

# City of Camarillo



## Camarillo Area Transit Zero Emission Bus Rollout Plan for Innovative Clean Transit

May 25, 2023



Engineering and Planning | Energy Efficiency | Sustainability  
44 Montgomery Street, Suite 1500, San Francisco, CA 94101

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## Section A: Transit Agency Information

Camarillo Area Transit (CAT) is a public transportation service provided for the City of Camarillo, in Southern California on the US-101 corridor between Thousand Oaks and Ventura. Ventura County Transportation Commission (VCTC) is a regional transportation planning agency, and CAT is a part of this service network. CAT operates within the Ventura County Air Pollution Control District.

CAT provides public transit services in a 20 square mile area. Currently, the fleet does not contain any battery electric buses, but Camarillo is excited for the opportunity to transition its fleet away from traditional gas-powered vehicles to all-electric ones in accordance with Innovative Clean Transit (ICT) regulations.

Administrative oversight of the CAT system and maintenance of the fleet are provided by the Public Works Department, while day-to-day operation is provided by a contract operator, currently RoadRunner (RATP).

CAT operates a fleet of 18 in-service and spare buses and vans of varying sizes for local fixed-route, trolley route and Dial-A-Ride services. The trolley route is currently not serviced by an actual trolley vehicle, however CAT desires to purchase a suitable electric trolley as one of its future replacements. Although CARB ICT rollout plan guidance pertains only to buses with a minimum GVWR of 14,000, this ICT rollout submission will include plans for all of CAT's vehicles as electrification is being undertaken on a fleet level, not just for the agency's largest buses. The paratransit fleet consists of 15 gasoline cutaway and van vehicles, and 1 diesel vehicle. All Dial-A-Ride (DAR) vehicles are equipped with wheelchair lifts or ramps and are ADA compliant.

The CAT fixed route transit system is currently comprised of two routes, one from Leisure Village to the Community Center and one trolley route from Metrolink Station to 101 Business Corridor. CAT provides origin-to-destination, demand response Dial-A-Ride service to the general public, senior citizens 65+ and Americans with Disabilities Act (ADA)-eligible riders within Camarillo, by reservation. The City also offers Regional DAR for ADA and Senior passengers, enabling them to travel as far east as Thousand Oaks and Simi Valley or to a transfer point in Oxnard to connect to Gold Coast Transit for West County service. Free fare funding is obtained and administered by VCTC from California's Low Carbon Transit Operations Program (LCTOP). LCTOP provides funds to public transportation agencies for investments in capital projects and services that reduce gas emissions and improve mobility. Free fare programs offered include free rides for college students attending eligible schools and free rides for youths under 18. Free Fare Programs are available for all CAT services. Additionally, the City offers free rides for children under 6 years of age (accompanied by an adult).

CAT coordinates its services with other public transit operators at transit centers in Ventura County. One-way DAR fares are \$2.00 for seniors and ADA certified persons, and \$3.00 for adults and students. Trolley and Fixed route fares are \$0.50 for seniors/ADA and \$1.00 for adults/students.

Camarillo has a population of about 70,741 people (Census Bureau, April 2020), which serves as the core service population.

This ICT plan is not being submitted as part of a Joint Group. For additional information on the Rollout Plan please contact Shaun Kroes:

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## Section B: Rollout Plan General Information

This Rollout Plan has been prepared in compliance with California Air Resource Board's (CARB) ICT regulation, which requires small transit agencies to start purchasing zero-emission transit buses in 2026 and must purchase only zero-emission transit buses starting in 2029. ICT requires transit agencies to have a fully zero-emission fleet by 2040.

Camarillo anticipates operating a 100% zero emission fleet by 2031, nine years ahead of the 2040 ICT deadline. All new buses purchased starting in FY 2027 are expected to be battery electric buses (BEBs). Existing gasoline vehicles have a typical operating life of 4-7 years depending on the body type, with the newest buses being planned for purchase in 2023. Camarillo plans to replace most of its fleet with gasoline powered vehicles in 2023 and 2024 to provide additional time needed to design and install charging infrastructure. Charging infrastructure is still suffering from supply chain issues and extended lead times. Many of these vehicles will then be due for replacement again between 2027-2031, and all of these second replacements will be zero-emission. As a result, CAT does not expect to have any early retirements of conventional buses to achieve a 100% zero emission fleet by 2040.

This Rollout Plan was approved by Camarillo City Council on May 24<sup>th</sup>, and a copy of Council approval is included in the Appendix.

This Plan is intended to act as a roadmap to guide CAT through the Zero Emission Bus transition to a 100% zero emission bus fleet by 2040. The Plan fulfills the existing regulatory requirements of the California Air Resources Board. However, this Plan is intended to be a living document with its implementation by the City subject to change depending upon various factors, including but not limited to regulatory changes, financial conditions, and zero emission technological and infrastructure constraints. This Plan will be reviewed on an annual basis.

This rollout plan was completed with the assistance of a consultant, Willdan Energy Solutions (Willdan). For additional information on the Rollout Plan please contact Shaun Kroes, contact info listed in Section A.

## Section C: Technology Portfolio

Willdan completed a detailed route analysis of CAT's existing fixed local routes and paratransit operations. After evaluating several different vehicle options Camarillo has decided to move forward with using a mix of battery electric shuttlebuses, passenger vans, and minivans for their transit fleet. The following vehicles were evaluated as representative EV proxies for CAT's fleet, though the final make and model purchased by may differ as technology continues to improve or if fleet necessities shift over time:

- (1) Motiv Power Systems Trolley. This vehicle has a maximum battery capacity of 127kWh and maximum range of 105 miles. Current trolley route operations are between 98 and 127 miles. It is expected that the Motiv trolley will not meet these route mileage requirements, and that one of the DAR vehicles will be used on this route while the trolley performs mid-day charging.
- (3) Lightning ZEV4 for Fixed Local Route and paratransit operations. At the time modelling was completed, the Lightning ZEV4's maximum battery capacity was 120 kWh and maximum range of 130 miles. This is expected to meet paratransit needs and most fixed route needs. In order to meet the mileage requirements of the fixed route, it will be necessary to manage the battery state of charge effectively and consider using two buses to meet the service demands.
- (11) Lightning ZEV3 for paratransit operations. This vehicle has a maximum battery capacity was 120 kWh and maximum range of 200 miles. It is expected to meet paratransit route requirements.
- (3) Rivian R1S for paratransit operations. This vehicle has a maximum battery capacity was 105 kWh and maximum range of 316 miles. It is expected to meet paratransit route requirements.



## Route Analysis

Table 1 summarizes the fixed route and DAR paratransit route analysis results from the aforementioned OEMs. Based on current market availability CAT intends to purchase a mix of Motiv Trolley, Lightning ZEV4, ZEV3, and Rivian R1S' with between 105-125kWh model battery to meet all route requirements. The trolley route operates seven days a week, the fixed route operates Monday through Friday, and paratransit operates seven days per week. On average 3 fixed routes vehicles and 10 paratransit buses are deployed each day. Paratransit buses travel 93 miles per day on average, which is used as the minimum range as a threshold for an electric paratransit vehicle to be viable. Average mileage and kWh usage is shown for all vehicles when they are in operation. The maximum mileages used in this analysis are based off manufacturer quotes and will have different values in real-world scenarios. For instance, these values may change with temperature, humidity, and other environmental factors. Battery life is dependent on how efficiently the vehicle is charged, and charging losses can occur whilst refueling (due to temperature, heat dissipation, etc.). These factors are accounted for in our analysis. For the purposes of the analysis a bus should consume no more than 80% of its stated available kWh to be viable without an on-route charger. Assuming vehicles start with 100% state of charge (SOC) the viability threshold is set at 20% Final SOC. With currently available technology, a single trolley is not expected to meet trolley fixed route mileage requirements, and one of the DAR vehicles will be used as a substitute while the trolley charges mid-day.

**Table 1 – Summary of Existing Fixed and DAR Route Results**

EV Manufacturer	EV Model	Route Type	Daily Average Mileage (mil/day)	Efficiency (kWh/mi)	Battery Capacity (kWh)	Daily Energy Required (kWh/day)	Final State of Charge
<i>Lightning eMotors</i>	<i>ZEV4</i>	Fixed	87.26	0.96	125	83.9	33%
<i>Rivian</i>	<i>R1S</i>	DAR	92.75	0.33	105	30.8	71%
<i>Rivian</i>	<i>R1S</i>	DAR	92.75	0.33	105	30.8	71%
<i>Rivian</i>	<i>R1S</i>	DAR	92.75	0.33	105	30.8	71%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Motiv Power Systems</i>	<i>Trolley</i>	Trolley	127	1.21	127	153.6	-21%
<i>Lightning eMotors</i>	<i>ZEV4</i>	DAR	92.75	0.96	125	89.2	29%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV3</i>	DAR	92.75	0.60	120	55.7	54%
<i>Lightning eMotors</i>	<i>ZEV4</i>	Fixed	87.26	0.96	125	83.9	33%

In summary, CAT expects all vehicles (except the trolley) to meet the daily average mileage requirements without on route charging. Two buses may be used to meet the current fixed route requirements based on existing technology. CAT will reevaluate technological capabilities when the route is planned to be electrified. The fleet will require a mix of charging strategies, with Level 3 chargers for fixed route and larger sized vehicles, and Level 2 chargers for the majority of DAR vehicles.



## Section D: Current Bus Fleet Composition and Future Bus Purchases

CAT operates a fleet of 18 in-service and spare buses and vans of varying sizes for local fixed-route, trolley route and Dial-A-Ride services.

**Table 3 – Individual Bus Information of Current Fleet**

Vehicle ID	Make	Use Type	Model Year	Fuel Type	Bus Type
809	Chevy	DAR Paratransit	2014	Diesel	Cutaway Bus
816	Dodge	DAR Paratransit	2012	Gasoline	Minivan
818	Dodge	DAR Paratransit	2014	Gasoline	Minivan
819	Dodge	DAR Paratransit	2014	Gasoline	Minivan
820	Chevy	DAR Paratransit	2016	Gasoline	Cutaway Bus
821	Chevy	DAR Paratransit	2016	Gasoline	Cutaway Bus
822	Chevy	Trolley	2015	Gasoline	Trolley
823	Ford	DAR Paratransit	2016	Gasoline	Cutaway Bus
824	Dodge	DAR Paratransit	2016	Gasoline	Minivan
825	Dodge	DAR Paratransit	2016	Gasoline	Minivan
826	Chevy	DAR Paratransit	2016	Gasoline	Cutaway Bus
827	Chevy	DAR Paratransit	2016	Gasoline	Cutaway Bus
828	Chevy	DAR Paratransit	2017	Gasoline	Passenger Van
829	Dodge	DAR Paratransit	2017	Gasoline	Minivan
830	Ford	DAR Paratransit	2018	Gasoline	Passenger Van
831	Ford	DAR Paratransit	2018	Gasoline	Passenger Van
832	Dodge	DAR Paratransit	2019	Gasoline	Minivan
833	Chevy	Fixed Route	2019	Gasoline	Cutaway Bus

All bus purchases beginning in 2027 and beyond will be battery electric ZEB purchases. ZEVs will charge exclusively using plug-in charging at a new bus depot. On-route charging is not expected to be needed. The following tables outline the phase in plan of the battery electric fleet. CAT is not planning to convert any existing conventional buses in service to zero-emission buses or retire vehicles before the end of their expected useful life.

The overall CAT fleet will shift in terms of bus type makeup. Due to a preference for more maneuverability, and low ridership trends causing no strain on vehicle passenger capacity, Camarillo will be consolidating more of its buses to be passenger vans as vehicle replacements occur. Cost estimates are based on quotes from vehicle manufacturers.

**Table 4 - Future Bus Purchases**

Year	Total Bus Purchases	ZEB Purchases	% ZEB	ZEB Bus Types	ZEB Fuel Type	Total Conventional Purchases	% ICE	Type of Conventional Bus	Fuel Type of Conventional Bus
2023	15	0	0%			15	100%	3 Minivan 2 Cutaway Bus 9 Passenger Van 1 Trolley	Gas
2024	2	0	0%			2	100%	2 Passenger Van	Gas
2025	0	0	0%			0	100%		
2026	1	1	100%	1 Cutaway Bus	Electricity	0	0%		



Year	Total Bus Purchases	ZEB Purchases	% ZEB	ZEB Bus Types	ZEB Fuel Type	Total Conventional Purchases	% ICE	Type of Conventional Bus	Fuel Type of Conventional Bus
2027	12	12	100%	3 Minivan 9 Passenger Van	Electricity	0	0%		
2028	2	2	100%	2 Passenger Van	Electricity	0	0%		
2029	1	1	100%	1 Cutaway Bus		0	0%		
2030	2	2	100%	1 Trolley, 1 Cutaway Bus	Electricity	0	0%		
2031	12	12	100%	3 Minivan 9 Passenger Van	Electricity	0	0%		
2032	2	2	100%	2 Passenger Vans	Electricity	0	0%		
2033	1	1	100%	1 Cutaway Bus		0	0%		
2034	0	0	100%			0	0%		
2035	12	12	100%	3 Minivan 9 Passenger Van	Electricity	0	0%		
2036	3	3	100%	2 Passenger Vans, 1 Cutaway Bus	Electricity	0	0%		
2037	2	2	100%	1 Cutaway Bus 1 Trolley	Electricity	0	0%		
2038	0	0	100%			0	0%		
2039	12	12	100%	3 Minivan 9 Passenger Van	Electricity	0	0%		
2040	3	3	100%	2 Passenger Vans, 1 Cutaway Bus	Electricity	0	0%		

Table 5 - Range and Estimated Costs of Future ZEBs

Timeline	Number of ZEBs	Bus Type	Required ZEB Range (miles)	Estimated Cost (Per Vehicle)
2023	0			
2024	0			
2025	0			
2026	1	1 Cutaway Bus	Cutaway Bus – 87 miles	Cutaway Bus - \$316,268
2027	12	3 Minivan 9 Passenger Van	Minivans – 93 miles Passenger Vans – 93 miles	Minivans – \$90,423 Passenger Vans – \$204,032
2028	2	2 Passenger Van	Passenger Vans – 93 miles	Passenger Vans – \$210,153
2029	1	1 Cutaway Bus	Cutaway Bus – 87 miles	Cutaway Bus - \$345,595
2030	2	1 Trolley, 1 Cutaway Bus	Cutaway Bus – 87 miles Trolley – 127 miles	Cutaway Bus – \$355,962 Trolley – \$544,711
2031	12	3 Minivan 9 Passenger Van	Minivans – 93 miles Passenger Vans – 93 miles	Minivans – \$101,772 Passenger Vans – \$229,640
2032	2	2 Passenger Vans	Passenger Vans – 93 miles	Passenger Vans – \$236,529
2033	1	1 Cutaway Bus	Cutaway Bus – 87 miles	Cutaway Bus - \$388,970
2034	0			
2035	12	3 Minivan 9 Passenger Van	Minivans – 93 miles Passenger Vans – 93 miles	Minivans – \$114,546 Passenger Vans – \$258,462
2036	3	2 Passenger Vans, 1 Cutaway Bus	Passenger Vans – 93 miles Cutaway Bus – 87 miles	Passenger Vans – \$266,216 Cutaway Bus - \$425,038
2037	2	1 Cutaway Bus 1 Trolley	Cutaway Bus – 87 miles Trolley – 127 miles	Cutaway Bus – \$437,748 Trolley – \$669,926
2038	0			
2039	12	3 Minivan 9 Passenger Van	Minivans – 93 miles Passenger Vans – 93 miles	Minivans – \$128,922 Passenger Vans – \$290,901



2040	3	2 Passenger Vans, 1 Cutaway Bus	Passenger Vans – 93 miles Cutaway Bus – 87 miles	Passenger Vans – \$299,628 Cutaway Bus - \$478,384
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### Section E: Facilities and Infrastructure Modifications

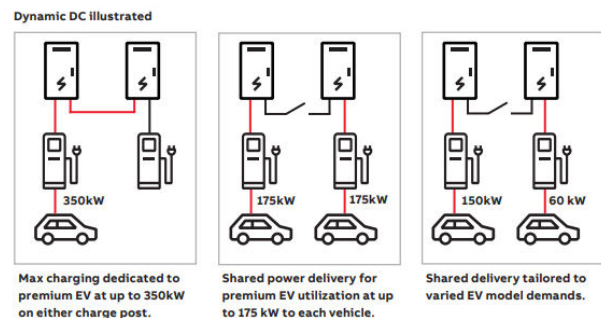
Vehicles are currently housed and fueled at Roadrunners facility. As the fleet is electrified, CAT plans to move the vehicles to a City owned or City leased site. CAT is currently evaluating two options for the new fleet location and associated charging infrastructure. The first option is an underutilized portion of the Camarillo Metrolink parking lot. The second option is a vacant lot on Ventura Boulevard. For the foreseeable future vehicles will continue to be maintained at Roadrunner’s facility. Roadrunner’s facility is not expected to require significant upgrades to service the electric vehicles.

Table 6 contains a summary of the facility improvements needed to support a fleet of 1 electric vehicles.

**Table 6 - Facilities Information and Construction Timeline**

Facility Name	Address	Main Function	Type of Infrastructure	Service Capacity	Needs Upgrade	Estimated Construction timeline
RoadRunner	95 N Dawson Dr, Camarillo, CA 93012	House & Vehicle Maintenance	N/A		No	
Vacant Lot	Ventura Boulevard	Charging Depot	Upgrading a vacant lot to include a parking lot with 18 dedicated charging ports. Substantial civil improvement and electrical infrastructure upgrades required	6 Level 2 40kW and 4 Level 3 180kW depot chargers with two ports each to charge 18 vehicles	Yes	10 months
Metrolink	30 S Lewis Rd, Camarillo, CA 93010	Charging Depot	Reworking a parking lot to include 18 charging ports, some civil improvement and electrical infrastructure upgrades required	6 Level 2 40kW and 4 Level 3 180kW depot chargers with two ports each to charge 18 vehicles	Yes	18 months

CAT will use a series of 19.2kW Level 2 EVCS and dual-port 180kW DCFC charging stations to charge the transit fleet. The 180kW DCFC chargers have two dispensers that can charge two buses simultaneously, as illustrated in Figure 1. A total of 4 dual-port DCFC charging cabinets along with 6 dual-port level 2 stations will be installed for a total of 18 ports for the entire fleet. Fixed route and Paratransit buses will be charged primarily overnight. The final charging solution provides a dedicated charging port for each vehicle to ensure every bus can be recharged each day. Knowing that not all buses operate in a given day, this effectively provides a few spare chargers in case one needs to be serviced.



**Figure 1. Dynamic Parallel Charging**

CAT is planning to develop one of two potential locations for a future ZEV bus depot, an underutilized area of the Camarillo Metrolink Station parking lot, or a vacant lot along Ventura Boulevard. Both sites may also act as a





shared hub for up to 5 battery electric commuter buses from Ventura County Transportation Commission (VCTC). When one of the sites is developed, it will only host battery electric vehicles. Neither site is located in a NOx Exempt area.

Sample layouts of each site are contained in the **Appendix**. Electrical infrastructure upgrades will be required to support up to 1 MW of new load from the charging stations. Utility side distribution upgrades may include Supervisory Control and Data Acquisition (SCADA) equipment upgrades, new utility transformers, and new underground cabling, though SCE will determine specific upgrades when design is completed. CAT intends to apply to SCE's Charge Ready program to reduce behind the meter the electrical infrastructure costs. Regardless the site selected, the following equipment will to be installed behind the utility point of interconnection to support the charging stations (preliminary sizes shown):

- New main switchboard (2,000A)
- Step-down Transformer for level 2 chargers (300 kVA)
- Distribution Panels for level 2 chargers, x2 (400A)
- Trenching with conduit and wire
- Controls and metering
- Concrete pads for equipment
- Steel traffic bollards

The Metrolink station is adjacent to the current facility that houses the City's transit fleet, making it an ideal selection for a charging depot. Civil infrastructure improvements will be required to support the proposed charging stations. Civil Improvements include the clearing and grubbing of the existing site, new concrete islands, new asphalt concrete pavement, modification of existing irrigation and lighting systems, new masonry walls and fencing, new entry gates, signing, and striping. This site is relatively space constrained with limited available area for supporting electrical infrastructure. This site is also currently owned by VCTC and a lease agreement would be needed to put in place for CAT to station their buses and make improvements to the site.

The Vacant lot is located several minutes away by vehicle from the current facility that houses CAT's transit fleet. The City of Camarillo owns the vacant lot, only a portion of which would be needed to support the transit fleet. The lot is currently undeveloped and zoned for commercial activity. The site would need to be developed and paved to act as a bus depot. Other civil infrastructure improvements will be required to support the proposed charging stations including the clearing and grubbing of the existing site, site grading, new pavement structure, new concrete islands, new masonry walls, new entry gates, signing, and striping. The site is much larger than the Metrolink facility but would need to be rezoned to support the transit fleet.

After evaluating both locations, the Metrolink has been suggested as the preferred site for the proposed charging depot by city staff and Willdan though the final decision is based on City Council approval and is contained in the Appendix. This is mainly due to its proximity to the operator's headquarters and its lower estimated cost and construction complexity. Both areas are suitable for the placement of electric vehicle chargers necessary to support the city's fleet, but the vacant lot would require substantially more civil infrastructure improvements and more time to develop. The vacant lot would also necessitate zoning changes, and other construction considerations given that it is next to the City's airport. Meetings with SCE have confirmed that both sites have enough power to support the expected incremental load of charging equipment required.

## Section F: Providing Service in Disadvantaged Communities

CAT's primary service territory does not include any Disadvantaged Communities as listed in the latest version (4.0) of the CalEnviroScreen. However, occasional Dial-A-Ride trips may pass through and terminate in disadvantaged communities, particularly census tracts 6111004902, 6111009100, and 6111003201. While CAT vehicles do not pick up passengers in these census tracts on a day-to-day basis, the occasional trips that pass through these areas



will provide marginal improvements to air quality and reduce noise pollution once these vehicles are electrified. Battery electric buses have no tailpipe emissions, resulting in decreased emissions of criteria air pollutants including nitrogen oxides (NOx), sulfur dioxides (SOx), volatile organic compounds (VOCs), and Particulate matter (PM). Battery electric buses also do not emit any tailpipe greenhouse gases.

## Section G: Workforce Training

CAT intends to work with battery electric bus manufacturers to include training as part of the initial vehicle and charger purchases. This will include both operator training for drivers and maintenance training for service technicians. Once an OEM is engaged, a preliminary training schedule will be drafted. The training schedule will identify the training name, description, audience (by personnel designation), provider, course length, and any other salient information. Additional refresher training will be completed on an as-needed basis. CAT also plans to incorporate and implement training standards for EVs into their contract with its bus operator, currently RoadRunner. The following table includes a sample of the training options CAT may implement as it electrifies its transit fleet.

**Table 8 - Sample Training Program**

Training	Description	Trainees	Provider	Hours
General HV Safety Awareness	General BEB electrical safety	Bus operator trainers, maintenance technicians, staff	OEM / 3 <sup>rd</sup> Party	16
Operator Bus Training	Orientation and driver training	Bus operator trainers	OEM	16-24
First Responder Training	Training on emergency response for BEBs	Bus operators, Camarillo first responder representatives, Maintenance	OEM / 3 <sup>rd</sup> Party	1-4
EVSE Training	Maintenance and operation of EVSE	City electricians, helpers/ maintainers	OEM / 3 <sup>rd</sup> party	4-20
HV Electrical Systems	Lockout/Tagout, HV PPE, Contact Release, Fall Protection, Energy Storage System (ESS), Battery Electric Propulsion System	Maintenance HV technicians	OEM	16
Bus Systems Training	Maintenance training	Maintenance technicians	OEM	32-48
First Aid	Basic first aid training	Maintenance HV technicians	3 <sup>rd</sup> Party	1-4
OEM Maintenance	OEM Maintenance	Maintenance specialties	OEM	32-48
HVAC System	System training	Maintenance specialties	HVAC / OEM	Varies
Telematics / Diagnostic Tools	Vehicle diagnostics	Maintenance specialties Information Technology	OEM	Varies
Structural Composites	Body repair training	Maintenance specialties	OEM	Varies

## Section H: Potential Funding Sources

Transitioning to a zero-emission fleet will be more capital intensive than continuing with a gasoline fleet given that BEBs have a higher upfront cost than gasoline buses, new electrical infrastructure and chargers will be needed to power the BEB fleet, and the maintenance facility will need to be upgraded to service BEBs.



To date, CAT has used primarily FTA and Transportation Development Act (TDA) standard annual non-competitive funds to purchase new buses, including both discretionary and formula 5339b funds. CAT works with the Ventura County Transportation Commission to fund basic capital needs including bus replacements under their Transit Capital Priorities program. CAT plans to leverage HVIP and apply for CMAQ funding to reduce the incremental capital cost of BEBs when possible. CAT will also consider applying to SCE's Charge Ready Transport Program to reduce the cost of electrical infrastructure and chargers. The following table outlines potential funding sources CAT may use to implement this Rollout plan.

#### Funding Sources for Fleet Electrification

Funding Source	Funding Type	Name	Purpose/Notes	Typical Deadlines	Funds Available
Federal	Competitive	Rebuilding American Infrastructure with Sustainability and Equity, (RAISE)	Discretionary grant transportation infrastructure program, effectively rebranding of BUILD, 80% federal cost share, 20% local match required (unless applicant is a DAC)	February 28 <sup>th</sup> , 2023	\$1.5B FY 2023 (min \$5 million/max 45 million)
Federal	Formula	Congestion Mitigation and Air Quality (CMAQ)	Funds projects that contribute to improved air quality and mitigate congestion, allocated through MTC, no local match required	MTC Cycle 3 to be programmed in 2022, (behind schedule)	\$500M+/yr though FY 2026 statewide allocation
Federal	Formula	FTA Buses and Bus Facilities Formula Program 5339b	Replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities. 80% federal cost share, 20% local match required	April 13 <sup>th</sup> , 2023	\$375M+/yr through FY 2026
Federal	Competitive	FTA Low-No Emission Grant 5339c	Purchase or lease of zero emission and low-emission transit buses as well as for the acquisition, construction or leasing of supporting facilities and equipment. 80% federal cost share, 20% local match required	April 13 <sup>th</sup> , 2023	\$1.1B/yr through FY 2026
Federal	Competitive	Innovative Leasing Arrangements Program	Highlights capital leasing procedures and requirements for the leasing of ZEV components, particularly power sources	TBD	TBD
Federal	Competitive	Capital Leasing Certain Zero Emission Vehicle Components and Removable Power Sources	Under the new program, grantees are eligible to purchase a removable power source such as batteries and fuel cells separately through a capital lease.	N/A	Used to expedite the purchase of small items that are under the simplified acquisition threshold of \$150,000
Federal	Formula	Inflation Reduction Act (IRA)	Provides tax credits (which may be issued as direct payments to tax-exempt entities) for zero emission vehicles and infrastructure through 2032	N/A	~35B through 2032
Federal	Formula	Human Resources & Training 5314-b	Possible application for new technology training on BEV. Under this new program, FTA may make grants or enter into contracts for human resource and workforce development programs as they apply to public transportation activities.	TBD	\$4 million allocated in FY2020
Federal	Competitive	Joint Development	Joint development projects involve: Integrated development of transit and non-transit improvements, with transit projects physically or functionally related to commercial, residential, or mixed-use development. Public and private investments that are coordinated between transit agencies and developers to improve land owned by a transit agency or related to a transit improvement. Mutual benefit and shared cost among all parties involved	N/A	N/A



Funding Source	Funding Type	Name	Purpose/Notes	Typical Deadlines	Funds Available
Federal	Competitive	Areas of Persistent Poverty Program	Applicants for the Areas of Persistent Poverty program must be eligible recipients or sub-recipients under section 5307, 5310, or 5311 of title 49, U.S. Code. Program supports projects that will improve transit services or facilities in areas of persistent poverty through planning, engineering, technical studies, or financial plans for projects. 90% federal cost share, 10% local match.	March 10 <sup>th</sup> , 2023	\$20 million
State	Formula	State Transportation Improvement Program (STIP)	Capital improvement program of transportation projects	TBD	\$808 million programming capacity (2022-23 through 2026-27)
State	Competitive	Caltrans Sustainable Communities	Provide funding to support regional sustainable communities' strategies, helping achieve State's GHG reductions targets	March 9 <sup>th</sup> , 2023	\$84 million annually
State	Competitive	Transit and Intercity Rail Capital Program (TIRCP)	Funds large, transformative projects that modernize intercity, commuter, and urban transit systems to significantly reduce GHG emissions	Cycle 6 applications due Feb 10, 2023	\$3.63 billion annually
State	Formula	Low Carbon Transit Operations Program (LCTOP)	Provides operating and capital assistance to transit agencies to reduce greenhouse gas emissions with priority on serving disadvantaged communities	March	\$48 million annually
State	Rebate	CALeVIP 2.0	Provides rebates for charging stations. Generally geared towards public, commercial, and workplace charging. Exclusively for high-speed DCFC. First project, Golden State Priority Project, launching in 2023 with rebates exclusively for DAC or low-income community census tracts.	March 10, 2023	Golden State Priority Project: \$10 million for Central Region Counties, %20 million for Eastern Region Counties
State	Other	Low Carbon Fuel Standard Credit (LCFS)	Provides credits for the generation of low-carbon fuels, including electricity dispensed to electric vehicles. Credits can be sold quarterly	Credits sold quarterly	N/A as credits are based on market value
State	Voucher	HVIP	Point of sale vouchers for qualifying zero-emission medium- and heavy-duty vehicles. Effective Jan 1, 2023, for FY22-23 funding, 70% of HVIP standard and drayage set-aside funding will be reserved for private fleets with 100 vehicles or fewer and public fleets. If more than \$100 million remains in reserve on July 1, 2023, HVIP will release 30% of that funding for larger fleets.	First come, first serve, new requests started after March 30, 2022	\$430M, detailed breakdown <a href="#">here</a>
Regional	Formula	State Transit Assistance Funds (STAF)	Transit planning, transit operations and capital projects	March 15 <sup>th</sup> , 2023	Approx. \$4 – 5 million annually
Regional	Competitive	Carl Moyer Memorial Air Quality Standards Attainment Program	Focused on heavy-duty vehicles, it is also applicable for charging equipment, no cost share required for public agencies. Existing equipment must be operational, and emission reductions must be voluntary and cannot be mandated or used to meet compliance requirements before completion of the grant contract term.	Applications are open, deadline May 9, 2023	\$100+ million
Utility	Other	SCE's Charge Ready Program	To help organizations deploy charging infrastructure and equipment.	Rolling basis. This program is scheduled to end by 2025	Total of \$436 million



Funding Source	Funding Type	Name	Purpose/Notes	Typical Deadlines	Funds Available
Utility	Other	SCE's Charge Ready Transport Program	Offers low-to-no-cost electrical system upgrades to support the installation of electric vehicle charging equipment for qualifying vehicles. This program is for medium and heavy-duty trucks, shuttles, and vans, and transit buses.	Rolling basis.	
Regional	Competitive	Volkswagen Mitigation Trust Fund for Zero Emission Transit and Shuttle Buses	Provides funds to replace older, high-polluting transit, school, and shuttle buses with new battery-electric or fuel-cell buses	Rolling Basis	\$3.25 million per entity

## Section I: Startup and Scale Up Challenges

Camarillo Area Transit may face several challenges in implementing zero-emission bus deployment, particularly with regards to charging infrastructure. Retrofitting an existing parking lot to accommodate a charging depot for its buses or creating an entirely new charging depot on a vacant lot will be a significant challenge. Adapting to a new location where buses charge and integrating this change seamlessly into the bus's day-to-day routes and operations will take time and resources. Additionally, CAT may face long lead times for charging infrastructure due to supply issues, such as those related to switch gears. Supply issues related to both chargers and electric vehicles may cause further complications related to SCE's Charge Ready program, which applies time constraints to the purchases of BEB's. To ensure that the electric fleet can be fully supported when these vehicles are purchased, the City will need to have the necessary charging infrastructure in place.

Higher capital costs for vehicles and high costs for infrastructure and chargers remain a financial barrier to BEBs. Camarillo is well positioned to handle this increased cost burden but certain funding sources remain highly competitive.



## Appendices



## Appendix A – City Council Resolution



## RESOLUTION NO. 2023-42

### A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CAMARILLO APPROVING THE ZERO EMISSION BUS ROLLOUT PLAN

The City Council of the City of Camarillo resolves as follows:

**SECTION 1:** The City Council of the City of Camarillo finds and declares as follows:

A. 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.

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

**SECTION 2:** The Zero-Emission Bus (ZEB) Rollout Plan sets forth Camarillo Area Transit's plan which meets the following requirements:

A. Transit agencies must adopt and submit a complete Zero Emissions Bus Rollout Plan that is approved by its governing Board.

B. A Goal of full transition to zero-emission buses by 2040 with careful planning that avoids early retirement of conventional internal combustion engine buses.

C. Identification of the types of zero-emission bus technologies Camarillo Area Transit is planning to deploy.

D. A schedule for zero-emission and conventional internal combustion engine bus purchases and lease options.

E. A schedule for conversion of conventional internal combustion engine buses to zero-emission technologies.

F. A schedule for construction of facilities and infrastructure modifications or upgrades, including charging, fueling, and maintenance facilities, to deploy and maintain zero-emission buses.

G. Explanation of how Camarillo Area Transit plans to deploy zero-emission buses in Disadvantaged Communities.

H. A training plan and schedule for zero-emission bus operators and maintenance staff.

I. Identification of potential funding sources.

J. The ZEB Rollout Plan is to be submitted to CARB by July 1, 2023.



**SECTION 3:** The City Council of the City of Camarillo approves and adopts the Zero Emission Bus Rollout Plan.

PASSED AND ADOPTED May 24, 2023.



\_\_\_\_\_  
Mayor

Attested to on 05 / 31 / 2023.



\_\_\_\_\_  
City Clerk

I, Kristy Buxkemper, City Clerk of the City of Camarillo, certify Resolution No. 2023-42 was adopted by the City Council of the City of Camarillo at a regular meeting held May 24, 2023, by the following vote:

AYES: Councilmembers: Kildee, Martinez-Bravo, Tennessen, Mayor Santangelo

NOES: Councilmembers: None

ABSENT: Councilmembers: Trembley

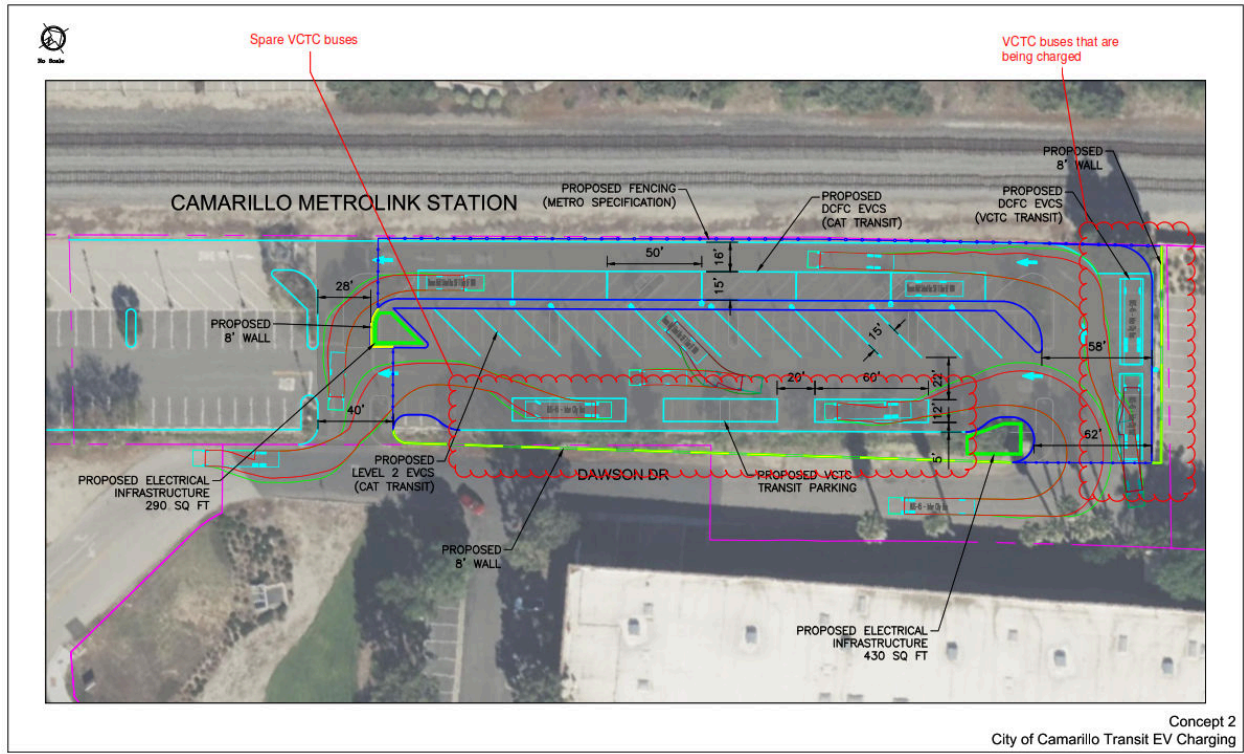


\_\_\_\_\_  
City Clerk



c: Public Works Department

### Appendix B – Site Plan - Metrolink



### Appendix C – Site Plan – Vacant Lot

