



Western Contra Costa Transit Authority Zero-Emission Bus Rollout Plan

April 20, 2023

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Section A: Transit Agency Information

Western Contra Costa Transit Authority (WCCTA)
601 Walter Ave.
Pinole, CA 94564

WCCTA was formed in September of 1977 under the provisions of the California Joint Exercise of Powers Act, Government Code Sections 6500 et. seq., and represents the cities of Pinole, Hercules, and the unincorporated communities of Montalvin Manor, Bayview, Tara Hills, Rodeo, Crockett, and Port Costa.

Contact Information:

Robert Thompson
General Manager
rob@westcat.org
510-724-3331

WCCTA is not part of a Joint Zero-Emission Bus Group.

Section B: Rollout Plan General Information

WCCTA's rollout plan will transition the agency's fixed route bus fleet to 100% zero-emission by 2040 per the ICT regulation. This plan directs WCCTA to buy 100% zero-emission vehicles for its transit fleet starting in 2027 allowing for a full transition to zero emissions without early retirement of vehicles. This plan is intended to be a living document that is subject to change as zero-emission infrastructure and bus technology mature.

The rollout plan was adopted by the WCCTA Board of Directors on April 20th, 2023. A copy of the resolution is included in Appendix A.

For additional information on the rollout plan, please contact the following:

Rob Thompson
WCCTA General Manager
510-724-3331
rob@westcat.org

Section C: Technology Portfolio

WCCTA plans to deploy Hydrogen FCEB's as the fleet transitions to 100% zero-emission. This decision was based on requirements to effectively handle WCCTA's service area terrain and distance traveled on existing routes. WCCTA has concluded that current electric bus ranges are insufficient to replace diesel buses one-for-one. Using current technology, wide-scale deployment of electric vehicles would require an increase in fleet size, whereas the transition to hydrogen vehicles could be accomplished with a one-to-one replacement ratio. Future purchases, however, will consider electric vehicles as an option as technology advances or

appropriate service matches are determined to be effectively met by battery electric vehicles. The final fleet composition will be 48 standard zero-emission buses and 12 zero-emission Paratransit cutaway/minivan vehicles.

WCCTA is currently developing a plan for zero-emission infrastructure. Due to WCCTA's unique location and proximity to potential off-site Hydrogen fueling infrastructure, we anticipate no start-up infrastructure costs will be incurred for the first phase of the plan. WCCTA plans to fuel up to an initial 15 buses off-site at nearby hydrogen fueling stations. This off-site fueling permits WCCTA to extend the time available to secure funding to address additional phases of the infrastructure plan when more zero-emission buses are added to the fleet.

Section D: Current Bus Fleet Composition and Future Bus Purchases

WCCTA currently has a fleet of 62 revenue vehicles consisting of Minivans, Cutaways, 35-foot, 40-foot, 45-foot, and Double Decker buses. **Table 1** represents WCCTA's, Current Fleet.

TABLE 1: INDIVIDUAL VEHICLE INFORMATION

# OF BUSES IN REVENUE SERVICE	MODEL YEAR	MAKE	MODEL	FUEL TYPE	BUS TYPE	LENGTH
1	1996	MCI	D4500	Diesel	OTR Coach	45
1	1999	MCI	D4500	Diesel	OTR Coach	45
1	2000	GILLIG	Phantom	Diesel	Commuter	40
1	2003	GILLIG	Phantom	Diesel	Commuter	40
2	2007	Toyota	Camry	Hybrid	Minivan	n/a
6	2008	GILLIG	Low Floor	Diesel	Standard	35
2	2008	MCI	D4500	Diesel	OTR Coach	45
2	2012	MCI	D4500	Diesel	OTR Coach	45
1	2012	PREVOST	X3-45	Diesel	OTR Coach	45
9	2014	GILLIG	Low Floor	Diesel	Standard	35
1	2014	MCI	D4500	Diesel	OTR Coach	45
8	2014	GILLIG	Low Floor	Diesel	Standard	40
1	2015	PREVOST	X3-45	Diesel	OTR Coach	45
10	2016	FORD	Starcraft	Gasoline	Cutaway	26
3	2018	Alexander Dennis	Enviro 500	Diesel	Double Decker	43
4	2019	GILLIG	Low Floor	Diesel	Standard	40
5	2020	GILLIG	Low Floor	Diesel	Standard	35
4	2021	GILLIG	Low Floor	Diesel	Standard	40

Per WCCTA’s approved plan, starting in 2027 only zero-emission transit vehicles will be purchased for replacement. No conventional buses (i.e. Diesel/Gasoline) will be purchased. WCCTA will replace its fleet of transit buses with zero-emission vehicles on a one-for-one basis as they reach the end of their useful life. **Table 2** represents the anticipated buses that will be purchased in the future.

TABLE 2: FUTURE VEHICLE PURCHASES

This replacement schedule is subject to change as WCCTA periodically adjusts its service levels in response to rider demand. WCCTA may, based on advances/changes in ZEB technology, also consider a combination of battery electric buses and hydrogen fuel cell buses to meet its zero-emission goals.

Future Bus Purchases - Fixed Route: Conventional Buses

Timeline (Year)	Total # of Vehicles to Purchase	Total # of ZEB Purchase	% of ZEB Purchase	Bus Type	Fuel Type
2027	18	18	100%	Standard	Zero Emission
2028	2	2	100%	Standard	Zero Emission
2030	1	1	100%	Standard	Zero Emission
2031	5	5	100%	Standard	Zero Emission
2032	8	8	100%	Standard	Zero Emission
2033	4	4	100%	Standard	Zero Emission
2036	6	6	100%	Standard	Zero Emission
2040	20	20	100%	Standard	Zero Emission

Future Bus Purchases - Paratransit/Support: Cutaways and Minivans

Timeline (Year)	Total # of Vehicles to Purchase	Total # of ZEB Purchase	% of ZEB Purchase	Bus Type	Fuel Type
2029	12	12	100%	Cutaway (10) Minivan (2)	Zero Emission
2034	12	12	100%	Cutaway (10) Minivan (2)	Zero Emission

SCHEDULE OF CONVERTING BUSES TO ZERO-EMISSION

WCCTA is not considering converting any existing conventional buses to zero-emission buses. Vehicles will continue to be replaced when they reach the end of their useful life.

Section E: Facilities and Infrastructure Modifications

WCCTA will modify its yard and maintenance facility to accommodate the transition to zero-emission. WCCTA operates one facility located at 601 Walter Ave. in Pinole; as such, all facility upgrades or modifications will occur at that facility. WCCTA has a ¾ acre parcel of land adjacent to the facility that could be developed as part of this plan. Below is a table of the infrastructure modifications WCCTA would undergo per the rollout plan.

TABLE 3: FACILITIES INFORMATION AND CONSTRUCTION TIMELINE

Project Phase	Phase Timeline	Type(s) of Infrastructure	Service Capacity	Needs Upgrade? (Yes/No)
Phase 1	Present - 2028	Begin initial purchase of zero-emission buses, continue the long-term analysis of ZEB options, hire A&E to design a hydrogen fueling station, and begin off-site fueling.	15 Buses	No
Phase 2	2029-2032	Construct hydrogen storage and fueling station, and continue off-site fueling until capacity for off-site fueling is reached.	30 Buses	Yes

Phase 3	2033-2036	Assess hydrogen fueling capability, upgrade fuel station for extra storage capacity and fueling capability if/as needed per long-term plan.	45 Buses	Yes
Phase 4	2037-2040	Assess hydrogen fueling capability, upgrade fuel station for extra storage capacity and fueling capability if/as needed per long-term plan.	60 Buses	Yes

Section F: Providing Service in Disadvantaged Communities

WCCTA’s routes serve one or more disadvantaged communities as listed in the latest version of CalEnviroScreen and will continue to do so for the foreseeable future. Currently, buses in WCCTA’s fleet are rotated throughout the service area on a daily basis. This will continue with the addition of zero-emission vehicles to meet FTA’s Title VI requirements. One commuter route uses route-specific buses due to size limitations. 35-foot vehicles are deployed on some local routes due to physical constraints meaning some vehicle types are Route or Mode specific. As WCCTA’s buses are transitioned from diesel and gasoline to zero-emission, the buses will be rotated throughout the service area, operating within disadvantaged communities providing cleaner, quieter service to these communities.

Section G: Workforce Training

WCCTA contracts out maintenance as part of the Operating and Maintenance contract. Mechanics will receive training provided by vehicle OEM’s, technology suppliers, and infrastructure providers as equipment is installed and deployed. Additional training will be sought from other local transit agencies or outside programs such as the West Coast Center of Excellence in Zero-Emission Technology. Areas of training will include general hydrogen and/or electric infrastructure safety awareness, fueler-specific training, Maintenance troubleshooting, and repair.

In addition, the WCCTA Safety and Training division works with local governing agencies and delivers train-the-trainer sessions for First Responders including fire department and police department staff. First responders training comprise familiarization, energy storage systems, and emergency shutdown procedures.

Section H: Potential Funding Sources

WCCTA will seek State and Federal funds to procure replacement buses with zero-emission technologies. Currently, WCCTA receives a formula allocated Urbanized Area Formula Funds from Federal Transit Administration (FTA) Section 5307. This covers at a maximum 80% of the cost of a zero-emission transit vehicle. Local funds are a combination of the State’s Low Carbon Transit Operations Program (LCTOP), SB1 State of Good Repair funds, and TDA funds.

WCCTA will also pursue additional funding sources, such as Carl Moyer, VW Settlement, HVIP, etc. Additional funding may be available.

Section I: Start-up and Scale-up Challenges

WCCTA anticipates startup challenges including funding and the developing nature of zero-emission bus technology. The price of zero-emission buses is currently about 35-45% more than diesel buses, not accounting for the added cost of future purchasing and installation of necessary infrastructure. While some Federal Funding is available, WCCTA will need to provide additional local funds going forward.

Another challenge associated with electric vehicles specifically is the nature of the technology. Because this industry is relatively new, companies have created buses with unique or proprietary operation and charging methods. This often means that agencies are limited by the manufacturer in what charging systems they can procure.

There are significant unknowns related to the cost of energy going forward that represent a financial risk to WCCTA as it looks to transition its fleet to 100% zero emissions technology. Current funding opportunities focus on providing funding for the purchase and installation of equipment, but no funding exists to offset any increase in the operating energy costs that would result from a zero-emission bus fleet. Both electric and hydrogen options carry their own challenges.

Appendix A

RESOLUTION 2023-04

APPROVING WESTERN CONTRA COSTA TRANSIT AUTHORITY'S ZERO EMISSION BUS ROLLOUT PLAN FOR SUBMITTAL TO THE CALIFORNIA AIR RESOURCES BOARD IN ACCORDANCE WITH THE INNOVATIVE CLEAN TRANSIT REGULATION

WHEREAS, The Innovative Clean Transit (ICT) regulations were adopted by the California Air Resources Board (CARB) in December 2018 and became effective on October 1, 2019; and

WHEREAS, Title 13 of the California Code of Regulations § 2023 (13CCR § 2023.1 through 2023.11) requires all public transit agencies to gradually transition their fleet to zero-emission technologies; and

WHEREAS, beginning in 2029, 100% of new fixed route purchases by transit agencies must be ZEB's with a goal for the full transition by 2040; and

WHEREAS, each transit agency must adopt and submit a complete Zero Emission Bus Rollout Plan that is approved by its governing body; and

WHEREAS, careful planning is essential to ensure the synchronization of vehicle procurement, infrastructure build out, and fuel cost management; and

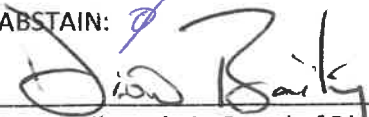
WHEREAS, WCCTA's goal is to fully transition to zero-emission technologies by 2040, avoiding early retirement of diesel buses; and

WHEREAS, WCCTA's ZEB Rollout Plan must be submitted to CARB by July 1, 2023.

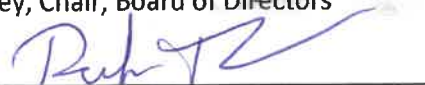
NOW, THEREFORE, BE IT RESOLVED that the WCCTA Board of Directors hereby approves WCCTA's ZEB Rollout Plan; and

NOW THEREFORE, BE IT FURTHER RESOLVED the General Manager is hereby authorized to submit WCCTA's ZEB Rollout Plan to CARB in accordance with the Innovative Clean Transit Regulations. Passed and adopted this 20th day of April, 2023 by the following vote:

AYES: 5 (Bailey, Toms, Hansen, Kelley, Sasaki)
NOES: 0
ABSENT: 0
ABSTAIN: 0



Dion Bailey, Chair, Board of Directors

ATTEST: 

Clerk to the Board