



RESOLUTION No. 23-416

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF NEVADA

RESOLUTION APPROVING THE COUNTY OF NEVADA TRANSIT SERVICES/NEVADA COUNTY CONNECTS ZERO EMISSION BUS ROLLOUT PLAN

WHEREAS, the California Air Resources Board (CARB) requires that all public transit agencies transition to zero emission transit fleet by 2040; and

WHEREAS, the Innovative Clean Transit (ICT) Regulation applies to any provider of public transportation utilizing a fleet of vehicles with a gross vehicle weight rating (GVWR) of 14,000 or greater; and

WHEREAS, the ICT requires that each public transit agency develop and submit a Zero Emission Bus Rollout Plan to CARB; and

WHEREAS, the County of Nevada Transit Services Division (aka Nevada County Connects) has now completed its Zero Emission Bus Rollout Plan, which must be approved by the Board.

NOW, THEREFORE, BE IT HEREBY RESOLVED that the Nevada County Board of Supervisors:

1. Approves the County of Nevada Transit Services Zero Emission Bus Rollout Plan.
2. Authorizes the Director of Public Works or designee to execute all required documents of the Zero Emission Bus Rollout Plan and any future amendments.

PASSED AND ADOPTED by the Board of Supervisors of the County of Nevada at a regular meeting of said Board, held on the 8th day of August, 2023, by the following vote of said Board:

Ayes: Supervisors Heidi Hall, Edward C. Scofield, Lisa Swarthout,
Susan Hoek and Hardy Bullock.

Noes: None.

Absent: None.

Abstain: None.

ATTEST:

JULIE PATTERSON HUNTER
Clerk of the Board of Supervisors

By: 

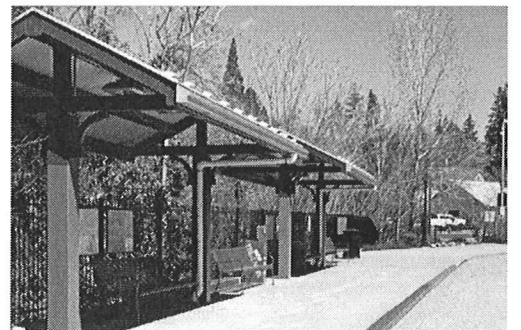

Edward C. Scofield, Chair



County of Nevada Transit Services Zero Emission Bus Rollout Plan

Prepared by: Matthieu Goudreau, Momentum

Reviewed by: John Friedrich, Momentum





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Section A – Transit Agency Information

The County of Nevada Transit Services Division, Nevada County Connects (NCC), provides local and regional fixed route bus service to the cities, towns, and unincorporated areas of western Nevada County, including Nevada City, Grass Valley, Penn Valley, Rough and Ready, Lake Wildwood, Alta Sierra, Lake of the Pines, and the regional hub at the Auburn Amtrak station.

Transit services began in 1975 when Nevada County entered into a Joint Powers Agreement (JPA) between the cities of Grass Valley and Nevada City. The system began with only two routes serving Grass Valley and Nevada City. The system has subsequently grown over the years and now operates six routes throughout western Nevada County. Today, NCC operates a total of 11 buses, with seven buses at peak pullout. The service is supported by NCC's fleet of six non-revenue vehicles. All the buses and non-revenue vehicles are owned and operated by NCC and are stored at one facility, the Nevada County Operation Center (NCOC).

In addition to its traditional fixed route transit services, NCC administers an origin-to-destination/door-to-door paratransit service for persons with disabilities. Specifically, the paratransit system serves those who are unable to use the fixed route bus system, due to a mental or physical disability, as mandated by the Americans with Disabilities Act (ADA). The paratransit service is provided by Nevada County Now (NCN), which sub-contracts the operation of the 12-bus fleet. The NCN fleet is currently being transitioned from being operator owned to being owned by NCN, with eight of the 12 operator vehicles having already been replaced with NCN owned vehicles. The fleet is currently stored at the operator's facility, which lacks adequate space to accommodate the planned transition and expansion of the fleet. Alternative locations for storage are currently being explored by the Nevada County Transit Services Division.

Table 1 Agency Information Summary

| Section A – Information Request | Transit Agency Response |
|---|--|
| Transit Agency Name | Nevada County Connects |
| Mailing Address | 12350 La Barr Meadows Rd., Suite 3 Grass Valley, CA 95949 |
| Transit Agency Air District | Northern Sierra Air Quality Management District |
| Total Number of buses in Annual Maximum Service | 11 fixed route standard buses and 12 paratransit cutaway buses. |
| Population of the Urbanized Area Served | 80,000 |
| General Manager Contact Information | Robin Van Valkenburgh, Transit Services Division Manager, 530-470-2833, robin.vanvalkenburgh@nevadacountyca.gov |

Section B – General Rollout Information

The goal of this rollout plan is to outline NCC's approach to transitioning 100% of its existing bus fleet to zero emission buses (ZEB), inclusive of any organizational or infrastructure changes necessary to accommodate new technologies. NCC intends to begin transitioning to ZEBs in a manner that avoids the early retirement¹ of any internal combustion engine (ICE) vehicles and is compliant with the Innovative Clean Transit (ICT) regulatory requirement of achieving 100% ZEB adoption by 2040.

NCC's transition to ZEBs is currently underway with the procurement of two battery electric buses (BEB), which will replace existing ICE buses in September of 2023. These initial vehicles will be used to assess the performance and requirement of operating BEBs, the results of which will be used to inform and adjust the rollout plan. The rollout plan currently aims to utilize BEBs to achieve a 100% transition from ICE buses to ZEBs, however, the feasibility of hydrogen fuel-cell buses (HFCB) will continue to be monitored for potential inclusion. This focus was determined from the alignment of BEB capabilities with the performance needed to serve the NCC transit system, in addition to BEB technology being less costly and more mature than HFCB.

The immediate focus of the transition is NCC's fleet of standard buses, due to their longer expected useful life of 10 years compared to the 8-year expected life of cutaway buses used by NCN's paratransit fleet. The cutaway buses operated by NCN will be transitioned to ZEBs beginning in 2029, which will coincide with the completed construction of a new NCN fleet storage location. The transition of the cutaway buses will comply with the ICT regulation and not require early retirements of vehicles.

The rollout plan was created by Momentum and Frontier Energy in collaboration with Nevada County Connect. The rollout plan was approved by the Nevada County Transportation Commission on June ##th, 2023 (Resolution ##). The approved resolution can be found in Appendix ## attached.

For more information regarding the rollout plan, please contact Robin Van Valkenburgh, Transit Services Division Manager, 530-470-2833, robin.vanvalkenburgh@nevadacountyca.gov.

Section C – Technology Portfolio

NCC is currently planning to transition to a 100% BEB fleet by 2040. NCC acknowledges that there may be challenges associated with operating all its routes using BEB, therefore it has scheduled a review period to assess the feasibility of HFCBs as part of the rollout. Should HFCB technology development lead to products that are cost competitive with BEB technology and address operational gaps in service, the rollout plan will be revised to include a mixed-fueled deployment strategy, utilizing both BEB and HFCB. Based on the current ZEB offerings, the infrastructure required to support each technology, and the challenges associated with operating a mixed-fuel fleet, NCC is electing to transition 100% of its fleet to BEBs.

NCC is currently replacing two (2) ICE buses with BEBs, which are expected to enter service in September, 2023. These BEB will initially be supported by in-depot plug-in chargers, with the addition of

¹ The only exception to this rule is where ICE vehicles must be retired near the end of their useful lives to comply with ZEB grant funds awarded to NCC. This is the case for the EPA Targeted Airshed Grant Program awarded to NCC which requires that a 2015 and a 2016 standard bus are replaced by the funded ZEB.

on-route inductive, wireless chargers planned for 2025. The effectiveness of the BEBs and charging equipment will be evaluated to determine which portion of NCC routes can be reliably assigned to BEBs under various operating conditions.

Route Assessment for BEB Operations

NCC buses are assigned to operate a single route each day, except for Route 2 and Route 3 Loma Rico Loop (LRL) which are operated by a single bus. Monday to Friday operations include all routes and represent the most demanding service days. Apart from Route 5, each daily vehicle assignment requires 185 miles or less in range to complete the service. This range requirement will be used to inform NCC's procurement of BEBs. Route 5, the only vehicle assignment to exceed 185 miles, includes five daily connections between Grass Valley and Auburn along highway 49, with 300 miles of service.

Table 2 Monday to Friday Route Summary

| Monday to Friday Routes | Miles (Revenue and Non-revenue) | Revenue Time (Hours) | Non-revenue Time for Opportunity Charging |
|--------------------------------|--|-----------------------------|--|
| Route 1 | 129 | 10.3 | 117 minutes |
| Route 2 + Route 3 LRL | 48 | 3.3 | 82 minutes |
| Route 3 GVL | 127 | 7.0 | 54 minutes |
| Route 4 | 185 | 13.8 | 78 minutes |
| Route 5 | 300 | 10.3 | 40 minutes |
| Route 5X | 64 | 2.2 | 60 minutes |
| Route 6 | 140 | 6.8 | 360 minutes |
| Route 7 | 156 | 6.0 | 360 minutes |

It is expected that BEBs will be able to operate most routes in most conditions on a single charge. In poor conditions, BEBs will utilize their scheduled non-revenue (layover) time for opportunity charging on an as-needed basis. Operating Route 5 will be more challenging due to the longer mileage requirement. However, the scheduled duration of non-revenue time could be increased to allow for more opportunity charging time to extend the daily range of BEBs. Ultimately, NCC's approach to serving longer routes will be informed by the performance of initial BEB deployments. Should challenges associated with BEB range emerge, NCC will explore BEBs with longer range and the addition of FCHBs which may be better suited to operating longer routes.

Section D – Current Bus Fleet Composition and Future Bus Purchase

Current Fleet Inventory and Policies

NCC's current fleet inventory includes 11 standard buses and 12 cutaway buses. The standard bus fleet serves NCC's fixed routes and are standardized at 30-foot lengths. As presented in Table 3, the standard bus fleet includes eight buses that were procured in 2016, meaning that there is an opportunity to transition a large portion of the fleet as this group of buses reach their scheduled replacement period.

The cutaway buses used to deliver paratransit services and are standardized at 22-foot lengths. The four 2013 cutaway buses are owned by NCN's subcontractor, while the eight remaining cutaway buses are owned by NCN and are leased to the subcontractor.

Table 3 Current Bus Fleet Composition

| Number of Buses | Engine Model Year | Bus Model Year | Fuel Type | Bus Type |
|-----------------|-------------------|----------------|---------------------------------------|----------|
| 1 | 2015 | 2015 | Diesel | Standard |
| 8 | 2016 | 2016 | Diesel | Standard |
| 2 | 2018 | 2018 | Diesel | Standard |
| 2* | 2023 | 2023 | Electric, depot and on-route charging | Standard |
| 4 | 2013 | 2013 | Gasoline | Cutaway |
| 4 | 2018 | 2018 | Gasoline | Cutaway |
| 2 | 2021 | 2021 | Gasoline | Cutaway |
| 2 | 2022 | 2022 | Gasoline | Cutaway |

* The two 2023 standard buses have been received by NCC and will enter service in September, 2023. These buses will replace one 2015 and one 2016 standard bus.

NCC does not have an overhaul strategy for its fixed route or paratransit buses. If a bus has not met its expected useful life, repairs are performed on an as-needed basis to maintain vehicle operations. Once a bus reaches its expected useful life it is designated for retirement, after which they are taken to the Nevada County Corporation Yard and prepped for auction. Nevada County Fleet Services handles the sale and document administration for all county vehicles, including auctioned buses.

The acquisition of new buses is determined by useful life expectations, funding availability, and service demand. Procurement is completed in conjunction with the Nevada County Procurement Department and must be approved by the Nevada County Board of Supervisors and the Nevada County Transportation Commission.

Future Fleet Replacement and Transition

The transition to ZEBs will begin immediately for the standard buses, with the first of two Gillig BEBs scheduled to enter service in September, 2023. The Gillig BEBs procured have battery sizes of 444 kWh with a range of 210 miles on a single charge. This range is well above the 150 miles required by most routes, however the impacts of real-world conditions, battery degradation, and battery state of charge considerations are expected to impact performance and operations. To mitigate the risks associated with lack of range, future procurements will aim for battery capacities at or above 564 kWh, with corresponding ranges of 300 miles per charge. These procurements will coincide with the retirement of the existing ICE buses, as they reach the end of their useful lives. The transition of standard buses will begin with 100% BEBs. In addition to the change in propulsion, the standard buses which are currently standardized at 30-foot lengths will be replaced with 35-foot BEBs. The standard bus replacement schedule is outlined in Table 4.

Table 4 Standard Bus Replacement Schedule

| Timeline | #of Buses Purchased | # of ZEB Purchases | % of ZEB Purchases | ZEB Bus Types | ZEB Fuel Types | # of ICE Bus Purchases | % of ICE Bus Purchases | Cumulative ICE Bus | Cumulative BEB Count | % BEB Fleet |
|----------|---------------------|--------------------|--------------------|---------------|----------------|------------------------|------------------------|--------------------|----------------------|-------------|
| 2023 | 2 | 2 | 100% | Standard | BEB | 0 | 0% | 9 | 2 | 15% |
| 2026 | 7 | 7 | 100% | Standard | BEB | 0 | 0% | 2 | 9 | 85% |
| 2028 | 2 | 2 | 100% | Standard | BEB | 0 | 0% | 0 | 11 | 100% |

The next cutaway bus procurement is planned for 2024 and will include five new ICE paratransit vehicles. Of the five buses to be procured, four will be replacements for existing vehicles and one will constitute an expansion to the cutaway fleet to 13 buses. This will also complete the ownership transition to NCN, with the last four cutaways being replaced by transition subcontractor fleet ownership to NCN fleet ownership.

The contract with the paratransit operator is set for renegotiation in 2028, at which point NCC plans to begin procuring a new facility to store the paratransit fleet, capable of accommodating an eventual 13 cutaway BEBs. The adoption and service entry of paratransit BEBs is planned to begin in 2029, after the renegotiation and potential construction of a new facility.

Table 5 Cutaway Bus Replacement Schedule

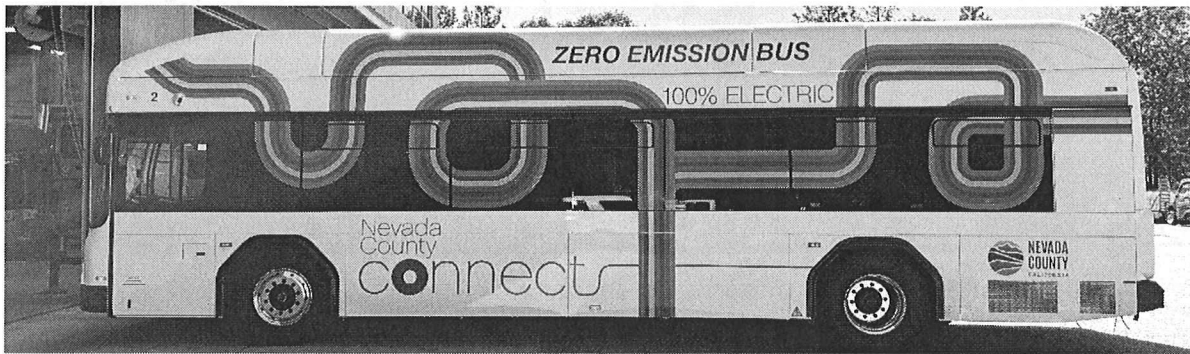
| Timeline | #of Buses Purchased | # of ZEB Purchases | % of ZEB Purchases | ZEB Bus Types | ZEB Fuel Types | # of ICE Bus Purchases | % of ICE Bus Purchases | Cumulative ICE Bus | Cumulative BEB Count | % BEB Fleet |
|----------|---------------------|--------------------|--------------------|---------------|----------------|------------------------|------------------------|--------------------|----------------------|-------------|
| 2024 | 5 | 0 | 0% | Cutaway | NA | 5 | 100% | 13 | 0 | 0% |
| 2026 | 4 | 0 | 0% | Cutaway | NA | 4 | 100% | 13 | 0 | 0% |
| 2029 | 2 | 2 | 100% | Cutaway | BEB | 0 | 0% | 11 | 2 | 15% |
| 2030 | 2 | 2 | 100% | Cutaway | BEB | 0 | 0% | 9 | 4 | 31% |
| 2032 | 5 | 5 | 100% | Cutaway | BEB | 0 | 0% | 4 | 9 | 69% |
| 2036 | 4 | 4 | 100% | Cutaway | BEB | 0 | 0% | 0 | 13 | 84% |

As part of NCC and NCN's conversions to 100% ZEB fleets, converting or repowering existing ICE buses to battery electric powertrains is not being considered. Table 6 below shows the expected cost (before vouchers, incentives, and tax credits) and range of standard and cutaway buses to be procured as part of the transition.

Table 6 Range and Estimated Costs of Future ZEB Purchases

| Timeline | # of ZEBs | Bus Type(s) | Required BEB Range | Estimated Unit Cost (2023 \$USD) |
|----------|-----------|-------------|--------------------|----------------------------------|
| 2023 | 2 | Standard | 210 Miles | \$982,192 |
| 2026 | 7 | Standard | 300 Miles | \$1,100,000 |
| 2028 | 2 | Standard | 300 Miles | \$1,100,000 |
| 2030 | 2 | Cutaway | 80 miles | \$242,000 |
| 2032 | 5 | Cutaway | 80 miles | \$242,000 |
| 2036 | 4 | Cutaway | 80 miles | \$242,000 |
| 2037 | 2 | Cutaway | 80 miles | \$242,000 |

Figure 1 First Battery Electric Bus Adopted by NCC



Section E – Facilities and Infrastructure Modifications

Nevada County Operations Center – standard bus storage and maintenance

The primary transit facility operated by NCC is located at the Nevada County Operations Center (NCO). The NCO has functionality that extends beyond transit operations as it consolidates municipal, maintenance, and transit divisions on a single site to enable efficient workflow and interaction between staff and services. The site provides separate parking for heavy equipment vehicles, full-sized buses, and light-duty trucks. Additionally, the site includes a de-mudding and vehicle wash building for end of duty-cycle servicing. The main structure houses administration offices, staff rooms, and fleet maintenance operations, with eight heavy-equipment bays and four light-duty bays.

The site has been developed with sufficient space to accommodate the full transition of the standard bus fleet and associated infrastructure. Further, the roof structure of each building on site was designed to support future solar panel installations, to offset the energy needs of a battery electric fleet – both transit and municipal. Various solar concepts are being investigated to understand the financial feasibility of solar assets to be deployed. To date, no determination has been made on whether to proceed with solar panel installations and at what scale. For context, the most recent concept explored 25,000 square feet of solar panels and would satisfy 27% of the energy needs of a fixed route BEB fleet.

The charging strategy for standard buses at the NCO is plug-in depot charging. The initial deployment of two standard Gillig BEBs will be supported by a temporary 50kW charger, which will be replaced by a

dual port 62.5kW (125kW total) charger later this year. The existing electrical infrastructure has the capacity to accommodate the initial chargers. However, to support the fleet's 100% transition to BEB, the facility will require five additional dual port chargers, requiring electrical infrastructure upgrades to be completed by 2026.

Figure 2 Nevada County Operations Center

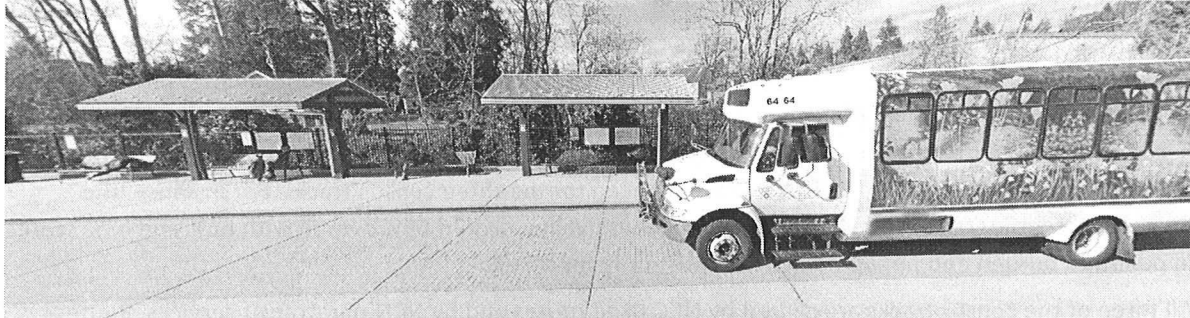


Tinloy Transit Hub – On-route opportunity charging

The Tinloy Transit Hub serves the NCC as a central hub, with all routes beginning and terminating at this location. The transit hub has been selected to house inductive, wireless chargers to enable opportunity (or on-route) charging. This site was selected to maximize the benefits of infrastructure and limit any changes to existing services. The shared use of opportunity chargers maximizes efficiency, as each route will have access. The opportunity charging will provide BEBs with additional range to ensure that NCC's longer routes are feasible using BEB technology, limiting any changes to the existing service schedule. Furthermore, the existing layover time scheduled for each route takes place at the Tinloy Transit Hub, meaning that no additional delay will be required to facilitate charging.

The planned chargers at the Tinloy Transit Hub are 300kW inductive, wireless chargers, with the first charger planned for installation in May 2025. In the future, two additional inductive chargers will be installed. The site does not currently have sufficient electrical capacity to support the 900kW total load that the three chargers operating in parallel would require, necessitating infrastructure upgrades. NCC is working with its electric utility, Pacific Gas and Electric (PG&E), to align the timing of the infrastructure upgrades with the receipt of the first inductive charger. The item with the longest procurement lead time is the switchgear at 18 months. Given that the switchgear is a critical component for the upgrade, the completion of the infrastructure installation is planned for January 2025 – well ahead of the planned charger installation in May, 2025. To prevent any delays or additional costs associated with future infrastructure upgrade projects, the site will be proactively developed (future-proofed) with sufficient infrastructure to accommodate all three 300kW inductive chargers.

Figure 3 Tinloy Transit Hub



Future Paratransit Facility – Cutaway bus storage and maintenance

The paratransit fleet is currently housed at a facility owned by NCN’s subcontracted operator. In addition to ownership concerns, the existing site is spaced constrained such that it is not considered a feasible location for storing and charging cutaway BEBs. The County of Nevada Transit Services division is currently exploring alternative sites capable of storing the entire fleet of 13 cutaway buses during the transition to BEBs. Ultimately, the site will be equipped with sufficient charging infrastructure to provide overnight charging for all vehicles. No charger specifications have been confirmed. However, it is expected that 19.2kW Level 2 AC charging will be sufficient to support the cutaway buses, which have smaller batteries than their standard bus counterparts. In total, 14 chargers are planned for installation to provide a one-to-one ratio of dispensers to buses, with one additional charger to provide redundancy and mitigate the impact of potential equipment failures.

Facilities and construction timeline summary

The facility information and expected construction timeline for the NCC facilities involved in deploying and maintaining ZEBs are summarized in Table 7.

Table 7 Facilities Information and Construction Timeline

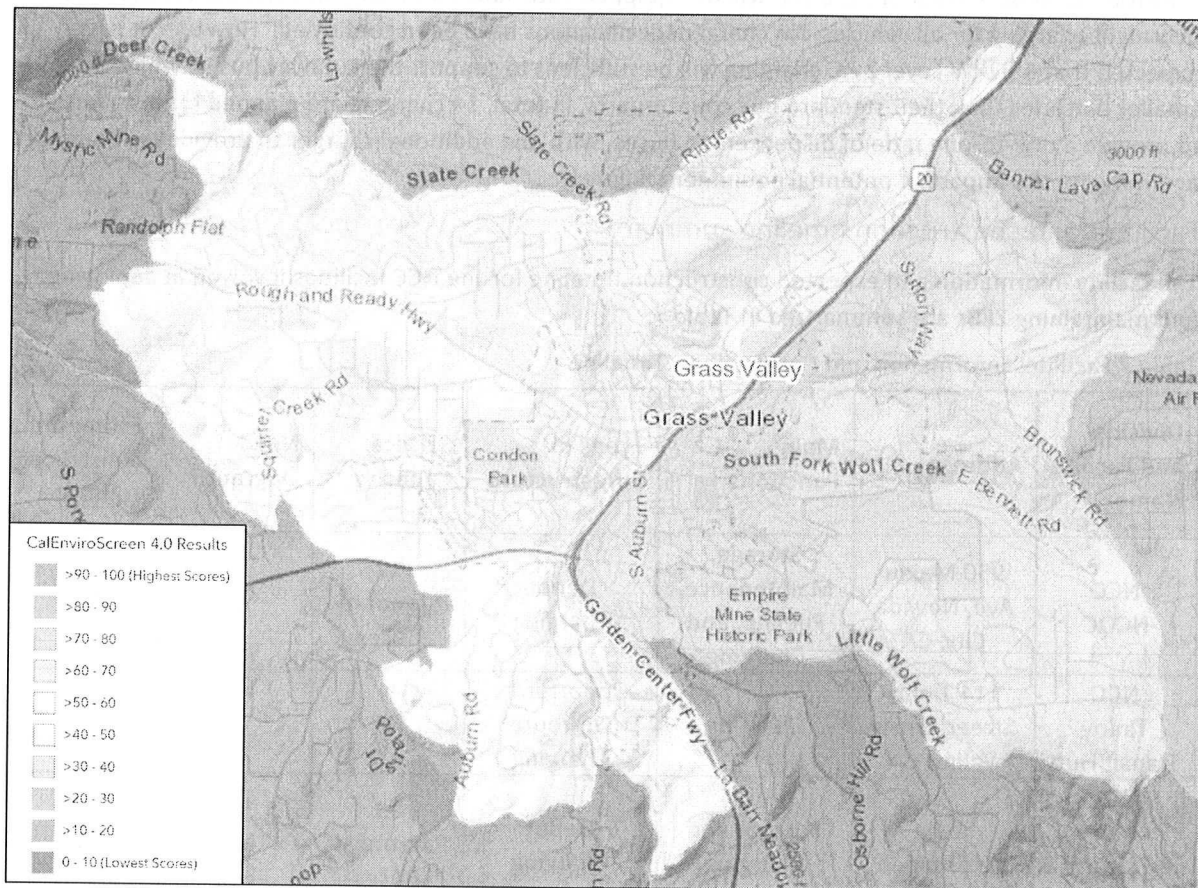
| Division and Facility Name | Address | Main Functions | Types of Infrastructure | Service Capacity | Needs Upgrade? | Estimated Construction Date |
|--------------------------------|-------------------------------------|---|---------------------------------|----------------------|----------------|-----------------------------|
| NCC NCOC | 950 Maidu Ave, Nevada City, CA | Storage, Maintenance, Fueling, and Charging | Depot Charging | 12 Standard Buses | Yes | 2025 |
| NCC Tinloy Transit Hub | 114 Tinloy Street, Grass Valley, CA | Charging | Opportunity (On-route) Charging | NA | Yes | 2025 |
| NCN Future Transit Facility | To be determined | Storage and Charging | Depot Charging | 13 Paratransit Buses | Yes | 2030 |

Section F – Providing Service in Disadvantaged Communities

Using the SB 535 Disadvantaged Communities CalEnviroScreen Data, no census tracts in Nevada County are identified as Disadvantaged Communities. However, using the California Communities Environmental Health Screening Tool, CalEnviroScreen 4.0, NCC identified that three census tracts in Nevada County have overall percentiles above 50%, all of which are in Grass Valley. The assessed criteria of pollution burden and population characteristics were balanced for the three census tracts. For instance, the highest percentile track, the eastern portion of Grass Valley, scored 69% overall with 66% and 63% scores in pollution burden and population characteristics respectively.

All three of the census tracts are served by NCC fixed routes and by NCN paratransit services. Routes that serve these communities are well suited to be performed by BEBs, meaning that there is potential for NCC and NCN to reduce emissions in Nevada County’s most disadvantaged communities. Operating BEBs in these areas will be a focus of the transition plan, with the goal of prioritizing reduction of air and noise pollution in disadvantaged communities. The CalEnviroScreen 4.0 results are provided below in Figure 4.

Figure 4 Nevada County CalEnviroScreen 4.0 Results



Section G – Workforce Training

NCC is a strong believer in workforce development. This includes providing its staff with robust training programs to ensure that they are empowered to perform their duties in a manner that is both safe and effective. In terms of the new technologies to be adopted as part of the transition of BEBs, NCC aims to maintain traditional components of adopted BEBs using internal staff. This will include steering, wheels, tires, hydraulics, and body work. NCC is currently working with Gillig to contract with a third-party maintenance shop capable of servicing high-voltage and drivetrain components. NCC plans to perform day-to-day diagnostics and maintenance activities with major repairs on new BEB systems being deferred to contractors.

Internal training sessions have been procured as part of the initial BEB deployments to introduce staff to the new technologies, with planned adoption of a train-the-trainer model. Using maintenance documentation and initial training sessions provided by Gillig, NCC plans to develop ongoing internal employee training programs. The initial training on the two Gillig BEBs set to enter service in September, 2023 began in June 2023. The Gillig training program includes the following topics:

- Operator Instruction
- Gillig Battery Electric Bus Operator Training
- Maintenance Department General Vehicle Orientation
- Gillig Battery Electric Bus Service Personnel Training
- Air Systems and Brake
- Basic Bus Electrical System
- Multiplex Electrical System
- CNG System
- Hydraulic System
- EFAN System
- Allison Hybrid Familiarization
- BAE hybrid Familiarization
- Gillig Emissions
- Entrance/Exit Door Systems
- Gillig Battery Electric Bus Technician Training

The training programs will ensure that each staff segment knows the changes that will impact them as BEBs are adopted. Safety concerns will apply to all staff working in proximity to BEBs and associated infrastructure and equipment. Familiarity with battery electric technologies is not assumed as common knowledge among staff, so it is expected that staff will have many questions about how the technology works and how it will impact their roles. As a result of these considerations, the following training elements will be incorporated into NCC's training programs.

- All Staff – General Electrical Safety
 - High voltage safety procedures
 - Restricted bus access and functionality, such as lock-out/tag-out procedures.
 - Proper use of Personal Protective Equipment (PPE)
- BEB Operators – Vehicle Orientation and Operation
 - Vehicle familiarity – switches, controls, indicator/warning lights gauges, etc.
 - Battery state of charge and remaining operating time and range
 - Start up and shut down procedures
 - Driving characteristics, such as regenerative braking, acceleration, etc.
 - Depot charging protocols
 - Enroute charging protocols (for applicable vehicles)
- Mechanics and Welders – Knowledge and Skillset Training

- Safe startup and shutdown procedures
- Preventative maintenance
- Electronic inverters
- Electric drive and transmission
- Batteries and energy management hardware & software
- High voltage systems
- Service Cleaners – Working in a high-voltage environment
 - Depot charging protocols (plug-in chargers)
 - Overnight parking configurations and procedures
 - Washing exterior and underside of buses

The maintenance of charging equipment and related infrastructure will be performed by contracted third party maintenance providers. This will include scheduled preventative maintenance and corrective maintenance in response to equipment failure.

To ensure that local emergency services are aware of BEB risks, NCC will circulate emergency response guides created by Gillig and the National Fire Protection Association. These guides present the procedures required to safely respond to emergency situations related to the vehicle and its high voltage systems, including occupant rescue, immobilization, direct hazards, access to occupants, stored energy, in case of fire or submersion, and more.

Section H – Potential Funding Sources

The funding landscape for Californian transit agencies to transition to battery electric buses is robust and offers various opportunities to support this transition. NCC is actively tracking and pursuing several programs that aim to accelerate the adoption of zero-emission buses.

The most recent grant funds awarded to NCC were provided through the United States Environmental Protection Agency (EPA) Targeted Airshed Grant Program (2019-20), which funded the acquisition of NCC's first two BEBs.

Additionally, NCC aims to leverage California Department of Transportation (Caltrans) State Transit Assistance (STA) funds, which are generated by a sales tax on fuel and diesel fuel. TDA funding allows each county, including Nevada County, to establish a quarter-cent sales tax to finance a wide variety of transportation projects, including transit operations, bus and rail projects, special transit services for disabled riders, pedestrian and bicycle facilities, and transportation planning. NCC is aware that the amount of money available for transit agencies varies from year to year based on the ups and downs of diesel prices.

Potential Funding Sources – Federal

The Federal Transit Administration (FTA) offers several grant programs that support the transition to cleaner and more sustainable transportation, including the Low or No Emission (Low-No) Grant Program. This program specifically focuses on funding the purchase or lease of low or zero-emission buses, including battery electric buses. Additional FTA grant programs are listed below:

- State of Good Repairs Grant
- Bus and Bus Facilities Discretionary Grant
- Urbanized Area Formula program
- State of Good Repair Grants
- Capital Investment Grants
- Low-or No-Emission Vehicle Grant
- Metropolitan & Statewide Planning and Non-Metropolitan Transportation Planning
- Flexible Funding Program – Surface Transportation Block Grant Program

The United States Department of Transportation (USDOT) launched the Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants program to fund investments in transportation infrastructure, including transit. The program helps to ensure that recipients have the technical assistance and support necessary to successfully complete their projects throughout the development and implementation process.

Potential Funding Sources – State

The California Energy Commission (CEC) offers grants and incentives to support clean transportation, including electric buses. Programs like the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) provide funding for projects that advance alternative fuels and vehicle technologies.

The California Air Resources Board (CARB) administers multiple grant programs to help reduce air pollution and greenhouse gas emissions. The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) provides vouchers to reduce the upfront costs of zero-emission buses. The Clean Mobility Options Voucher Pilot Program is another CARB initiative that supports zero-emission transit projects. CARB programs with potential to support NCC’s transition to BEBs are listed below:

- Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)
- State Volkswagen Settlement Mitigation
- Cap-and-Trade Funding
- Carl Moyer Memorial Air Quality Standards Attainment Program
- Low Carbon Fuel Standard (LCFS)

The California Transit and Intercity Rail Capital Program (TIRCP) is a state-funded competitive grant program that supports transformative capital projects for transit and intercity rail. It prioritizes projects that demonstrate reduced greenhouse gas emissions and improved mobility. Transitioning to battery electric buses aligns with TIRCP's goals and could be a viable funding option.

The Low Carbon Transit Operations Program (LCTOP) provides operating and capital assistance for transit agencies to reduce greenhouse gas emissions and improve mobility. It supports a range of projects, including the purchase or lease of zero-emission buses.

As mentioned above, NCC intends to leverage the STA program offered by Caltrans. However, additional programs offered by Caltrans are also being considered by the County:

- Low Carbon Transit Operations Program (LCTOP)
- Transportation Development Act
- Transportation Development Credits
- New Employment Credit