Los Alamos County Public Charging Infrastructure Readiness Plan

Prepared for:
Los Alamos County

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Los Alamos County Fleet Conversion Plan and Community-Wide EV Charging Plan

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Revision Record

Revision	Description	Author	Date	Quality Check	Date	Independent Review	Date
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Executive Summary

This plan provides a roadmap for Los Alamos County to enable community-wide EV adoption and build a reliable, equitable, and financially sustainable public charging network. It aligns with Los Alamos Climate Action Plan goal to achieve carbon neutrality by 2050 and supports the New Mexico Clean Car Rule. The analysis combines community engagement (public meeting, survey of 516 respondents), a contextual scan of state and local policies, and a comprehensive approach using Stantec's proprietary tool ZEVDecide to conduct spatial modeling to forecast charging demand, identify optimal charging sites, and assess grid and implementation needs.

Findings using ZEVDecide indicate that most charging will occur at home, but publicly accessible infrastructure is essential for residents without dedicated parking, visitors and corridor travel. The analysis identified priory for sites in downtown Los Alamos and White Rock, and the NM-502 corridor, with strong community preferences for reliability, availability, ease of use, and affordable pricing. Close coordination with the Department of Public Utilities will be essential to align charging deployment with grid capacity and managed charging strategies.

The implementation strategy is designed to expand EV charging in phases that match demand and community priorities while integrating equity and ADA accessibility considerations. Near-term investments and initiatives from the County already include DC fast charging at Mesa Public Library and Level 2 charging at the Municipal building. Subsequent phases should focus on destination-based Level 2 charging at community facilities such as the Ice Rink, Aquatic Center, and Senior Center, with medium-term expansion to recreational areas, and cultural destinations to improve geographic coverage and public visibility. Throughout this rollout, Stantec recommends a public-private charging model similar to fueling stations, while applying user fees at County-owned sites to support ongoing operations and minimize long-term subsidy.

The County should also establish sustainable business and maintenance models, streamline local permitting to reduce project delays, and pursue available state, federal, and utility funding to offset capital costs. Together, the recommendations of this Community-Wide EV Charging Plan position Los Alamos County to expand EV charging infrastructure in a reliable, equitable, and financially sustainable manner while supporting rising EV adoption and advancing long-term climate and mobility goals.

Acronyms / Abbreviations

Acronym / Abbreviation	Full Name
ADA	Americans with Disabilities Act
AP-O	Airport Protection Overlay
ATSDR	Agency for Toxic Substances and Disease Registry
BESS	Battery Energy Storage System
BEV	Battery Electric Vehicle
CAP	Climate Action Plan
CEET	Center for Emerging Energy Technologies
CFI	Charging and Fueling Infrastructure (Program)
CFR	Code of Federal Regulations
DCFC	Direct Current Fast Charger
DOE	U.S. Department of Energy
DPU	Department of Public Utilities (Los Alamos County)
DTLA	Downtown Los Alamos
EA4	East Area Feeder 4 (utility network)
EMNRD	Energy, Minerals and Natural Resources Department
EPE	El Paso Electric
EV	Electric Vehicle
EVITP	Electric Vehicle Infrastructure Training Program
EVSE	Electric Vehicle Supply Equipment
FCEVs	Fuel Cell Electric Vehicles
FOAs	Funding Opportunity Announcements
GC	General Commercial
GHG	Greenhouse Gas Emissions
GIS	Geographic Information System
GSD	General Services Department (New Mexico)
HB 88	New Mexico House Bill 88, Electric Vehicle Charging Station Zoning Act
IND	Industrial District
INS	Institutional District
kW	Kilowatt
kWh	Kilowatt-hour
L2	Level 2 Charger
LAC	Los Alamos County
LANL	Los Alamos National Laboratory
LED	Light Emitting Diode
MCDA	Multi-Criteria Decision Analysis
MUTCD	Manual on Uniform Traffic Control Devices

Acronym / Abbreviation	Full Name
NEVI	National Electric Vehicle Infrastructure (Formula Program)
NMDOT	New Mexico Department of Transportation
NM EPSCoR	New Mexico Established Program to Stimulate Competitive Research
NMSA	New Mexico Statutes Annotated
NREL	National Renewable Energy Laboratory
O&M	Operations and Maintenance
PHEV	Plug-in Hybrid Vehicle
PNM	Public Service Company of New Mexico
PV	Photovoltaic
RFP	Request for Proposals
RFI	Request for Information
SFR	Single-Family Residential
TOU	Time-of-Use (electric rate)
UL	Underwriters Laboratories
USDOT	United States Department of Transportation
VMT	Vehicle Miles Traveled
VTO	Vehicle Technologies Office (DOE)
ZEV	Zero-Emission Vehicle

Glossary

Term	Description
Battery Energy Storage System (BESS)	A system that stores electricity in batteries for use at a later time. BESS helps manage energy demand, provide backup power, and support renewable energy use.
Charging-as-a-Service	A business model where a third party installs and operates EV chargers, and the site host pays a recurring fee.
Charging Etiquette	Guidelines for EV users on how to use public chargers respectfully and efficiently (e.g., not occupying a spot after charging is complete).
Corridor Charging	Fast-charging infrastructure placed along major travel routes to support long-distance EV travel.
Destination Charging	Level 2 charging stations located at places where people spend extended time, such as parks, libraries, or shopping centers.
Environmental Exclusion Zones	Areas unsuitable for infrastructure due to ecological sensitivity, such as wetlands or flood zones.
Environmental Justice Index	A composite measure of social, environmental, health, and climate burdens used to assess equity in infrastructure planning.
EV Adoption Forecast	A projection of how many electric vehicles will be owned or operated in a region over time, often used to plan infrastructure needs.
Electric Vehicle Supply Equipment (EVSE)	The hardware and software that delivers electricity to EVs, including chargers, connectors, and network systems.
Feeder Line	A part of the electrical distribution system that delivers power from substations to end users; relevant for assessing grid capacity.
Make-Ready Infrastructure	Electrical infrastructure upgrades (e.g., conduit, wiring, panels) needed to prepare a site for EV charger installation.
Multi-Criteria Decision Analysis	A decision-making framework that evaluates multiple factors to determine the best outcome, often used in site selection.
Peak Load	The highest amount of electricity demand on the grid during a specific time period, often impacted by EV charging behavior.
Site Suitability Analysis	A spatial analysis method used to determine the most appropriate locations for infrastructure based on demand, environmental constraints, and existing assets.
Time-of-Use (TOU) Pricing	An electricity rate structure where prices vary depending on the time of day, encouraging off-peak usage.
Vehicle-to-Grid	A technology that allows electric vehicles to discharge electricity back into the grid, supporting energy demand management.
ZEVDecide	A proprietary GIS-based modeling tool used to identify optimal locations for zero-emission vehicle infrastructure based on multiple criteria.

1 Introduction

This document presents the results of the Los Alamos County Fleet Conversion Plan and Community-Wide EV Charging Plan. The Community-Wide EV Charging Plan component of this project focuses on strategies to enable EV adoption by the people who live, work, and visit Los Alamos County (the County). This effort aligns with the County's Climate Action Plan goals of achieving carbon neutrality by 2050, with EV adoption serving as one of many strategies to achieve this goal. Supporting EV adoption will require a significant increase in charging infrastructure. While most people will charge at home, publicly accessible charging will play an important role in the EV charging ecosystem. Based on the approach of other counties, it is recommended that much of this infrastructure be privately funded, operated, and maintained, similar to the business model of fueling stations. In some cases, such as the charging stations located at the Los Alamos County Municipal Building, infrastructure will be publicly owned. In these cases, the County will seek a sustainable funding approach that offsets the costs of providing charging with user fees. **The County does not intend to subsidize the cost of building, operating, and maintaining the EV charging infrastructure**.

This document considers several perspectives:

- An introduction providing an overview of the project.
- A summary of what we heard from the Los Alamos community in developing this plan.
- Relevant plans and policies in the County and New Mexico.
- Technical analysis such as future charging demand, site suitability analysis, and the impacts of EVs to the County electricity grid.
- Steps to implement the recommendations in this plan including business models, County roles and responsibilities, covering operating costs with user fees, and potential outside funding opportunities.

1.1 Project Scope

This project is comprised of two related tasks:

- Public and Partner Engagement
    - Engagement Plan: Develop a comprehensive strategy for involving partners and the public in the planning process, ensuring their input and support.
    - Advisory Meetings: Conduct regular meetings with key partners, including the County Council, Environmental Sustainability Board, and Board of Public Utilities.

- Community-Wide EV Charging Plan: Analyzes the policies and infrastructure needed to encourage public adoption of EVs in the County. It will focus on future charging demand, site selection for additional infrastructure, energy/power requirements, and equipment options, that is:
  - Contextual Scan and Assessment: Synthesizes relevant local, state, and federal legislation that will impact the deployment of EV charging infrastructure, including zoning and permitting.
  - Site Selection: Identifies optimal locations for new charging stations based on factors such as demand, suitability, equity, and accessibility.
  - Implementation Plan: Conduct business model assessments and return on investment analyses to inform the deployment timelines.

2 Engagement

2.1 Public Engagement Presentations

As part of this project, the team conducted targeted engagement with three key County bodies: the County Council, the Environmental Sustainability Board, and the Board of Public Utilities. Each group has been engaged twice over the course of the study. The first round of meetings focused on presenting the project goals, sharing early findings, and gathering input on priorities such as charging locations, cost considerations, fleet needs, and long term system impacts. The second round of meetings provided an opportunity to share draft recommendations and refine them based on each group’s comments. Feedback from these groups played a significant role in shaping the final recommendations, and their collective input was incorporated throughout the report to ensure it reflects local priorities, technical realities, and long term community goals.

2.2 Public Visioning Session

As part of the planning process, the County hosted a public meeting and virtual engagement session on May 12, 2025 to better understand the community’s priorities for EV infrastructure. **Participants shared input both in person and online, offering valuable insights into the challenges and opportunities surrounding EV adoption.**

Charging availability and convenience emerged as one of the strongest themes. Many participants expressed concern about the limited number of fast chargers in Los Alamos and White Rock, particularly noting that existing locations are out of the way from commonly accessed destinations such as grocery stores, dining areas, and shopping centers.

Affordability and accessibility were also major priorities for the community. **Residents urged the County to keep charging costs reasonable and raised concerns about how time-of-use pricing, especially between 5 p.m. and 11 p.m., might affect public charging.**

Participants also highlighted key locations where new charging stations would be most helpful, with grocery stores emerging as a top priority. **Community members consistently emphasized placing chargers in everyday destinations such as libraries, visitor centers, parks, and trailheads to support daily routines and tourism.**

Additional feedback pointed to the importance of resiliency, education, and innovation. **Residents expressed interest in solar roofing, multiple charging providers for redundancy and pricing, and public education on EV charging etiquette.**

The engagement also generated thoughtful questions about how the County will approach this transition. **Participants sought clarity on charger ownership and maintenance responsibilities, cost recovery, and safety measures such as vandalism protection.**

Overall, the public meeting and virtual comments represented a strong community interest in accelerating the transition to EVs while ensuring that the process remains affordable, accessible, and community-oriented. **Residents want a clear timeline and equitable solutions, especially for those without access to home charging.**

2.3 Survey Results

As part of this study, a community survey was conducted to gather input on EV adoption, charging preferences, travel behaviors, and related considerations. The survey received 516 responses, primarily from individuals living or working in the County. The survey covered topics such as demographics, transportation habits, barriers to EV ownership, priorities for a local charging network, and preferred charging locations. The full set of questions and responses is presented in Appendix A.

While these findings provide useful insights into community perspectives, they should be interpreted as indicative rather than definitive. The sample primarily reflects those who chose to respond, many of whom are homeowners, higher-income earners, and frequent drivers, which may shape the results and limit their generalizability to the broader population. Nonetheless, these responses offer valuable guidance for understanding local attitudes toward EVs and charging infrastructure.

2.3.1 Demographics

Survey participants were predominantly County residents (66%), with 31% working within the county and a small share identifying as students (1%). Most respondents lived in single-family homes (83%), while only 13% lived in multi-family units (either owned or rented). This suggests that many participants may have access to private parking, which has implications for their EV charging preferences.

The age profile skewed toward mid-to-older adults, with 35–54-year-olds making up 33% of respondents, followed by 55–64-year-olds (18%) and 65+ residents (22%). Household incomes were generally high: 41% reported earning over $150,000 annually, and an additional 21% earned between $100,000–$149,000. In terms of race and ethnicity, 62% identified as White and 13% as Hispanic, Latino, or Spanish origin, while 32% preferred not to answer. As a reference point, the census reports 70% of Los Alamos County residents are white and 18% are Hispanic. 18% of County residents are over age 65.

These demographics suggest that the survey largely reflects the views of higher income, established homeowners with consistent access to private vehicles and parking. This context may influence their perspectives on EV ownership and charging infrastructure.

2.3.2 Travel Patterns and Transportation Characteristics

The survey results indicate that private vehicle use dominates local travel behavior. Driving alone was reported as the primary mode for 57.7% of respondents, while 20.8% regularly drive with others. Alternative modes such as walking (7% most of the time) and cycling (5.4% most of the time) were far less common. Public transit use remains low, with 47% of respondents reporting they never use it.

Access to personal vehicles is nearly universal, with 99% of respondents reporting regular access to a car. Parking at home is largely private and convenient, with 83% parking in their own garage or driveway, and only 14% using on-street parking. At workplaces, shared off-street parking lots with open parking (50%) were most common, while 43% reported that workplace parking was not applicable to them (likely due to remote work, unemployment, or retirement).

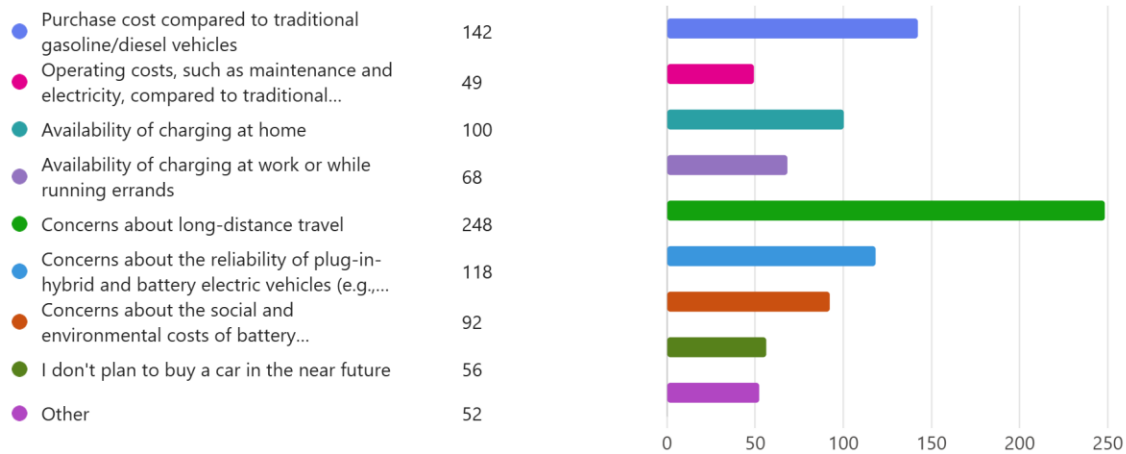
These patterns suggest that home-based charging may be feasible for most survey participants due to high rates of homeownership and private parking access. However, the needs of residents without dedicated parking, such as those living in multi-family housing, may require separate consideration when planning public charging infrastructure.

2.3.3 Barriers to EV Ownership

Although 175 respondents reported already owning a battery electric vehicle (BEV) or plug-in hybrid vehicle (PHEV), others identified key reasons for not adopting one (Figure 2-1). The most frequently cited barriers were concerns about long-distance travel (27%), high purchase costs (15%), and concerns about vehicle reliability, such as battery lifespan and cold-weather performance (13%).

Charging access also emerged as a barrier, with 11% citing lack of home charging options and 7% identifying gaps in workplace or errand-based charging. Additionally, 10% expressed concerns about the environmental and social costs of battery manufacturing.

Figure 2-1: 517 Respondents' Barriers to EV Adoption. “Please select the top 3 considerations that have prevented you from buying/leasing one”



These findings may indicate that range anxiety, upfront affordability, and charging availability remain major considerations for non-adopters, alongside broader concerns about battery technology and environmental impact. Findings helped to inform the recommendations in this report.

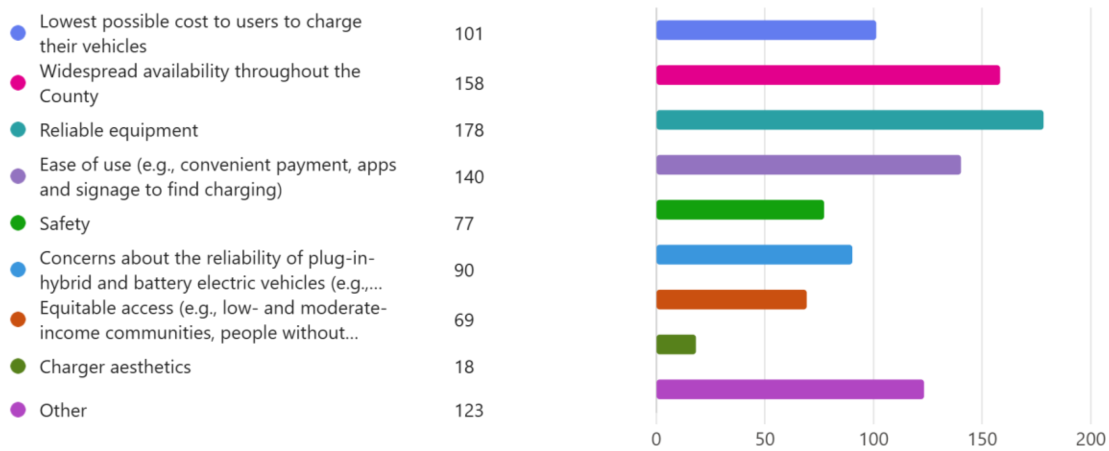
2.3.4 Priorities for Charging Network

When asked to rank priorities for building a countywide charging network (Figure 2-2), respondents most frequently selected:

- Reliable equipment (19%)
- Widespread availability throughout the county (17%)
- Ease of use, including convenient payment and wayfinding (15%)
- Low charging costs for users (11%)

Other considerations included safety (8%), equitable access (7%) (e.g., serving low-income communities or people without dedicated parking), and charger aesthetics (2%).

Figure 2-2: 517 Respondents' Priorities for EV Charging in Los Alamos. “Please select your top 3 priorities in building a charging network for Los Alamos County.”



These priorities suggest that residents may value a network that is dependable, affordable, and broadly distributed, with attention to equity in charger placement.

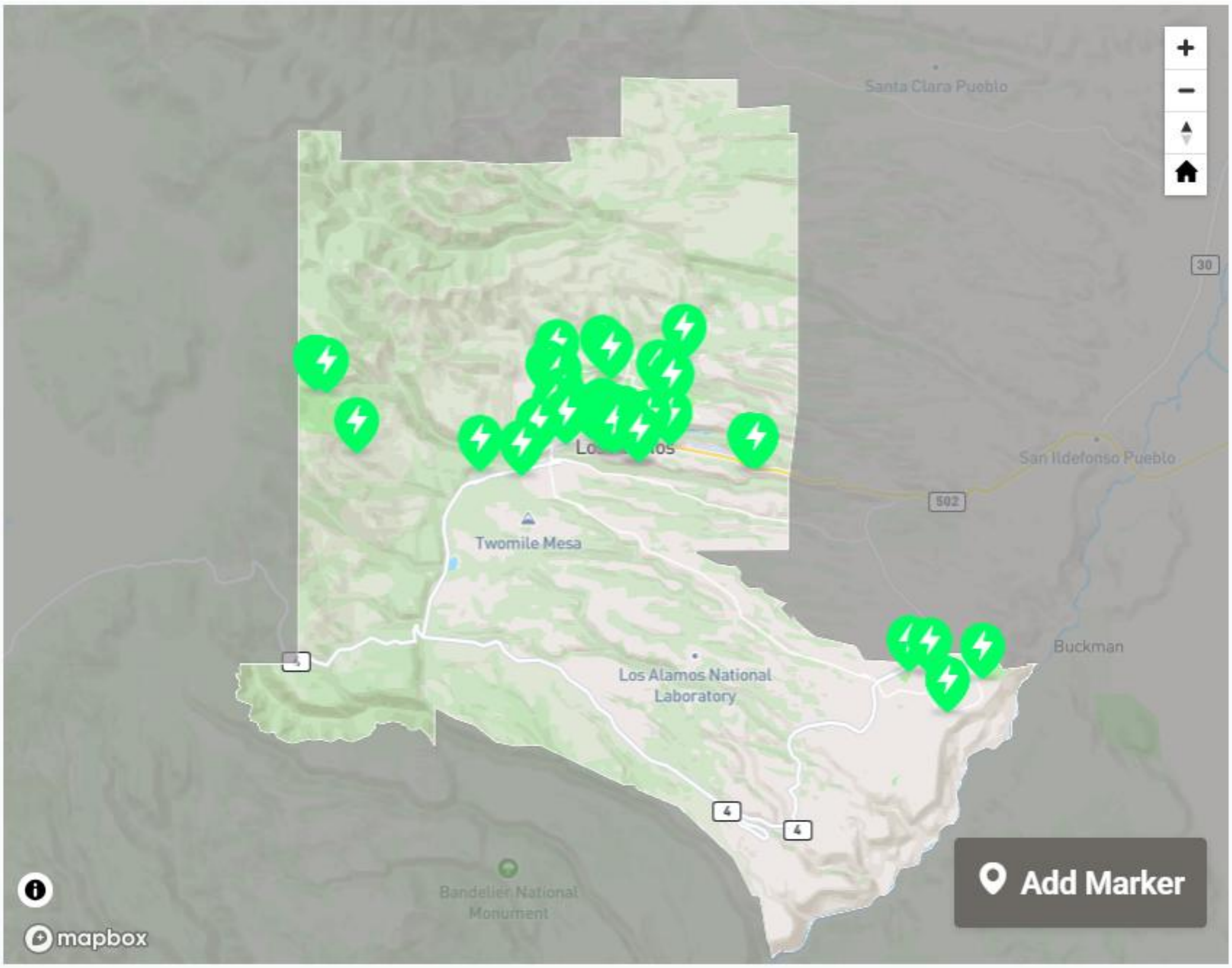
2.3.5 Mapping Inputs

When asked about preferred charger locations in the written response, Smith’s Grocery Store (14%), the libraries (9%), and White Rock (5%) were among the most commonly mentioned sites, alongside other community hubs like parks and central gathering areas This may point to a preference for chargers located at familiar, high-traffic community destinations. Some respondents chose to markup a map provided through the survey, and the results are pictured in Figure 2-3. 48 contributions were made, with many concentrated along Trinity Drive and Central Avenue. Full results are available in Appendix A.

Comments on open-ended question about charging station locations:

- Downtown areas and commercial hubs: Frequent mentions of locations like Smith's, Los Alamos National Lab (LANL), schools, parks.
- Skepticism of public investment: Some comments opposed county-funded charging infrastructure, preferring market-driven solutions.
- Home charging: Some emphasized home charging as sufficient or more efficient than public stations.

Figure 2-3: Interactive Map Results for Preferred Charging Locations



2.3.6 Charging Preferences

Home charging was viewed as the most useful option, with 55.6% rating charging at a private garage, driveway, or owner parking space as “very helpful”. Workplace charging 32.8% and fast-charging stations along highways 49.7% were also seen as highly valuable. The selectable options for each charging type were ”Very helpful”, “Somewhat helpful”, “Not very helpful”, and ”Not helpful at all”.

Destination charging at shopping, dining, and recreational sites received moderate support (~28% “very helpful”), while charging in shared residential parking was rated as “unhelpful” by more than half of respondents (56.5%). These responses may reflect the high proportion of single-family homeowners in the sample, who already benefit from private parking.

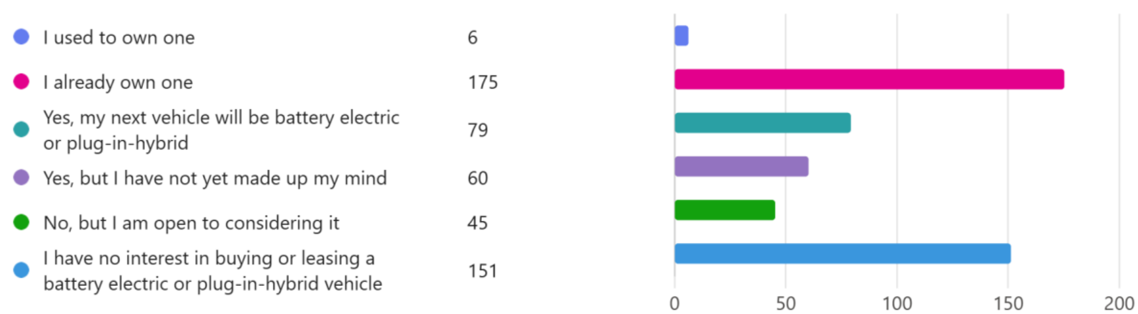
2.3.7 Propensity for EV Ownership

Survey responses provide useful insight into current vehicle ownership and residents' willingness to adopt electric vehicles in the future.

Most respondents reported owning gasoline- or diesel-powered vehicles (406 responses), though hybrid vehicles (79), plug-in hybrids (34), and battery electric vehicles (152) are also represented. This indicates that while Internal Combustion Engine (ICE) vehicles remain dominant among respondents, a sizeable portion of the sample has already adopted electric or partially electrified options.

When asked about future purchases, responses reflected a broad range of attitudes toward EV adoption (Figure 2-4). Some respondents reported already owning a plug-in hybrid or fully electric vehicle, while others indicated that their next vehicle would likely be electrified or that they were open to considering one in the future. A significant portion of respondents, however, expressed no current interest in purchasing or leasing an EV.

Figure 2-4: 516 Respondents' Current EV Ownership and Interest in Future Adoption. "Have you considered buying or leasing a battery electric or plug-in-hybrid vehicle?"



While these results cannot be generalized to the entire County population, they do suggest that within this sample, there is a notable level of familiarity with EVs and varying degrees of openness to future adoption. At the same time, responses elsewhere in the survey point to persistent concerns, such as cost, charging access, and range, that may influence decision-making for those who are undecided or hesitant.

2.3.8 Other considerations

Community feedback also pointed to several additional steps that could support the electric vehicle (EV) transition. Many respondents emphasized the importance of financial incentives, such as tax credits, rebates, and other forms of financial assistance to lower the cost of EV ownership. Vehicle availability was another recurring theme, with participants expressing a desire for more options,—particularly larger plug-in hybrids and SUVs that better meet family or utility needs. In addition, some respondents mentioned the need for public education and electrical infrastructure improvements to help make EV adoption more practical and better understood.

In more general comments, community members expressed a range of perspectives on government involvement in EV programs. Several respondents voiced frustration or opposition to what they viewed as government overreach or unnecessary investment in EVs, while others offered supportive and encouraging messages, expressing appreciation for local and state efforts to advance clean transportation.

Open-ended responses provided additional context to these themes. Cost-related measures, such as incentives for vehicle purchases or home charging installation, were the most frequently suggested actions (12%), followed by home solar incentives (2%). Some respondents expressed skepticism about public investment in EV infrastructure, raising concerns about the use of taxpayer dollars for these programs. Others highlighted the importance of education and outreach to help residents better understand EV ownership and charging options.

Overall, these insights suggest that while many respondents are already engaged with or open to EV adoption, expanding charging options, reducing upfront costs through incentives, and improving community awareness could be key to supporting broader adoption. The results also point to a need for balancing investments in EV infrastructure with public concerns about cost and equity.

2.4 Public Comments on Draft Plan

The last part of the public engagement effort for this project includes the publication of this Community-Wide EV Charging Plan Draft in early December 2025, following one last in-person community engagement meeting. The draft will be made available and the public will be able to provide feedback on the plan. This section of the report will capture feedback from that session and review period.

3 Contextual Scan and Assessment

3.1 Planning Context Review

The County is well-positioned to support the transition to EVs through a combination of existing statewide legislation, local planning efforts, and national guidance. The following section summarizes relevant plans and policy frameworks that influence EV adoption and emissions reduction in the County.

3.1.1 Statewide Plans with Relevance to EV Adoption and Emissions Reduction

Several New Mexico state-level initiatives are shaping EV policy and infrastructure planning:

- Executive Order 2019-003[1]: Sets a target of 45% GHG emissions reduction by 2030 compared to 2005 levels, providing overarching climate direction.
- Clean Car Rule (2023)[2]: Requires that, starting in 2026, 43% of all new light-duty vehicles and 15% of all new heavy-duty vehicles shipped to dealerships must be ZEVs, with these targets increasing over time.
- Clean Car and Charging Tax Credit (2024)[3]: Offers up to $3,000 in tax credits for the purchase or lease of EVs, PHEVs, and fuel cell vehicles, along with incentives for EV charging equipment. Expires in 2025.
- New Mexico Priority Climate Action Plan (2024)[4]: Includes EV-relevant measures such as clean freight corridors, truck incentives, and public electrification.
- New Mexico 2045 Long-Range Transportation Plan[5]: Supports the transition of the state fleet to EVs and includes strategies for improving system resiliency.
- New Mexico National Electric Vehicle Infrastructure (NEVI) Plan (2022): Outlines nine goals for statewide EV infrastructure deployment, including resiliency, user experience, equitable access, and workforce development. The plan recommends contractor Electric Vehicle Infrastructure Training Program (EVITP) certification and includes implementation considerations that the County can integrate into local planning efforts.

[1] https://www.governor.state.nm.us/wp-content/uploads/2019/01/EO_2019-003.pdf
[2] https://www.env.nm.gov/climate-change-bureau/transportation/
[3] https://www.emnrd.nm.gov/ecmd/clean-car-charging-unit-tax-credit/
[4] https://www.env.nm.gov/climateaction/wp-content/uploads/sites/39/2024/03/New-Mexico-Priority-Climate-Action-Plan-2024-03-01.pdf
[5] https://www.dot.nm.gov/planning-research-multimodal-and-safety/planning-division/nmdots-long-range-statewide-transportation-plan/

- 2024 Updates to New Mexico Commercial and Residential Energy Conservation Codes: Mandates that new commercial facilities (including apartment and retail centers) provide EV-ready parking spaces. New homes must also be constructed with adequate electrical capacity to support future EV charging.

Collectively, these initiatives establish a strong policy framework that is expected to accelerate EV adoption in New Mexico and provide clear direction for the County as it plans for local charging infrastructure and electrification efforts.

3.1.2 Local Plans with Relevance to EV Adoption and Emissions Reduction

The County has incorporated EV strategies into several of its key planning documents:

- Los Alamos County Climate Action Plan (2024)[6]: Identifies transportation as the largest source of emissions and includes "Strategy T1: Expand EV infrastructure and Adoption," which supports public education, fleet conversions, and mapping infrastructure needs in collaboration with local institutions.
- Los Alamos County Fleet Conversion Plan: Stantec is supporting the County by developing an overview and assessment to help guide their transition to zero-emission fleet technologies.
- Los Alamos County Department of Public Utility Integrated Resource Plan (2022)[7]: Proposes EV penetration scenarios for light-, medium-, and heavy-duty vehicles as part of broader decarbonization efforts.
- Strategic Leadership Plan (2025)[8]: Emphasizes net-zero GHG targets and integration of sustainability into operations.
- Los Alamos Downtown Master Plan (2021): Recommends incentives in parking standards to encourage EV station installation and improve visibility through wayfinding.
- Tourism Strategic Plan (2016)[9]: Supports multimodal options, including EVs, to reduce reliance on single-occupancy vehicles.

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[6] https://www.losalamosnm.us/files/sharedassets/public/v/2/departments/county-manager/documents/losalamoscap_20241104-reduced.pdf
[7] https://www.losalamosnm.us/files/sharedassets/public/v/1/departments/utilities/documents/integrated-resource-plan-irp-2022-final-report.pdf
[8] https://www.losalamosnm.us/files/sharedassets/public/v/3/government/council/documents/2025-strategic-leadership-plan.pdf
[9] https://www.losalamosnm.us/files/sharedassets/public/v/4/departments/economic-development/documents/lactourismstrategicplan.pdf

- Northern Pueblos Regional Transportation Plan (2023): Includes a “Mobility & Accessibility” goal aimed at minimizing transportation’s climate impact. Relevant strategies include:
    - Connecting economic development with EV network expansion
    - Encouraging regional education on EV/alternative fuels
    - Tracking county- and regional-level fleet data
    - Supporting public and private EV fleet transitions

Together these plans demonstrate the County’s commitment to integrating EV adoption into broader sustainability, transportation, and economic development strategies, creating a foundation for coordinated local and regional implementation.

3.1.3 Local Planning Efforts in New Mexico

To help ground this plan in real-world examples, the project team reviewed peer jurisdictions within New Mexico that are actively advancing EV policy and infrastructure deployment. These communities provide relevant, scalable models for Los Alamos County given their similar regulatory context, climate conditions, and reliance on state-level programs such as the New Mexico Clean Car Rule and the NEVI program.

Peer benchmarking serves two purposes in this assessment. First, to identify approaches that have proven effective within the same legislative and utility environment. The second purpose is to highlight policy and implementation practices that the County could adapt to its own needs. The examples below are focused on Albuquerque and Santa Fe because both cities are among the state’s most advanced in EV planning, have publicly available program documentation, and represent urban and mid-sized community contexts respectively.

- **City of Albuquerque**
    - Implemented a *Green Vehicle Permit* program offering two hours of free parking for qualifying low-emission vehicles.
    - Launched the *Affordable Mobility Platform*, a discounted EV carshare pilot to expand access to clean transportation.
    - Adopted a policy mandating ZEV purchases for new municipal fleet acquisitions, with limited exceptions.
- **City of Santa Fe**
    - Established a long-range sustainability plan that aims to ensure all areas of the city are within five miles of an EV charging station, promoting equitable geographic access to charging infrastructure.

Together, these examples demonstrate how municipalities are combining incentives, accessibility targets, and public-sector leadership to accelerate EV adoption. For Los Alamos County, these lessons underscore the value of aligning local actions—such as fleet conversion policies, parking incentives, or regional coordination—with broader state and federal frameworks. Incorporating similar approaches can help the County enhance public engagement, streamline procurement, and strengthen its position for future funding opportunities.

3.2 Permitting, Code, and Zoning Assessment

The County and the State of New Mexico have enacted a comprehensive regulatory framework to support the deployment of EV charging infrastructure. The following sections summarize current code provisions, permitting processes, and infrastructure requirements.

3.2.1 Zoning

New Mexico's Electric Vehicle Charging Station Zoning Act (HB 88), effective July 1, 2025, classifies EV charging stations as permitted uses in all zoning districts, eliminating the need for use variances. The Act mandates that all local zoning authorities, including the County, implement expedited administrative processes for EVSE permitting reviews, limited solely to code compliance.

Locally, the LAC Code of Ordinances (2025) further encourages EV charger installation by allowing a single charging station to be credited as meeting the requirement for two parking spaces in downtown Los Alamos, White Rock, and all mixed-use or non-residential zones.

3.2.1.1 Minimum Parking Requirements for EV Charging

New Mexico's 2024 Commercial and Residential Energy Conservation Codes specify minimum Electric Vehicle Supply Equipment-installed and EV-capable requirements for new development. The table below summarizes these requirements.

Table 3-1: Required EV Power Transfer Infrastructure[10]

Occupancy	EVSE Spaces	*EV Capable Spaces
Group A – Assembly	5%	10%
Group B – Business	5%	5%
Group E – Educational	5%	5%
Group F – Factory/Industrial	2%	5%
Group H – High-Hazard	1%	0%
Group I – Institutional	5%	10%
Group M – Mercantile	5%	10%
Group R-1 – Transient Residential	5%	15%

[10] https://www.law.cornell.edu/regulations/new-mexico/N-M-Admin-Code-SS-14.7.9.12

Group R-2 – Permanent Residential	5%	15%
Group R-3 and R-4 – Homes (sing/two-family residences) and Care Facilities	2%	5%
Group S exclusive of Parking Garages – Storage	1%	0%
Group S-2 Parking Garages – Storage	5%	10%

These codes are based on the International Energy Conservation Code and aim to futureproof new construction. Additionally, accessible EV charging stations may count as two standard parking spaces, per HB 88.[11]

3.2.2 Site Layout and Design Requirements

The site layout requirements and design requirements for EV charging infrastructure in the County vary depending on the funding source and project type.

Locally and State-Funded Installations

Projects that do not utilize federal funding are subject to state and local requirements, including:

- New Mexico's 2024 Commercial and Residential Energy Conservation Codes, which set minimum EVSE-installed and EV-capable parking requirements for new developments based on occupancy type.
- Los Alamos County Code of Ordinances, which provides incentives such as allowing one EV charging station to count toward two required parking spaces in certain zoning districts.
- ADA accessibility requirements, as well as emerging U.S. Access Board recommendations for accessible EV charging stations (see Appendix B).

These requirements ensure baseline compliance with building, electrical, and accessibility codes but do not mandate the broader operational and technical standards established under federal programs.

Federally Funded Installations (NEVI and Federal-Aid Highway Projects)[12]

Projects funded under the NEVI Formula Program or with Title 23, U.S.C. funds for publicly accessible EV chargers must comply with the Federal Highway Administration's Final Rule (23 CFR Part 680[13]). This rule was established under the Bipartisan Infrastructure Law to create a convenient, reliable, and interoperable national EV charging network and sets uniform standards for federally funded chargers.

For site layout and design, the rule requires:

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[11] HB0088: www.nmlegis.gov/Sessions/25%20Regular/bills/house/HB0088.HTML
[12] https://www.govinfo.gov/content/pkg/FR-2023-02-28/pdf/2023-03500.pdf
[13] eCFR :: 23 CFR Part 680 -- National Electric Vehicle Infrastructure Standards and Requirements

- Standardized Charger Configurations: Stations must meet minimum port counts, connector types, and power levels to ensure consistency across the national network.
- Accessibility and Placement: Sites must comply with ADA accessibility requirements, including accessible routes, space dimensions, and clearances, ensuring that chargers are usable by individuals with disabilities.
- Traffic Control and Signage: All on-premises and roadway signage must follow the Manual on Uniform Traffic Control Devices (MUTCD) and related Title 23 regulations to provide consistent wayfinding and pricing transparency.
- Network Connectivity and Data: Chargers must be networked to allow for remote monitoring, diagnostics, and real-time data sharing on location, pricing, and charger availability through public mapping applications.
- Technician Qualifications: Installation and maintenance must be performed by qualified technicians with appropriate training and certifications, supporting safe and high-quality deployment.

These requirements ensure that federally funded chargers are reliably sited, consistently designed, and interoperable with the broader national charging network. Even for projects that are not federally funded, adopting these NEVI-aligned standards can improve interoperability, user experience, and readiness for future funding opportunities. At the time of this report, NEVI funds are still available.

3.2.3 Accessibility Considerations

Accessibility standards for EV charging infrastructure are still evolving, with federal guidelines continuing to be updated as EV adoption becomes more widespread. Current recommendations from the U.S. Access Board[14] provide a foundation for ensuring accessible design, though regulatory clarity is expected to improve over time.

Throughout this planning process, the project team met with County staff to clarify how ADA requirements should apply differently to County fleet charging and public-facing charging. Fleet-only charging areas, which are used exclusively by County operators and are not accessible to the general public, are not required to meet the same accessibility standards as public chargers. However, County staff emphasized that internal policies still call for reasonable accommodation and barrier-free access wherever it is practical to provide it. All public-facing charging sites, by contrast, must follow the applicable ADA standards, including the Access Board's EV charging guidance and the PROWAG draft standards for access routes, maneuvering space, and charger operability.

Los Alamos County has also adopted an internal ADA policy that reinforces these expectations and guides implementation across all facilities. Referencing the County's policy alongside federal guidelines provides a

[14] www.access-board.gov/guidance.html#guidance-on-the-americans-with-disabilities-act-ada-accessibility-standards

consistent framework to ensure that any new charger installation, whether public or fleet, supports accessibility, safety, and compliance as the regulatory landscape continues to evolve.

Given the evolving nature of these requirements, it is recommended that legal counsel be consulted to assess any potential compliance risks associated with ADA regulations and the placement of EV Charging infrastructure.

Furthermore, the NM State NEVI Plan provides useful details about EV charging site installation options to minimize risks from extreme weather and other events (Table 3-2). The County should develop maintenance protocols tailored to each of these events.

Table 3-2: Risk and Resiliency Strategies for EV Chargers (from NMDOT 2022)[15]

Risk/Event	Example Strategies
High Winds and Dust storms	Consider wind directions and shelter opportunities when sitting. Require appropriate equipment standards (i.e., IP rating system of IP66 or better).
Flooding, Flash Flooding	Avoid known flood areas, avoid locations where connecting road washouts are common and review site stormwater management practices.
Excessive Heat	Consider equipment standards and shading or shelter in design.
Wildfire	Plan for redundant power and communications technology, especially in areas of higher risk.
Snowstorm	Identify responsibilities and response priorities for operations and maintenance in times of winter weather events.
Rockfall	Avoid locations close to potential rockfalls, seek protected areas during siting.
Power Outages (often a secondary event resulting from the risks above)	Strategically build power redundancies across the charging network. Consider locations with frequent weather events or power lost.

3.2.4 Permitting Requirements to Install Chargers

The Electric Vehicle Charging Station Zoning Act (the Act), effective July 1, 2025, establishes statewide standards for permitting EV charging stations in New Mexico.[16] The Act ensures that EV charging infrastructure is treated as a permitted use and accessory use in all county and municipal zoning districts, eliminating the need for a variance.

The Act also clarifies that parking spaces equipped with EV chargers count toward minimum parking requirements, with accessible EV charging spaces counting as two standard spaces. These provisions are

[15] TIRS 100322 Item 1 DOT NM EV Infrastructure Deployment Plan 220713.pdf
[16] https://www.nmlegis.gov/Sessions/25%20Regular/bills/house/HB0088.HTML

designed to remove procedural barriers, promote uniform permitting, and accelerate the deployment of charging infrastructure across jurisdictions in New Mexico.

3.3 County Structure and Workforce Considerations

3.3.1 Organizational Structures within the County

The County's organizational permitting structure involves multiple departments, each managing specific responsibilities. While this ensures comprehensive coverage, it also leads to siloed workflows, which can complicate permitting and project coordination.

Key Departments and Their Responsibilities

- **Community and Economic Development Department** oversees the zoning, site planning, land-use planning, and building permit review process. This department serves as a primary point for development-related applications. In addition to local reviews, EV charging projects typically require a state-issued electrical permit, which introduces an additional step in the approval process. Coordinating early with both the County and the appropriate state permitting authority can help applicants navigate these parallel requirements and reduce delays during design and installation.
- **Department of Public Utilities (DPU)** handles grid interconnection, rate-setting, electricity provision, and maintenance oversight.
- **Public Works - Engineering & Capital Projects** handles capital improvements, roadway design, and facility upgrades, including parking and site layout modifications.
- **Sustainability Division** coordinates the County's climate action initiatives, tracking goals for energy efficiency, emissions reduction, and community-wide sustainability programs.
- **Fire Department (Fire Marshal's Office)** enforces fire and life-safety codes, reviewing plans for compliance with emergency access and safety requirements.
- **County Council and the Board of Public Utilities** provide governance and policy oversight, approving budgets, projects, and strategic priorities across departments
- **The Environmental Sustainability Board (ESB)** serves as an advisory board to County Council on various initiatives and help gather public inputs on environmental topics.

While this structure provides clarity of roles, it also creates fragmentation when projects span multiple departments. For instance, infrastructure projects may require input from Community and Economic Development, DPU, Public Works, and Fire, which may leave applicants to navigate separate processes and points of contact. To overcome this challenge, there is an active internal EV working group overcoming these silos that includes staff members from DPU, Fleet, Engineering, and Procurement.

3.3.2 Workforce

Developing and sustaining the County's EV charging infrastructure will require a skilled and adaptable workforce to support system design, installation, operations, and maintenance. A coordinated, cross-sector approach involving local government, educational institutions, utilities, and private industry will be essential to building the talent pipeline needed for long-term success.

At the programmatic level, prioritizing workforce development initiatives can help reduce barriers to education and employment, particularly for individuals from economically disadvantaged backgrounds. Integrating workforce training components into procurement and contracting processes will allow the County to align local investment in EV infrastructure with broader economic development and equity goals.

The State of New Mexico has begun to lay the foundation for a robust EV workforce through a series of targeted initiatives:

- New Mexico Established Program to Stimulate Competitive Research (NM EPSCoR): A multi-year coalition funded by the National Science Foundation, NM EPSCoR supports the development of a future-ready STEM workforce. It brings together research universities, national laboratories, utilities such as the Public Service Company of New Mexico (PNM), and other stakeholders to build state-level capacity for innovation and training in clean energy technologies.
- New Mexico MICROGrid Center: A component of NM EPSCoR, this interdisciplinary initiative focuses on next-generation electric power systems, including workforce training related to microgrids and EV charging infrastructure. The program integrates applied research and technical education to prepare workers for emerging roles in energy resilience and power distribution.
- Center for Emerging Energy Technologies (CEET): Located at the University of New Mexico, CEET contributes to statewide efforts to modernize the electrical grid and integrate renewable energy technologies. CEET's mission includes training practitioners capable of supporting EV infrastructure as part of the broader transition to clean energy.

By leveraging these programs and continuing to collaborate with state and regional partners, the County can help ensure a well-prepared workforce is in place to support its EV goals – while also creating opportunities for local job growth and economic resilience.

3.4 National and Global Trends

The adoption of EVs is driven by a range of national and community-level trends that reflect the interplay between technological innovation, infrastructure development, and public policy. These systemic factors shape the pace and scale of EV integration into transportation networks.

One of the most critical enablers of the electric vehicle transition is battery evolution, which requires sustained investment in research, development, and infrastructure. Advances in battery technology are essential to reducing costs, improving performance, and addressing regulatory challenges around safety, which seek to standardize safety protocols and bolster public trust EVs. While costs have decreased, high vehicle pricing remains a significant barrier because EVs typically carry a higher upfront cost than ICE vehicles. This challenge is compounded by the urgent need for widespread fast-charging networks, which demands coordinated public and private investment to meet the growing demand.

Infrastructure planning plays a central role in the EV transition. Residential charging access hinges on urban planning that addresses the needs of multifamily housing and densely populated areas, while public charging infrastructure must expand strategically to close coverage gaps. Additionally, the management of battery degradation and cold-weather performance challenges requires investment in recycling programs, grid adjustments, and resilient infrastructure design to ensure that EVs function reliably across climates and over the long term.

In addition to these technological and infrastructure challenges, the production of EV batteries raises important ethical and social considerations. The extraction of lithium and other rare elements needed for battery production often carries significant environmental impacts, such as habitat destruction, water contamination, and soil degradation, which can disrupt local ecosystems. Mining operations in some regions have also been linked to human rights concerns, including unsafe working conditions, child labor, and exploitation of local communities. As global demand for these material increases, resource scarcity and geopolitical tensions over access to critical minerals pose risks to the long-term sustainability of battery production. These issues underscore the need for responsible sourcing, recycling initiatives, and continued innovations in alternative battery technologies.

Despite these challenges, the societal benefits of EV adoption are significant. Reduced emissions and improved public health outcomes contribute to cleaner air, healthier communities, and reduced healthcare costs. Noise reduction enhances quality of life, especially in urban environments. Economic growth driven by EV adoption fosters job creation, technological advancement, and regional competitiveness. Meanwhile, infrastructure development, including charging networks and smart charging systems, improves regional mobility, mitigates traffic congestion, and strengthens grid resilience by integrating EVs as energy storage resources. These systemic shifts support a broader commitment to sustainability, equity, and accessibility, ensuring that the benefits of EV adoption are shared across diverse communities.

3.4.1 Future Evolutions in Charging

The growth of EV adoption and the evolution of supporting technologies will mean that the charging infrastructure of 2030 will not meet the needs and expectations of 2050. While these technologies are beyond the scope considered for this project, there are several ongoing industry developments that will impact the future of zero emissions transportation.

3.4.1.1.1 *Inductive Charging*

Inductive charging allows an equipped vehicle to receive power without plugging in by driving over a wireless charging pad. There are three types of inductive charging:

- Static charging in which a vehicle is parked for a long period of time.
- Quasi-dynamic charging, in which a vehicle is stopped or driving slowly over the charger for a few minutes at a time, such as an intersection or transit stop.

- Dynamic charging, in which a vehicle is operating at travel speeds.

Inductive charging is already being used on transit vehicles and may someday emerge as a viable option for both County fleet and personal vehicles. They are two primary benefits of inductive charging:

- The ability to “top off” the battery while driving, reducing trip interruptions to charge.
- Increased flexibility in designing parking facilities, without the need to account for cords and wall mounted equipment.

In the long-term, this provides the ability to reduce battery capacity and cost as cars can travel continuously while charging.

Inductive charging requires special equipment to work and may not be widely available for personal vehicles for some time. The infrastructure investment and power needs for dynamic charging will be extensive, meaning this technology is likely decades away from being readily available. While dynamic charging infrastructure is most likely to be installed in highways, the County may consider how static charging can be used to minimize obstacles in County-owned parking facilities and support the needs of the County fleet as this technology matures.

3.4.1.1.2 *Hydrogen Fueling*

Hydrogen fuel cell electric vehicles (FCEVs) convert hydrogen into electricity to operate the same type of motors that EVs use, with water as the only byproduct and no “tailpipe” emissions. The primary benefits of FCEVs compared to EVs is that they have a similar driving range and refueling time as internal combustion engines. However, there are currently only two passenger FCEVs on the market as of the end of 2023. One of the primary limitations, and the reason for the relatively small market presence, is a lack of infrastructure to refine and distribute hydrogen. Because of the need to install specialized and costly infrastructure to refuel FCEVs, most models on the market are medium- and heavy-duty fleet vehicles such as transit buses.

If personal FCEVs become as common as EVs in the future, the refueling infrastructure will likely follow a similar pattern to gasoline service stations today. Because of the ability to refuel quickly, public infrastructure to support overnight and “opportunity” charging will likely not be required. However, the County may consider what role FCEVs can play in the County fleet for medium- and heavy-duty vehicles.

3.4.1.1.3 *Vehicle-to-Grid*

Widespread adoption of EVs will create future opportunities to support bidirectional charging, also known as vehicle-to-grid. One of the primary challenges in operating the power grid is supporting sudden spikes in demand, which often require powering up the dirtiest generation sources like coal. EVs can help fill this gap by providing power to the grid while vehicles are parked, particularly during the workday and early evening when demand on the grid is the highest. During power outages, EV batteries could also be used to power homes and businesses.

While some EV models support “vehicle-to-load” charging, in which owners can power external devices with their battery, there are not yet any vehicles with true vehicle-to-grid capabilities. There remain several obstacles to widespread implementation of this capability, including the development of standards and charging management technologies and continued collaboration between electric utilities and automakers. As these advancements reach commercial scale, the County can consider how vehicle-to-grid can support its own power needs for buildings while monitoring international and national standards on building codes for bidirectional charging equipment.

4 Public Charging Infrastructure Readiness Plan

This section describes Stantec's methodology and approach to creating a Public Charging Infrastructure Readiness Plan. This plan focuses on future charging demand, site selection for additional infrastructure, energy/power requirements, and equipment options. The first step was to identify optimal locations for new charging stations based on factors such as demand, suitability, equity, and accessibility. The current charging footprint and other existing conditions serve as inputs into the integrated mapping methodology, for which Stantec has a proprietary tool called ZEVDecide.

4.1 Existing Conditions

4.1.1 Current Charging Footprint

At present, the County has a limited network of public EV charging stations. According to PlugShare data, there are five charging station locations across the County, collectively providing 28 chargers.[17]

There are also currently 99 Level 2 chargers and 3 Level 3 chargers at the Los Alamos National Lab (LANL). This analysis and project do not include LANL or the chargers there, because they are private and only available to employees.

The majority of the County's chargers use the J-1772 connector standard, which is compatible with most battery-electric and plug-in hybrid vehicles.

Pricing varies across sites, though all sites are open 24/7. Some chargers are free to use, while others require payment, reflecting differences in ownership, operator policy, and intended user base.

Overall, the existing footprint is relatively sparse and concentrated in a small number of locations, limiting options for residents without home charging access and for visitors seeking convenient charging during their stay. This baseline provides guidance to assess future infrastructure needs and identify optimal expansion sites.

[17] https://www.plugshare.com/directory/us/new-mexico/los-alamos

4.1.2 Demographics Of the Region

The County is a small but highly educated and affluent community, with characteristics that can influence EV adoption patterns.

- Population: 19,490 residents
- Median Age: 41.1 years, indicating a balanced mix of working-age adults and older residents.
- Households: 8,222 households, with a total of 8,634 housing units
- Income and Poverty: Median household income is $143,188, with a poverty rate of 2.9% - significantly lower than state and national averages.
- Education: 68.2% of residents hold a bachelor's degree or higher, indicating a highly educated population.
- Employment: Employment rate is 65.5%, Race and Ethnicity: 17.6% of residents identify as Hispanic or Latino (of any race).
- Health Coverage: Only 3.4% of residents lack health insurance.
- Business and Economy: The County hosts 373 employer establishments.

These demographics suggest strong potential for early EV adoption, given higher household incomes, high educational attainment, and low poverty levels. The relatively high median age, paired with strong employment and health coverage, indicates a stable economic base that could support investment in EV ownership and associated charging infrastructure.

4.1.3 Land Use and Density

Understanding current land use patterns in the County is essential for identifying optimal locations for public EV charging infrastructure. Land use influences both the demand for charging and the type of charging that is most appropriate. For example, residential areas may primarily support home-based charging, while commercial, institutional, and mixed-use areas present opportunities for workplace and destination charging.

The County's land use is a mix of residential neighborhoods, commercial centers, institutional facilities, parks and open space, and industrial areas (Table 4-1). Concentrations of employment, retail, and civic amenities are largely found in Downtown Los Alamos and the White Rock Town Center, while significant portions of the County are dedicated to open space, recreation, and other facilities.

The table below summarizes the existing land use zoning categories for the County, providing a baseline for assessing where future charging infrastructure can be most effectively deployed.

Table 4-1: Los Alamos County Zone/Land Use Districts and Categories

Zone Districts	Categories
Residential Districts	Residential Agricultural (RA)
	Residential Estate (RE)
	Single-family Residential (SFR-1)
	Single-family Residential (SFR-2)

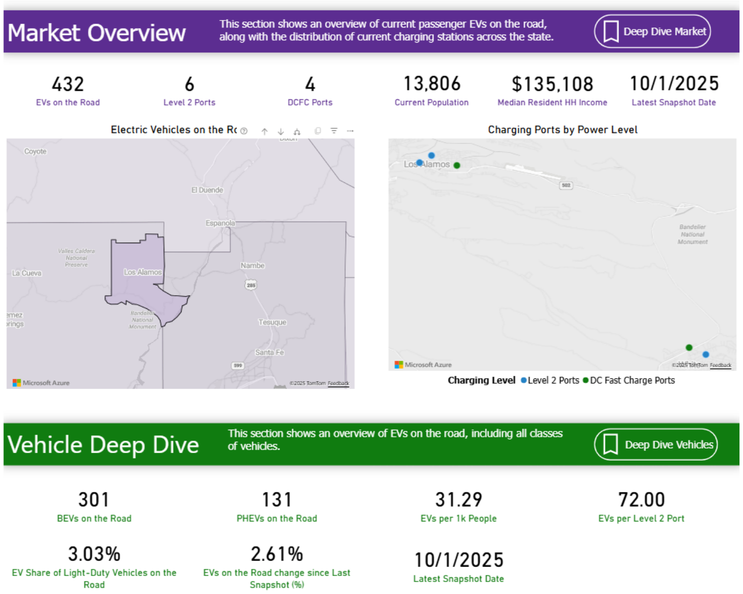
	Single-family Residential (SFR-3)
	Single-family Residential (SFR-4)
	Single-family Residential (SFR-5)
	Single-family Residential (SFR-6)
	Residential Mixed (RM-1)
	Residential Mixed (RM-2)
	Multi-family Residential-Low (MFR-L)
	Multi-family Residential-Medium (MFR-M)
	Multi-family Residential-High (MFR-H)
	Manufactured Home Community (MHC)
Mixed-use Zone Districts	Mixed-use (MU)
	Downtown Los Alamos (DTLA)
	White Rock Town Center (WRTC)
Non-residential Zone Districts	Professional Office (PO)
	General Commercial (GC)
	Industrial (IND)
	Institutional (INS)
Open Space Zone Districts	Open Space - Public Parks (OS-PP)
	Open Space - Recreational Open Space (OS-RO)
	Open Space - Active Open Space (OS-AO)
	Open Space - Passive Open Space (OS-PO)
Overlay Zone Districts	Historic Overlay (H-O)
	Planned Development Overlay (PD-O)
	Airport Protection Overlay (AP-O)

4.1.4 EV Adoption

Using data from Atlas Public Policy, created in partnership with the State of New Mexico and the support of the New Mexico Environment Department, the current state of EV adoption in the County can be closely estimated. The numbers in Figure 4-1 serve as a validation of EV adoption forecasts.

Figure 4-1: Atlas Public Policy - EV Adoption[18]

[18] EValuateNM – Atlas Public Policy



4.1.5 Utility Infrastructure

The Los Alamos County DPU, operating under the jurisdiction and control of the Board of Public Utilities, is a municipally owned, customer service-oriented utility that provides electric, gas, water, and sewer services to County residents and businesses. In addition, DPU supplies wholesale electric and water services to LANL, a major regional employer and energy consumer.

DPU plays a central role in enabling the community's transition to EVs. As the provider of electric distribution services, the utility is responsible for ensuring that grid capacity and infrastructure are sufficient to support growing EV charging loads alongside other electrification initiatives.

An important consideration for EV readiness is the structure of the County's electric distribution system, which consists of a network of feeders delivering electricity to residential, commercial, and institutional customers. These feeders define the physical pathways along which new charging demand will be integrated. A map of feeder lines is provided in Figure 4-2, illustrating the backbone of the distribution network that will support future charging infrastructure deployment.

Figure 4-2: Los Alamos County Feeder Lines Map

While this study references feeders as a supplementary layer of analysis, identifying charging needs based on demand centers, land use type, demographic trends, and other factors remains a critical focus. The feeder map provides additional context to ensure that proposed charging sites can be feasibly supported by existing or planned utility infrastructure.

4.1.6 Transportation Infrastructure

The County's transportation network will play a central role in shaping EV travel patterns and the locations best suited for charging infrastructure. The County is geographically unique, with two primary population centers – the Townsite of Los Alamos and the White Rock community. The region is characterized by diverse topography, and a road system designed around serving both neighborhoods and commercial and industrial facilities.

Road Network

The County's road system includes a mix of local residential streets, collector roads, and arterial corridors that support both commuter and regional traffic. State Routes 4 and 502 serve as the main gateways, connecting Los Alamos to the regional transportation system and the broader New Mexico highway network. These corridors also play a crucial role in long-distance EV travel, where strategically placed Fast Chargers can reduce range anxiety for both residents and visitors. The County also has many parking lots that may serve as practical EV charging locations (See Appendix).

Public Transit and Active Modes

The County is served by Atomic City Transit, a fare-free bus system that provides local routes and connections to White Rock. The County has also invested in trails, sidewalks, and bike lanes that support multimodal travel. These assets may create opportunities for co-located charging infrastructure at transit hubs, park-and-ride lots, and recreational destinations, where dwell times are longer and Level 2 charging is most effective.

4.1.7 Sensitive Natural Resources

The County contains a variety of sensitive natural resources that require careful stewardship to maintain ecological integrity and community value. These include wetlands, riparian areas, forests, canyons and adjacent national park lands, which provide critical habitat, recreational opportunities, and ecosystem services.

Implications for Infrastructure Planning

When planning EV charging infrastructure and related improvements, consideration of sensitive lands is essential to avoid ecological impacts. Chargers should be sited away from wetlands, riparian areas and critical wildlife habitat, with a preference for built environments. Coordination with the County's open space strategies ensures that infrastructure growth aligns with conservation objectives.

4.2 EV Adoption Projection

Adoption of EVs by county residents will drive the charging infrastructure required to adequately serve community needs. While much of this charging will be done at home, publicly accessible charging will serve two important roles:

- Level 2 charging at land uses with long dwell times, such as office and retail, will support people without charging at home and allow others to "top off" their charge during the day.
- Direct Current Fast Charger (DCFC) stations will support long-distance travel and unanticipated battery depletion, functioning like a fueling station.

To plan for this growth, Burns and McDonnell 1898 & Co. developed a 30-year EV adoption forecast using three scenarios:

- **Scenario 1 – High**: Aligns with the County's CAP goal of achieving carbon neutrality by 2050, requiring 100% EV adoption for passenger vehicles, full building electrification, and significant adoption of rooftop solar and battery storage.
- **Scenario 2 – Medium**: Reflects current state and federal policy, incentives, and historic adoption trends, with moderate electrification of vehicles and buildings.
- **Scenario 3 – Low**: Minimal influence from CAP or regulations, following the statewide average adoption rate.

4.2.1 EV Adoption Forecast

The cumulative EV forecast for each scenario is summarized in the table below. Under the high-adoption Scenario 1, over 17,000 EVs are projected by 2055, compared to approximately 14,000 in Scenario 2 and 5,400 in Scenario 3.

Table 4-2: Cumulative EV Forecast by Scenario

Year	Scenario 1 (High)	Scenario 2 (Medium)	Scenario 3 (Low)
2025	497	497	497
2030	2,017	1,487	1,076
2035	5,045	3,105	1,788
2040	8,672	5,483	2,582
2045	12,401	8,471	3,456
2050	15,856	11,533	4,400
2055	17,290	14,049	5,402

The development of an EV forecast serves two purposes:

1. Grid Impact Assessment – Quantifying the overall grid impact (e.g., electric load) of EV charging, both public and at home.

2. Infrastructure Planning – Determining the number and type of Level 2 and DCFC ports required within the County.

The analysis assumed that 80% of EV drivers will charge at home, with varying charging behaviour patterns (e.g., 30% charging immediately after returning home, 40% scheduling overnight charging, and 30% using Level 1 charging).

4.2.2 Recommended Charger Footprint

To estimate the number of public charging stations required to support projected EV adoption in the County, guidance developed by the National Renewable Energy laboratory (NREL) can be applied from its National Plug-in Electric Vehicle Infrastructure Analysis.

NREL’s modeling evaluates the number of charging plugs necessary to support both day-to-day local travel and long-distance trips, accounting for variables such as EV concentration, travel patterns, and charging behaviors. Based on these analyses, NREL provides recommended ratios of public charging plugs per 1,000 EVs on the road, differentiated by charger type and community size.

Figure 4-3: Cumulative Residential EV Adoptions

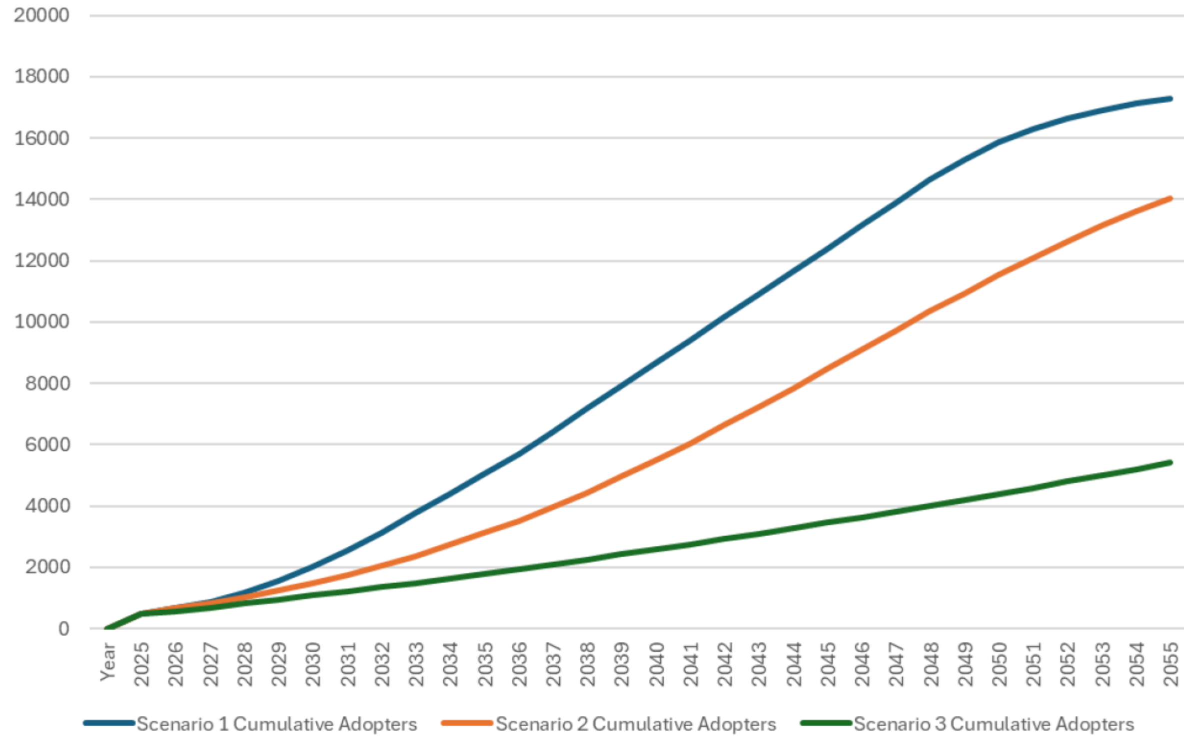


Table 4-3: NREL Recommended Public Charger Plugs per 1,000 EVs

Charger Type	National Average	Town-Level Estimate
Level 2	16.0	23.3
DCFC	1.7	2.2

For this analysis, the town-level estimates are applied to the projected number of EVs under each adoption scenario. Multiplying the scenario forecasts by these ratios provides the estimated number of Level 2 and DCFC plugs required in the County by milestone years (e.g., 2040 and 2055). This is demonstrated in Table 4-4, while Figure 4-3 shows residential EV adoptions by scenario.

Table 4-4: NREL Recommended Public Charger Plugs

Year		Scenario 1 (High)		Scenario 2 (Medium)		Scenario 3 (Low)	
	Charger Type	Level 2	DCFC	Level 2	DCFC	Level 2	DCFC
2025		12	1	12	1	12	1
2030		47	4	35	3	25	2
2035		118	11	72	7	42	4
2040		202	19	128	12	60	6
2045		289	27	197	19	81	8
2050		369	35	269	25	103	10
2055		403	38	327	31	126	12

Key Insights:

- Level 2 charging will make up the majority of public infrastructure needs, supporting both workplace/destination use and residents without home charging access.
- DCFC demand is smaller in absolute numbers but essential for corridor travel, emergency charging, and supporting higher adoption in rural and multifamily areas.
- Even in the low-adoption scenario, the county will require over 120 public chargers by 2055.

Planning Considerations:

- Deployment may be best prioritized in mixed-use areas and travel corridors, balancing access for residents, commuters, and visitors.
- Public charging would best be integrated with existing land uses with long dwell times to improve utilization rates.
- Load management strategies, such as scheduled charging and smart charging systems will be critical to avoid grid strain, particularly in high-adoption scenarios.

4.2.3 Suitability Inputs

4.2.3.1 Land Use

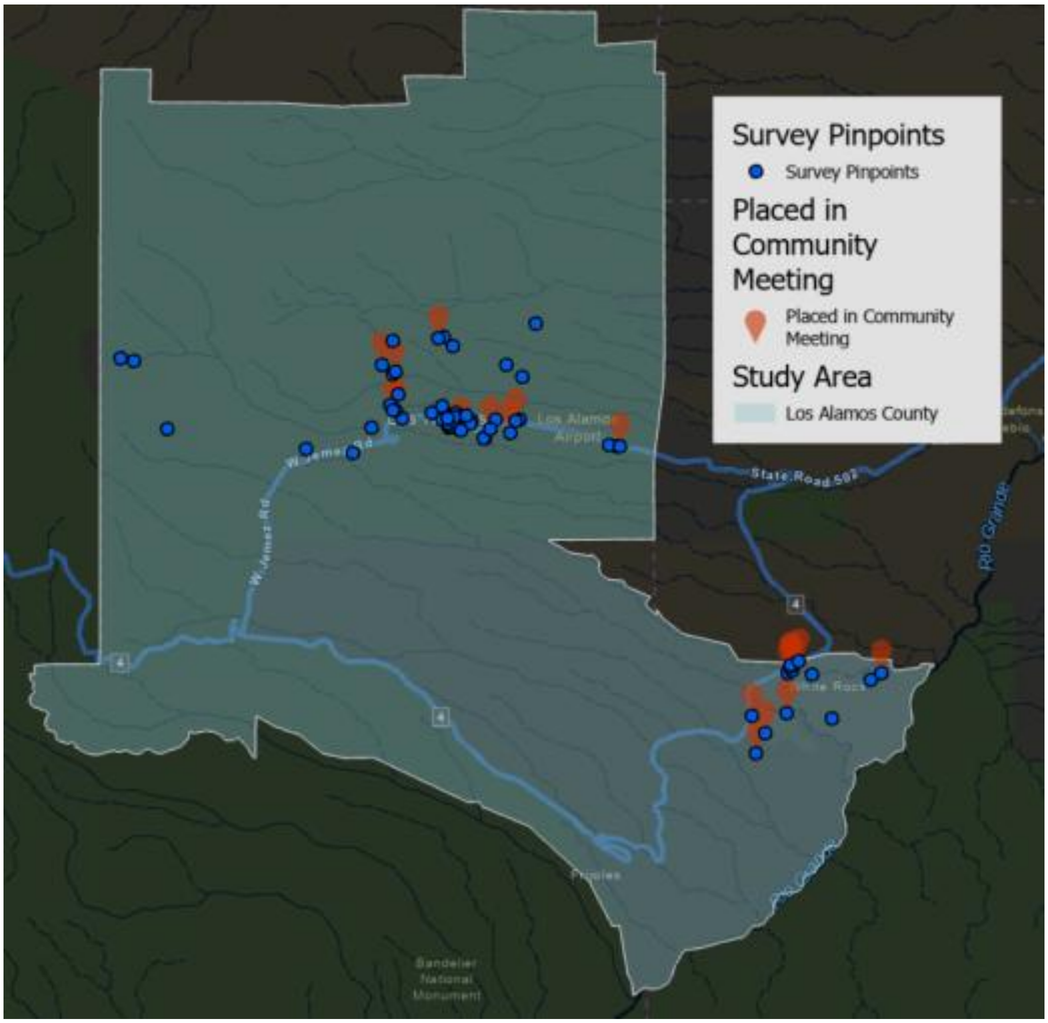
Public land use and parcel data were central to determining where public EV chargers could be installed in the County. The County's GIS layers provided detailed information on ownership, zoning, and land use, allowing the project team to screen parcels based on their development context and feasibility. County-owned and privately-owned parcels were prioritized in the analysis as potential installation sites, whereas federally-owned land could be generally excluded. Zoning classifications helped confirm that chargers would be compatible with surrounding land uses, favoring commercial, mixed-use, and institutional zones where public access and parking activity are highest. Parcel boundaries and area calculations also supported estimating population and activity density, highlighting locations where chargers would serve the greatest number of residents and visitors.

Environmental and transportation layers were then overlaid to refine these results—excluding flood-prone or environmentally sensitive areas and elevating parcels with existing parking lots, utility access, and strong trip activity. Together, these land-use-based analyses produced a shortlist of candidate sites that balance visibility, accessibility, and infrastructure readiness. Samples of these data and related maps are provided in Appendix X.

4.3 *4-4*Public Engagement Outputs

The Los Alamos community provided feedback on where they would prefer to see public charging locations through two mechanisms. The first was at a community meeting where attendees selected points on the map. These selections are visualized in Figure 4-5 as orange markers. The other mechanism was through the online survey. In the map below, these are shown as blue circles. This feedback is taken into consideration and weighted to encourage placement of chargers on these corridors.

Figure 4-5: Community Feedback



4.4 Integrated Mapping Methodology

As transit agencies and municipalities accelerate their transition to zero-emission fleets, strategic infrastructure planning becomes increasingly critical. The deployment of charging stations and support facilities must balance operational efficiency, cost-effectiveness, and long-term sustainability. To support this complex decision-making process, the ZEVDecide tool was developed as a data-driven, scenario-based siting platform that integrates geospatial analysis, fleet characteristics, and operational constraints.

ZEVDecide was employed in Los Alamos to identify optimal locations for ZEV infrastructure by evaluating a range of criteria including route coverage, energy demand, grid capacity, land availability, and equity considerations. The tool leverages a Multi-Criteria Decision Analysis (MCDA) framework, allowing stakeholders to weigh priorities and explore trade-offs across different siting scenarios.

By simulating various deployment strategies and visualizing their impacts, ZEVDecide enables planners to make informed, transparent, and defensible choices about where to invest in infrastructure. This report outlines the methodology used, the inputs considered, and the resulting recommendations for site selection in Los Alamos, demonstrating how ZEVDecide supports data-informed planning for a resilient and equitable zero-emission future.

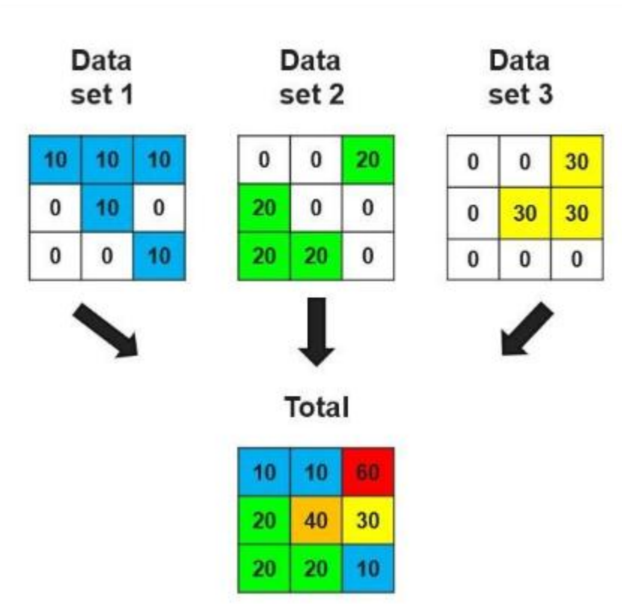
4.4.1 Charger Infrastructure Siting Analysis

At a conceptual level, the selection of an ideal site for EV charging is driven by two factors:

Demand: Chargers should be highly utilized to achieve a return on public or private investment.

Suitability: To the extent possible, chargers should be built at sites with existing supportive electric utility and transportation infrastructure, and away from natural hazards.

Figure 4-6: Site Suitability Model



To consider each of these factors and recommend ideal sites for charging infrastructure, a geographic information system (GIS) tool was employed. The County applied Stantec's ZEVDecide™ modeling tool, which integrates GIS layers describing each of the factors above to optimize site selection for future charging infrastructure. ZEVDecide™ utilizes a land suitability model framework in which each layer is assigned a weight and then combined into a heat map.

4.4.2 Scenario Development

Four scenarios were created with different methodologies for prioritizing sites for future installation of EV Chargers. The table below describes the relative importance of each set of factors in developing siting recommendations. The results of each scenario provide a detailed understanding of how competing factors influence site suitability for different types of charging.

The table below illustrates how land use, ownership, and other GIS layers were weighted to guide charger siting across four distinct deployment scenarios: the home charging need, County-owned charging, publicly available Level 2 charging, and publicly available DCFC. Each scenario reflects different goals and user types, so the same land use or ownership type may be treated positively, negatively, or excluded entirely.

The weight column assigns relative importance to each input, while the color scale provides a quick visual cue. For example, dark red layers are excluded entirely from the scenario, like wetlands or certain land uses. In contrast, dark green layers are included in the scenario, like the privately-owned land layer in the shared L2 charging scenario. Light green rows represent layers that have been positively weighted, whereas light red layers are weighted negatively to reduce suitability. To illustrate this weighting, mixed-use zoning areas score highly under the shared L2 charging scenario because those areas have high commercial and residential density, while the shared DCFC scenario instead prioritizes “general commercial“ parcels.

The weight column assigns some layers a score on the scale of -100 to 100. Layers with a weight of 100 are prioritized over other layers with lower weights. Layers with negative weights are actively removed from consideration. Together, the weightings create four tailored suitability models that reflect the distinct siting logic for each charging type, ensuring that locations are selected not only for technical feasibility but also for how well they serve the intended users and travel patterns in Los Alamos County.

Table 4-5: Scenario Weighting

Home Charging Need		County-Owned Charging		Publicly Accessible/Shared Level 2 Charging		Corridor/Fast Charging	
Layer	Weight	Layer	Weight	Layer	Weight	Layer	Weight
Land Use/Ownership		**Land Use/Ownership**		**Land Use/Ownership**		**Land Use/Ownership**	
Survey Results		Survey Results		Survey Results		Survey Results	
Residential		***Residential***		***Residential***		***Residential***	
High Density Residential (Mixed Use, Multifamily, Manufactured Home Community)		Multi-Family Residential - High		Multi-Family Residential - High	50	Multi-Family Residential - High	
Medium-Density Residential (Single Family)		Multi-Family Residential - Medium		Multi-Family Residential - Medium	25	Multi-Family Residential - Medium	
Low Density Residential (Residential Estate, Residential Agriculture)		Manufactured Home Community		Manufactured Home Community	25	Manufactured Home Community	
Multi-Family Residential - Low		Multi-Family Residential - Low		Multi-Family Residential - Low	25	Multi-Family Residential - Low	
Residential Mixed		Residential Mixed		Residential Mixed	25	Residential Mixed	
Single-Family Residential		Single-Family Residential		Single-Family Residential		Single-Family Residential	
Residential Estate		Residential Estate		Residential Estate		Residential Estate	
Residential Agriculture		Residential Agriculture		Residential Agriculture		Residential Agriculture	
Mixed-Use		***Mixed-Use***		***Mixed-Use***		***Mixed-Use***	
Mixed-Use		Mixed-Use	100	Mixed-Use	100	Mixed-Use	25

1

Downtown Los Alamos		Downtown Los Alamos	100	Downtown Los Alamos	100	Downtown Los Alamos	25
White Rock Town Center		White Rock Town Center	100	White Rock Town Center	100	White Rock Town Center	25
Non-Residential		***Non-Residential***		***Non-Residential***		***Non-Residential***	
Institutional		Institutional	100	Institutional	100	Institutional	25
Professional Office		Professional Office		Professional Office	75	Professional Office	25
General Commercial		General Commercial		General Commercial	75	General Commercial	100
Industrial		Industrial		Industrial	25	Industrial	25
Open Space		***Open Space***		***Open Space***		***Open Space***	
Open Space - Parks		Open Space - Parks	75	Open Space - Parks		Open Space - Parks	
Open Space - Recreational		Open Space - Recreational	25	Open Space - Recreational		Open Space - Recreational	
Open Space - Active		Open Space - Active	25	Open Space - Active		Open Space - Active	
Ownership		***Ownership***		***Ownership***		***Ownership***	
County-Owned Land		County-Owned Land		County-Owned Land		County-Owned Land	
Other Public		Other Public		Other Public		Other Public	
Private		Private		Private		Private	
Demographics		**Demographics**		**Demographics**		**Demographics**	
Population Density	100	Population Density (Proximity)	50	Population Density (Proximity)	50	Population Density (Proximity)	50
Environmental Justice Index		Environmental Justice Index	50	Environmental Justice Index		Environmental Justice Index	
Infrastructure Layers		**Infrastructure Layers**		**Infrastructure Layers**		**Infrastructure Layers**	
Existing Level II Chargers		Existing Level II Chargers		Existing Level II Chargers	5	Existing Level II Chargers	
Existing DCFC		Existing DCFC		Existing DCFC		Existing DCFC	-50
EV Traffic Volumes		EV Traffic Volumes	25	EV Traffic Volumes	25	EV Traffic Volumes	100

2

Feeder Capacity	Feeder Capacity	50	Feeder Capacity	50	Feeder Capacity	100
Parking Lots	Parking Lots	25	Parking Lots	25	Parking Lots	50
AFC At-Grade Corridors	AFC At-Grade Corridors		AFC At-Grade Corridors		AFC At-Grade Corridors	
Exclusion/Avoidance Layers	**Exclusion/Avoidance Layers**		**Exclusion/Avoidance Layers**		**Exclusion/Avoidance Layers**	
High Flood Risk (includes Bodies of Water)	High Flood Risk (includes Bodies of Water)		High Flood Risk (includes Bodies of Water)		High Flood Risk (includes Bodies of Water)	
Wetlands	Wetlands		Wetlands		Wetlands	
Open Space - Passive	Open Space - Passive		Open Space - Passive		Open Space - Passive	
Exempt Federal	Exempt Federal		Exempt Federal		Exempt Federal	

4.5 Home Charging Scenario

The first scenario modeled using the ZEVDecide tool focuses on identifying and forecasting home-based charging infrastructure. This scenario is designed to support residents who may charge zero-emission vehicles at or near their homes, emphasizing accessibility and convenience.

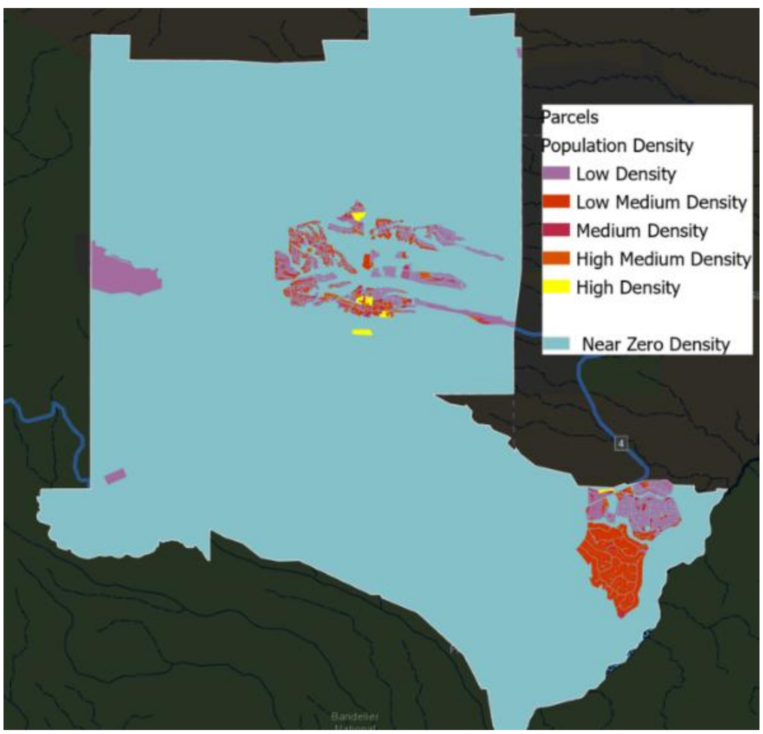
In this use case, population density serves as the primary siting factor, under the assumption that areas with higher concentrations of residents are more likely to benefit from distributed home charging solutions. The tool applies a spatial weighting to population clusters, prioritizing zones where demand for residential charging is expected to be highest.

To refine the analysis and ensure practical feasibility, ZEVDecide also incorporates a series of exclusion layers. These include:

- Wetlands and environmentally sensitive areas, to avoid ecological disruption.
- Publicly-owned parcels where housing does not exist
- Other land use restrictions that may limit installation potential.

By filtering out unsuitable areas and concentrating on population-driven demand, this scenario provides a foundational layer for understanding where home charging investments can be most impactful. It also sets the stage for integrating additional criteria in future iterations, such as grid readiness, equity metrics, or housing type.

Figure 4-7: Home Charging Map



4.5.1 At-Home Charging Impacts on the Electric Grid

The purpose of this section is to assess the anticipated grid impact from residential EV charging as adoption of EVs is forecasted to grow in Los Alamos. Residential charging for light-duty EVs typically uses a combination of Level 1 and Level 2 chargers. Throughout this analysis, residential charging is classified between single-family and multi-family residential buildings, which differ in terms of adoption levels, typical charging infrastructure, and charging behavior.

In general, if a home or building's electrical panel has sufficient capacity to support the load of a new EV charger, then the local distribution infrastructure should also be adequate. However, problems arise when many EV owners are clustered on the same distribution transformer or feeder, leading to cumulative demand that exceeds system capacity, especially during peak hours. Additionally, many older homes lack the panel or service capacity for Level 2 charging, requiring costly upgrades to allow home charging. Secondary distribution transformers and feeders are expected to be vulnerable components of the grid which will be the first to feel the impact of increasing EV adoption. Understanding where EVs are located within the distribution network and planning ahead will be key to predicting grid impacts and making timely infrastructure upgrades that will allow utilities to reliably meet their customers' charging needs.

This analysis forecasts the grid impact from residential EV charging within Los Alamos, which is derived from the anticipated charging needs of residential EV owners. This study considered several factors which define residential charging requirements, including the average number of miles driven daily, typical vehicle efficiency, the type of charger installed, and how often residents plug in their EV and at what time of day.

4.5.2 Types of Residential EV Chargers

There are two types of chargers available for residential EV charging, Level 1 (

Figure 4-8: Level 1 Charger

Figure 4-9: Level 2 Charger

) and Level 2 (Figure 4-9). A Level 1 charger connects through a standard wall outlet. This charger is generally provided with the purchase of an EV, so it is a cost-effective way to charge. However, Level 1 chargers often require longer charging times than many users are willing to wait, especially when users need to recharge their battery from a low state of charge. Level 1 chargers require a power output of 1.4 kilowatt (kW), an amperage of up to 12A, and a household voltage level of 120V. [19,20] As an example, it would take approximately 37 hours to charge the average EV with a battery capacity of 80 kilowatt-hour (kWh) from 20 to 80 percent using a Level 1 charger.

[19] Figure 1 from: Level1 EVChargerinstock_1657091453129.png (500×500)
[20] What is a Level 1 charger for electric vehicles? — ChargeLab

Figure 4-8: Level 1 Charger

Figure 4-9: Level 2 Charger

The second, and most common, residential EV charger is a Level 2 charger. Level 2 chargers plug into a 240V outlet, which requires a specific electric installation at most homes[21]. The typical cost for the electrical installation to support Level 2 residential charging ranges from $900 to $2,900 USD, depending on the existing electric installation.[22] Level 2 chargers require a power output of between 6.2 and 19.2kW, and amperage can vary between 25 and 80A depending on the model of charger and the available capacity of a building's panel. The distribution of residential EV charger models varies from neighborhood to neighborhood, with newer built areas being more likely to support residential EV chargers with higher power requirement. The Alternative Fuels Data Center of the US Department of Energy indicates that the most common power output for a residential Level 2 EV charger is 7.2kW.[23] Using the same example as above, charging an 80kWh EV battery from 20 to 80 percent with a Level 2 charger would take approximately 6.5 hours.

In 2024, J.D. Power reported that for residential charging in single-family homes, 84% of EV owners use a level 2 charger, and the remaining 16% use Level 1.[24] Residential EV charging in multi-family dwellings is assumed to use only Level 2 charging technology, due to the lack of accessibility to 120V outlets in typical parking stalls.

Of the residential users that have a Level 2 charger, it is assumed that 70% have a 7.2 kW Level 2 charger, and the remaining 30% have Level 2 chargers with higher power output of 9.6 kW (leveraging a 40A

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[21] Figure 2 from: ChargePoint Home Flex Level 2 EV Charger NACS, NEMA 14-50 Outlet Charge Station CPH50-NEMA14-50-L23-NACS - The Home Depot
[22] The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure, Table 5
[23] Alternative Fuels Data Center: Electric Vehicle Charging Stations
[24] 2024 U.S. Electric Vehicle Experience (EVX) Home Charging Study | J.D. Power

installation). These charging assumptions are summarized in Table 4-6 and are key inputs to the analysis for grid impact from residential EV charging.

Table 4-6: Power Output by Charger Level and Distribution in Single- and Multi-Family Homes

Charger Level	Power Output (kW)	Single-Family Distribution (%)	Multi-Family Distribution (%)
Level 1	1.4	16%	0%
Level 2	7.2	59%	70%
Level 2	9.6	25%	30%

4.5.3 Driving Behavior and Vehicle Efficiency in Los Alamos

The total amount of energy required from the grid for residential EV charging is driven by the average daily driving distance and typical vehicle efficiency in Los Alamos. The type of EV charger determines what the power output will be, while the daily driving distance and vehicle efficiency determine the total amount of power that is drawn from the grid and the subsequent charging duration.

The Bureau of Transportation presented in 2017 that the average residential daily person miles in New Mexico was 35.1 miles per day.[25] The Department of Energy also considers the average vehicle occupancy rate to be 1.5, which results in the average vehicle miles traveled (VMT) in New Mexico to be estimated as 23.4 miles per day in 2017. [26] The Federal Highway Administration also forecasts that the VMT is expected to grow by about 0.5 percent per year, which was used to estimate the average VMT in New Mexico to be 24.3 miles per day in 2025, and 27.6 miles per day by 2050. [27] This figure of 27.6 will be used in the analysis going forward. The Environmental Protection Agency gives the average EV efficiency as 0.39kWh/mile in the United States.[28] This average EV efficiency was used to estimate the upper limit for EV power required per mile driven in Los Alamos. The product of the average daily VMT in New Mexico and the average EV efficiency in the United States gives the total daily power required per EV for residential charging of 10.8 kWh per EV per day in 2050.

4.5.4 Plug-In Behavior in Los Alamos

The type of EV charger determines the additional peak load each vehicle can add to the grid, while average daily mileage and vehicle efficiency indicate how long that peak would typically last. To accurately forecast the impact of growing EV adoption, it was important to study when EVs would be plugged in and to recognize that not all vehicles charge at the same time. The study of plug-in behavior includes when and how often EV owners choose to charge their vehicles. Plug-in behavior can be represented by typical charging patterns which were used to develop an aggregate residential EV charging profile, which was

[25] New Mexico Transportation by the Numbers.pdf
[26] FOTW #1333, March 11, 2024: In 2022 the Average Number of Occupants Per Trip for Household Vehicles in the United States Was 1.5 | Department of Energy
[27] 2024 FHWA Forecasts of Vehicle Miles Traveled (VMT) - Policy | Federal Highway Administration
[28] Comparison: Your Car vs. an Electric Vehicle | US EPA

used to model the collective residential charging patterns of EV users. This aggregated approach to forecasting grid impact from residential EV charging is useful to evaluate peak demand impact at the utility level that can be used to determine grid capacity and infrastructure investment needs.

There are several published studies on charging behavior for EV owners. Specifically, detailed research was conducted on analysis and predictive modelling of residential EV charging behavior for the city of Omaha, NE[29]. Due to the significant differences in climate and population between New Mexico and Nebraska, it is acknowledged that charging behaviour could vary between the regions. However, useful outcomes of the study are the distribution of plug-in time and the typical time until next charge for residential EV owners. These distributions from the city of Omaha study are key inputs to the Los Alamos grid impact analysis and are presented in

Figure 4-10 and Figure 4-11 respectively. A second study conducted by the National Renewable Energy Laboratory featured a nationwide model that produced similar charging profiles for Nebraska and New Mexico, which further validates that the City of Omaha charging behavior study results can be applied to New Mexico.[30]

Figure 4-10 indicates that the majority of residential EV owners plug in their vehicle between 3 PM and 9 PM. For this analysis, the values for each hour have been used to build the load profile for residential EV charging in Los Alamos. Figure 4-22 indicates that nearly 60% of residential EV owners plug in their vehicle within a day since their last charge, while an additional approximately 25% plug in within 2 days from their last charge.

Figure 4-10: Distribution of Total Residential EV Charging Sessions with a Given Start Time[31]

[29] Insights into Household Electric Vehicle Charging Behavior: Analysis and Predictive Modeling
[30] Highly Resolved Projections of Passenger Electric Vehicle Charging Loads for the Contiguous United States: Results From and Methods Behind Bottom-Up Simulations of County-Specific Household Electric Vehicle Charging Load (Hourly 8760) Profiles Projected Through 2050 for Differentiated Household and Vehicle Types - National Renewable Energy Laboratory
[31] Insights into Household Electric Vehicle Charging Behavior: Analysis and Predictive Modeling

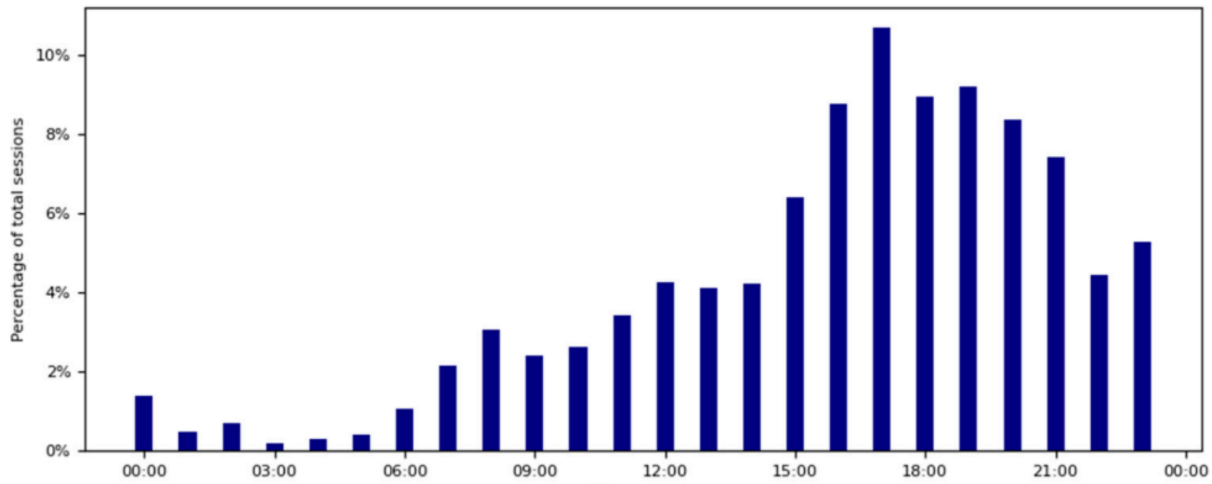
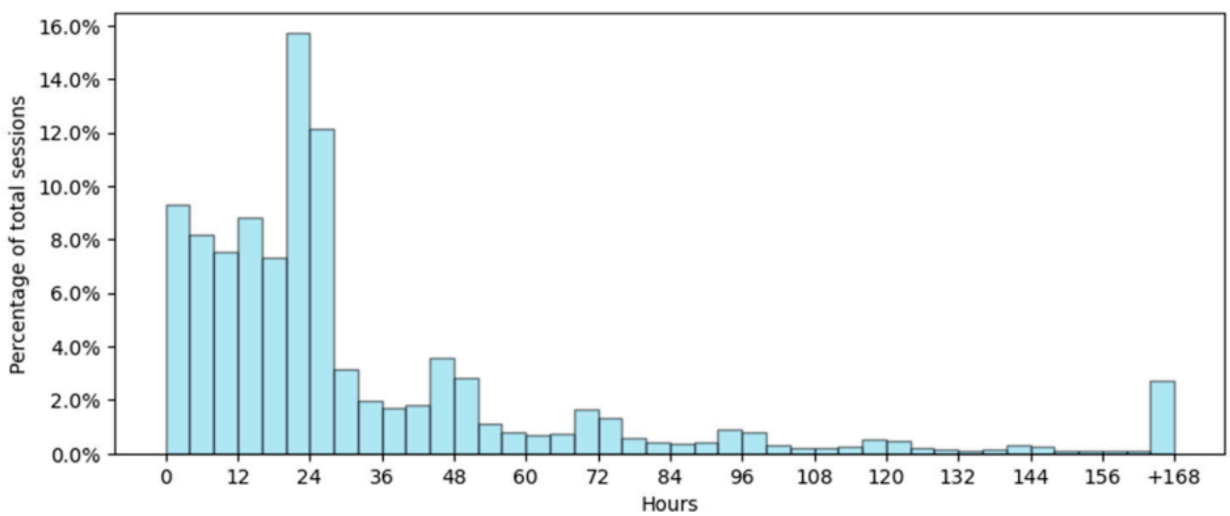


Figure 4-11: Distribution of Time to Next Charge for Residential EV Charging[31]

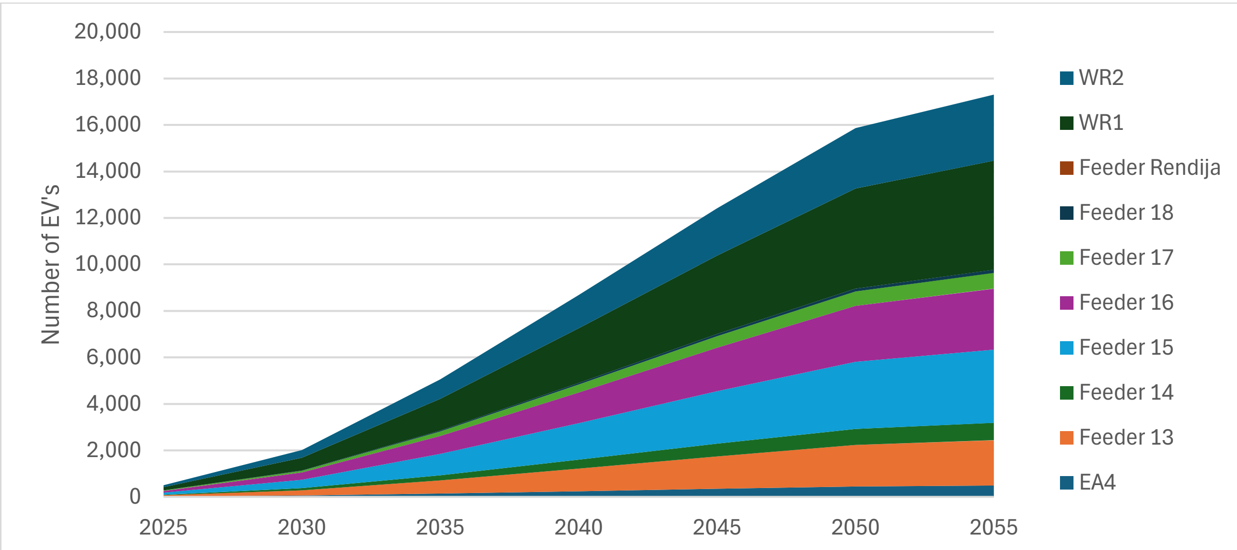


4.5.5 Projected Grid Impact of Residential EV Charging in Los Alamos

The next stage of the grid impact assessment is to determine the peak load impact from residential EV charging at the feeder level. A key assumption for this analysis is that the peak of residential EV charging coincides with the overall peak on a feeder. In residential areas the overall peak load typically occurs between 4 pm and 8 pm, which is also what is expected for residential EV charging.[32]

In Section 4.5, the residential EV adoption for Los Alamos is forecasted for three different adoption scenarios. Figure 4-12 shows the result of this analysis at the feeder level for the high adoption scenario.

Figure 4-12: EV adoption per feeder 2025-2055 in the "High Adoption" scenario



Using the average aggregate peak load profile per EV, the feeder-level grid impacts for each adoption scenario are produced based on the breakdown of residential dwelling types connected on each feeder. Ten feeders have been identified for this study to provide grid impact projections. For six of those feeders, the distribution of single-family dwellings and multi-family dwellings is known. For the four remaining feeders this distribution is not known and the overall distribution of dwelling type for Los Alamos is used as an assumption. The number of residents and distribution across dwelling types is summarized by feeder in the table below.

[32] [Distribution feeder-level day-ahead peak load forecasting methods and comparative study]

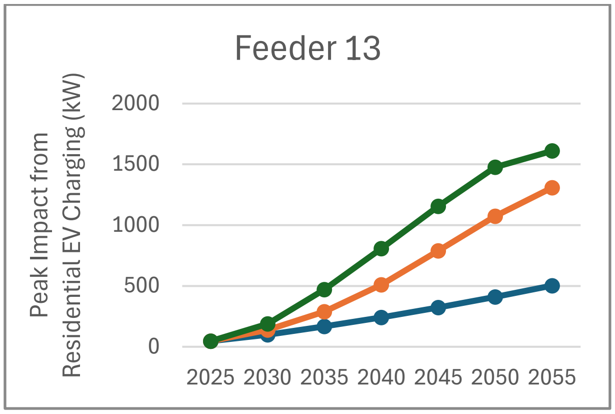
The analysis will also project the community-level transition (overall adoption within privately-owned vehicles) from fossil fuel vehicles to EVs over the coming years. This projection will be driven by the anticipated demand for public EV chargers, offering a clear visual representation of how increased charging infrastructure is expected to accelerate EV adoption within the community (see example figure below). The future demand forecast will also include analysis of the peak load required to serve EV charging based on the following assumptions:

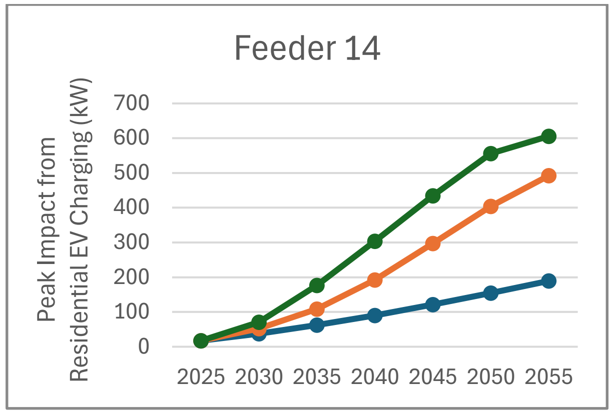
- EV projection is provided at the geographic level for a high, medium, and low adoption scenario. The same geographic aggregation as EV Charging Infrastructure is predicted on by scenarios and associate EV Charging to specific feeders in the grid system will be used. Using the aggregation of EV Charging Infrastructure and typical charging profiles, we will model the peak load demand required to serve EV charging by scenario (high, medium, and low adoption).
- Data is provided that indicate which geographical area is serviced by which feeder.
- Data on the current load of each feeder will be provided.
- A maximum of 20 feeders for the analysis.
- The peak load of EV charging during a specific day will coincide with peak load of the feeder.

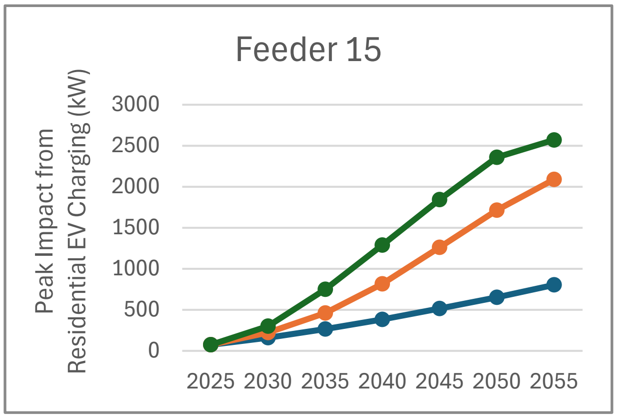
Table 4-7: Number of Residents and Distribution Across Dwelling Types by Feeder

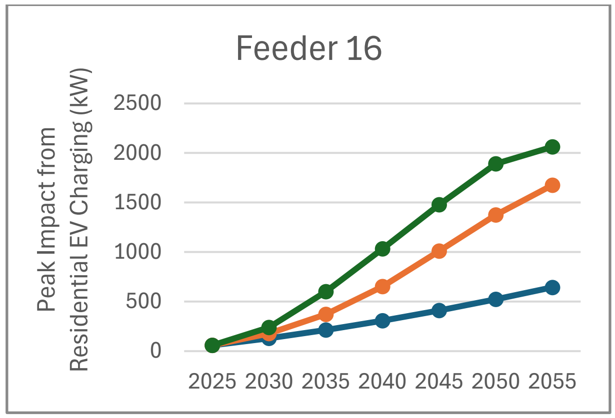
Feeder	# of Residents	Single-Family (%)	Multi-Family (%)
Feeder 13	2521	7.2%	92.8%
Feeder 14	883	57.4%	42.6%
Feeder 15	3980	28.2%	71.8%
Feeder 16	3011	93.4%	6.6%
Feeder 17	628	0.6%	99.4%
Feeder 18	138	0.0%	100.0%
Feeder Rendija	0	N/A	N/A
WR1	4669	46.2%	53.8%
WR2	2829	46.2%	53.8%
EA4	486	46.2%	53.8%

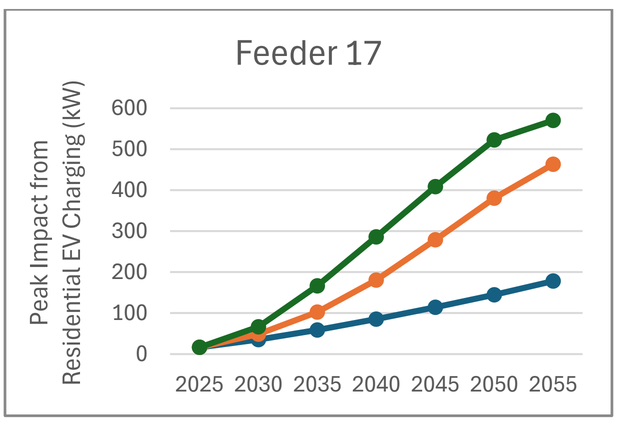
The grid impact from residential EV charging was assessed for each sample feeder for the high, medium, and low EV forecast scenarios. This analysis considered the normalized peak load impact by dwelling type, the distribution of dwellings per feeder, and the adoption of EV's over time per feeder in each scenario. The projected peak grid impact from residential EV charging in Loas Alamos is presented for each feeder in the figure below.

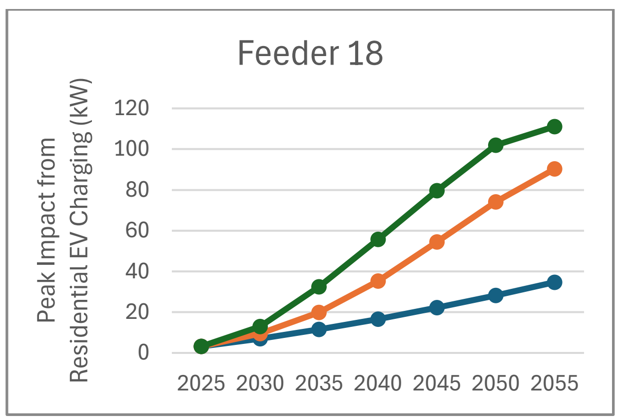

Feeder 13
Peak Impact from Residential EV Charging (kW)
2000
1500
1000
500
0
2025 2030 2035 2040 2045 2050 2055


Feeder 14
Peak Impact from Residential EV Charging (kW)
700
600
500
400
300
200
100
0
2025 2030 2035 2040 2045 2050 2055


Feeder 15
Peak Impact from Residential EV Charging (kW)
3000
2500
2000
1500
1000
500
0
2025 2030 2035 2040 2045 2050 2055


Feeder 16
Peak Impact from Residential EV Charging (kW)
2500
2000
1500
1000
500
0
2025 2030 2035 2040 2045 2050 2055


Feeder 17
Peak Impact from Residential EV Charging (kW)
600
500
400
300
200
100
0
2025 2030 2035 2040 2045 2050 2055


Feeder 18
Peak Impact from Residential EV Charging (kW)
120
100
80
60
40
20
0
2025 2030 2035 2040 2045 2050 2055

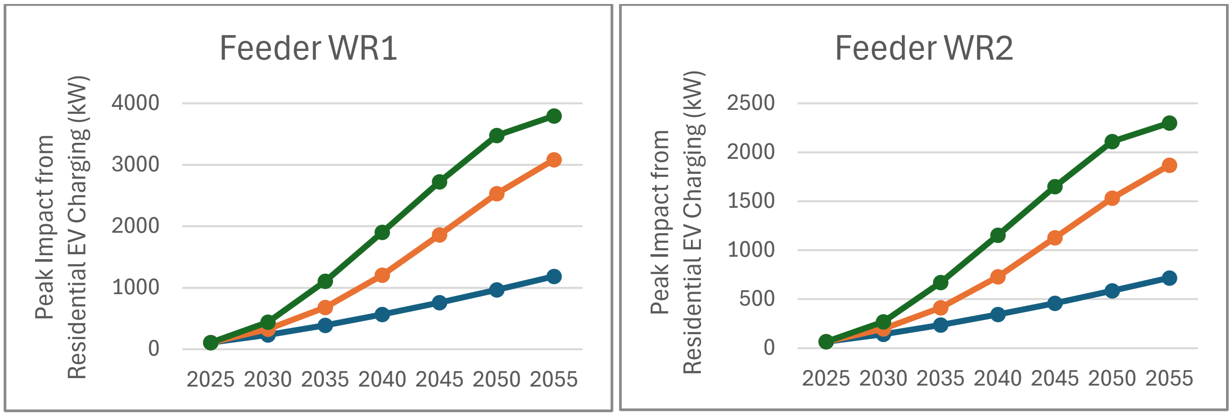


Figure 4-13: Feeder Impacts

The results of this analysis suggest that despite the relatively low impact from residential EV charging per vehicle, as adoption increases there will be significant peak load increase on Los Alamos feeders. Feeders which currently have more capacity available will be better positioned to support this forecasted load increase from electrification. Feeders which are currently peaking near their existing capacity will require upgrades sooner to meet the load requirements.

This analysis is based on current charging behaviors that have been observed in an unmanaged charging scenario. Many utilities are developing new ways to manage residential EV charging load using rate incentives and controlled charging deployments, including smart charging. These managed charging solutions would influence charging behaviors by encouraging EV owners to shift charging off-peak using financial incentive to lower their electricity bills. While some of these load management deployments remain in the theoretical or pilot stages, they provide a promising opportunity to flatten the peak from residential EV charging. Implementation of charge management, such as time-of-use rates and demand charges proposed for Los Alamos, could decrease the forecasted grid impact from residential EV charging.

This analysis produced a baseline grid impact based on charging behaviors, available technology, and impacts from residential EV charging that have been experienced to date. The following sensitivity analysis (in process) will test the underlying assumptions used in these projections and will measure how the outputs are affected. Sensitivity analysis is an important step in forecasting EV adoption as the results can be impacted by a number of variables, including economic indicators, regulatory incentives, and technology developments. Key topics to be explored in the sensitivity analysis include:

- Diversity in charging behavior
- Change in vehicle efficiency over time
- Development of charging technologies

4.5.6 Distribution System Electrification Study for the County

The Distribution System Electrification Study developed by 1898 & Co. for the County evaluated the long-term impacts of transportation electrification on the DPU electric system.[33] The study modeled the same three scenarios of EV adoption alongside building electrification and distributed energy resources to assess potential load growth, peak demand shifts, and infrastructure needs through 2055. The subsections below highlight the most relevant findings and recommendations that have a direct correlation to the at-home charging scenario and overall electrification in the County.

4.5.6.1 Load Growth and Peak Demand

The study projects that EV adoption will be one of the most significant drivers of load growth in the coming decades. Under the most aggressive scenario, which assumes full electrification of vehicles and buildings, the system's peak load could increase by 20.6 MW by 2040 and 43.5 MW by 2055, approximately a 200% increase over current peak demand. Even the most conservative scenarios project an increase of 3.7 MW by 2040 and 13.1 MW by 2055 (a 60% increase). The moderate, policy-aligned scenario anticipates a 7.4 MW increase by 2040 and 27.1 MW by 2055.

The study also found that charging behaviour will heavily influence grid impacts. Approximately 30% of drivers are expected to charge their EVs immediately upon returning home, while 40% are likely to use scheduled charging during off-peak hours, and 30% will rely on slower Level 1 charging, creating extended overnight demand. With 80% of drivers expected to charge at home, unmanaged charging could contribute to new early-morning and evening peaks.

4.5.6.2 Demand Management Opportunities

The study emphasizes that demand-side management programs will be essential to mitigate peak impacts and defer costly infrastructure upgrades. Recommended strategies include:

- Time-of-Use (TOU) rates to shift charging to off-peak periods.
- Direct load control programs for EVs, space heating, and water heating to reduce peak demand during critical periods.
- Managed EV charging programs leveraging smart chargers and historical charging data to optimize charging schedules.

These measures, paired with customer education and incentives, can reduce coincident demand and improve grid efficiency.

[33] https://losalamos.legistar.com/View.ashx?M=F&ID=14496764&GUID=999F05B0-8798-483C-880C-80D2CD4E7341

4.5.6.3 Grid Modernization

The study further identifies grid modernization strategies to support system reliability and flexibility. Near-term priorities include distribution-scale battery energy storage to manage peaks, mobile BESS resource for emergency support, and deployment of automated circuit breakers and smart switches to maintain reliability as electrification expands.

4.6 County-Owned Charging Scenario

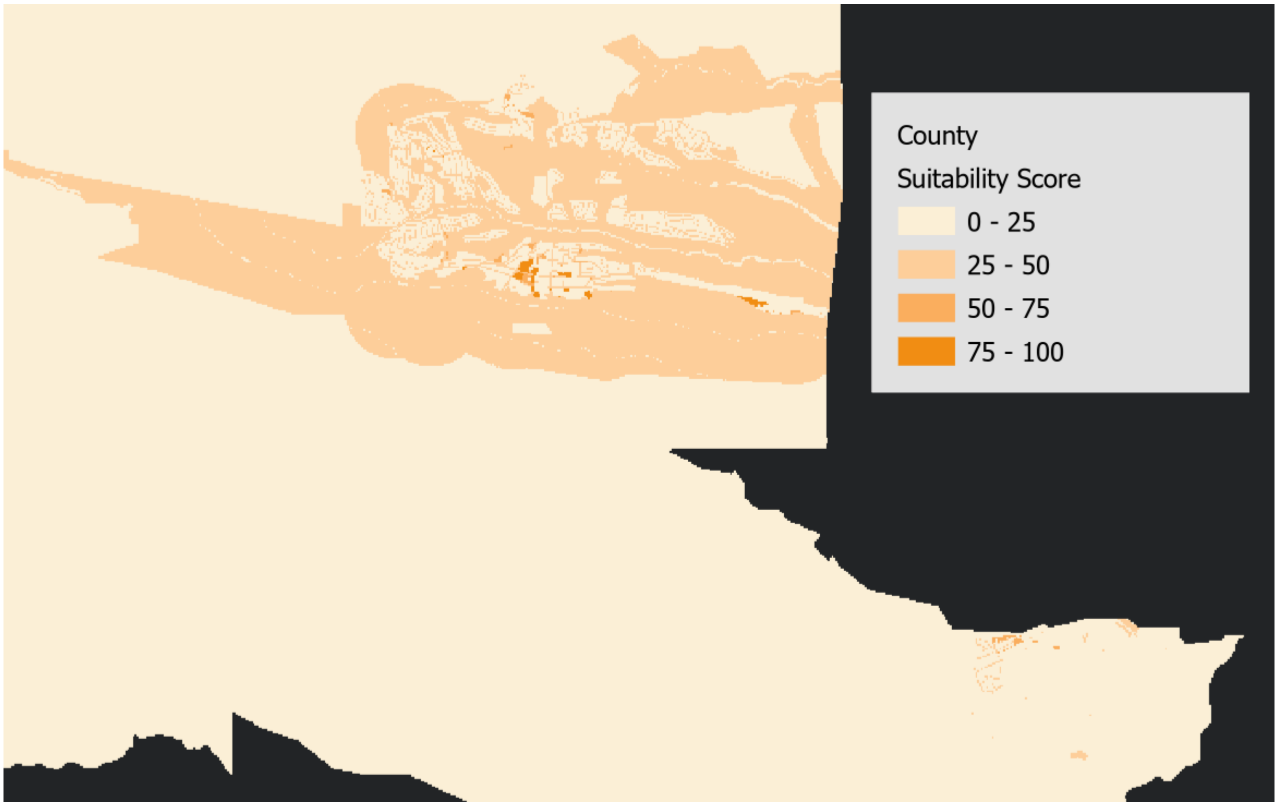
County-owned properties provide the strongest opportunities for implementing new charging infrastructure. As shown in the suitability analysis (Figure 4-16), areas coded in **dark orange** represent the highest potential for siting chargers on County-controlled land. These areas align closely with the County's civic and community cores, where land use density, EV travel patterns, and community activity levels are highest.

Key observations from the analysis include:

- **Central Civic Core (Dark Orange)** – The downtown area surrounding Mesa Public Library, Municipal Building, Justice Center, and Ashley Pond Park emerged as the most suitable zone for County-owned charging. This reflects a combination of high land-use density, major community destinations, and existing County control, which simplifies siting and reduces acquisition barriers.
- **Transportation Corridors (Medium Orange)** – Secondary opportunity areas extend along State Road 502 and major approaches into Los Alamos. While not as centrally active as the civic core, these locations are strategically positioned to support regional EV travel and provide redundancy for local charging capacity.

Outlying County Land (Light Orange) – Much of the County's peripheral land holdings scored lower for near-term charging investment. These areas are characterized by low activity levels, limited demand, or environmental constraints, making them less suitable for initial deployment.

Figure 4-14: County Owned Charging Map



4.7 Privately-Owned, Publicly Accessible Charging Scenario

This assessment identifies optimal locations for privately owned, publicly accessible Level 2 EV charging stations using a weighted multi-layer approach. The suitability map highlights areas in red as most favorable (up to a score of 100), with blue indicating low suitability.

Key Takeaways:

Residential and Mixed-Use Communities Lead Suitability:

- The highest scoring areas are concentrated in multi-family residential zones, manufactured home communities, and mixed-use developments.
- These land use types received strong positive weights: Mixed-Use and Downtown Los Alamos (100), Multi-Family Residential High (50), and Medium/Low/Manufactured (25). These weights reflect their potential for shared charging access and higher EV adoption rates.
- These zones also benefit from population density proximity (weighted at 50), reinforcing their suitability for shared infrastructure.

Downtown Los Alamos and White Rock Town Center:

- These mixed-use hubs stand out as prime candidates for Level 2 charging due to their blend of residential, commercial, and institutional land uses.
- Their centrality and accessibility make them ideal for serving both residents and visitors.

Institutional and Office Zones:

- Areas designated as Institutional (100) and Professional Office (75) also show elevated suitability, offering opportunities for workplace charging and public access during off-hours.

Supporting Conditions:

Exclusion Layers:

- As with other scenarios, unsuitable areas such as wetlands, flood zones, and passive open space are excluded to ensure environmental and operational viability.

Figure 4-15: Shared L2 Charging Suitability Map

4.8 Fast Charging Scenario

This DCFC suitability analysis for the County was generated using the ZEVDecide tool, incorporating a weighted multi-layer approach to identify optimal locations for fast-charging infrastructure. The model integrates land use, ownership, demographics, existing infrastructure, and environmental constraints to produce a spatial suitability score.

Key Highlights:

Main Corridor of NM-502:

- The 502 corridor emerges as a primary zone of high suitability, prominently highlighted in yellow on the map.

- This corridor connects key residential and commercial areas, and benefits from high EV traffic volumes (weighted at 100) and proximity to general commercial zones (also weighted at 100).
- The corridor's accessibility and infrastructure readiness make it a strategic location for DCFC deployment.

Sub-Communities Along NM-501:

- Several sub-communities branching off 501 also show elevated suitability scores.
- These areas are characterized by multi-family residential zones, manufactured home communities, and mixed-use centers, all of which are positively weighted in the model.
- Their inclusion reflects a balance of residential density and land use compatibility, supporting equitable access to charging infrastructure.

Weighted Conditions Driving Suitability:

Land Use and Ownership:

- High suitability is driven by zones designated for multi-family residential, general commercial, and mixed-use development, with weights ranging from 25 to 100.
- County-owned and private lands are considered, while exempt federal lands and wetlands are excluded.

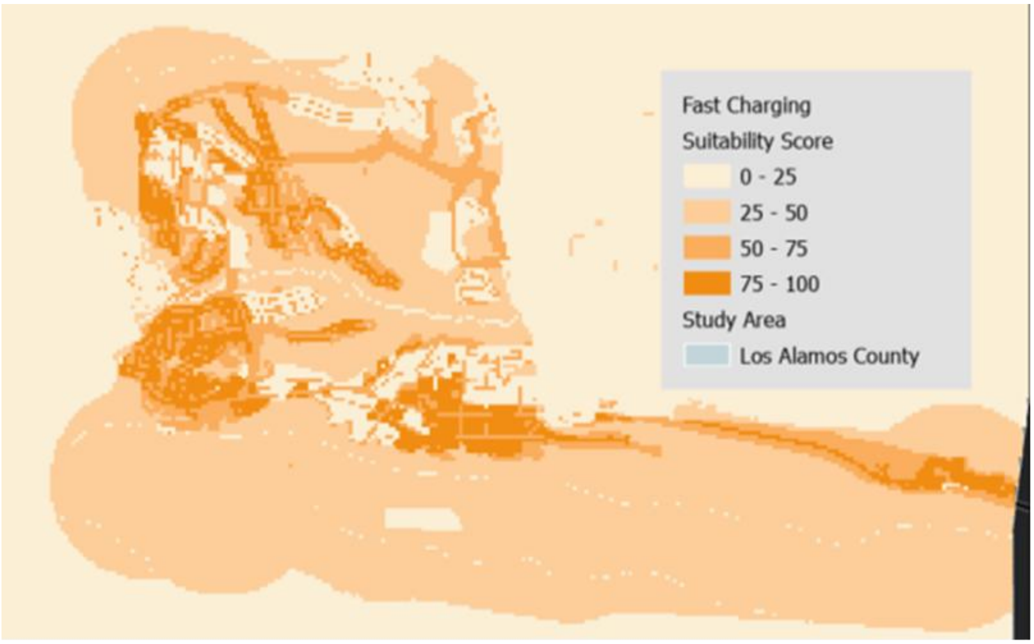
Demographics and Infrastructure:

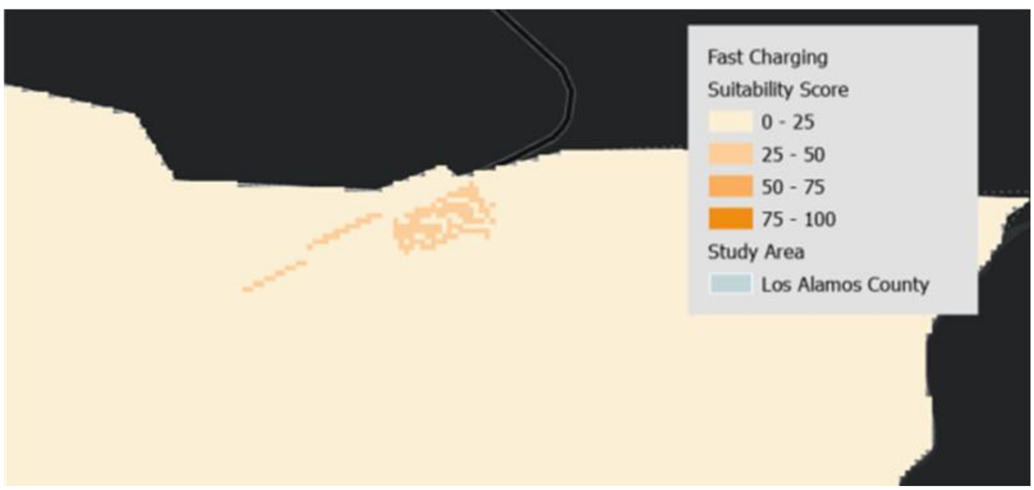
- Population density proximity (weighted at 50) and Environmental Justice Index help prioritize areas with higher residential demand and equity considerations.
- Existing charging infrastructure is negatively weighted (-50) to avoid redundancy.
- Parking lots (50) and feeder capacity support practical deployment feasibility.

Exclusion Layers:

- Areas with high flood risk, wetlands, and passive open space are excluded to ensure long-term viability and environmental compliance.

Figure 4-16: DCFC Suitability Map





5 Implementation Recommendations for County Infrastructure Readiness Plan

Successful deployment of EV charging infrastructure will depend not only on identifying suitable locations but also on clarifying who develops, owns, and operates each site, and how the County can structure partnerships and incentives to ensure long-term sustainability. This section outlines potential business models, draws lessons from peer communities, and recommends an implementation approach that balances County leadership with private-sector participation.

5.1 Common Partnership/Business Models

The deployment of public EV charging infrastructure requires clear decisions around ownership, operations, and risk-sharing responsibilities. Different business models offer varying levels of public and private involvement, ranging from full municipal control to third-party ownership or turnkey solutions.

For the County, the key question is not which model is "best", but rather what role the County wants to play in charging infrastructure delivery. The models outlined in the tables below provide examples of common approaches used in similar communities. The County can adapt or combine these approaches to align with its goals, resources, and risk tolerance.

Table 5-1: Site Host Owner-Operator

Description	The property owner (e.g., County, private business) purchases equipment, installs it, and retains full responsibility for operations and maintenance.
Benefits	Long-term control over service quality; all revenue retained by site host.
Limitations	High upfront capital costs; site host assumes all risks and responsibilities.

Table 5-2: Utility Ownership / Subsidy

Description	The utility provides "make-ready" infrastructure upgrades (e.g., panels, wiring) or, in some cases, owns and operate charging infrastructure.
Benefits	Lower upfront costs; utility shares risks for maintenance and utilization.
Limitations	Less local control over service quality and pricing.

Table 5-3: Third-Party Owner-Operator

Description	The site host contracts with a third party to manage some or all aspects of ownership, operations, and billing. In some cases, rental income may flow back to the site host.
Benefits	Transfers risk and responsibilities to the third party; potential for rental income.
Limitations	Less control over service quality; some or all revenue goes to the third party.

Table 5-4: Infrastructure / Charging-as-a-Service

Description	A third party provides a turnkey solution, covering upfront capital costs and equipment ownership in exchange for a monthly fee from the site host.
Benefits	Low to no capital costs; most risks transferred to the third party; flexible service options.
Limitations	Higher long-term costs; limited control over service quality.

Table 5-5: Town / Contractor Hybrid

Description	A hybrid approach in which the County retains ownership of equipment and sets pricing, while contractors handle installation, operations, and billing.
Benefits	Maintains County control over core policy areas (pricing, permitting, enforcement) while outsourcing technical and operational functions.
Limitations	Requires careful contract management to ensure reliable service.

Each of these models has trade-offs in terms of cost, control, and risk. The County has flexibility to determine its desired level of involvement. It will be important to confirm early in the planning process what role the County wants to play in charging infrastructure ownership and management, and to secure buy-in from leadership on this role. Once that decision is made, the County can adapt these models, or combine aspects of them, to guide procurement and partnership decisions moving forward.

5.2 What Others Are Doing

New Mexico communities are taking a variety of approaches to expanding public EV charging infrastructure. While each jurisdiction operates within its own local context and capacity, several consistent themes have emerged: leveraging state and federal funding, aligning with broader sustainability and mobility goals, prioritizing equity and accessibility, and forming partnerships with utilities and private charging providers. Los Alamos County has historically not qualified for many of these grants under Justice 40 Criteria. The following examples illustrate current implementation models that can inform the County's approach.

5.2.1 Santa Fe County

Santa Fe County is among the state's leaders in expanding public EV infrastructure. The County recently received approximately $3.3 million in federal grant funding to construct a network of 33 fast and Level 2 chargers across 13 sites. These sites were selected with an emphasis on serving multifamily and affordable housing developments, as well as public destinations such as libraries and community centers.

In addition to infrastructure investment, Santa Fe County launched an EV car-share pilot program in partnership with housing providers and private operators. This program introduces shared EVs for residents of public housing and the general public, integrating on-site charging access at the housing complexes. The initiative combines emissions reduction goals with transportation equity, providing lower-income residents affordable access to EVs without requiring private vehicle ownership.

Santa Fe County's approach emphasizes equitable access and integrated planning. The County has focused on installing chargers at multifamily and affordable housing sites, ensuring that residents without access to private parking can still benefit from EV infrastructure. In tandem, it has incorporated mobility services such as EV car-share programs, allowing more residents to experience electric vehicles without the need for ownership. These efforts are supported through the strategic use of federal grants and public-private partnerships, which help reduce local implementation costs. Overall, the County's program is grounded in equity-driven siting and proactive community outreach, ensuring that investments in charging infrastructure serve the broadest possible range of residents.

5.2.2 City of Albuquerque

The City of Albuquerque has pursued a municipal-led strategy focused on public visibility and accessibility. In 2024, the City unveiled 18 new public charging stations with funding from the New Mexico Volkswagen Settlement Fund, effectively doubling the number of publicly available chargers citywide. The stations were installed at libraries, community centers, and parks, complementing the city's Climate Action Plan goals and its Green Vehicle Permit program, which offers free parking for qualifying low-emission vehicles.

Albuquerque's approach demonstrates how cities can act as "anchor hosts," using municipal land to lead deployment, create user awareness, and demonstrate best practices for charger siting, pricing, and maintenance.

Municipal strategies for electric vehicle infrastructure in Albuquerque focus on ownership or facilitation of visible, publicly accessible charging stations, leveraging settlement and state incentive funds to support deployment. These efforts are coordinated with broader climate and clean transportation goals and emphasize public communication and education to ensure awareness and engagement.

5.2.3 City of Santa Fe

The City of Santa Fe has integrated EV infrastructure into multiple planning documents, including its Sustainable Santa Fe Plan and 25-Year Infrastructure Plan. The City aims to ensure that all residents are within five miles of a public EV charging station and has incentivized installation through parking and development standards. Santa Fe's strategy reflects a long-term view of EV readiness, emphasizing policy integration and private-sector participation rather than direct municipal ownership of all charging assets.

Santa Fe's approach to electric vehicle infrastructure is policy-driven and embedded within long-range planning, integrating EV readiness into zoning, parking, and building codes. The strategy emphasizes encouragement of private investment and the development of distributed charging infrastructure, rather than relying solely on direct municipal ownership of all assets.

5.2.4 City of Las Cruces

Las Cruces has adopted a utility-partnership model in coordination with El Paso Electric (EPE) to install both municipal and commercial charging stations. Through EPE's "EV Charging Program," rebates are offered for public and workplace chargers, helping to lower installation costs for site hosts. The City also participates in EPE's Time-of-Day rate pilots, which test dynamic pricing structures for EV charging and help evaluate impacts on grid demand. The Los Alamos County Utility Charter and Anti Donation Clause prohibit the County from these kinds of programs.

Las Cruces emphasizes strong coordination with EPE to support planning and incentives for EV infrastructure. The City leverages rebates to encourage deployment of private and workplace chargers and participates in pilot projects that test rate structures and assess impacts on the electrical grid, highlighting the value of utility partnership in long-term charging network management.

5.2.5 Lessons for the County

Across these jurisdictions, several consistent strategies have proven effective and scalable:

Table 5-6: Jurisdiction Strategies

Strategy	Example	Relevance
Anchor Municipal Installations	Albuquerque, Santa Fe	Use visible public sites to lead by example and establish standards
Targeted Deployment at Multi-Family/Affordable Housing	Santa Fe County	Addresses equity and access gaps for residents without home charging
Corridor Connectivity and Regional Coordination	NMDOT	Supports visitor travel and inter-county access; complements local staples
Public-Private Partnerships	NMDOT, Las Cruces	Reduces capital costs, brings technical expertise to operations

Together, these efforts provide a strong foundation for statewide EV readiness and offer models for the County's own implementation strategy. By combining elements of each—municipal leadership, equity-based siting, corridor connectivity, and public-private partnerships—the County can position itself as a regional leader in accessible, reliable, and sustainable EV charging.

5.3 County Role in Implementation

The stated goal of this plan is to support the increase of charging options in the County. The installation of publicly-available, county-owned chargers plays a significant role in the recommended approach. But another important consideration is how the County can incentivize the installation of privately-owned chargers, both publicly available and privately available. The following sections explore recommendations for both county-owned charger locations and high-impact privately-owned locations.

5.3.1 Recommended County-Owned Charger Implementation

The preliminary siting analysis identified a mix of highly relevant and supporting locations for County-owned chargers. The sites listed in Table 5-7 provide geographic coverage across downtown Los Alamos and White Rock, serve multiple trip purposes, and align with the County's land-use and power-distribution assets. Importantly, the quantities provided here correspond to a low- and medium-scale implementation scenario and the implementation relevance was evaluated based on the results from the suitability analysis as described in section 4.6.

Table 5-7: Recommended Charger Locations

Location	L2 Chargers	L3 Chargers	Anticipated Power[34]	Implementation Relevance	Phasing
Mesa Public Library		4 (In progress)	300 kW	Highly Relevant	Present Day
Municipal Building	12 (In progress)		99 kW	Highly Relevant	Present Day
White Rock Visitor Center	2 (Existing)		16.5 kW	Relevant	Present Day
White Rock Fire Department (Charging with Fleet Vehicles)	4		33 kW	Relevant	Present Day
Justice Center	12	8	699 kW	Highly Relevant	Near-Future & Phase 2
Los Alamos Senior Center	4		33 kW	Highly Relevant	Phase 1
Aquatic Center (Charging with Fleet Vehicles)	8		66 kW	Highly Relevant	Phase 1
Ice Rink (Charging with Fleet Vehicles)	8		66 kW	Relevant	Phase 1
Golf Course	6		49.5 kW	Relevant	Phase 1
Los Alamos Nature Center	2		16.5 kW	Highly Relevant	Phase 2
North Mesa Sports Complex	6		49.5 kW	Relevant	Phase 2

While the actual charger quantity, order of implementation, and location for the charging sites is up to the discretion of the County as well as available funding, the following phased approach is a suggested sequence of implementation that's aligned with the siting analysis results to incentivize and support the adoption of electric vehicles across the County.

If the county were to implement all the proposed chargers, the total power demand would be: 1,428 kW

[34] Level 2 Chargers are assumed to have a 16.5 kW capacity distributed between two plugs. Level 3 Chargers are assumed to have a 75 kW capacity.

Figure 5-1: Proposed County-Owned Charging Locations Map

5.3.1.1 **Present Day: Current Installations (In Progress)**

The first wave of charging infrastructure in Los Alamos is already underway, with installations at the Mesa Public Library and the Municipal Building. These projects are consistent with the County's long-term EV strategy and the findings of the suitability analysis, which mapped optimal areas for charging based on land use, travel patterns, environmental hazards such as flood zones, and land ownership.

- **Mesa Public Library** – Installation of 4 DCFC ports, partially funded by an NMDOT grant, is underway. The library emerged as a strong site in the suitability maps because of its central location within the downtown civic core, high level of community activity, and County-owned property status, which simplifies implementation. The DCFC ports will provide Los Alamos with a strong fast-charging backbone expected to meet countywide needs for many years.
- **Municipal Building –** Construction is also proceeding on 12 L2 ports at the County's primary government offices. The Municipal Building is a practical location for workplace and visitor charging, and its siting is consistent with the suitability analysis criteria: a high-activity civic facility, free of major environmental constraints, and located on secure, County-controlled land.

Together, these installations will deliver an immediate boost to local charging capacity, help normalize EV adoption in highly visible public locations, and establish a model for how future sites can align with the County's suitability framework.

5.3.1.2 Near-Future: Justice Center L2 Expansion

With these projects in progress, the next priority is the Justice Center, which serves as a key parking facility for both daily civic use and major public events. Its direct proximity to Ashley Pond Park and the many community gathering events held there makes it a natural high-use location where charging infrastructure will be both well-utilized and highly visible.

Proposed infrastructure includes 12 Level 2 ports, well-suited to the longer parking durations associated with event attendance and daily use. These can also be shared with the County fleet charging needs and LAPD vehicles, making this a dual-use investment. Installing chargers here not only supports transportation and sustainability goals but also reinforces charging as a civic amenity, integrated into spaces that contribute directly to community life. Some of these chargers at the Justice Center will be reserved only for Police use. In a later phase, this plan also proposes Level 3 ports at this location. By prioritizing the Justice Center, Los Alamos will build on the strong foundation of current deployments while extending infrastructure into one of the community's busiest and most prominent destinations. This ensures the charging network grows in a way that is both strategic and community-centered.

5.3.1.3 Phase 1: Community-Oriented L2 Deployment (Next Five Years)

Unlike DCFC, which is driven by system capacity needs, Level 2 (L2) charging is primarily about convenience and access. These chargers are most effective when placed at destinations where people already spend an hour or more, allowing vehicles to recharge naturally while drivers go about daily activities. The County's suitability analysis and stakeholder input both emphasized the importance of placing chargers at community amenities and recreational sites, where visibility is high and utilization will be steady but not dependent on long-distance travel demand.

Based on these criteria, three facilities stand out for near-term investment over the next five years:

- **Los Alamos Senior Center – 4 L2 Ports**
  The Senior Center's central location and many popular programs make it a very strong location for shared L2 charging.
- **Aquatic Center – 8 L2 ports**
  As a year-round, high-traffic destination, the Aquatic Center is one of the most practical sites for L2 charging. Swimmers, families, and event participants typically spend long stretches of time at the facility, making charging both convenient and likely to be well-utilized. Hikers and bikers also park here to utilize the nearby trails.
- **Ice Rink – 8 L2 ports**
  The Ice Rink is a seasonal draw but sees concentrated usage during events and practices, when drivers often remain parked for extended periods. A popular hiking/biking trailhead is also located here. Charging here provides a clear amenity for families and visitors, while also reinforcing EV visibility in a recreational setting.
- **Golf Course – 6 L2 ports**
  Golf outings typically last several hours, creating a natural fit for L2 charging. Installing ports here supports both community recreation and tourism, while leveraging the County's existing land ownership to simplify implementation.

Together, these sites create a network of **high-visibility, high-dwell-time charging locations** across the community. Because they host year-round activity and attract a broad range of users, they will provide meaningful charging opportunities without requiring additional DCFC investment. The County should also continue to collaborate with local schools to install chargers in those areas.

By advancing these installations in the next five years, Los Alamos will strengthen public confidence in the charging network, expand geographic coverage, and normalize EV charging as an expected feature of community facilities.

5.3.1.4 Phase 2: Medium-Term Expansion (5–10 Years)

As EV adoption increases and charging demand grows beyond the near-term projects, additional L2 charging should be introduced at schools, recreational facilities, and cultural destinations. These sites are not only important because of the dwell times they support, but also because they expand geographic coverage and equity, ensuring that residents across Los Alamos have access to reliable charging options in the places they frequent most.

The following locations are recommended for implementation in the 5–10 year timeframe:

- **Justice Center - 8 DCFC ports**
  In addition to the L2 chargers deployed in the near-term, DCFC ports are also recommended at the Justice Center. The Justice Center is in close proximity to Ashley Pond Park which is also central to the city. People using the park for events would be able to use the chargers and people traveling to the city for tourism would have a location that was easily accessible. Because the location happened to be at the justice center, the county could access the chargers as well. It is recommended that at least one of these chargers be reserved for police use only.

- **Los Alamos Nature Center – 2 L2 ports**
  The Nature Center is a popular destination for school field trips, local families, and eco-tourism. Even a modest installation here provides both functional benefit and symbolic alignment with the County's sustainability values. Existing L2 chargers here are a draw for tourists and are highly utilized by visitors and residents alike.
- **North Mesa Sports Complex – 6 L2 ports**
  The Sports Complex hosts a wide range of athletic programs and tournaments, often involving multi-hour visits. Chargers here would be highly visible to both local families and visiting teams, positioning EV infrastructure as part of the County's community recreation system.
- **North Mesa Stables – 4 L2 ports**
  The stables are a unique recreational and cultural asset for Los Alamos. While they do not experience daily high traffic, the dwell times are long, and installing a small number of chargers would expand the reach of the network into an otherwise underserved area.

Collectively, these sites extend charging access into **sports, cultural, and nature-based destinations**, making EV infrastructure a familiar feature of daily community life. While not as urgent as the Phase 3 deployments, these medium-term projects will prepare the County for continued growth in EV ownership, ensure equitable distribution of infrastructure, and reinforce charging as a standard amenity across all types of public facilities. Additionally, the County can evaluate joined initiatives with the Los Alamos School District for the implementation of level 2 charging ports at Los Alamos High School and Barranca Mesa Elementary School to further support the charging infrastructure for employees and other members of the community.

5.3.1.5 Phase 3: DCFC Long-Term Strategy (10-15 years)

The County's near-term DCFC needs are already being addressed through the installation of four ports at the Mesa Public Library, which are expected to provide sufficient high-power charging capacity for at least the next 10–15 years. Projections indicate that this investment will serve both local drivers and regional visitors well into the next decade, especially when complemented by the planned buildout of Level 2 charging across community facilities.

Because DCFC stations require higher capital investment, more complex utility coordination, and careful siting to ensure efficient use, additional installations should be reserved for the long term. If monitoring data eventually indicates the need for more DCFC capacity, the County should focus siting on the edges of town rather than in the downtown core. This approach would:

- Support through-travelers and intercity connectivity, providing a logical stopping point for vehicles passing through Los Alamos.
- Reduce pressure on central parking areas like the Library and Justice Center, which are better suited to longer-duration L2 charging.
- Position the County to align with broader state and regional charging corridors, ensuring Los Alamos plays a role in connecting northern New Mexico to the wider EV network.

At present, no additional near-term DCFC investment is recommended. Instead, the County should continue to prioritize L2 deployment in high-use community facilities (Phases 3 and 4) while tracking utilization data from the Library chargers. This data-driven approach will allow Los Alamos to confidently determine when and where the next DCFC station should be installed, ensuring the system grows in line with both local demand and regional travel needs.

5.3.2 Incentivizing Non-County-Owned Charger Deployment

Los Alamos County should continue engaging with multifamily housing providers, private businesses, and school campuses as potential partners in EV charging, but the suitability analysis shows that the County already has enough high-quality public sites to meet near-term needs. Additional private installations can enhance convenience and fill localized gaps, yet the public network alone provides strong geographic coverage. Community feedback also highlighted a strong desire for charging at Smith's, underscoring opportunities for select high-visibility partnerships rather than broad private deployment. To support informed decision-making, the report includes maps projecting future EV utilization so that businesses, schools, and property managers can assess whether onsite charging aligns with their customer base or operational patterns. The County should encourage prospective partners to use these maps to ground any private investment in clear demand and a sustainable business model.

Because the public network is already robust, private installations are not required for the County to achieve its charging goals. Still, if private entities choose to install chargers as an amenity or strategic asset, the County can help ensure that these projects are feasible, cost-effective, and well-sited. Many site hosts face barriers such as uncertainty about electrical capacity, installation costs, and navigating incentives or permitting. Directing partners to the County's suitability and utilization maps can help illustrate where demand is strongest and whether a business case exists.

For those interested in moving forward, the County can connect site hosts to financial and technical resources. The Public Service Company of New Mexico's (PNM) Transportation Electrification programs offer rebates, make-ready infrastructure, and EV-specific rate options; federal tax credits and state-administered incentives can further reduce capital costs. Consolidating information and offering guidance will help private hosts take full advantage of these opportunities.

Clear permitting guidance and early coordination with PNM will streamline installation and minimize delays. Additional support from regional organizations such as Forth Mobility and the Electrification Coalition can provide technical assistance, example program models, and funding awareness. Through this focused combination of mapping tools, incentives, and process clarity, the County can support private partners who choose to participate while maintaining a charging network that remains strong and reliable based primarily on its public infrastructure.

Several locations were identified for optimal privately-owned chargers, based on the suitability analysis and public feedback.

Table 5-8: High Potential Privately-Owned Charging Locations

Location	L2 Chargers	L3 Chargers	Anticipated Power
Smith's Marketplace		2	150 kW

Los Alamos Medical Center	16		132 kW
Los Alamos High School	10		82.5 kW
Barranca Mesa Elementary School	10		82.5 kW
Wingate by Wyndham	5		41.25 kW
Holiday Inn Express	5		41.25 kW
North Mesa Stables	4		33 kW

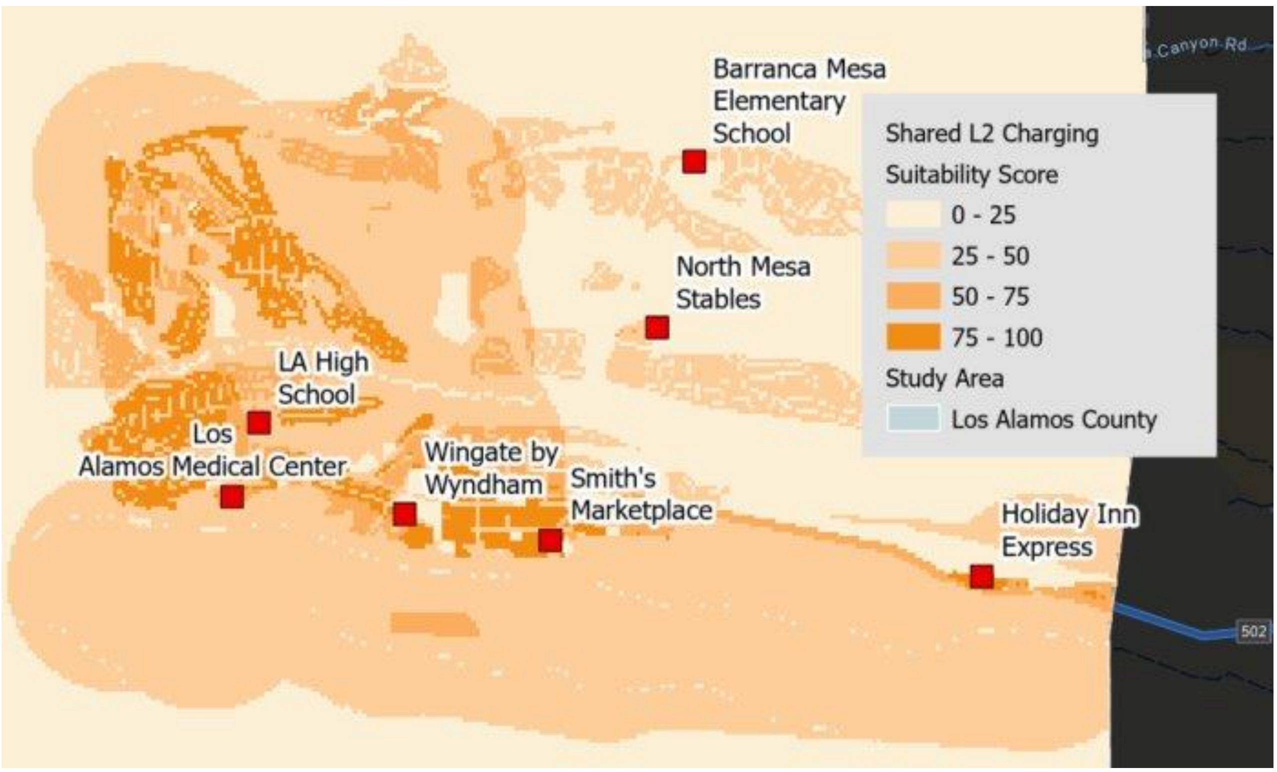


Figure 5-2: Recommended Privately-Owned Charger Locations Map

5.3.3 Projected 2050 Power Requirements

To provide Los Alamos County with a complete picture of future grid needs, this Public Charging Plan incorporates a coordinated approach with the companion Fleet Electrification and Charging Study. While the two studies were developed in parallel, each focuses on a different component of the County's EV landscape. This project included an integrated analysis of projected power demand across both fleet and public charging demand. In Figure X, we can see how total EV load accumulates across each feeder under multiple adoption scenarios. The consolidated view can be used to identify where grid updates may be needed, confirms where capacity is likely sufficient, and supports transparent and proactive planning between the County and the Utility.

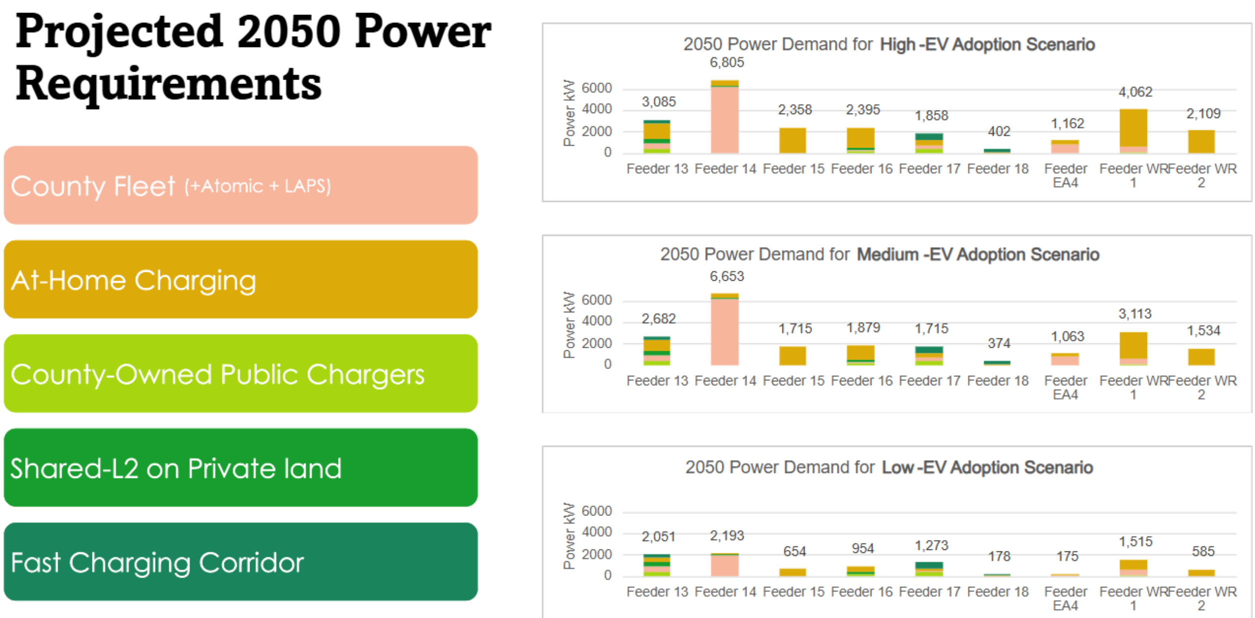


Figure 5-3: Projected 2050 Power Requirements

5.3.4 Procurement Considerations

The growing diversity of EV charging infrastructure equipment – along with the complexity of installation, operations, and maintenance – necessitates a proactive and flexible approach to procurement. To streamline implementation and ensure alignment with long-term electrification goals, the County may consider the following strategies:

- Review and Update Procurement Policies: Ensure that existing procurement policies explicitly support the purchase and installation of EVSE. Updates may be required or reflect evolving technology types, funding requirements or contractor qualifications.
- Develop Standardized RFP and Contract Templates: Creating dedicated templates for EVSE-related procurements can improve consistency, reduce administrative burden, and accelerate project delivery timelines. These should include performance specifications, warranty provisions, and data-sharing requirements.
- Engage the Private Sector Early: To clarify technical requirements and market capacity, the County can issue Requests for Information (RFI) to gather feedback from prospective vendors and service

providers prior to formal procurement. This early engagement helps refine contract terms and identify feasible solutions.

- Pursue Regional Collaboration and Bulk Purchasing: Coordinating with other jurisdictions – such as Santa Fe and Alburquerque, both members of the Climate Mayors – can enable joint procurements, access to group purchasing programs, and shared technical standards. This approach can reduce per-unit costs and ensure regional interoperability.
- Leverage State-Level Procurement Support: according to New Mexico's NEVI Plan, the New Mexico Department of Transportation is collaborating with the State Purchasing Division at the General Services Department (GSD) to streamline EVSE acquisitions. This includes identifying pre-qualified service providers and station owners, enabling municipalities to access vetted options through state-led processes.

By adopting these strategies, the County can reduce project lead times, enhance cost-effectiveness, and ensure alignment with both regional and state-level EV infrastructure deployment goals.

5.4 Financial Considerations

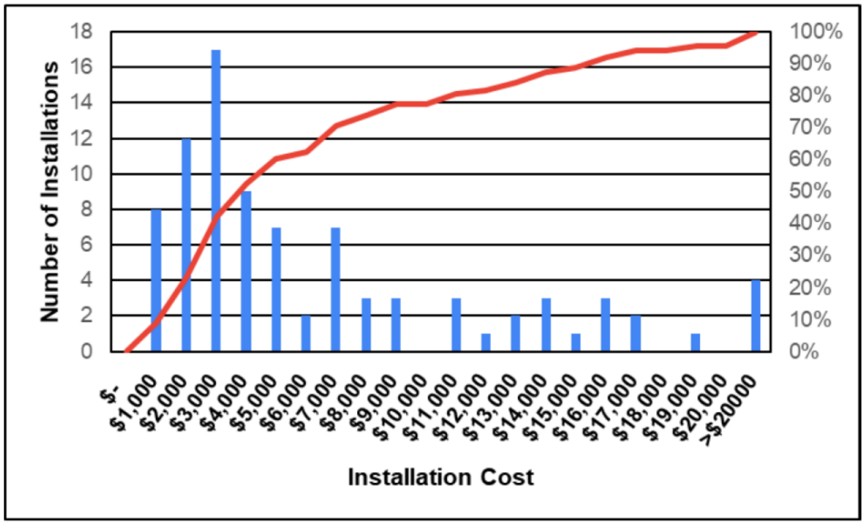
5.4.1 Financial Analysis Tool for County Owned Chargers

A financial tool was developed for the county to serve as a framework for understanding the financial metrics around deployment and operation of L2 and DCFC stations. This tool is embedded within an Microsoft Excel file and will be provided to the county as a standalone deliverable. The model is specified with generic data inputs (resulting in a model we refer to as the *Generic Model*), as identified through review of the relevant and recent literature. However, these generic data inputs may differ, perhaps substantially, from actual costs and revenues that may be recognized by the county. One key finding from the literature review is that cost estimates to install chargers (inclusive of any electrical infrastructure upgrades) along with site preparation work can vary substantially depending on highly localized and specific contextual factors. Costs to operate chargers also vary locally, but generally to lesser extents.

Importantly, the tool is mant to be user-adjustable such that quantitative input values can be varied by the county as newer and more refined information becomes available to update the Generic Model.

An example of the wide range in input values is evidenced in a figure from Idaho National Lab's 2022 report entitled, *Breakdown of EVSE Installation Costs* (INL 2022) (Figure 5-4). This figure shows a range of costs associated with installation of a single commercial charger between $1,000 and >$200,000 per single charger. Each blue bar shows the number of installations that fell within each cost range, and the red line adds those costs from left to right, showing what share of all installations are accounted for up to each cost. While approximately 50% of installations surveyed cost $4,000 or less each (installation only, not inclusive of charger purchase), approximately 10% of charger installations was above $15,000 each. According to Idaho National Lab's data, key determinants of cost differences across installations was found to be whether trenching through concrete/pavement was necessary, nature of required upgrades to electrical infrastructure, the physical distance to the connecting power source, magnitude of permitting costs, and duration of installation period.

Figure 5-4: Breakdown of EVSE Installation Costs



5.4.1.1 Tool and Inputs Overview

The financial model tool is included as an Appendix. It is intended as an updateable, maintainable, and user-friendly tool for the County with an intuitive interface. Users are able to modify any of the 15 key inputs, all featured on the tab, '*Assumptions*'. Results are displayed on tabs *UE_1* (L2), *UE_2* (L3 chargers), and *Dashboard.* Results are intended to estimate the representative annual costs and annual revenues as well as their cumulative totals over time for a single charger of each type.

See the tool for a complete overview of the Financial outcomes.

Pre-loaded Scenarios

The current pre-loaded scenarios are meant as representations of costs for L2 and DCFC chargers. As previously noted, inputs can vary dramatically especially for capital costs. Where precise local data were not available, we specified values that aimed for central tendencies in the literature.

Where possible, input data local to Los Alamos County was used including electric utility costs (both per kWh volumetric costs and demand-based per kW costs) from Los Alamos Department of Public Utilities[35]. Similarly, the expected revenue per kWh charged for L2 and DCFC were also both determined from Los Alamos DPU.

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[35] https://www.losalamosnm.us/Services/Public-Utilities/Rates-and-Fees

Scenarios Inputs

Two tables below describe key inputs for each charging model (L2 and DCFC), their assigned value in the generic model and the relevant source for that value.

Table 5-9: L2 Model Inputs

Variable Type	Variable Name	Value	Source
Basic Assumptions	Number of Chargers per Install	4	1
Basic Assumptions	Charger Capacity (kW)	7.2	1
One Time Costs	Charger Purchase & Install	$6,000	2
One Time Costs	Site Prep	$8,000	2
One Time Costs	Regulatory Fee/Hookup	$150	3
Recurring Costs	Annual Swipe Fees, Network Fees, Data Fees (% of revenue)	0.15	4
Recurring Costs	Annual Warranty Costs ($/Year)	$80	4
Recurring Costs	Annual Maintenance ($/Year)	$30	4
Electricity Costs	Avg Utilization	8%	5,6
Electricity Costs	Volumetric Electricity Rate ($/kWh)	$0.148	7
Electricity Costs	Meter Fee ($/Month)	$25.18	7
Charging Revenue	EV Charging Fee ($/kWh)	$0.23	7

Table 5-10: DCFC Model Inputs

Variable Type	Variable Name	Value	Source
Basic Assumptions	Number of Chargers per Install	2	1
Basic Assumptions	Max Simultaneous Vehicles Charging	1.2	1
Basic Assumptions	Charger Capacity (kW)	150	
One Time Costs	Charger Purchase & Install	$200,000	2
One Time Costs	Site Prep	$80,000	2
One Time Costs	Regulatory Fee/Hookup	$10,000	3
Recurring Costs	Annual Swipe Fees, Network Fees, Data Fees (% of revenue)	0.15	4
Recurring Costs	Annual Warranty Costs ($/Year)	$600	4
Recurring Costs	Annual Maintenance ($/Year)	$80	4
Electricity Costs	Avg Utilization	2.5%	5,6
Electricity Costs	Volumetric Electricity Rate ($/kWh)	$0.148	7
Electricity Costs	Demand Electricity Rate ($kW/mo)	$13	
Electricity Costs	Meter Fee ($/Month)	$25.18	7
Charging Revenue	EV Charging Fee ($/kWh)	$0.58	7

Example of Financial Model Results

Results from the Generic model show that cumulative cash flow is negative at both the 10-year and 15-year project life for this model for both the L2 and DCFC models.

As mentioned, the intent of this Financial Analysis tool is for the County to forecast the capital and operational cost of charger installation with a model that is easy to update for any future charger implementation project with the specific inputs and project-specific characteristics like charging equipment quotes, cost estimates from construction firms, updated energy cost, or new rate structures.

5.4.2 Outside Funding Opportunities

To advance the County's public charging network while minimizing reliance on local funds, the County can pursue a variety of federal, state, and utility-based programs that support both the installation and long-term operation of EV charging infrastructure. While most funding sources focus on capital costs such as equipment procurement, site preparation, and electrical upgrades, sustainable operation and maintenance (O&M) will also require dedicated planning, partnerships, and reinvestment of user fees. The County's external funding strategy should therefore emphasize readiness, cost-sharing, and coordination with state and regional partners to maximize available resources.

At the federal level, the NEVI Formula Program and the Charging and Fueling Infrastructure (CFI) Grant Program remain the primary funding mechanisms for large-scale public charging deployment. Both programs are administered through the Federal Highway Administration and prioritize publicly accessible chargers located along key corridors or at community destinations. NEVI funds flow through the New Mexico Department of Transportation (NMDOT), and the County should align proposed charging sites with the State's approved NEVI Deployment Plan to ensure eligibility. The CFI Program, while highly competitive and intermittently released, can provide up to 80 percent federal cost share for chargers in community hubs, multifamily areas, or visitor destinations.

Additional opportunities exist through the U.S. Department of Energy's Vehicle Technologies Office (VTO), which issues periodic Funding Opportunity Announcements (FOAs) that support grid planning, smart-charging demonstrations, and workforce development. Similarly, the U.S. Department of Agriculture's Rural Energy and Rural Business programs can fund charger installations and make-ready work in rural contexts or for small utilities. These programs are particularly relevant for Los Alamos given its smaller geographic scale and proximity to rural communities, especially when projects integrate solar energy or grid-resilience components.

At the state level, New Mexico's Electric Vehicle Program, administered by NMDOT, provides grants for commercial-grade DC fast-charging stations and related site work. This program currently accepts applications through October 31, 2025, with priority given to projects that are construction-ready and expand access in underserved areas. The New Mexico Environment Department's Volkswagen Mitigation Trust Program offers additional rounds of competitive funding for fleet electrification and associated charging infrastructure, making it a strong option for County fleet or shuttle-related charging projects. The Clean Car and Charging Equipment Tax Credit and the Sustainable Building Tax Credit administered by the Energy, Minerals and Natural Resources Department (EMNRD) can further offset installation costs for both residential and commercial charging equipment.

Local utilities also play a significant role in supporting charging deployment. The PNM offers a suite of Transportation Electrification incentives, including rebates for residential and commercial charger installation, make-ready infrastructure, and special EV rate programs. Early coordination with PNM will be critical to identify available rebates, confirm grid capacity, and explore opportunities to stack local utility incentives with state or federal funding sources.

In developing its external funding strategy, the County should pursue a layered approach that combines grant funding, tax incentives, and private-sector participation to ensure long-term financial sustainability. Capital-focused grant awards can cover the initial cost of hardware, installation, and site preparation, while ongoing maintenance and network fees can be recovered through user fees, municipal budget allocations, or service-provider agreements. Because most competitive programs require applicants to demonstrate an operational plan and the ability to sustain chargers beyond the grant term, the County should document clear O&M responsibilities, including maintenance contracts, estimated energy costs, and anticipated revenue from charger use.

To maximize competitiveness, projects should be framed around priorities shared by major funders—namely, expanding access in underserved or rural communities, improving corridor connectivity, and supporting equitable, publicly accessible charging. Partnerships with local businesses, institutions, or fleet operators can strengthen applications by demonstrating private cost share and cross-sector collaboration. In parallel, Los Alamos should maintain ongoing coordination with NMDOT to ensure that County priorities are reflected in future updates to the State's NEVI and EV infrastructure deployment plans.

By leveraging this combination of federal, state, and utility funding opportunities, the County can accelerate the expansion of its public EV charging network, reduce local cost burdens, and establish a sustainable foundation for long-term maintenance and operations.

Program	What it funds (eligible uses)	Eligible applicants	Match / share (typical)
NMDOT – New Mexico Electric Vehicle Program	Purchase & installation of commercial-grade DC fast chargers (make-ready / site work for publicly accessible 24/7 DCFC).	State & local governments, counties, municipalities, tribal governments.	Match: None listed in the portal listing (but projects often show local contribution / cost transparency required).
NEVI Formula Program (state-administered)	Build NEVI-compliant corridor DCFC and associated make-ready infrastructure (state selects sites/awards).	State DOTs administer funds; local agencies partner with state.	Federal formula funds to states (state allocation); typically supports up to full NEVI-eligible capital; local matching varies by state guidance.
Charging & Fueling Infrastructure (CFI) — FHWA (Discretionary)	Publicly accessible Level-2 and DCFC, hydrogen/other alternative fueling (community & corridor tracks).	States, local governments, tribes, transit agencies, public/private partnerships.	Federal share up to ~80% (typical); cost share usually required.
U.S. Department of Energy — Vehicle Technologies Office (VTO) NOFOs / VTO funding	R&D, demonstrations and deployments that can include grid-planning for EVs, smart charging pilots, workforce development, and some deployment demos.	Universities, national labs, consortia, local governments in partnerships.	Varies by FOA; project-level (competitive).
USDA — Rural programs (REAP; Rural Business/Rural Economic Development)	EV charging in rural contexts (make-ready, solar+charger combos, loans/grants for rural utilities or small businesses, revolving loan funds).	Rural small businesses, agricultural producers, utilities, rural local governments.	Grants or loans vary (REAP grants historically up to ~25–50% depending on year & rules; some USDA grants may cover up to 55% or higher for certain programs).
New Mexico Volkswagen (VW) Mitigation Trust Program (NMED)	Diesel-to-ZEV replacements and supporting infrastructure in state priority categories (some grants have funded electric buses, shuttles, and related infrastructure).	State/local governments, school districts, transit agencies, fleets (per state guidance).	Varies by round; competitive.
New Mexico tax credits — Clean Car & Charging Unit / Sustainable Building Tax Credit (EMNRD)	State income tax credits for EV purchases and for qualifying EV charging equipment installation (residential & commercial).	Individuals, businesses (subject to program rules).	Tax credits (amounts vary; charging equipment credits exist alongside vehicle credits).
Local utility incentives — PNM Transportation Electrification (rebates & make-ready assistance)	Residential/commercial charger purchase & installation rebates; special EV rates and make-ready assistance.	PNM customers / businesses within utility territory.	Rebates: e.g., residential charger purchase up to $500, installation rebates up to $1,500; income-qualified top-ups also available.

6 Summary Recommendations

6.1 County-Owned Public Charging

The County should invest first in a small number of **high-impact, County-owned sites** that anchor the network and provide immediate value to residents and visitors. Key locations include the Municipal Building, Justice Center, Mesa Public Library, major parks, and select NM 502 corridor sites. These locations offer strong geographic coverage, reliable utilization, and clear visibility to the community.

Summary priorities:

- Install Level 2 chargers at civic and recreational destinations with predictable all-day parking.
- Add at least one DCFC along NM 502 to support regional travel and high-turnover users.
- Use ZEVDecide suitability results to phase deployment and coordinate early with DPU on capacity needs.
- Ensure all installations meet ADA requirements and use consistent equipment standards.

6.2 Privately-Owned Public Charging

The analysis shows that **County-owned sites alone are sufficient** to support EV adoption under all three modeled scenarios. In other words, additional privately owned public chargers are **not required** to meet projected demand or system load needs in the near term.

However, community engagement revealed a strong interest in charging at specific private locations including grocery stores, hotels, and medical facilities, indicating clear opportunities for high-visibility, convenience-focused charging amenities. The County can use the findings of this study, including the adoption scenarios and suitability maps, to **encourage and inform private-sector investment**, giving businesses confidence that EV adoption will continue to grow and that chargers could attract customers or support employees.

Any additional private charging development—while not necessary for EV readiness—would still improve **convenience, flexibility, and distribution** of charging across Los Alamos. Importantly, **the absence of private charging in the short term will not limit EV adoption**, but voluntary participation by businesses and schools can enhance the overall user experience and fill localized gaps.

Summary priorities:

- Share suitability maps and adoption scenarios with interested property owners to help make the business case.
- Highlight strong community desire for chargers at destinations such as Smith’s Marketplace, the medical center, hotels, and schools.
- Connect businesses and schools with utility, state, and federal incentives that can reduce installation cost and risk.
- Treat private charging as a community-supported enhancement—valuable, but not essential—to the County’s overall readiness.

6.3 Home Charging and Residential Grid Readiness

Since most charging will occur at home, the County and DPU should use the study’s **load projections** and **EV adoption scenarios** to prepare the distribution system for long-term growth.

Summary priorities:

- Use feeder-level forecasts to plan targeted upgrades in areas with high adoption potential.
- Promote incentives and permitting guidance for single-family and multifamily charging.
- Encourage managed charging and time-of-use pricing to reduce peak impacts.
- Support multifamily owners with clear resources and suitability insights so renters have reliable access.

Appendix A Survey Questions and Responses

Below is the fact sheet used to advertise the public workshop.

Below is the complete survey instrument as it appeared to respondents.

Los Alamos County Fleet Conversion Plan and Community-Wide EV Charging Plan

LOS ALAMOS

Los Alamos County recently kicked off an electric vehicle readiness study to evaluate where and how to build charging infrastructure to serve community needs. As part of our study, we are conducting outreach to Los Alamos County residents, workers, and visitors to learn more about your priorities for the project. This survey should take no more than 10 minutes to complete and will remain open until 11:59 PM on July 31st, 2025. For additional information about this project, please visit the County website: tinyurl.com/LosAlamosEVPlan.

Transportation Preferences and Car Access

1. How do you get around?

	Most of the time	Sometimes	Rarely	Never
Drive alone	○	○	○	○
Drive with others	○	○	○	○
Motorcycle or moped	○	○	○	○
Public transit	○	○	○	○
Walking	○	○	○	○
Bicycle or scooter	○	○	○	○

2. Do you have regular access to a car?

○ Yes

○ No, but someone in my household/family does

○ No

Thoughts About Buying an Electric or Plug-in Hybrid Vehicle

3. If you own a car, how is it powered? (If you own multiple cars, you may select all the options that apply)

- ☐ Gasoline/diesel
- ☐ Hybrid (e.g., Toyota Prius)
- ☐ Plug-in-hybrid (e.g., Chevrolet Volt)
- ☐ Battery electric (all electric; e.g., Nissan Leaf)
- ☐ Another alternative fuel (compressed natural gas, propane, hydrogen)
- ☐ Not applicable. I don't own a car.

4. Have you considered buying or leasing a battery electric or plug-in-hybrid vehicle?

- ○ I used to own one
- ○ I already own one
- ○ Yes, my next vehicle will be battery electric or plug-in-hybrid
- ○ Yes, but I have not yet made up my mind
- ○ No, but I am open to considering it
- ○ I have no interest in buying or leasing a battery electric or plug-in-hybrid vehicle

5. Please select your top 3 priorities in building a charging network for Los Alamos County.

Please select at most 3 options.

- [ ] Lowest possible cost to users to charge their vehicles
- [ ] Widespread availability throughout the County
- [ ] Reliable equipment
- [ ] Ease of use (e.g., convenient payment, apps and signage to find charging)
- [ ] Safety
- [ ] Concerns about the reliability of plug-in-hybrid and battery electric vehicles (e.g., battery lifespan, cold weather performance, etc.)
- [ ] Equitable access (e.g., low- and moderate-income communities, people without designated parking, healthcare and social service facilities
- [ ] Charger aesthetics
- [ ] Other

6. Where would EV charging stations be most helpful to you?

	Very helpful	Somewhat helpful	Not very helpful	Not helpful at all
At home in a (private) garage, driveway or parking space I own	○	○	○	○
At home in a shared parking space	○	○	○	○
At work or school	○	○	○	○
At shopping, dining, and entertainment destinations	○	○	○	○
Parks and recreation destinations	○	○	○	○
At fast charging stations along highway corridors	○	○	○	○
Somewhere else	○	○	○	○

7. Are there any specific places in Los Alamos County where you'd like to see charging stations? For this question you may use the linked map or provide comments below. https://tinyurl.com/LosAlamosEV

Enter your answer

8. Are there other steps, besides building charging infrastructure, the County could take to help people transition to electric vehicles?

Enter your answer

9. Do you have any other comments you'd like to share?

Enter your answer

Demographic Information

10. Which category(ies) describe you? Check all that apply.

- [ ] I live in Los Alamos County
- [ ] I work in Los Alamos County
- [ ] I am a student in Los Alamos County
- [ ] Prefer not to say

11. Which statement best describes your home?

- ◯ I own a single family home
- ◯ I own a residence in a multi-family building (e.g., duplex, quadplex, condominium)
- ◯ I rent a single family home
- ◯ I rent a residence in a multi-family building (e.g., apartment complex, duplex, condominium)
- ◯ Other

12. Which race best describes you? Select all that apply.

- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ White
- ☐ Prefer not to say

13. Are you of Hispanic, Latino, or Spanish origin?

- ◯ Yes
- ◯ No

14. How old are you?

- ◯ Under 18
- ◯ 19-25
- ◯ 26-34
- ◯ 35-54
- ◯ 55-64
- ◯ 65+
- ◯ Prefer not to say

15. What is your annual household income?

- ◯ Under $49,999
- ◯ $50,000-$99,999
- ◯ $100,000-$149,000
- ◯ $150,000-$199,999
- ◯ $200,000 and over
- ◯ Prefer not to say

16. If you would like to receive future updates about this project and upcoming opportunities to engage the project team, please provide your email address below.

Enter your answer

17. How would you rate the clarity and relevance of the questions in this survey on a scale from 1 to 10?

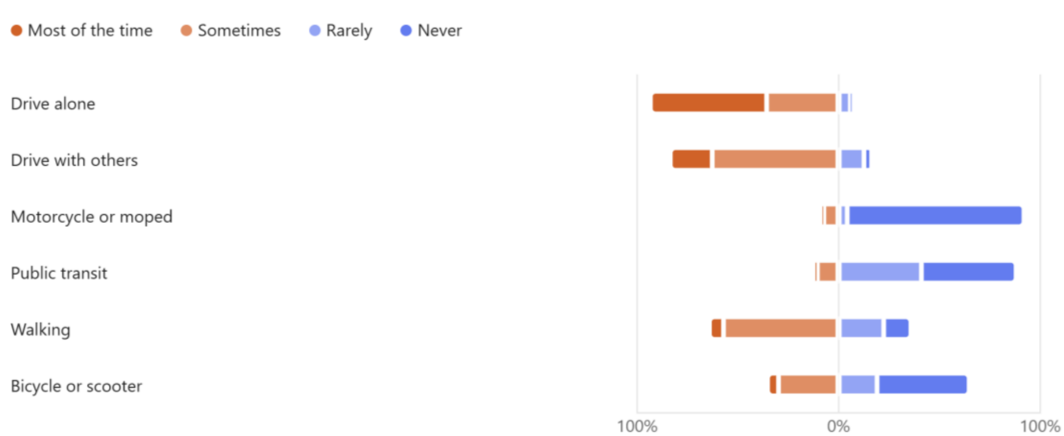
0	1	2	3	4	5	6	7	8	9	10

Poor and confusing — Clear and meaningful

Below is the full set of responses.

1. How do you get around?

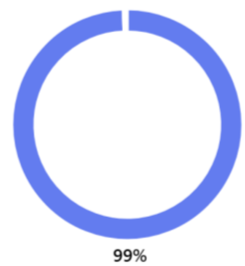
More details



2. Do you have regular access to a car?

More details

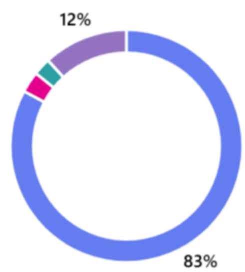
Yes	513
No, but someone in my household/family does	1
No	2



3. Where do you park your car(s) at home? (Check all that apply)

More details

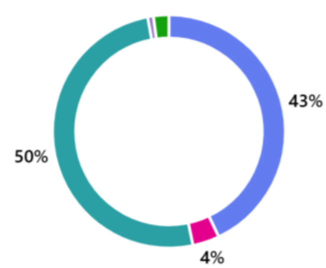
In my own (private) garage or driveway	477
In a shared parking lot/garage with a space designated for me	17
In a shared parking lot/garage with open parking	14
On the street	68
Other	0



4. Where do you park your car at work? (Check all that apply)

More details

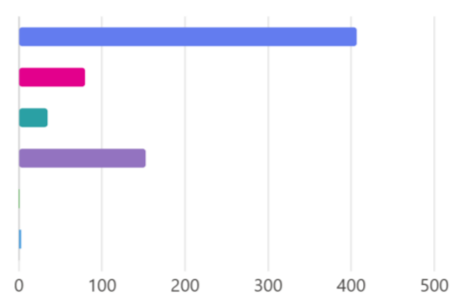
Not applicable because I do not work, work from home, or do not drive to work	220
In a shared, off-street parking lot/garage with a space designated for me	19
In a shared, off-street parking lot/garage with open parking	258
On the street	4
Other	11



5. If you own a car, how is it powered? (If you own multiple cars, you may select all the options that apply)

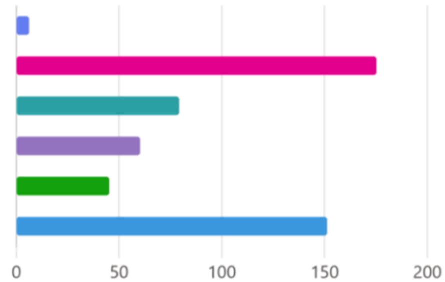
More details

Gasoline/diesel	406
Hybrid (e.g., Toyota Prius)	79
Plug-in-hybrid (e.g., Chevrolet Volt)	34
Battery electric (all electric; e.g., Nissan Leaf)	152
Another alternative fuel (compressed natural gas, propane, hydrogen)	0
Not applicable. I don't own a car.	2



6. Have you considered buying or leasing a battery electric or plug-in-hybrid vehicle? More details

I used to own one	6
I already own one	175
Yes, my next vehicle will be battery electric or plug-in-hybrid	79
Yes, but I have not yet made up my mind	60
No, but I am open to considering it	45
I have no interest in buying or leasing a battery electric or plug-in-hybrid vehicle	151



7. Why did you decide against buying or leasing a battery electric or plug-in-hybrid for your current vehicle? More details

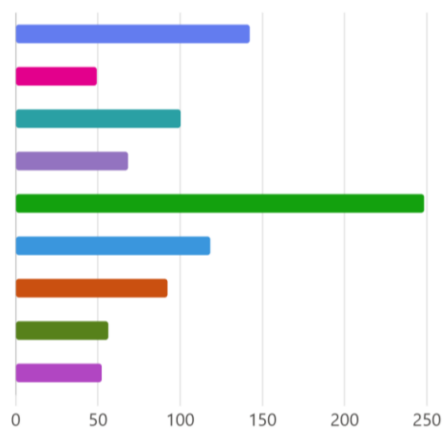
272
Responses

Latest Responses
...

64 respondents (24%) answered charge for this question.

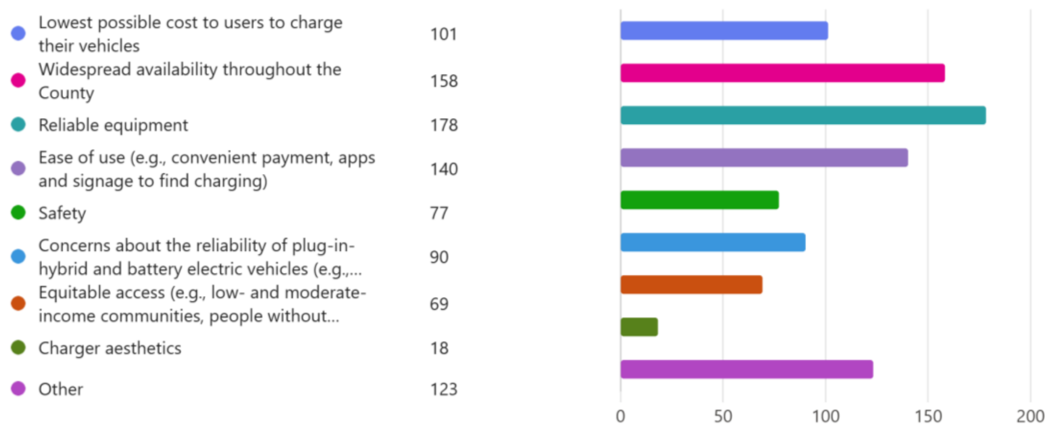
8. Please select the top 3 considerations that have prevented you from buying/leasing one. More details

Purchase cost compared to traditional gasoline/diesel vehicles	142
Operating costs, such as maintenance and electricity, compared to traditional...	49
Availability of charging at home	100
Availability of charging at work or while running errands	68
Concerns about long-distance travel	248
Concerns about the reliability of plug-in-hybrid and battery electric vehicles (e.g.,...	118
Concerns about the social and environmental costs of battery...	92
I don't plan to buy a car in the near future	56
Other	52



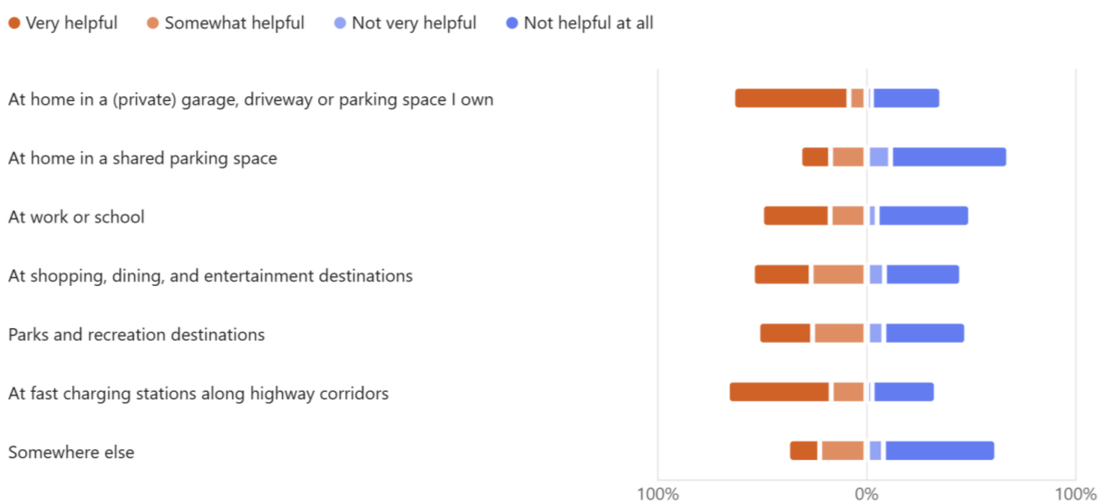
9. Please select your top 3 priorities in building a charging network for Los Alamos County.

More details



10. Where would EV charging stations be most helpful to you?

More details



11. Are there any specific places in Los Alamos County where you'd like to see charging stations? For this question you may use the linked map or provide comments below. https://tinyurl.com/LosAlamosEV

More details

210
Responses

Latest Responses

"Pajarito mountain because it would attract people and is away from other ch..."

"North Mesa Recreation Fields, Golf Course, Downtown Los Alamos, similar lo..."

...

44 respondents (21%) answered charging for this question.

12. Are there other steps, besides building charging infrastructure, the County could take to help people transition to electric vehicles?

More details

222
Responses

Latest Responses

"There is a device called connectDER that allows an EV circuit to be installed ... "

"Accessibility, encourage home solar power, work with electric company to of..."

"The county could provide home chargers (at a cost)"

...

52 respondents (23%) answered county for this question.

13. Do you have any other comments you'd like to share? More details

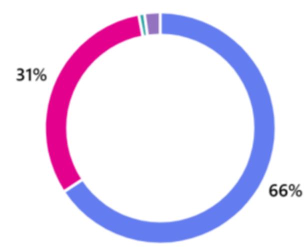
155
Responses

Latest Responses
"As an EV owner I have noticed a large increase in my electric bill and would I... "
"Thank you for the survey. Transitioning off fossil fuel is needed, accessibility ... "
...

37 respondents (24%) answered county for this question.

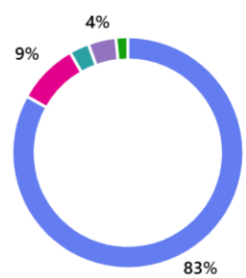
14. Which category(ies) describe you? Check all that apply. More details

I live in Los Alamos County	330
I work in Los Alamos County	157
I am a student in Los Alamos County	4
Prefer not to say	11



15. Which statement best describes your home? More details

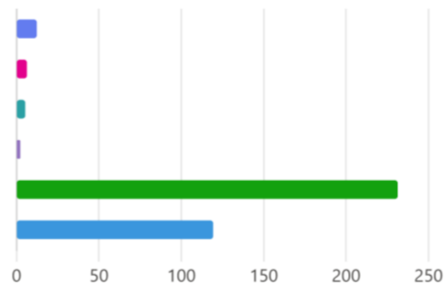
I own a single family home	300
I own a residence in a multi-family building (e.g., duplex, quadplex, condominium)	31
I rent a single family home	10
I rent a residence in a multi-family building (e.g., apartment complex, duplex, condominium)	14
Other	6



16. Which race best describes you? Select all that apply.

More details

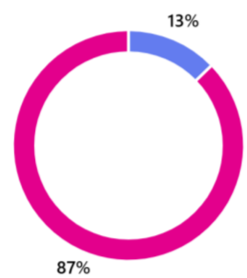
American Indian or Alaskan Native	12
Asian	6
Black or African American	5
Native Hawaiian or Other Pacific Islander	2
White	231
Prefer not to say	119



17. Are you of Hispanic, Latino, or Spanish origin?

More details

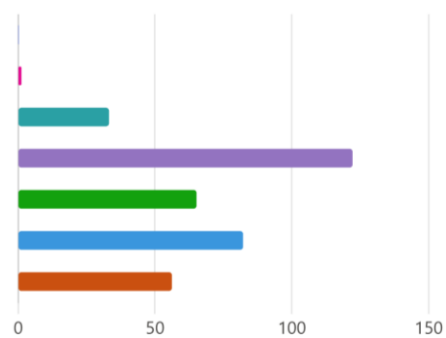
Yes	39
No	266



18. How old are you?

More details

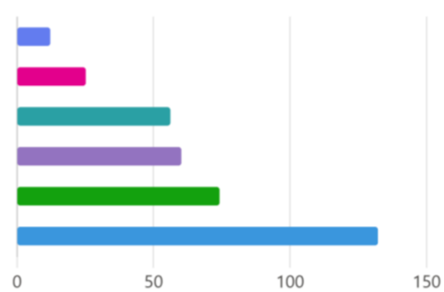
Under 18	0
19-25	1
26-34	33
35-54	122
55-64	65
65+	82
Prefer not to say	56



19. What is your annual household income?

More details

Under $49,999	12
$50,000-$99,999	25
$100,000-$149,000	56
$150,000-$199,999	60
$200,000 and over	74
Prefer not to say	132



20. If you would like to receive future updates about this project and upcoming opportunities to engage the project tea m, please provide your email address below.

More details

81
Responses

Latest Responses

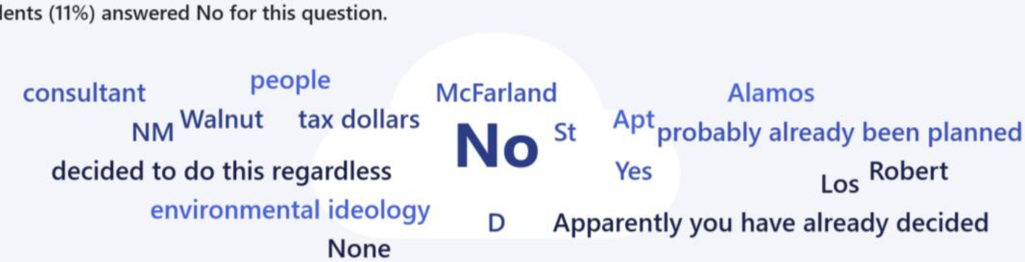
"Netphish@gmail.com"

"wam739@gmail.com"

"Robert McFarland, 3226 Walnut St Apt D, Los Alamos, NM 87544"

...

9 respondents (11%) answered No for this question.



21. How would you rate the clarity and relevance of the questions in this survey on a scale from 1 to 10?

More details

Promoters	118
Passives	121
Detractors	115

Appendix B Charging and Land Use

Building on the requirements and guidance from state and local offices and organizations, mainly using the Transportation and Climate Initiative's report[36], the City of Seattle's requirements[37], NYC Department of Transportation's EV guide[38], and the U.S. Access Board guidelines[39] the consulting team established site requirements to meet the needs and constraints of the County's parking facilities and supply. Through multiple rounds of stakeholder and Town staff workshops, these requirements were refined to the list below to address all aspects of EV charging from charger placement (mounted, free standing, etc.) to futureproofing requirements.

Charging Site Typologies

Ev charging infrastructure in the County falls into three typologies: parking garages, parking lots, and on-street parking.

Each typology has distinct design requirements to support safety, accessibility, and efficient use.

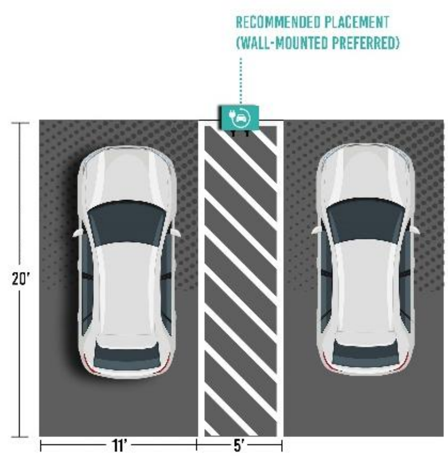
Parking Garage Requirements

- Chargers are installed head-on, centered between two spaces.
- Can be wall-mounted or free-standing depending on garage layout
- Supports head-in or back-in parking depending on vehicle port location
- Standard space: 18 ft x 9 ft (Figure 6-1).
- ADA space: 20 ft x 11 ft, with a 5 ft access isle (Figure 6-2).
- Chargers must not obstruct clear driving paths or pedestrian areas

[36] "Siting and Design Guidelines for Electric Vehicle Supply Equipment," 2012
[37] "Curbside Level 2 Charging: Minimum Requirements for Curbside EV Charger Locations," 2022
[38] "Curb Enthusiasm: Deployment Guide for On-Street Electric Vehicle Charging," 2018
[39] "Design Recommendations for Accessible Electric Vehicle Charging Stations," 2023

Figure 6-1: EV Charger in Garage

Figure 6-2: ADA Compliant EV Charger in Garage



Parking Lot Requirements (Neighborhood Districts)

- Chargers are free-standing, centered between two spaces on a median or barrier.
- Allows both head-in and back-in parking
- Standard space: 18 ft x 9 ft (Figure 6-3)

- ADA space: 20 ft x 11 ft with a 5 ft access aisle (Figure 6-4)
- Designed to facilitate snow clearance and avoid pedestrian obstructions

Figure 6-3: EV Chargers in Parking Lot

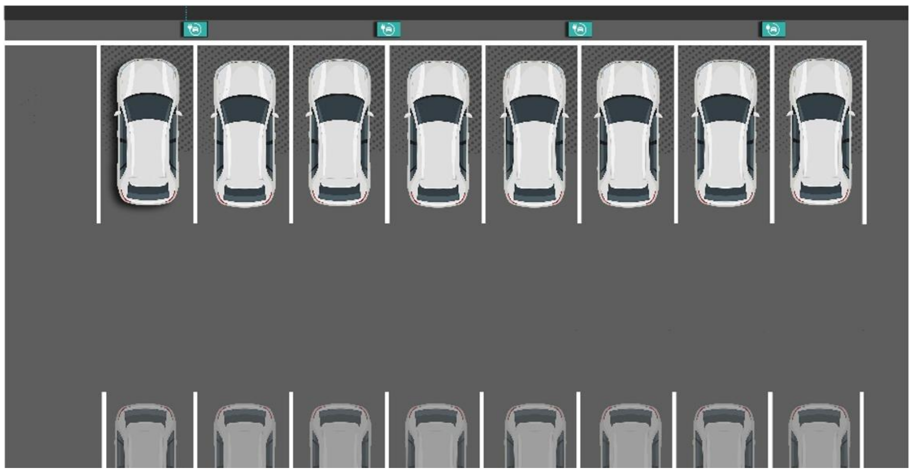
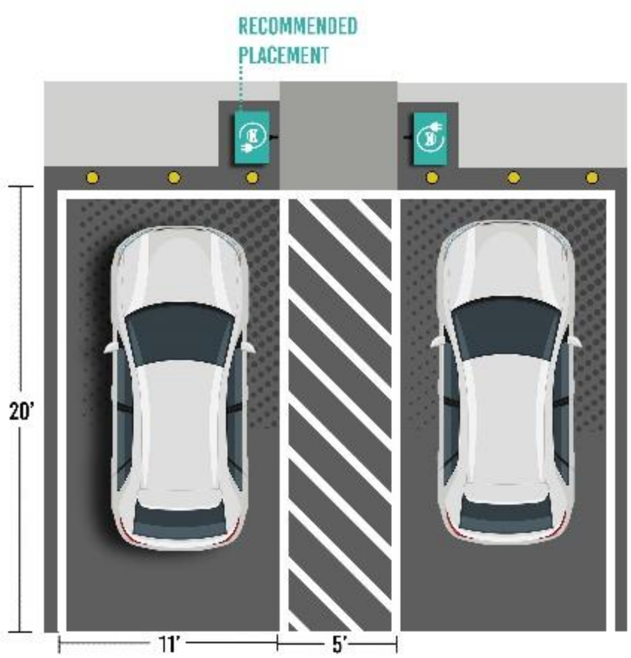


Figure 6-4: ADA Compliant EV Chargers in Parking Lot



On-Street Parking Requirements

- Chargers are centered between two spaces and installed as close as possible to the curb, without obstructing clear zones.

- Concrete-filled steel bollards are recommended for protection
- Parallel parking spaces: Minimum 20 ft x 8 ft
- Angled parking spaces: 20 ft x 9 ft
- ADA-accessible parallel parking requires a 5 ft sidewalk clearance path
- Bollards should be used with back-in angles parking for added safety

Figure 6-5: Single On-Street Charging Station

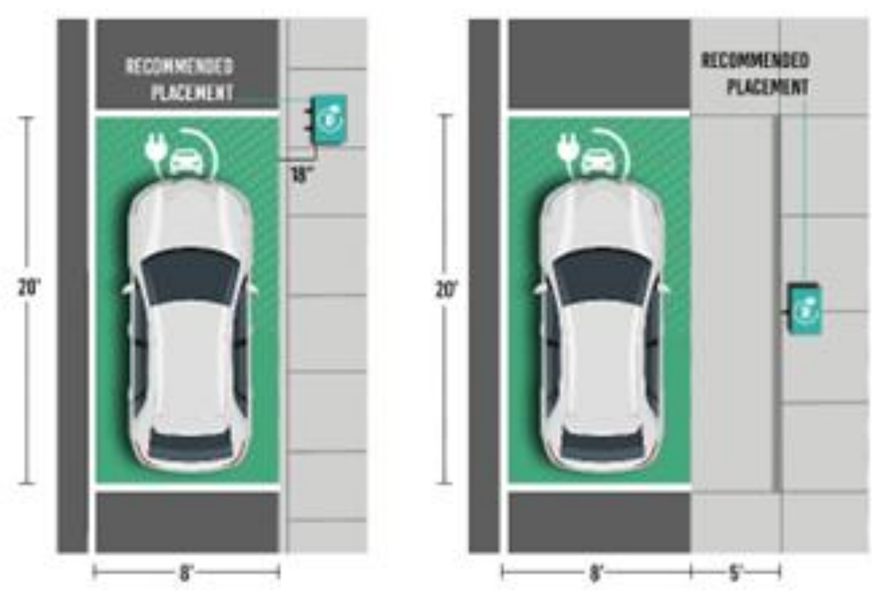


Figure 6-6: Multiple On-Street Charging Stations

Table 3-1 summarizes in more detail the charger design requirements needed for on-street paring locations.

Table 6-1: On-Street EV Charging Design Elements

Street Element	Design Guidance
6’ Sidewalk	Install charger with narrowest side facing curb, 18’’ setback from curb[40]
8’+ Sidewalk	Any orientation is acceptable, 18’’ setback from curb[41]
Cycle lane / track[42]	Maintain 6” offset
Loading Zone	Provide 5-10 ft vertical clearance
Street Trees	Maintain 10’ from trunk or 5’ from tree pit
Driveway	8’ clearance between charger and driveway
Fire hydrant	Maintain 15’ distance
Signane/furniture	Maintain 5’ clearance from all signs or legal street furniture

EV Charging Station Design Elements

A wide range of equipment and layout requirements ensures safe, functional, and accessible charging infrastructure.

Electric Metering

- One meter per site is typical
- Separate sub-metering is used for EVSE systems, not per charger.
- Must meet utility requirements, including wireless communication capability
- Dedicated circuits are required and may need new or expanded panels

Customer Usage Metering

- Smart meters with cellular or network connection for usage tracking, billing, and load management
- Integrated payment systems are recommended

Lighting

- Use of LED lighting is recommended:
    - Overhead lighting
    - Pedestrian-level lighting

[40] This number is different for ADA standards for accessible design. ADA recommends a minimum of 5’ clear path of travel with a preferred of 8’ and a 30’’ clear width.
[41] Ibid.
[42] Note an EV charger cannot typically be installed where the bike facility is between parking and the curb (parking-protected lane).

- Lighting integrated into charging stations (e.g., backlit touchscreens)

Signage and Wayfinding

- Mark all spaces as “EV Charging Only”
- Provide wayfinding signage from adjacent streets and pavement markings
- Clearly post usage instructions and operating guidelines, including
    - “Electric Vehicle Charging Station”
    - Electric Vehicle Parking While Charging Only”
    - Simple usage instructions for drivers

Charger Equipment

- Chargers should be securely mounted with hot swappable part for maintenance ease
- Rugged hardware (e.g., powder-coated aluminium enclosures, lockable connectors) is recommended.
- Use retractable cable management systems to avoid tripping hazards and snow damage
- Install disconnect switches and protective bollards where needed

Proximity to Entrances and Power

- Preferential placement near entrances is ideal but must be balanced with power access
- Avoid placing charger under overhead power lines or flood-prone areas.
- Select high-visibility locations for safety and awareness

Charging Cable Standards

- Cable length: Maximum 25-ft; 15 ft preferred (except on-street)
- Cables should retract and remain off the ground when not in use
- Maintain 3-5 ft clearance between charger and vehicle
- Avoid more than two ports per pedestal
- Future technologies (e.g., flat cables, bring-your-own-cable, or wireless charging) may change standards in coming years.

Charging Capacity Standards

- Minimum 40-amp, 208/240-volt circuit per EV parking space

- Underground or surface-mounted conduit
- Level 2 and DCFC:
    - Free-standing preferred
    - Wall-mounted acceptable in garages
    - DCFC should connect to an underground vault or transformer

State Standards Compliance

- All chargers must be UL-listed (UL 2202 and UL 2594)
- Must comply with New Mexico Energy Codes and utility specification

Land Use Data Layers

The County GIS portal includes a Land Use layer that provides key information about every square foot of land in the county. This includes the following:

- OWNER: This field includes values like CO (County), LANL (Los Alamos National Lab), NFS (National Forest Service), SCHOOL, ST (State), etc. It is valuable for understanding the likelihood of placing a charger in these areas, and to understand how that land is used.
- ZONE: This field holds the legal zoning code for the selected region. Values include MU (Mixed-Use), F-L (Federal Land), and PD (Planned Development).
- ACCT_TYPE: This field holds values like APARTMENT, COMMERCIAL, DUPLEX, EXEMPT SCHOOL, etc. In combination with OWNER and ZONE, it helps clarify

The GIS portal also includes a parcel layer that provides more granular information on specific parcels, but does not include the large open-space regions. This layer includes fields like:

- ZONE: A different zoning code that includes values like DTLA (Downtown Los Alamos), SFR (Single Family Residential), and INS (Institutional).
- SHAPE_Area: This allows for calculation of square feet and helps in the estimation of density.

The map below (Figure 6-7) shows the land use layer for the entire county. Each color represents a different value in the ZONE field.

Figure 6-7: Land Use Map

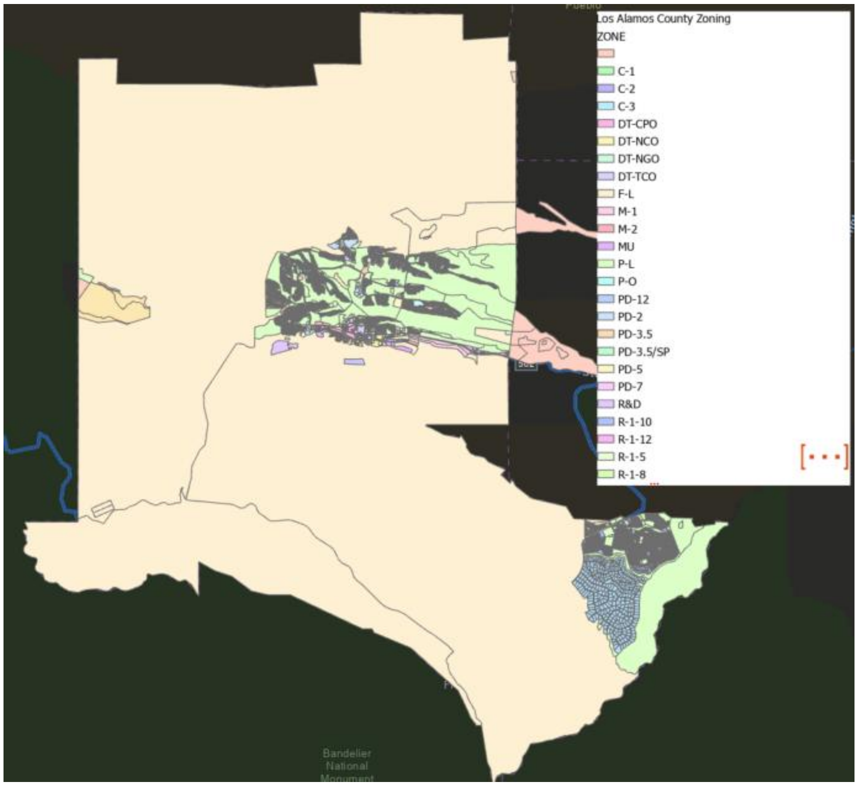


Figure 6-8 shows a zoomed-in view of the same layer in the Los Alamos town center.

Figure 6-8: Los Alamos Town Center Zoning Map

Figure 6-9 shows the Parcel layer. The colors correspond to each parcel's ownership, indicating whether land is publicly or privately owned.

Figure 6-9: Los Alamos Parcel Map

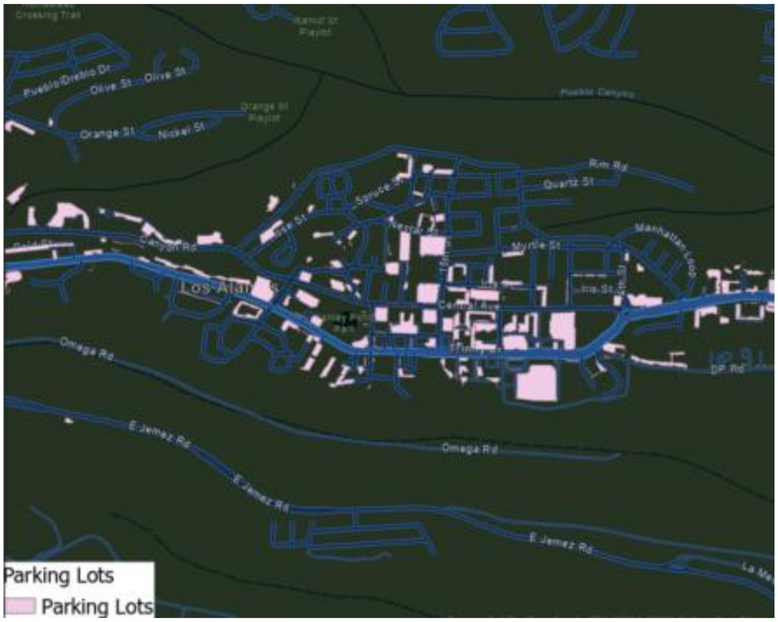
Environmental Exclusions

Using the National Wetlands Inventory data, high flood risk areas can be identified and avoided for charger locations. In the map below, it is clear that areas bordering rivers, streams, and lakes should be excluded from consideration.

Figure 6-10: Los Alamos Wetlands Map

The County GIS layer can also be used to identify existing parking lots. In contrast to the high flood risk areas, these increase the suitability value for a charger location.

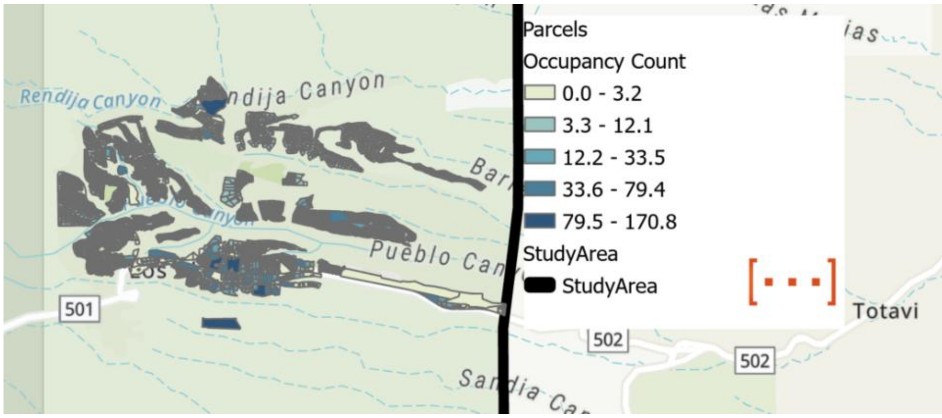
Figure 6-11: Los Alamos Existing Parking Lots Map



Population and Density

The population of the County in the 2020 Census was 19,419. All of those people reside in buildings defined in the Parcel layer above. By grouping parcels according to their zoning types, we can build sets of parcels that include all residential properties and separate them from sets of parcels that are mixed-use, recreational, or industrial, among others. Based on the new zoning type groupings, estimated values can be given to each grouping. All Residential parcels are assigned a population density of 6 people per acre, and all Multi-Family parcels are assigned a population density of 11 people per acre. Using this density and the acreage of the parcel, we can estimate the population of each parcel. The map below is colored according to the estimated occupancy counts calculated using this method.

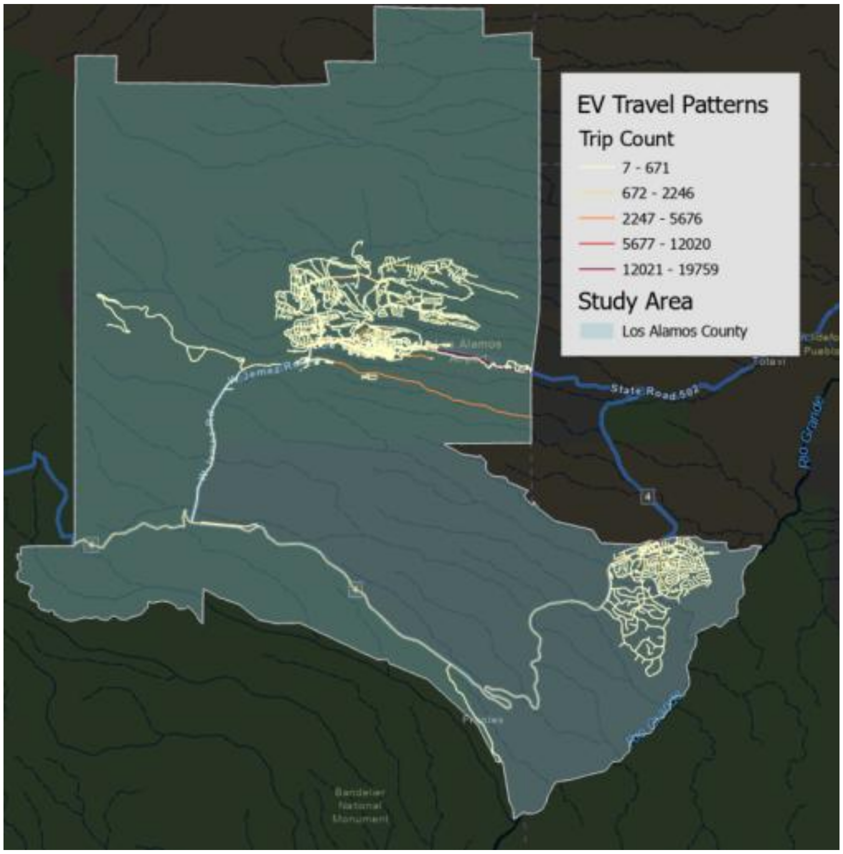
Figure 6-12: Occupancy Map



Travel patterns

Replica is a mobility data platform that models how, when, and where people travel within a region. Using anonymized location data from mobile devices, GPS traces, and other sources, Replica generates synthetic travel behavior that reflects real-world activity patterns while protecting individual privacy. Its datasets capture trip origins, destinations, modes, and purposes, enabling detailed analysis of trips made by electric vehicles. Using Replica data, the model can identify corridors with heavy EV traffic, indicating an increased demand for charging infrastructure.

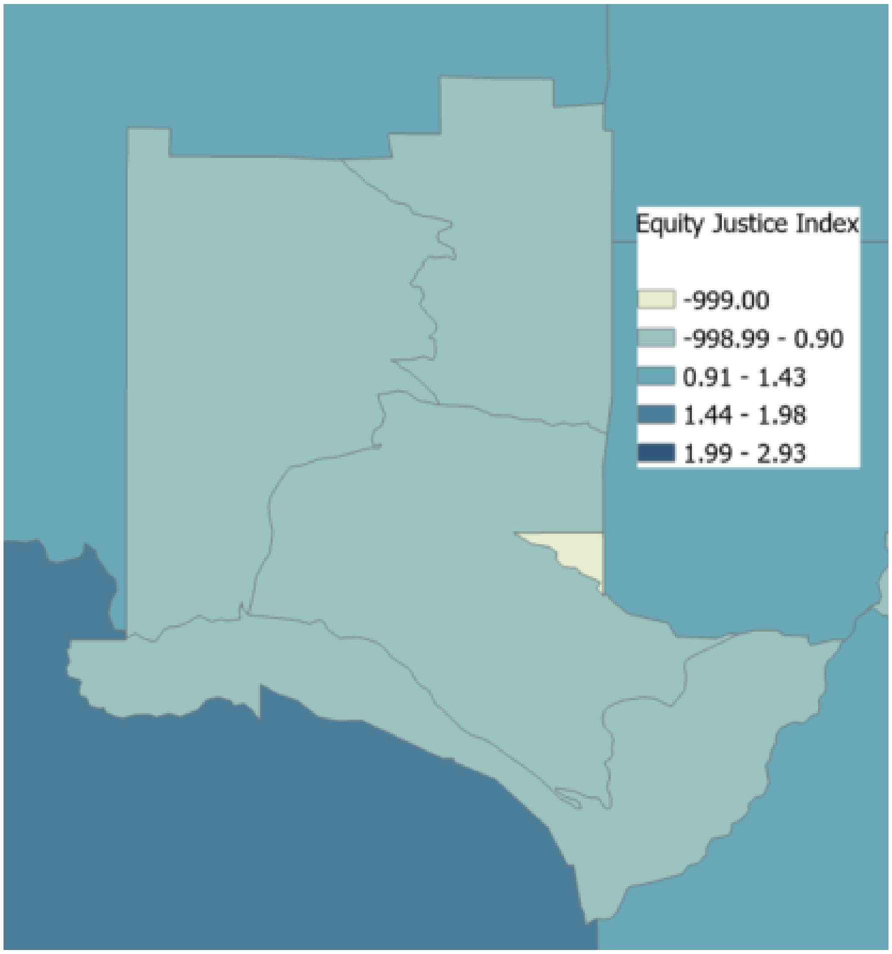
Figure 6-13: EV Travel Patterns



Demographics

The Agency for Toxic Substances and Disease Registry (ATSDR) maintains an Equity Justice Index map that measures each census tract for certain key demographic factors including Social Vulnerability, Environmental Burden, Health Vulnerability, and Climate Burden. Included in this dataset is an aggregated index that encapsulates all available measured equity data. The County has relatively low values across all its census tracts, meaning all areas are similarly well-advantaged compared to other counties. This dataset is crucial for understanding if certain local communities are in greater need of infrastructure support to address environmental risk.

Figure 6-14: Equity Justice Index Map


Equity Justice Index
-999.00
-998.99 - 0.90
0.91 - 1.43
1.44 - 1.98
1.99 - 2.93