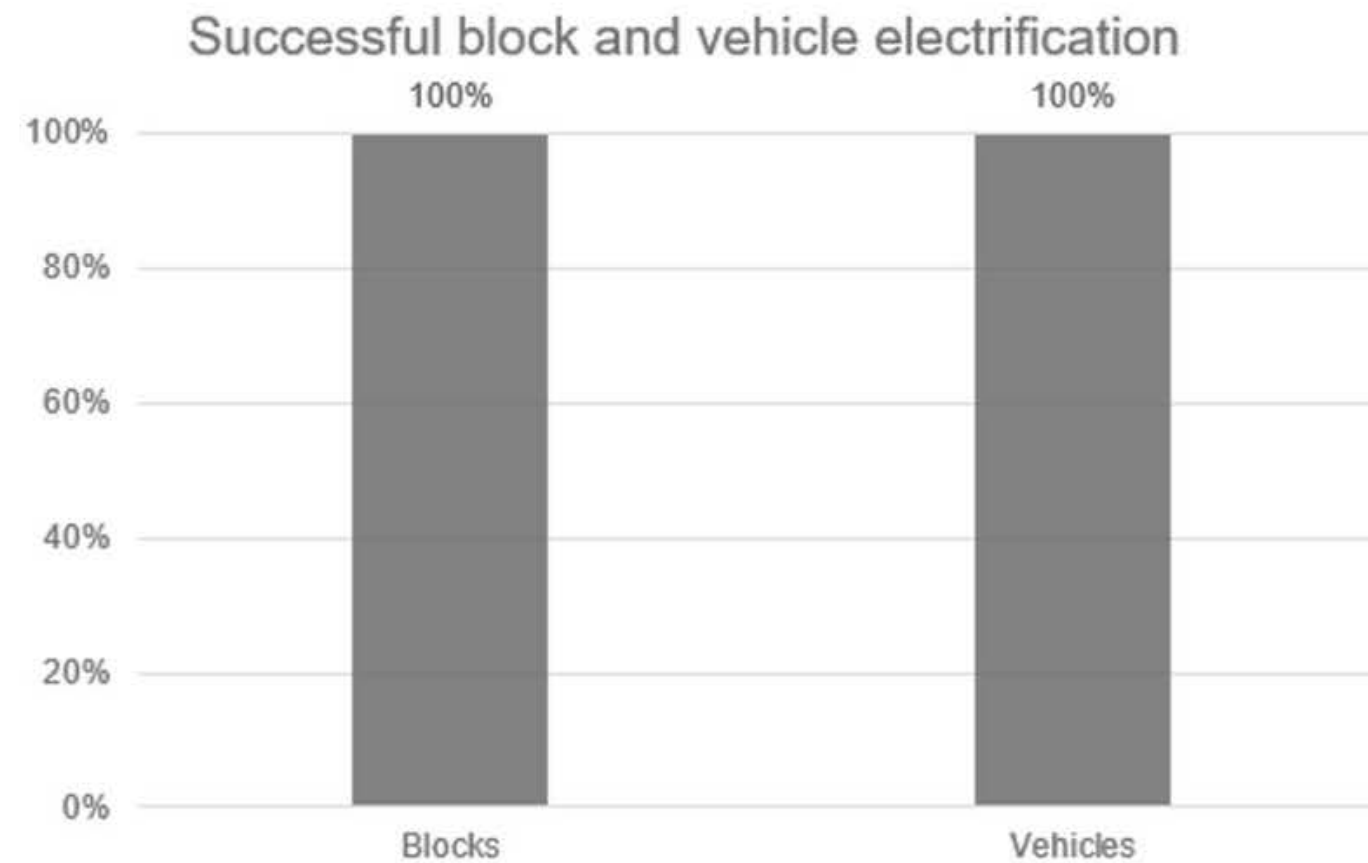
- 2018- Board adopted a “Zero/Near Zero Emissions Policy”
- 2019 - CARB Adopted Innovative Clean Transit (ICT) rule requiring agencies set a goal of zero emissions fleets by 2040
- 2019/2020 - GCTD completed “near zero” engine replacements
- 2020 - Purchased 9 electric sedans (relief cars)
- 2022 - FTA Grant \$12,100,000 (Hydrogen Station, 5 Buses, Workforce Development)
- 2022 - Zero-Emission Rollout Plan Complete
- 2023 – Hydrogen Fueling Station Project Kick-Off



ZERQ emissions

MODELING RESULTS - FIXED ROUTE

Hydrogen



- All blocks successful
- All vehicle assignments successful

Vehicle type	Average fuel efficiency (mi/kg)
40-ft bus	7.20 mi/kg
35-ft bus	7.29 mi/kg
Overall	7.22 mi/kg

FUEL TECHNOLOGY COMPARISON

Best Overall Fit for Gold Coast Transit Fleet

BEB



HFCB



300-340 miles

Proven range (300 to 340 miles, with advanced fueling technology that can extend this range by almost double)



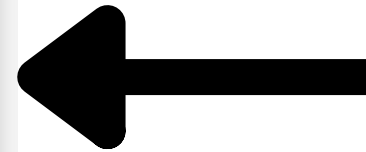
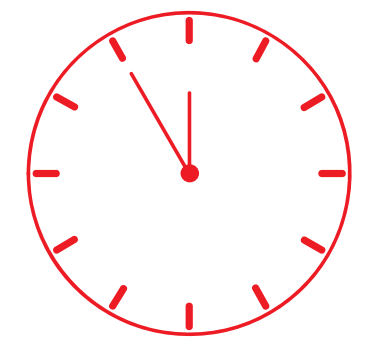
Significant reduction in vehicle weight and vehicle axle weight to maximize passenger loads



Fast refueling speeds comparable to conventional diesel and CNG buses



1:1 replacement of conventional buses enabling full flexibility for route planning and operations



HYDROGEN vs ELECTRIC

Fleet Mobility: Average range of hydrogen bus higher than electric.

Hydrogen: 300-340 miles per fill up.

Electric: 125-175 miles per full charge.

Weight Reduction: Less battery weight in hydrogen bus.

Battery weight has caused issues for manufacturers.

Down time of vehicles: Hydrogen fill-up similar to CNG (7-10 minutes)

Electric 8-10 hours to fully charge batteries

(Battery degradation issues)

**300-340
miles**

Proven range
(300 to 340 miles,
with advanced
fueling technology
that can extend this
range by almost
double)



Significant reduction
in vehicle weight
and vehicle axle
weight to maximize
passenger loads



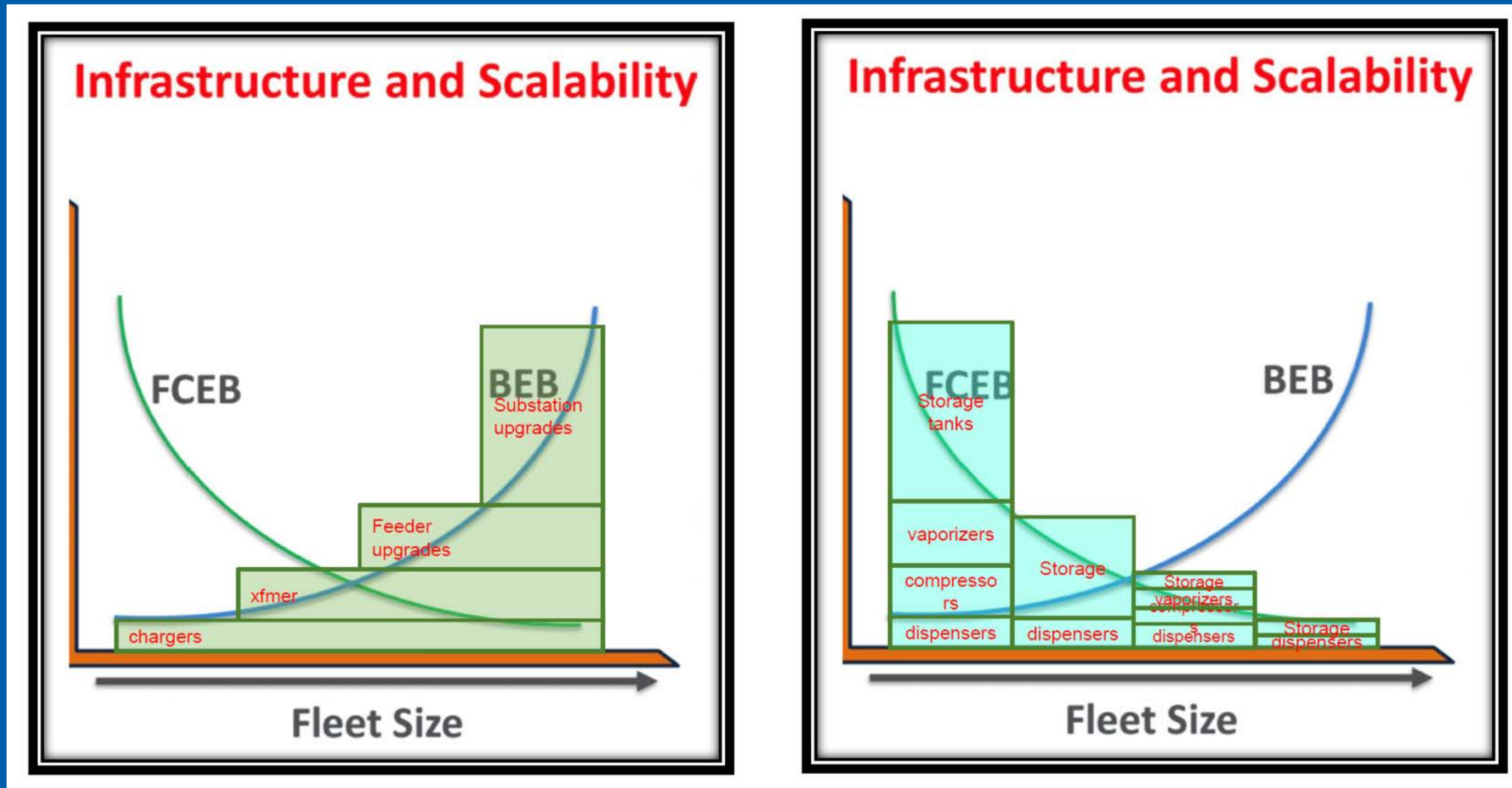
Fast refueling
speeds
comparable to
conventional diesel
and CNG buses



1:1 replacement of
conventional buses
enabling full flexibility
for route planning
and operations

HYDROGEN SCALABILITY

Hydrogen infrastructure cost decreases as number of vehicle increases.



PARTNERSHIP BUILDING



In July of 2022 GCTD partnered with the Center of Transportation and the Environment and Bus Manufacturer New Flyer on the application for \$12.1 million FTA Lo-No grant.

GCTD plans to leverage other funding for a total estimated project cost of over \$16 million.



HYDROGEN TRAINING

- New Flyer on the bus and safety
- Ballard training all aspects training (fuel cell, bus systems, safety)
- Trillium / Clean Energy facility safety and operation
- Center of Excellence (Sunline Transit)
- ZEB University (A/C Transit)
- Continued training with CTC (California Transit Training Consortium)

BALLARD™

Ballard's comprehensive Customer Care offerings



Call
Center



Product
Repair



Product
Performance
Monitoring



Onsite
Service



Product
Training



Spare Parts
Logistics

HYDROGEN TRAINING

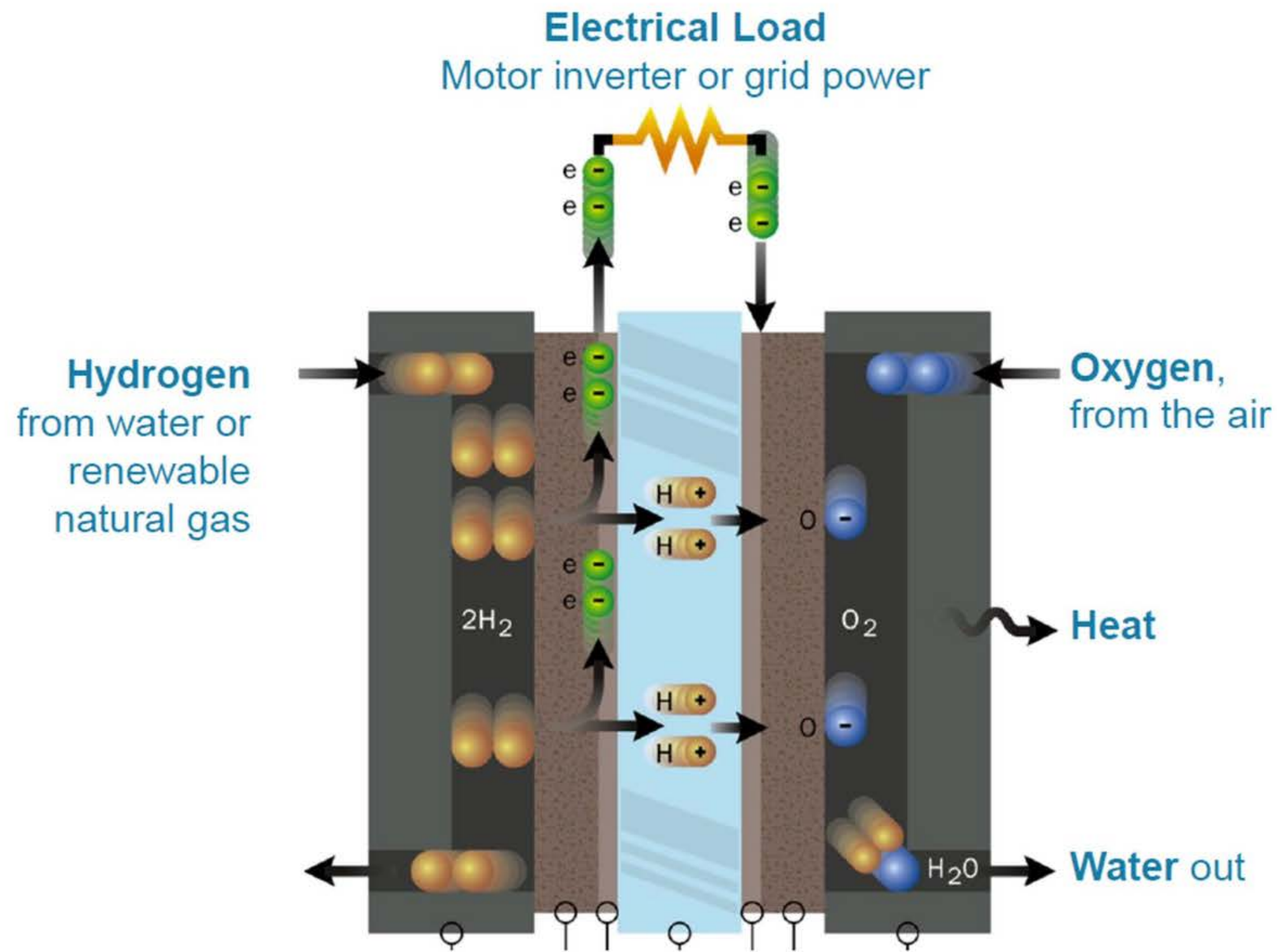
- Training included in grant
- New Flyer training included in grant
- Facility training included in grant

BALLARD™		Customer training		
	Tier 1	Tier 2	Tier 3	
Audience	Fueling staff, support staff, operational personnel (office staff)	Support technicians, Supervisor technical support	Lead technicians, Engineering Personnel	
Purpose	To learn fuel cell basics, safety, design and components	To obtain skills to perform preventative maintenance, corrective maintenance, and initial diagnostics	To obtain skills and knowledge related to diagnostics, system schematics and advanced troubleshooting	
Duration	1 day	3 days (Tier 1 + 2 days)	5 days (Tier 2 + 2 days)	
Topics Covered	<ul style="list-style-type: none"> • Fuel Cell 101 – Basics of a Fuel Cell • Fuel Cell System – Basic • Hydrogen Safety • Servicing Basics & Schedule • Preventative Maintenance • Service Portal 	<ul style="list-style-type: none"> • Tier 1 training • Introduction to system Schematics (electrical, mechanical) • Corrective Maintenance (Field Replacement Units “FRUs”) • Diagnostics • Basic Troubleshooting • Integration Basics 	<ul style="list-style-type: none"> • Tier 1 and Tier 2 Training • Wonderware software • Remote Data Analysis • Advanced Troubleshooting • Detailed System Schematics (electrical, mechanical) 	

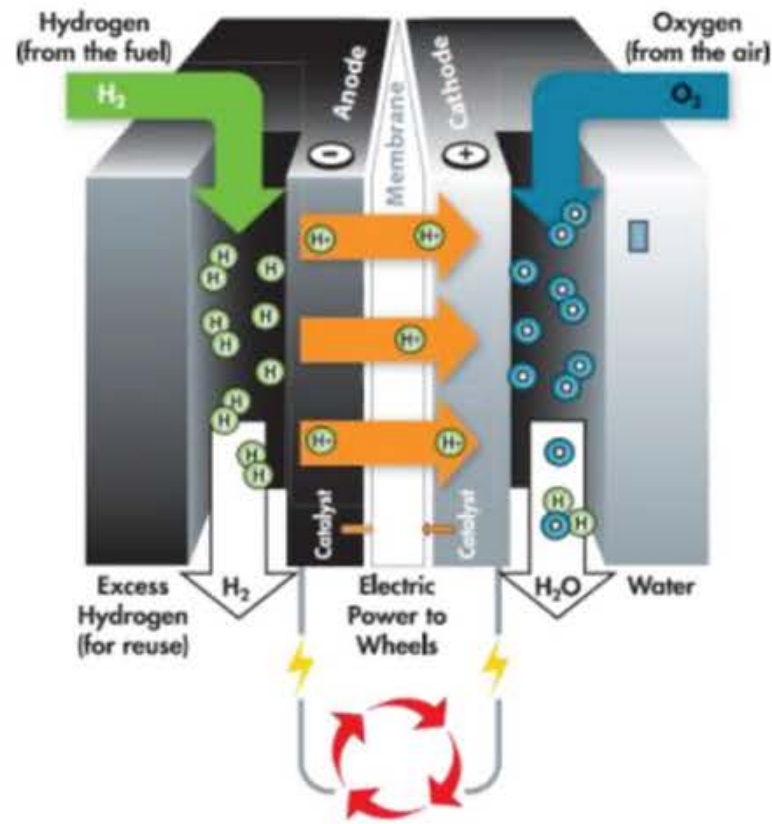
HYDROGEN INFRASTRUCTURE



HYDROGEN FUNDAMENTALS



HYDROGEN FUNDAMENTALS



Unit Cell:
Flow Plate/ MEA/
Flow Plate




Fuel Cell Stack



TRANSIT TESTIMONY



GCTD is in contact with several agencies that have deployed Hydrogen Fuel-Cell buses. This real time data provides lessons learned to apply to our own deployment in the coming years.



GET Selected 100% FCEBs in their ZEB Rollout Plan

"The final composition of the fixed route fleet will be **100% fuel cell electric buses**. Modelling analysis found that a small percentage of the routes currently operated by GET could be satisfied by battery electric buses as a 1:1 BEB:CNG bus replacement. However, **operating one type of vehicle offers significant benefits** to the agency as all buses can be operated and maintained efficiently and economically. It also means the **buses are interchangeable and can be dispatched on any route as required.**"

Golden Empire Transit District



Zero Emission Bus Rollout Plan

BALLARD

OCTA plans to transition 100% of its 500+ buses to fuel cell vehicles

"The 100 percent FCEBs scenario showed a slightly **lower overall cost** than the mixed technology fleet given current vehicle, fuel, and support infrastructure pricing. ...FCEBs offer an **extended range and better match to OCTA's current operating parameters**. In comparison, the current range of BEBs may require more vehicles and drivers to meet similar service levels."

*OCTA Zero Emission Bus Rollout Plan
Orange County Transportation Authority*



BALLARD

Sunline Transit fleet will be zero emission by 2035 with 85% fuel cell buses

Sunline transit has been operating fuel cell buses since 2000. It now operates 16 hydrogen buses in one the hottest region of the US

The final fleet composition – 67 fixed route fuel cell buses, 18 fixed route battery-electric buses and 39 paratransit fuel cell vehicles – was determined to maximize performance and **minimize cost**

Sunline ZEB roll out plan 2020





THANK YOU



Follow Us

Questions?

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