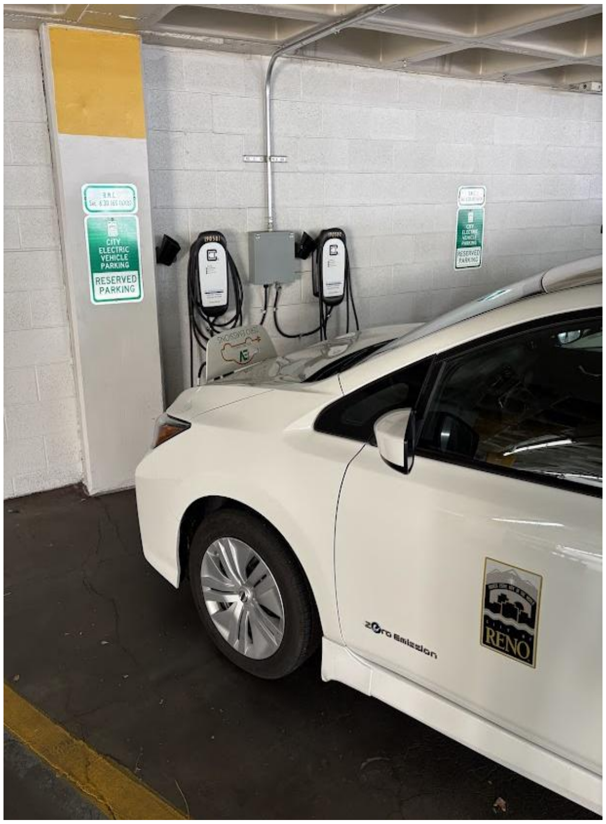

Concept Design Report

Infrastructure Plan for Fleet Electrification

City of Reno and Washoe County, Nevada

Reno, Nevada

February 27, 2026

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Definitions/Terminology

- **Alternating Current (AC)**: Electric current that changes direction and magnitude periodically. AC current is used for distributing electricity over long distances.
- **Battery Electric Vehicle (BEV):** A type of vehicle that uses electricity stored in batteries as the exclusive power source. For conciseness, BEV will be shortened to EV for the purpose of this memo as BEVs are the only type of EVs being considered.
- **Connector:** The device that is plugged into a vehicle to charge the vehicle. Connector types include CCS1 and J3400, also known as the North American Charging Standard (NACS).
- **Charger:** The equipment that is used to facilitate power to charge a vehicle.
- **Charging cabinet:** The unit that regulates and converts input AC power to output DC power and delivers the power to the dispenser.
- **Direct Current (DC):** Electric current that only flows in one direction. DC current is used for powering electronic devices, including EV chargers, because the voltage provided is consistent.
- **Direct Current Fast Charging (DCFC):** A charger type that uses a 480-volt AC input power supply and converts that power to DC outside the vehicle and provides DC to directly charge the battery.
- **Electric Vehicle Supply Equipment:** The collective equipment that supplies electricity to an electric vehicle (EV). Includes electrical conductors, transformers, switchboards, chargers, and supporting software.
- **Internal Combustion Engine (ICE) Vehicle:** A type of vehicle that uses a combustible fuel as the power source, including gasoline, diesel and natural gas.
- **Level 2 (L2) Charging**: A charger type that uses a 208/240-volt Alternating Current (AC) input power supply, offering a power output that ranges from 3.6-19.2 kW. These chargers provide power to an onboard charger in the vehicle that converts the power from AC to DC to charge the battery.
- **Light-Duty (LD) Vehicle:** A vehicle with a Gross Vehicle Weight Rating (GVWR) of less than 8,500 pounds.
- **Port:** Provides power to charge one vehicle at a time. Chargers are often single-port or dual-port.
- **Primary/Secondary Service:** Primary service refers to power distribution equipment that is owned and operated by the utility service provider, while secondary service is owned and operated by the customer. The typical demarcation point is a utility transformer.

- **State of Charge (SOC):** Often presented as a percent of the battery total capacity, this value indicates how much usable energy is available in a battery.
- **Switchboard/Panelboard:** A piece of electrical equipment that distributes power from the supply source to smaller load circuits. Typically comprised of a main breaker and multiple smaller feeder circuit breakers for EVSE applications. A switchboard serves larger loads than panelboards.
- **Transformer:** A piece of electrical equipment that increases (“step-up”) or decreases (“step-down”) voltage. This occurs between the utility supply voltage (12,000+ volts) and the switchboard/panelboard (480 or 240/208V) as well as at the low voltage levels such as between DCFCs (480V) and Level 2 chargers (240/208V).

Executive Summary

The Nevada Clean Energy Fund (NCEF) partnered with the City of Reno ("City") and Washoe County ("County") to develop an infrastructure plan for fleet electrification as part of a grant award from the Municipal Investment Fund.[1] The plan aims to further both agencies' efforts in transitioning a portion of their fleets to battery electric vehicles (EVs). This plan includes concept designs and budgetary cost estimates for charging infrastructure needed to transition light-duty vehicles to EVs located at four sites, two for each agency:

City of Reno

- City Hall Parking Garage (1 E 1st St)
- Public Safety Center (911 Kuenzli Street)

Washoe County

- 9th Street Complex (1001 E 9th Street)
- Liberty Center Parking Garage (220 N Center Street)

Given the maturity of the EV light-duty vehicle market and the daily use of the City and County's vehicles, the charging solution at each site focuses on overnight Level 2 charging stations with direct current fast chargers (DCFC) at select locations for added operational resiliency. The exception to this approach is at the Reno Public Safety Center, where DCFC are planned to support patrol vehicles that require consistent fast charges during shift change.

This report supplements the concept layouts and cost estimates with supporting documentation on:

- Charging Requirements
- Existing Site Conditions
- Utility Coordination
- Concept Design and Cost Estimating Methodology
- Next Steps

This report and the concept design package will allow the City and the County to move forward into detailed engineering design and subsequent installation of charging infrastructure.

The first half of the report in Sections 1 through 5 focuses on general background information and methodology descriptions that apply to each site, while the second half of the report, Section 6, includes a detailed section on each site that can be extracted independently when sharing with agency stakeholders.

The project results are summarized for the City sites in **Table 1** and the County sites in **Table 2**.

[1] Washoe County and City of Reno Partner with Nevada Clean Energy Fund to Advance New Clean Energy Projects in the Community - Nevada Clean Energy Fund

Table 1. City of Reno Sites Summary

Site	Light-Duty Vehicles Supported	Level 2 Ports	DCFC Ports	New/Existing Utility Service	Infrastructure Budgetary Cost Estimate
City Hall Parking Garage	50	41	0	Existing	$422,000
Public Safety Center	50	33	0	New	$553,000
Totals ->	**100**	**74**	**0**		**$975,000**

Table 2: Washoe County Sites Summary

Site	Light-Duty Vehicles Supported	Level 2 Ports	DCFC Ports	New/Existing Utility Service	Infrastructure Budgetary Cost Estimate
9^{th} St. Complex	70	20	2	Existing	$509,000
Liberty Center Garage	26	10	0	Existing	$86,000
Totals ->	**96**	**30**	**2**		**$595,000**

The following team members from NCEF, NV Energy, City of Reno, and Washoe County collaborated to develop this plan.

- NCEF: Clayton Reed
- NV Energy: Billie Augustine, Will Su
- City of Reno: Suzanne Groneman, Zac Haffner, Joe Perreira
- Washoe County: Brian Beffort, Aaron Smith

1. Site Visits

Site visits were conducted on January 8th, 2026, at all four sites, with representatives present from NCEF, City of Reno, Washoe County, NV Energy, and HDR. In-person meetings were conducted during the site visits to discuss preferred charger quantities, size, and location to meet operational requirements. Existing infrastructure and parking layouts were also documented. These discussions and observations from the field informed both utility coordination and conceptual designs presented in this plan.

2. NV Energy Coordination

NV Energy, the power service provider in Reno, was a key stakeholder throughout the project and will continue to be throughout the City and County's fleet electrification transition. The project team met with Billie Augustine, account manager for both agencies, and Will Su, electrical engineer in the distribution planning department, to understand existing capacity, timelines to provide service and next steps at each of the four sites.

As part of this project, NV Energy provided distribution planning memos. These memos provide insights on the NV Energy distribution capacity to support loads at a given location if a new service is required and can be found in **Attachment 1.3: NV Energy Resources**. For instances where utility upgrades will be required prior to supporting the EV charging loads, an estimated in-service date (ISD) is provided. Site-specific details are discussed in the relevant site overviews.

3. Concept Design Methodology

Concept layout designs were created for each site. The general EV charging infrastructure design process is shown in **Figure 1**. All equipment is connected by electrical conductors within conduit. The conduit can be underground or overhead mounted to a structure depending on the site.

Once charging loads were determined, available capacity of existing equipment was investigated to determine if a new utility service from NV Energy would be required or if existing equipment such as the utility transformer and customer switchboard can support the loads.

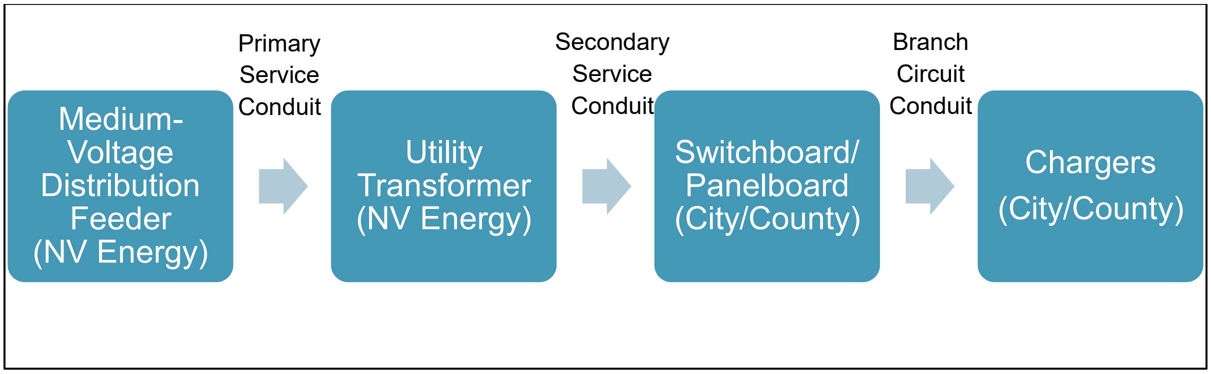

Figure 1: EVSE Design Process

- The medium-voltage power source comes from NV Energy's power distribution network from overhead poles or underground cables.
- The utility transformer steps-down the power source voltage from a higher voltage down to the building power for existing setups, or the charger operating voltage for new EV charging dedicated services. The conduit exiting the transformer is where City or County ownership begins. If the existing transformer has a secondary voltage of 480/277V and Level 2 chargers are being planned for, then an additional customer-owned step-down transformer is required as Level 2 chargers operate at 240 or 208V.
- The switchboard (>1000A load) or panelboard (<1000A load) is an overcurrent protection device that includes a main breaker and branch circuit breakers for all circuits sourced from it.
- Each charger has its own dedicated circuit, so the design and cost estimates assume there is one conduit coming out of the switchboard/panelboard for each charge port. In practice multiple branch circuits could share larger conduit to reduce costs, but this is a detailed design consideration.

The designs include:

- **Locating the chargers near where vehicles currently park, if possible.** Since the chargers will be exclusively for fleet vehicles and not shared with the public, public access to the chargers was not considered.
- **Sizing transformers, switchboards/panelboards, and branch circuits, to support the charging loads.** EV chargers are considered continuous loads, so switchboards/panelboards and branch circuits were sized at the non-continuous load plus 125% of the continuous load per National Electric Code (NEC) 210.20(A).
- **Sizing conductors and conduits that supply the EVSE.** Conductors were sized to support the maximum permitted ampere rating of the circuit.
- **Routing conduit between the power source, supporting electrical equipment, and chargers.** Conduit was assumed to be underground or overhead/wall mounted based on the site conditions; the two parking garage sites have access to structures that allow for overhead/wall mounted conduit, while the Public Safety Center and 9th St. Complex conduit will be underground trenched.

All equipment sizing is preliminary and subject to change during detailed design.

Design placeholder charging products were selected for load planning and cost estimate purposes and noted in **Table 3**. Budgetary costs were assigned based on previous projects and quotes. These costs do not include additional O&M fees on top of the hardware such as parts and labor warranties, maintenance agreements, and network service fees.

Table 3: Charging Product Summary

Agency	Charging Type	Product Name (Link)	Budgetary Material Unit Cost	Notes
City of Reno	Level 2	Enphase HCS-40	$916	Charger has been installed at City Hall garage and PSC. Single-port chargers. Current price available on product website.
City of Reno	DCFC	BTC Power 360 kW Cabinet w/ Dispenser	$150,000	Planned to be installed at PSC via separate project.
Washoe County	Level 2	ChargePoint CPF50	$2,300 (Single-Port) $4,400 (Dual-Port)	Budgetary pricing provided by ChargePoint as of February 2026.
Washoe County	DCFC	ABB Terra 184	$100,000	Common fleet DC fast charger

Each charger (except parking garage column-mounted chargers) will have two 6-inch bollards located in front of the unit to protect the equipment from vehicle collisions.

5. Cost Estimates Methodology

Cost estimates were developed at each site for the City of Reno and Washoe County to use as a budgetary estimate for installing charging. A bottom-up approach, which includes identifying individual line items, assigning unit costs via industry standard resources, and estimating quantities using the concept design layouts, was utilized. The process is shown **Figure 2.**

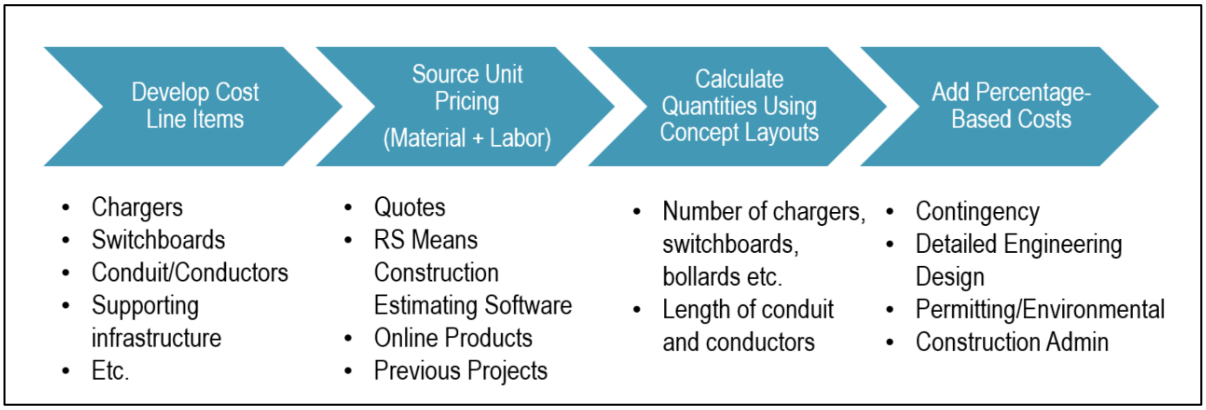

Figure 2: Cost Estimating Process

A master list of items with unit pricing was developed and is available in the **Attachment 1.2: Cost Estimates**. Each site cost estimate includes a combination of these items. The unit prices include material and installation labor costs.

RS Means[2], a widely used construction estimating software, was the primary source for conduit and conductor unit costs. Costs are adjusted for the Reno area and are Q1 2026 costs. Conduit and conductor unit costs are combined into one line item for each unique size and installation combination. Electrical equipment costs are primarily sourced from electrical equipment distributors Larson Electronics[3] and Schneider Electric[4].

Costs are broken into the following categories:

- Chargers
  - Charger costs varied based on placeholder product selection
- Conduit/Conductors
  - Sizes and installation methods are based on concept designs. Quantities were estimated using the concept layouts and rounded up to the nearest 5 feet.
- Electrical Equipment
  - Includes all equipment on the secondary side such as transformers, switchboards, panelboards, and individual circuit breakers.
- Site Civil
  - Includes bollards, pavement striping, charger concrete pads, and miscellaneous site upgrade items such as tree removal and landscaping.

[2] RSMeans Data: Construction Cost Estimating Software
[3] Larson Electronics
[4] Schneider Electric

Assigning categories allows for reporting the cost shares for each category. These cost shares vary by site and give insight into the major factors driving costs, as well as what can be focused on to reduce costs.

5.1 Percentage-Based Costs

Along with construction line items, additional costs were added as a percentage of the construction cost estimate at each site. These costs are for the following:

- Contingency (20%): Accounts for unforeseen costs during concept design phase and serves as an additional safety factor on top of unit costs.
- Engineering Services (16%): Accounts for engineering design (8%), permitting/environmental reviews (4%), and construction administration (4%)

6. Charging Site Overviews

This section gives an overview of the concept designs and cost estimates at each of the four sites. The concept designs package includes chargers and supporting electrical equipment layouts, one-line diagrams, and infrastructure cost estimates and is available in **Attachment 1.**

Note: It is recommended to have the Concept Design Package open when reviewing this section of the report as the concept layout plan sheets are easier to view in an independent PDF viewer. Excerpts of the plan sheets are included in this section for high-level reference.

6.1 City Hall Parking Garage

6.1.1 Site and Charging Overview

The City Hall parking garage located at 1 E 1st St is adjacent to City Hall and provides parking for the public, City employees, and City fleet vehicles. The garage was originally owned by the nearby Cal Neva casino but is now owned the City. It houses 46 light-duty fleet vehicles across 13 departments, nine of which are EVs (~20%). The existing EVs are supported by a dedicated 32A Level 2 charger per vehicle, eight of which are on the 5th floor with one charger on the second floor that supports the IT department. The City prefers to keep the 1:1 charger to vehicle strategy moving forward as electrical capacity allows.

The City's goal is to have infrastructure to support up to 50 EVs, leading to 41 additional 32A Level 2 chargers being planned for. No DC fast chargers are planned for as vehicles are parked overnight and if a fast charge is needed, vehicles can use publicly available charging stations or fast chargers at the Public Safety Center when available.

The Level 2 chargers will be located along the perimeter of the 5th and 6th floors of the garage, which are the two primary floors that fleet vehicles park. On the 5th floor the chargers will be column mounted where possible and mounted to the back wall of the garage when the parking space is more than one space away from a column. On the 6th floor the chargers will be mounted to the existing railing around the perimeter.

6.1.2 Power Overview

The existing distribution equipment includes a 300 kVA utility transformer located near the garage and a 1200A 208V 3PH switchboard located in the basement of the garage. The switchboard has significant capacity due to a previous project that converted neon lights to LED. Available capacity was calculated using existing loads recorded via 2025 NV Energy bills, shown in **Figure 3.**

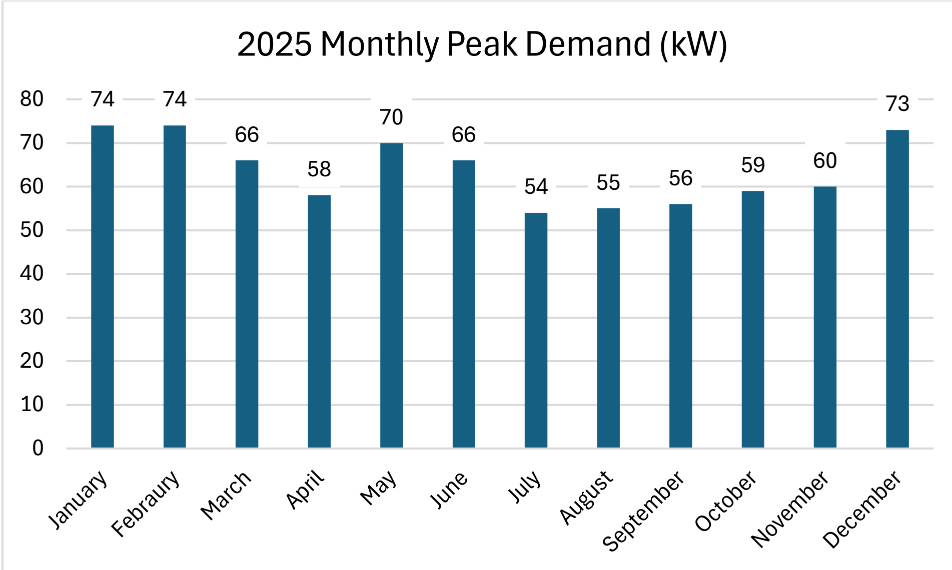

Figure 3: City Hall Garage Historical Peak Demand. Source: NV Energy Bills

The highest value of 74 kW is used to plan capacity, leaving 226 kVA of available capacity on the utility transformer and ~1000A of available capacity on the switchboard. A summary of the existing electrical conditions and how the planned charging loads will affect the equipment is shown in **Table** 4.

Table 4: City Hall Garage Existing and Planned Electrical Conditions

	Category	Transformer (kVA)	Switchboard (A)
Existing	Equipment Rating	300	1200
	Peak Load	74	205
	Available Capacity	**226**	**995**
Planned	32A Level 2 Ports	41	
	Charger Peak Load	**287**[1]	**947**[2]
Difference	**Remaining Capacity**	**-61**	**48**
	Max # of 32A Level 2 Ports	33	43

[1] Assumes 95% efficiency
[2] Includes continuous load factor of 125% as required by the NEC

The existing switchboard has enough electrical capacity and during the site visit multiple open breaker spaces were observed to confirm physical space capacity. The limiting factor for full build-out will be the 300 kVA utility transformer, which can only support 33 Level 2 chargers assuming existing loads remain constant. This leaves three options:

- Use an energy management system to decrease charger loads during peak charging periods
- Work with NV Energy to increase the transformer size
- Decrease charger size and/or share chargers between vehicles

Energy management systems allow for peak loads to be capped, and power distributed among the chargers. When charging overnight with Level 2 chargers, most light-duty vehicles are charged in 4-6 hours based on battery capacity and state of charge. With most vehicles parked at least 12 hours at night, these loads can be shifted around as needed, charging some vehicles first and then switching to the remaining vehicles. Peak load calculations are based on a worst-case scenario where all chargers are operating simultaneously.

For upgrading the transformer, it is possible that NV Energy would be able to replace the transformer without additional conduit/conductor upgrades, but will require further investigation from NV Energy.

Decreasing charger size and/or sharing chargers between vehicles would reduce the peak charging load but could require operational adjustments.

6.1.3 Design Notes and Infrastructure Cost Estimate

Conduit will be routed from the switchboard in the basement up to the 5th and 6th floors via an abandoned manlift shaft. A panel will be located on each floor containing individual branch breakers for the chargers. Conduit from the panel out to the chargers on the 5th floor will be overhead ceiling mounted and mounted to the perimeter railing on the 6th floor. Getting from the manlift shaft to the perimeter on the 6th floor will require underground conduit.

In detailed design it is recommended to further investigate the existing switchboard for feasibility of adding additional breakers.

The infrastructure cost estimate to support the 41 Level 2 ports is shown in **Table 5**, and the breakdown by cost category is shown in **Figure 4**. The detailed cost estimate is available in **Attachment 1.2**.

Table 5: City Hall Parking Garage Infrastructure Cost Estimate

Site Name	Level 2 Ports	DCFC Ports	Construction Estimate	Additional Costs (e.g. Contingency, Detailed Design, etc.)	Cost Total
City Hall Parking Garage	41	0	$310,000	$112,000	$422,000

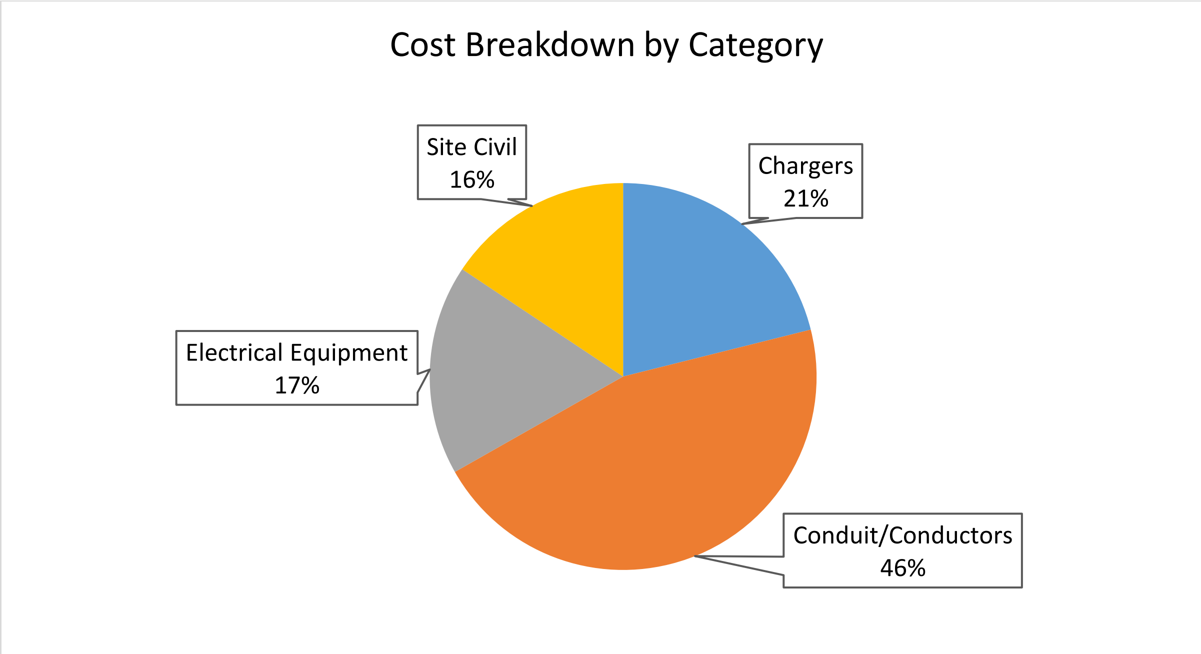

Figure 4: City Hall Parking Garage Infrastructure Cost Estimate Breakdown

Conduit/conductor costs make up the majority of the cost because of the distance between the basement to the 5th and 6th floors, along with having 41 individual circuits from the panels.

Value engineering items recommended for detailed design include analyzing the feasibility of sharing circuits between chargers and reevaluating the need for a 1:1 charger to vehicle ratio.

An excerpt of the concept layout is shown in **Figure 5**.

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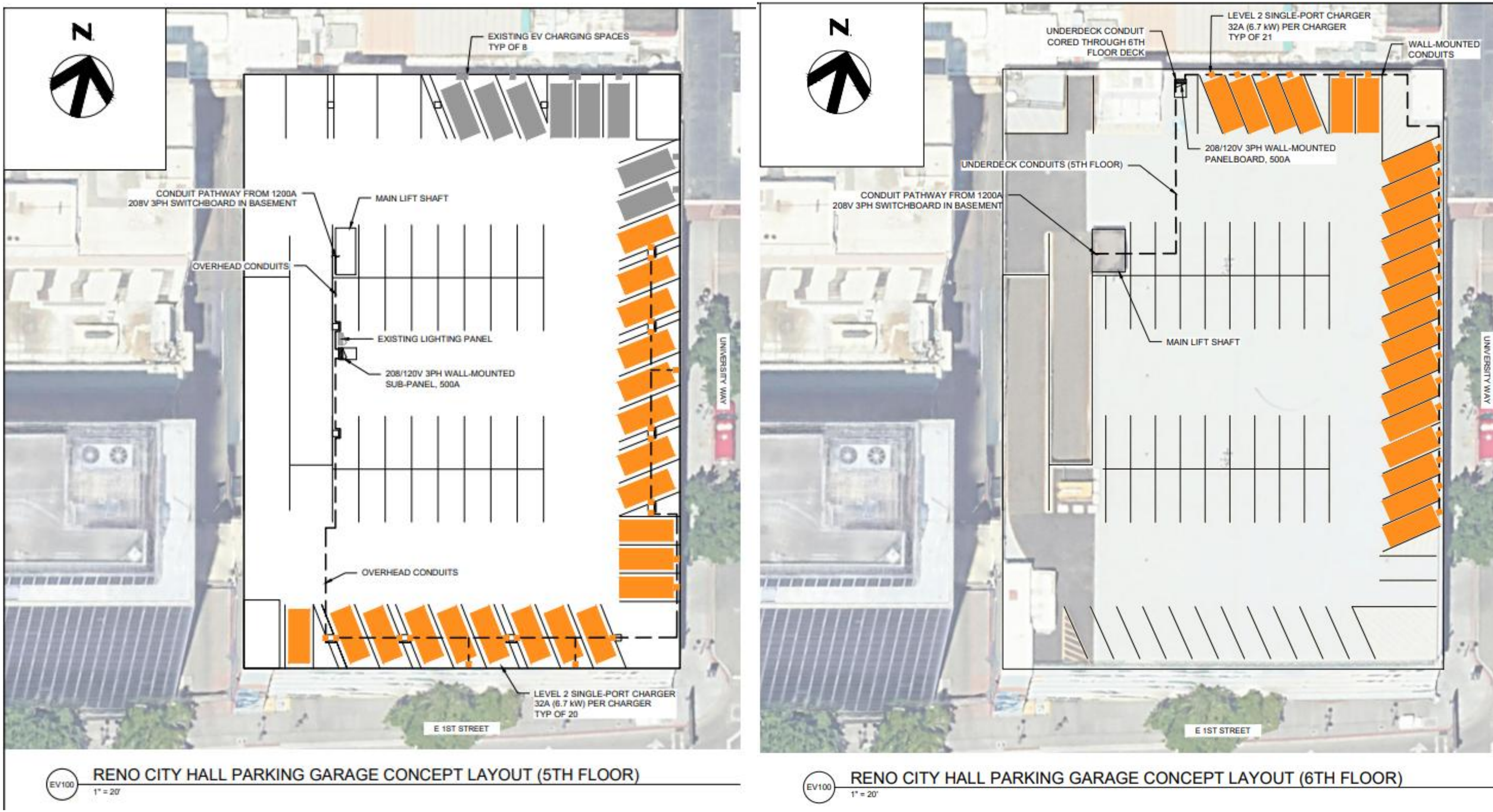

Figure 5: City Hall Garage Concept Layout

6.2 Public Safety Center

6.2.1 Site and Charging Overview

The Public Safety Center (PSC) located at 911 Kuenzli St. serves as the Reno police headquarters and houses patrol and administrative vehicles. The building used to be the Reno Gazette Journal printing press and reopened as the PSC in 2024.

The police department has ~150 vehicles at the PSC, of which three are EVs. The existing EVs charge at four Level 2 chargers near the front entrance of the building. There were plans to install 4 DCFC ports on the north side of the building using grant funding, but the project bids exceeded available funds and is no longer being pursued.

The City is interested in converting both patrol and administrative vehicles to electric long-term. However, the police department is not interested in converting patrol vehicles as of now. This preference leads to focusing on expanding Level 2 charging at the site for administrative vehicles that are parked for longer durations and potentially future patrol vehicles that do not need to be used in consecutive shifts. The parking row on the north side of the property was identified for Level 2 chargers due to its proximity to NV Energy service. There are 33 parking spaces along the north side and full charger build out is planned to include a single-port 32A Level 2 charger at each parking space.

6.2.2 Power Overview

The existing Level 2 chargers are connected to the building power source, and the previously planned DCFC was going to use building power as well. The DCFC project was expected to use the remaining building power capacity, but with that project not happening that capacity could be used for the Level 2 chargers. If a new service is used, it will be sourced from the existing utility connection location at the northwest corner of the property. The decision to use the existing service or a new service is deferred to final design.

The full-build scenario of 33 32A Level 2 chargers leads to a peak load of 231 kVA, the breakdown is shown in **Table 6**.

Table 6: Public Safety Center Power Overview

Category	Value
Level 2 Ports	33
Level 2 kW per Port	6.7
Peak Input Power (kVA) (95% Efficiency)	231

NV Energy has confirmed capacity on the medium voltage feeder serving this site is available for up to 2 MVA of load. This capacity is not reserved and is subject to change. A 225 kVA transformer is assumed to be installed by NV Energy if the full buildout load is requested.

6.2.3 Design Notes and Infrastructure Cost Estimate

Conduit will be trenched underground from the utility connection point to the utility transformer, panelboard, and out to the individual chargers. With 33 chargers it is possible that two panels will be required based on the number of circuits that can be supported by one panel. This detail will be confirmed in final design.

The infrastructure cost estimate to support the 33 Level 2 ports is shown in **Table 7**, and the breakdown by cost category is shown in

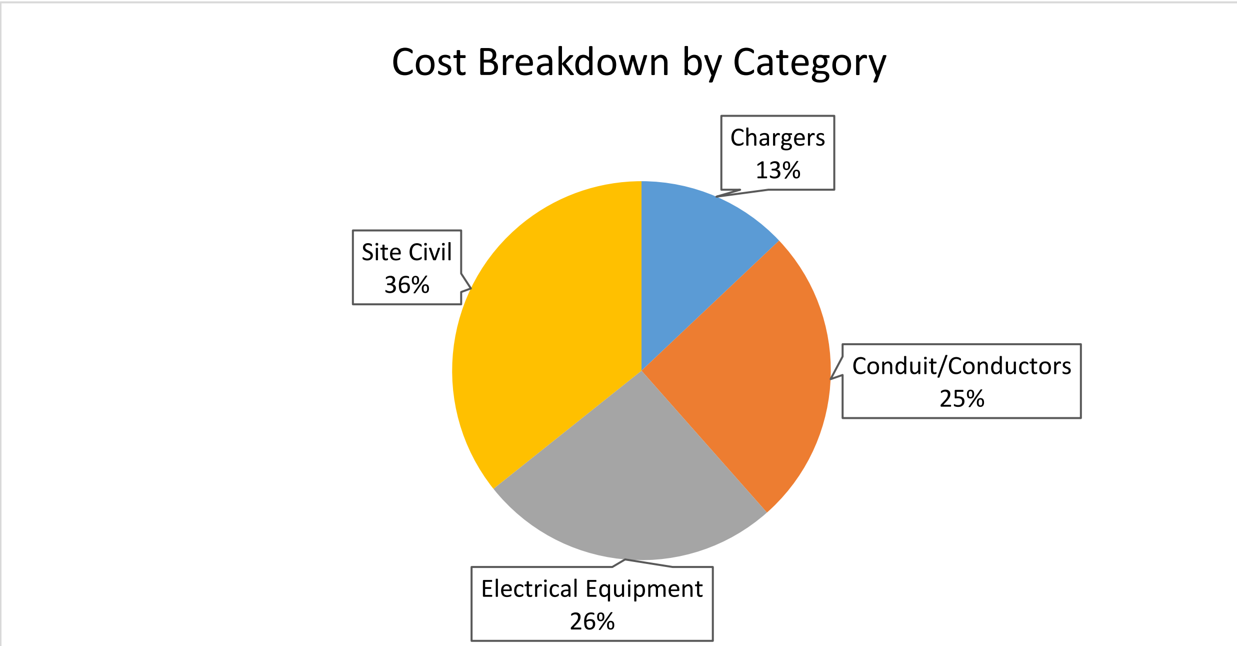

Figure 6. The detailed cost estimate is available in **Attachment 1.2**.

Table 7: Public Safety Center Infrastructure Cost Estimate

Site Name	Level 2 Ports	DCFC Ports	Construction Estimate	Additional Costs (e.g. Contingency, Detailed Design, etc.)	Cost Total
Public Safety Center	33	0	$407,000	$146,000	$553,000

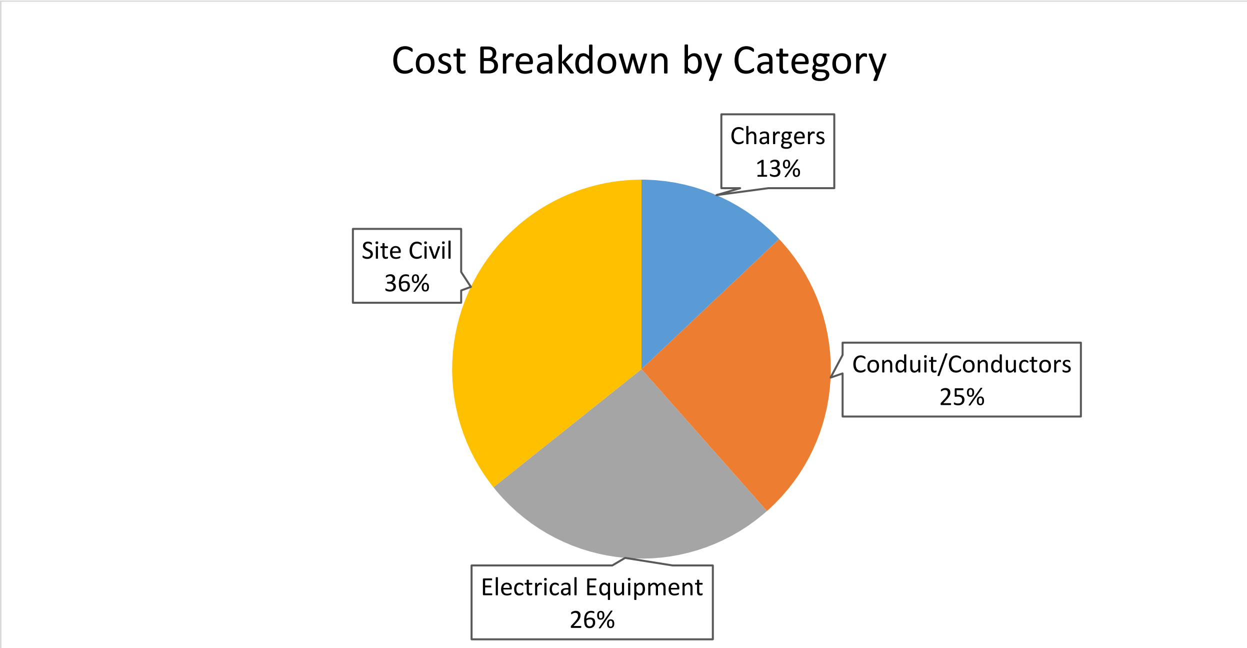

Figure 6: Public Safety Center Infrastructure Cost Estimate Breakdown

With only non-networked, basic Level 2 chargers being planned for, the chargers are only 13% of the construction cost. The large volume of chargers leads to site civil and conduit/conductor costs being the highest cost categories.

The concept layout is shown in **Figure 7**.

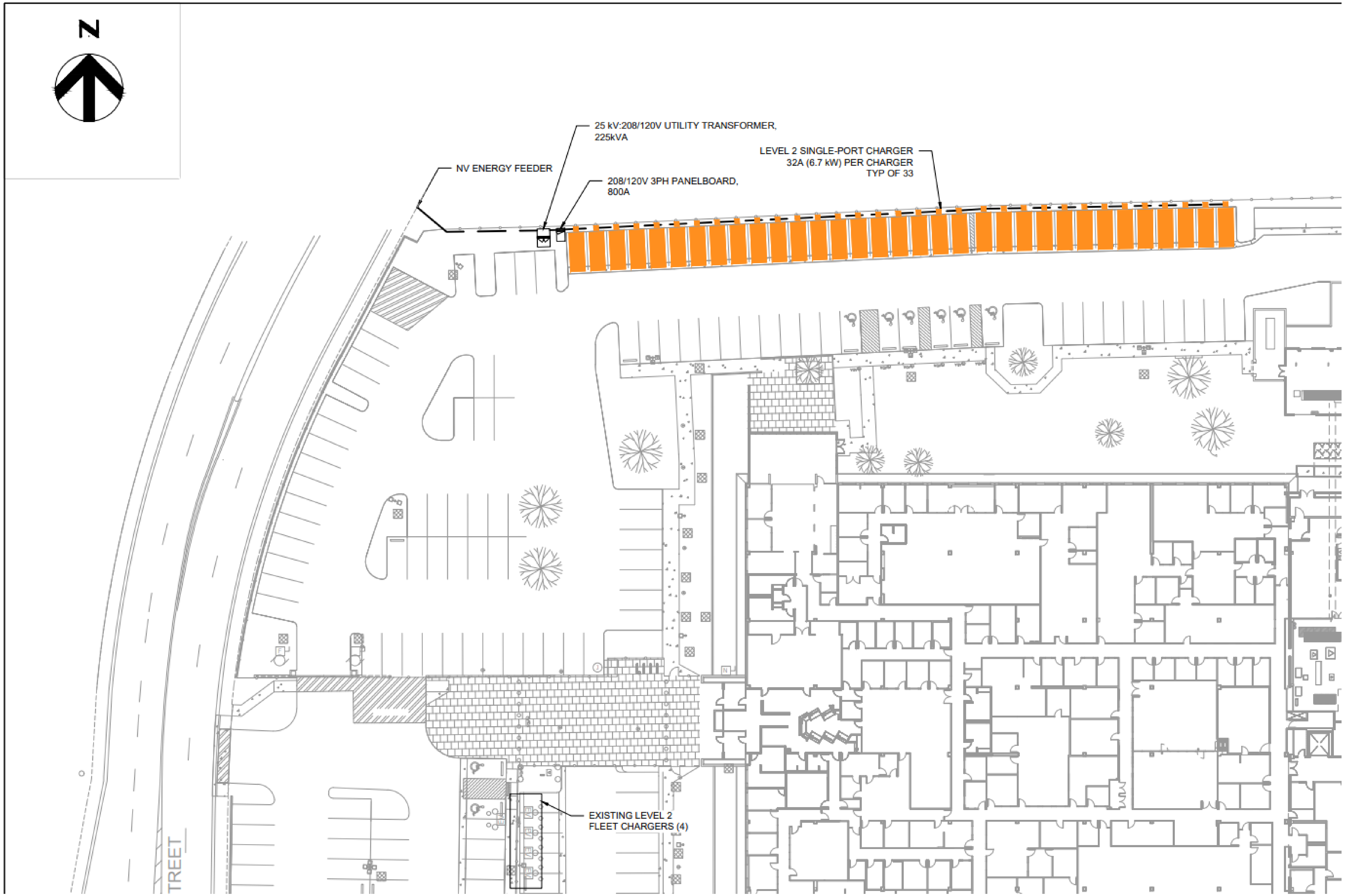

Figure 7: Public Safety Center Concept Layout

6.3 9th Street Complex

6.3.1 Site and Charging Overview

The 9th Street complex ("9th St.") is located across multiple buildings, with the main administration building located at 1001 E 9th St. The complex houses the County's primary administration functions and fleet vehicles, 12 of which are EVs (including hybrids). The existing battery electric vehicles currently charge at nine Level 2 ports spread between two charging locations in the complex parking lots. These ports are shared with the public. The County is planning for an additional six Level 2 ports that will also be available to the public.

For fleet charging, the County has identified 70 additional light duty vehicles located at 9th St. as being feasible for electrification. The designated area for the planned charging infrastructure is in the motor pool lot in the northeast corner of the complex. This is a controlled lot where fleet vehicles park, making it a desirable location for fleet charging infrastructure.

The 70 vehicles identified travel an average of ~100 miles a week, which means they should only need to charge 1-2 times a week. This usage allows vehicles to share chargers and rotate which vehicles plug-in overnight to Level 2 chargers. A 4:1 vehicle to port ratio is recommended, leading to a minimum of 18 Level 2 ports.

Based on available space and power, 20 32A Level 2 ports and two 90 kW DCFC ports are being planned for. The Level 2 ports will provide daily support, while the DCFC is available for situations where vehicles need a fast charge. The chargers will be located along the south edge of the motor pool lot. There will be 22 total parking spaces with EV charging, 20 for Level 2 charging and 2 for DC fast charging.

6.3.2 Power Overview

With the Level 2 chargers being predominantly used overnight and the DCFC being used as needed during the day, it is unlikely that all 22 charging ports will be in use at the same time. However, supporting infrastructure will be sized in the event this worst-case load scenario does occur.

The existing chargers are powered via distribution equipment inside the main building, but the planned loads would exceed available capacity in the building. The next option is to use an existing utility transformer and install a new switchboard.

There are multiple NV Energy connections/transformers at the complex, and the closest one to the planned charger locations is south of the motor pool lot on the east side of the Senior Services Center (1155 E 9th St.). The transformer serving the building is 500 kVA and has existing peak loads of ~150 kVA, shown in **Figure 8.**

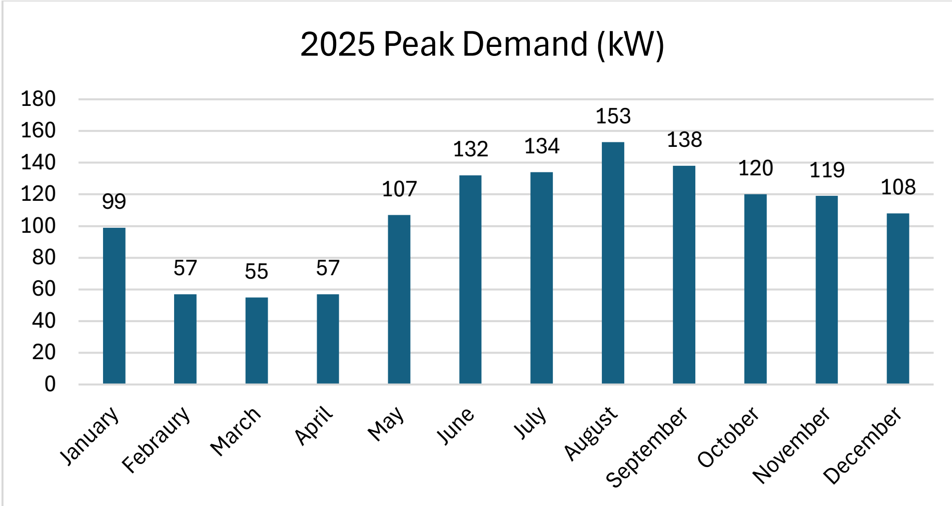

Figure 8: 9th St. Complex (Senior Center Transformer) Peak Demands

The highest value of 153 kW is used to plan capacity, leaving 347 kVA of available capacity on the utility transformer. A summary of the planned charging and existing electrical conditions is shown in **Table 8**: 9th St. Complex Power Overview.

Table 8: 9th St. Complex Power Overview

Type	Category	Transformer (kVA)
Existing	Equipment Rating	500
	Peak Load	153
	Available Capacity	**347**
Planned	20 32A Level 2 Ports	140[1]
	180 kW DCFC	192[2]
	Total Charger Peak Load	**332**
Difference	**Remaining Capacity**	**15**

[1]Assumes 95% Efficiency
[2]From product cutsheet

The secondary conduit run from the existing transformer to the charger areas is significant (~350'), so the feasibility of installing a new utility service closer to the chargers was also investigated. This new service would be sourced from MV feeders along Sutro St. east of the motor pool lot. NV Energy shared through the planning memo that the Sutro St. feeder is congested and there are multiple distribution upgrades that would be required prior to supporting the EV charging loads. The last of these upgrades is not projected to be completed until 2028. With this timeline, the plan focuses on using existing service while noting that future charging expansion that occurs in 2028 or later could be fed with a new service via the Sutro St. feeder.

If charging plans change and the projected peak load is reduced, NV Energy will reevaluate the request and there is a possibility that the contingent projects will not be required prior to the load being served.

If the load request decreases, NV Energy will reevaluate and there a possibility that the contingent projects will not be required.

6.3.3 Design Notes and Infrastructure Cost Estimate

Based on the locations of the chargers and the Senior Services Building, it is recommended to bypass the switchboard in the building electrical room and install a new 480V 3PH switchboard near the chargers. A step-down transformer and subsequent subpanel are required to support the Level 2 chargers as they operate at a different voltage than the DCFC. All conduit is assumed to be underground.

The infrastructure cost estimate to support the 20 Level 2 and 2 DCFC ports is shown in **Table 9**, and the breakdown by cost category is shown in **Figure 9**. The detailed cost estimate is available in **Attachment 1.2**.

Table 9: 9th St. Complex Infrastructure Cost Estimate

Site Name	Level 2 Ports	DCFC Ports	Construction Estimate	Additional Costs (e.g. Contingency, Detailed Design, etc.)	Cost Total
9th St. Complex	20	2	$374,000	$135,000	$509,000

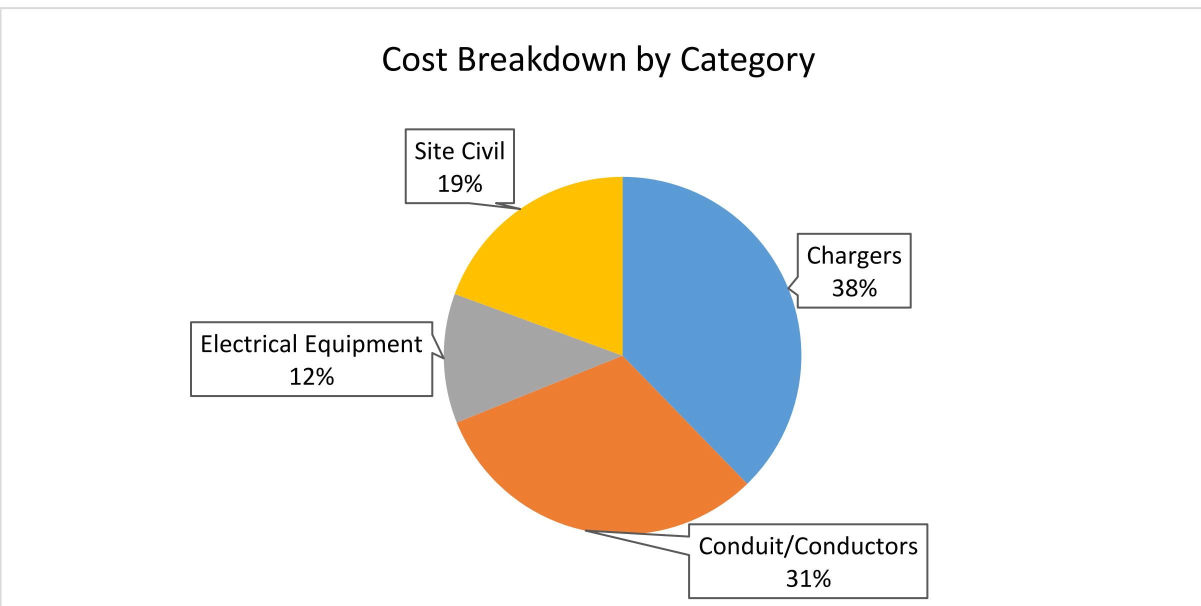

Figure 9: 9th St. Complex Infrastructure Cost Estimate Breakdown

The DCFC and conduit run from the transformer to the charger area are the largest cost drivers.

Value engineering items recommended for detailed design include right-sizing the DCFC quantity and charging speed in kW required.

An excerpt of the concept layout is shown in **Figure 10**.

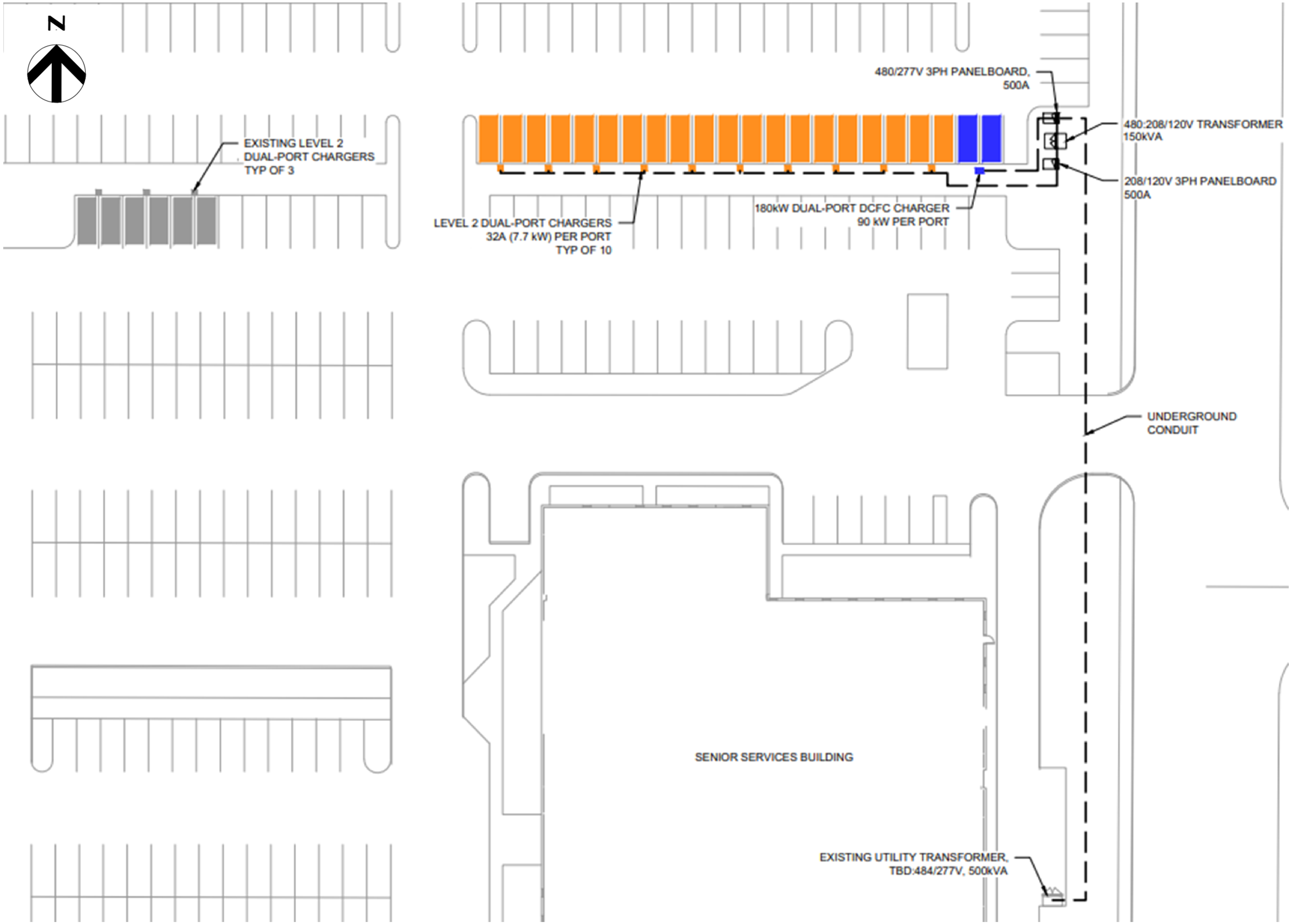

Figure 10: 9th Street Complex Concept Layout

6.4 Liberty Center Garage

6.4.1 Site and Charging Overview

The Liberty Center parking garage located at 220 N Center St provides parking for employees at the office building across the street and 26 Washoe County fleet vehicles assigned to the Human Services department.

These vehicles have been identified as being feasible for electrification as they are mostly SUVs and average ~120 miles a week. This usage allows vehicles to share chargers and rotate which vehicles plug-in overnight to Level 2 chargers. A 3:1 vehicle to port ratio is recommended, leading to a minimum of 6 Level 2 ports.

Based on available space and power, 10 Level 2 ports are being planned for, giving more operational flexibility on the number of vehicles that can be charging simultaneously.

The chargers will be located on the second floor of the garage along the east wall. Future expansion was identified along the north side of the second floor.

6.4.2 Power Overview

The existing distribution equipment serving the garage includes a 225 kVA utility transformer located near the garage and a 400A 208V 3PH switchboard located in the electrical room on the first floor of the garage. Available capacity was calculated using existing loads recorded via 2025 NV Energy bills, shown in **Figure 11.**

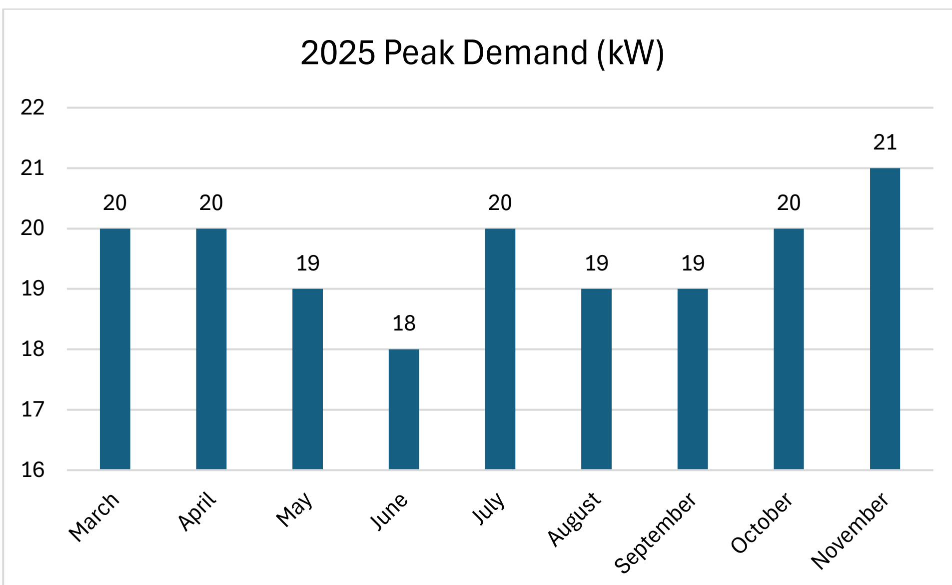

Figure 11: Liberty Center Garage 2025 Peak Demand. Source: NV Energy Bills

The highest value of 21 kW is used to plan capacity, leaving 204 kVA of available capacity on the utility transformer and 342A of available capacity on the switchboard. A summary of the existing electrical conditions and how the planned charging loads will affect the equipment is shown in **Table 10**.

Table 10: City Hall Garage Existing and Planned Electrical Conditions

	Category	Transformer (kVA)	Switchboard (A)
Existing	Equipment Rating	225	400
	Peak Load	21	58
	Available Capacity	204	342
Planned	32A Level 2 Ports	41	
	Charger Peak Load	**70**[1]	**231**[2]
Difference	**Remaining Capacity**	**134**	**111**
	Max # of 32A Level 2 Ports	30	14

[1] Assumes 95% efficiency
[2] Includes continuous load factor of 125% as required by the NEC

The 10 Level 2 ports can be supported by existing both the transformer and switchboard. Future expansion will be limited by the 400A switchboard, which will require upgrading if more than 14 ports are installed at the garage.

An alternative power source was investigated on site. There is a utility pole across the alley on the east side of the garage that serves residences and the commercial building adjacent to the garage. This power source could be fed directly into the second floor of the garage if capacity is available on the feeder. NV Energy indicated this could be a viable possibility, but would need to be confirmed after a formal load request is submitted.

6.4.3 Design Notes and Infrastructure Cost Estimate

Conduit from the existing switchboard up to the panel chargers will be routed through an existing conduit shaft that serves the lighting conduits. Expansion of the shaft could be required and is an item to investigate further in detailed design. A panel will be mounted on the wall outside the stairwell to house the individual branch breakers. Conduit from the panel to chargers will be mounted on the parking garage perimeter wall.

In detailed design it is recommended to further investigate the existing switchboard for feasibility of adding an additional breaker.

The infrastructure cost estimate to support the 10 Level 2 ports is shown in **Table 11**, and the breakdown by cost category is shown in **Figure 12**. The detailed cost estimate is available in **Attachment 1.2**.

Table 11: Liberty Center Parking Garage Infrastructure Cost Estimate

Site Name	Level 2 Ports	DCFC Ports	Construction Estimate	Additional Costs (e.g. Contingency, Detailed Design, etc.)	Cost Total
Liberty Center Parking Garage	10	0	$63,000	$23,000	$86,000

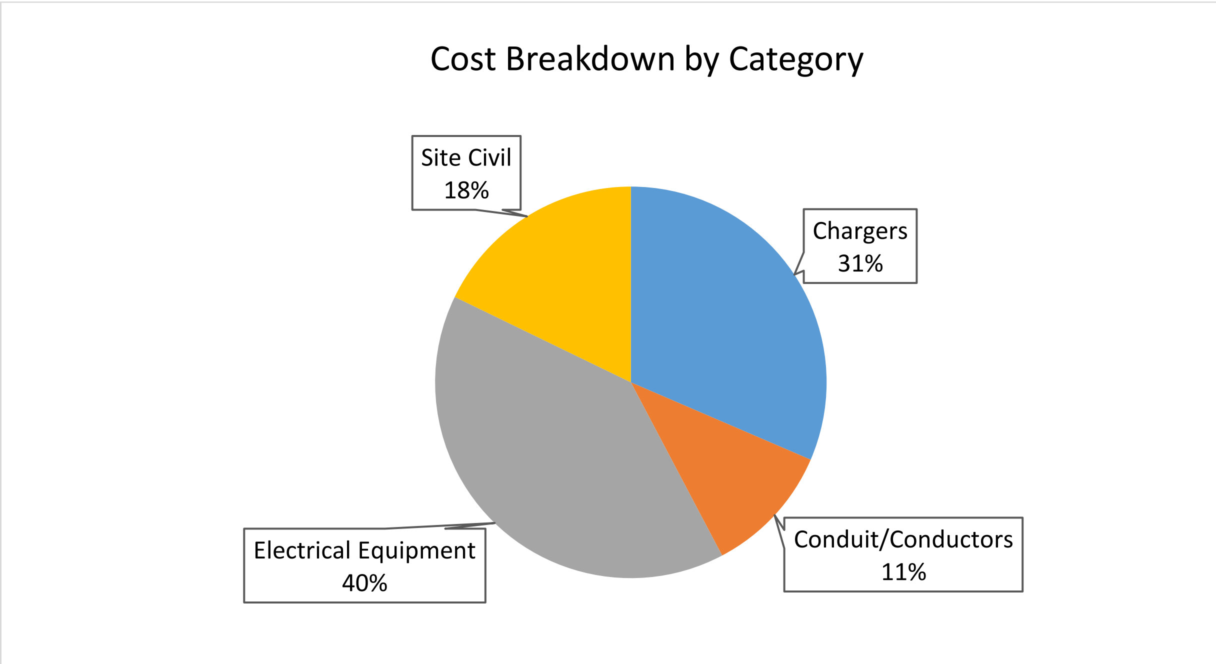

Figure 12: Liberty Center Parking Garage Infrastructure Cost Estimate Breakdown

The proximity from the existing switchboard to the charger location, using exclusively Level 2 chargers, and the quantity of chargers, combine to make this the least expensive site.

An excerpt of the concept layout is shown in **Figure 13**.

Figure 13: Liberty Center Garage Concept Layout

7. Summary and Next Steps

Table 12. City of Reno Sites Summar Table 12 highlights the estimated site costs for each City site and **Table 13** for each County site, including construction costs and the additional percentage-based costs, which can be used for budgeting purposes.

Table 12. City of Reno Sites Summary

Site	Light-Duty Vehicles Supported	Level 2 Ports	DCFC Ports	New/Existing Utility Service	Infrastructure Budgetary Cost Estimate
City Hall Parking Garage	50	41	0	Existing	$422,000
Public Safety Center	50	33	0	New	$553,000
Totals ->	**100**	**74**	**0**		**$975,000**

Table 13: Washoe County Sites Summary

Site	Light-Duty Vehicles Supported	Level 2 Ports	DCFC Ports	New/Existing Utility Service	Infrastructure Budgetary Cost Estimate
9th St. Complex	70	20	2	Existing	$509,000
Liberty Center Garage	26	10	0	Existing	$86,000
Totals ->	**96**	**30**	**2**		**$595,000**

The general next steps for both agencies include:

- Securing budget for detailed design and construction of EV charging infrastructure
- Prioritizing which facilities will move forward first
- Exploring opportunities for infrastructure phasing

In the detailed design phase, submitting formal load requests to NV Energy will be required and value engineering is recommended to find ways to reduce costs.

Attachments

Attachment 1: Concept Design Package

Attachment 1.1: Concept Layouts and One Line Diagrams

Attachment 1.2: Cost Estimates

Attachment 1.3: NV Energy Resources