

# City of Mesa Community EV Action Plan

Project Research Details – DRAFT 2023-10-26



# EVs in Mesa Today

What is the EV landscape today in Mesa, Arizona, and US?



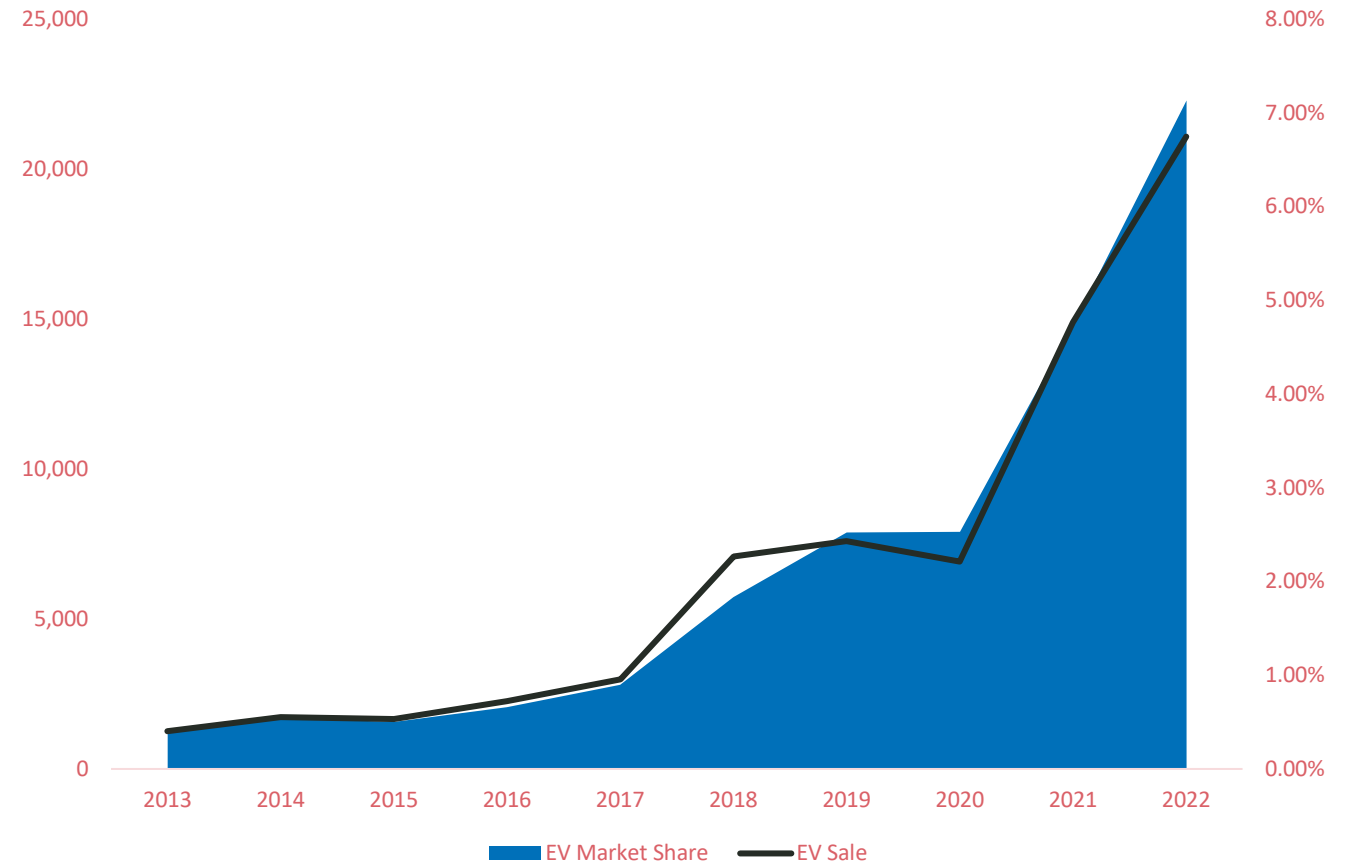
# EVs in Mesa Today – Key Notes

- The transition to EVs will take time.
- EV ownership and sales are increasing in Mesa and Arizona.
- Access to EV home charging is uneven across the City.
- Public EV Charging is concentrated along a few major corridors.



# EV Sales in Arizona

- EV sales in Arizona have increased by 1,600% over the past ten years
- EVs now represent almost one out of every 10 light-duty vehicles sold in the state

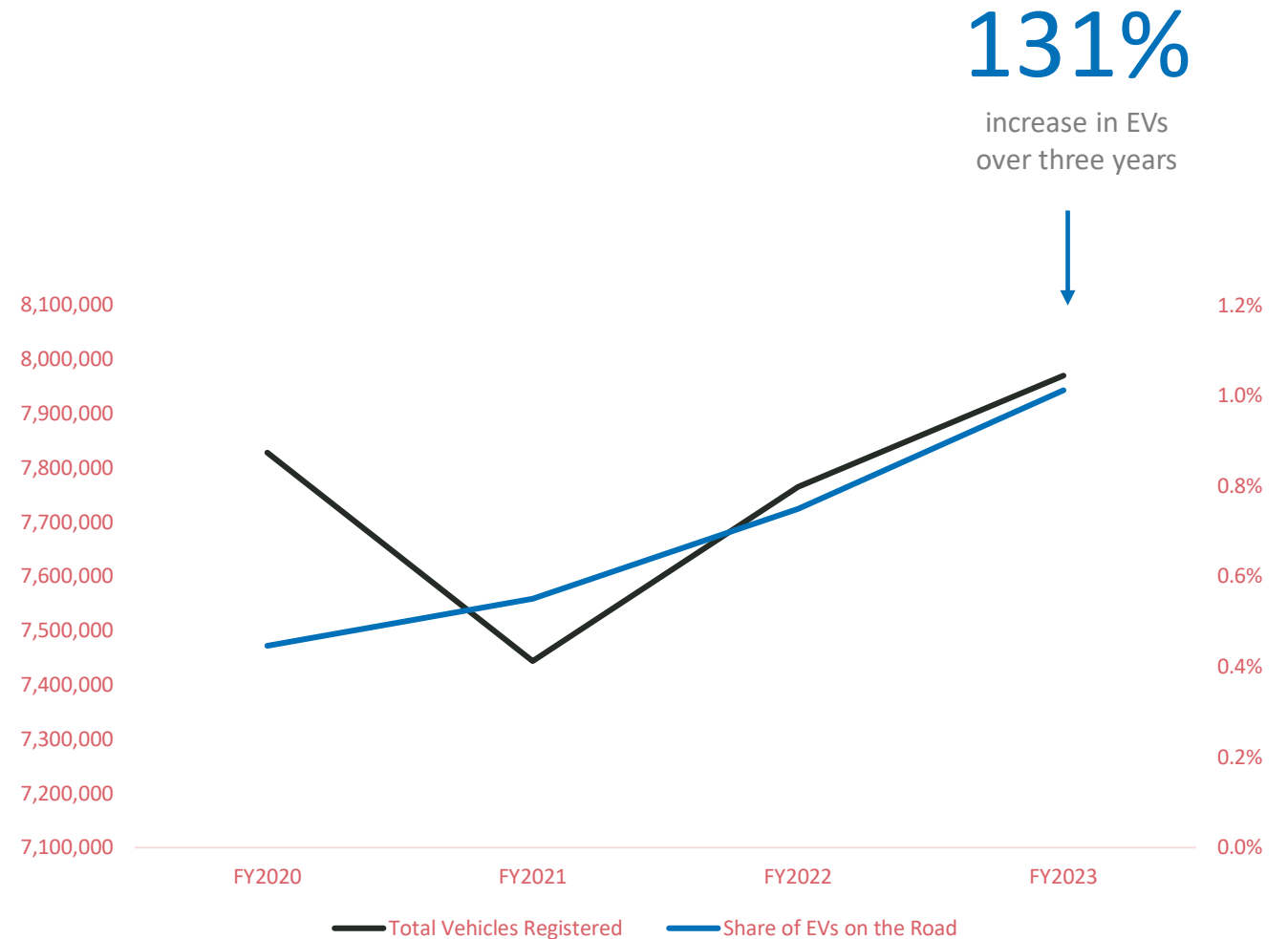


Source: [Alliance for Automotive Innovation EV Dashboard](#)



# EVs on the Road in Arizona

- Over the past three years, the number of EVs registered in the state has steadily increased, even as total vehicle registrations has remained flat.
- In Fiscal Year 2023 (FY2023), EVs registered in the Arizona exceeded 1% of total registered vehicles for the first time in the state's history.



Source: Arizona Department of Transportation. Fast Facts by ADOT



# EVs by Share of Population

7%

Arizona

8%

Mesa



9th

State by Share of  
EVs per 1k  
population

Sources: US Census; ADOT; S&P Global – HIS Markit;  
<https://insideevs.com/news/656711/us-plugin-car-registrations-per-capita/>



# Access to EV Home Charging is Uneven Across the City

- The ratio of single-family to multi-family housing units is important for EV adoption.
- Access to EV charging at multi-family housing is limited. It will mean more people will need access to public charging throughout the day to make EV ownership convenient.
- The national average for housing units is 72% single-family housing units.

Share of Housing Units in Mesa

62%

Single Family

38%

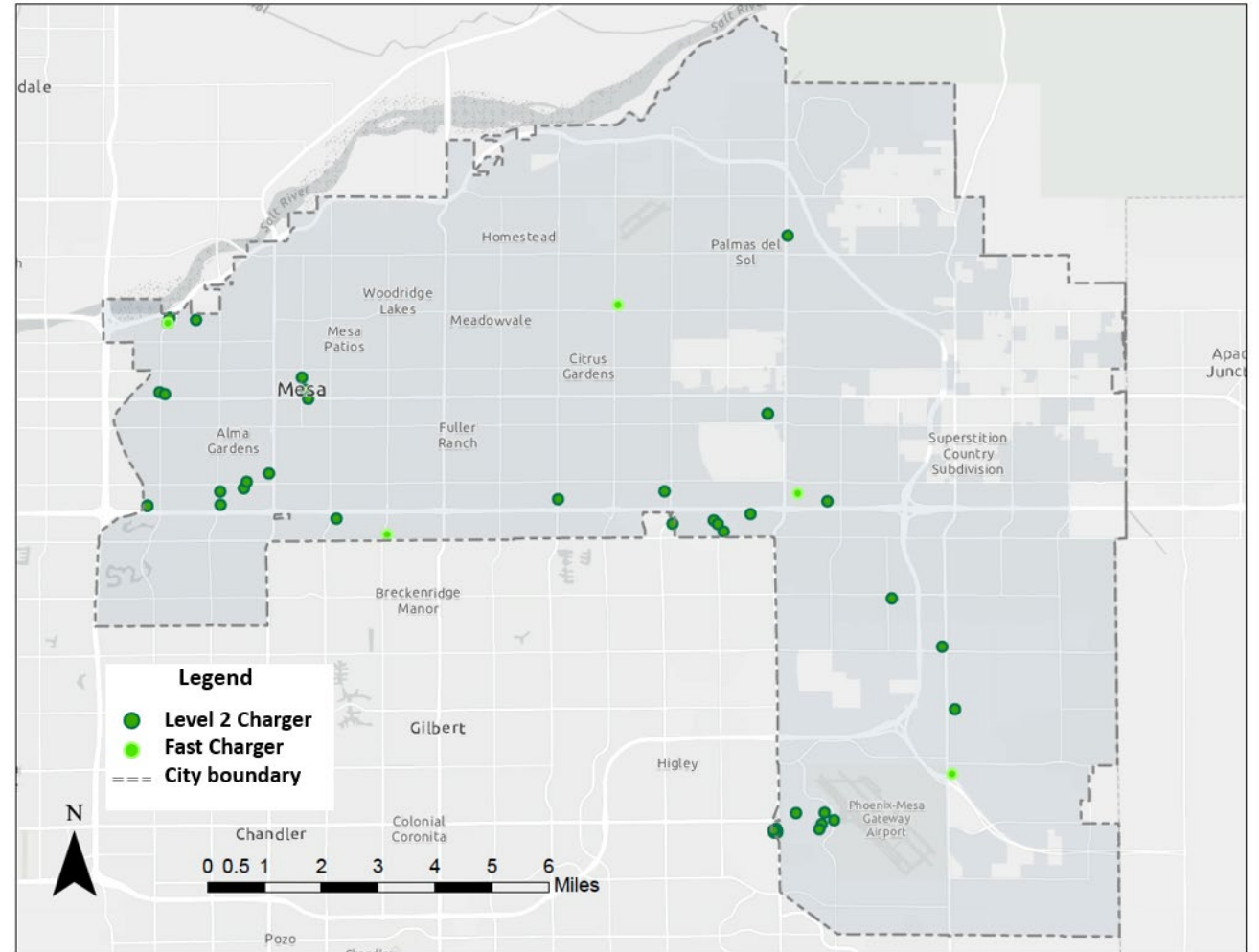
Multi-Family

Sources: US Census; S&P Global – HIS Markit



# Where are publicly accessible EV charging stations in Mesa?

- Public EV charging stations are currently clustered along Highway 60 and AZ-202, in Downtown Mesa, and near the airport.



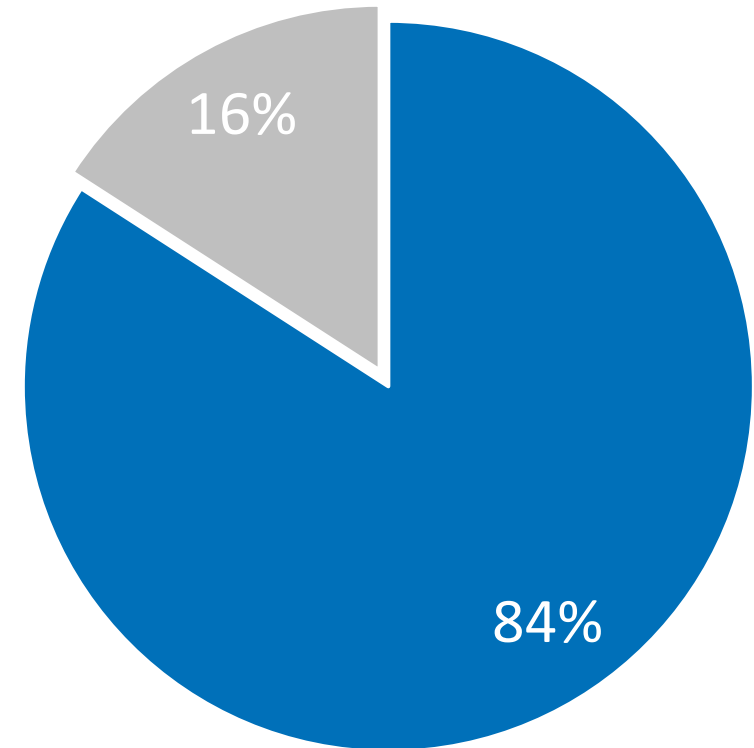
Source: US Department of Energy Alternative Fuels Data Center - [Alternative Fueling Station Locator](#)





# How Many Public Charging Stations are there in Mesa?

- 49 public charging stations
- 118 ports
  - 90 Level II
  - 17 DCFC



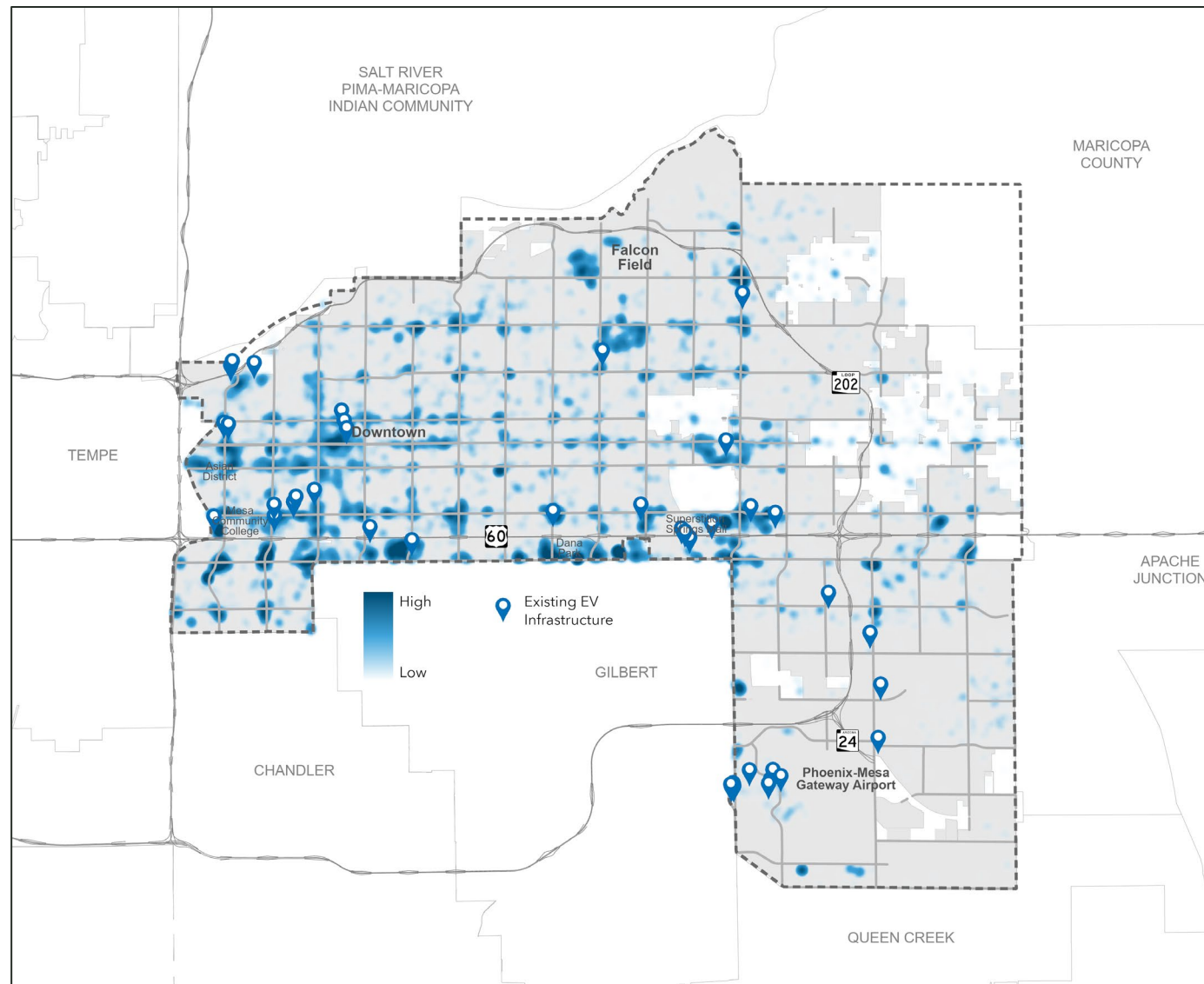
■ Public Level 2 ■ Public DCFC

Source: US Department of Energy Alternative Fuels Data Center - [Alternative Fueling Station Locator](#)



# Where do people work relative to existing public EV charging stations?

- Public EV charging stations are currently clustered along Highway 60 and AZ-202, in Downtown Mesa, and near the airport.

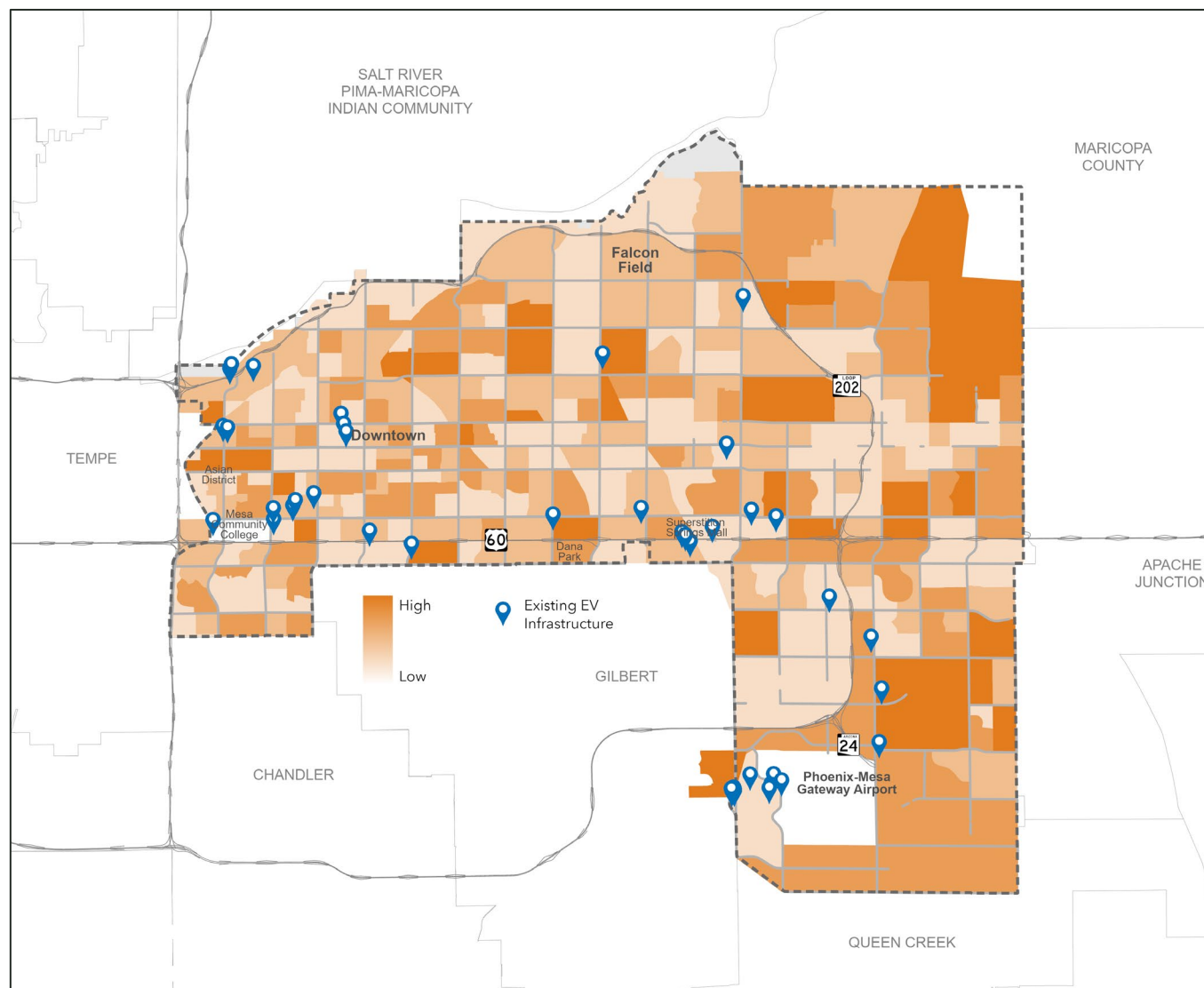


Source: US Department of Energy Alternative Fuels Data Center - [Alternative Fueling Station Locator](#)



# Where do people live relative to existing public EV charging stations?

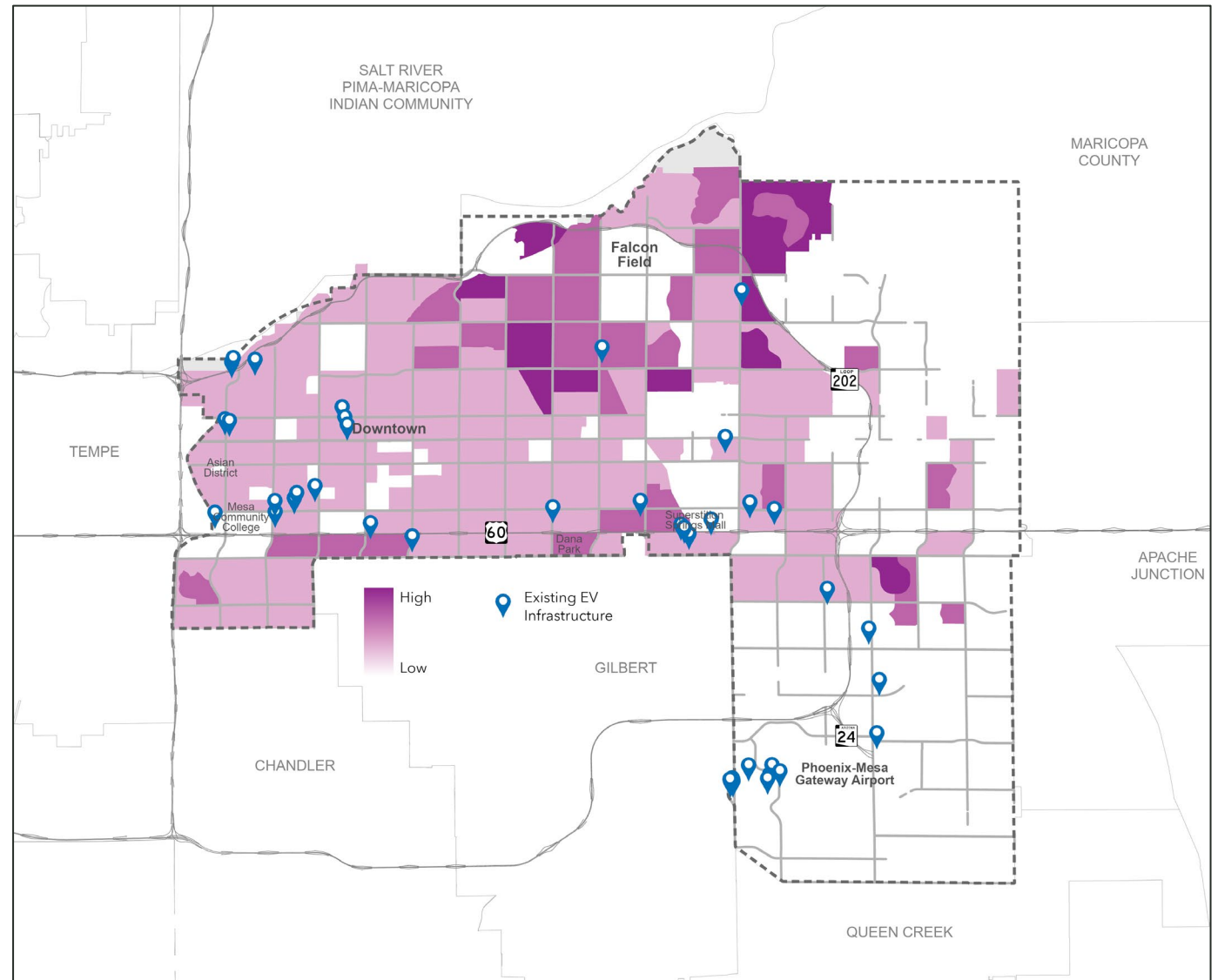
- EV registration is currently highest in census tracts with higher median incomes and a greater share of housing units that are single-family.



Source: US Department of Energy Alternative Fuels Data Center - [Alternative Fueling Station Locator](#)



# Where do people own EVs in Mesa?



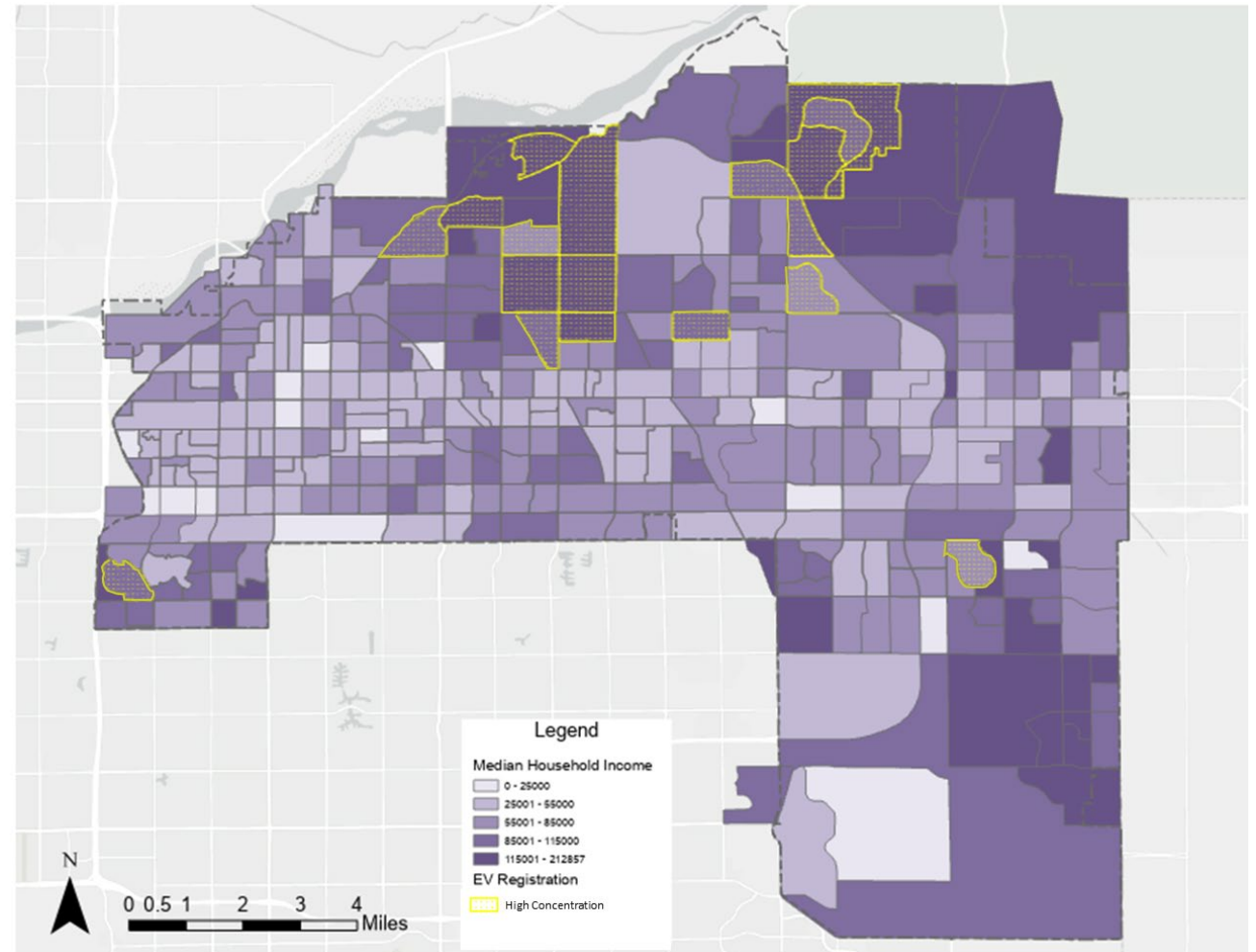
Source: US Department of Energy Alternative Fuels Data Center - [Alternative Fueling Station Locator](#)





# Does income and the type of housing people have influence EV adoption?

- EV registration is currently highest in census tracts with higher median incomes and with a greater share of housing units that are single-family.
- Currently, there is a premium for EV ownership, but this will change as EVs become the primary vehicles available in the car market.
- Yellow on the map highlights the census tracts with the highest share of EV registrations in the City.



Sources: US Census; S&P Global – HIS Markit



# EVs in Mesa by 2030

What is the market demand for EVs and how will that impact public EV charging demand in the City over the next seven years?



# EVs in Mesa by 2030 – Key Notes

- The number of EVs in Mesa are projected to increase by 1,000% and account for 32% of all vehicles on the road by 2030.
- While most charging will occur at home, 15% of charging needs will be met with public charging stations.
- Demand for public charging will grow exponentially as the number of EVs on the road grows exponentially.
- There is a significant gap in the number of public charging ports needed in Mesa today, with the greatest need being for additional Level 2 Charging Ports.



# The transition to EVs will take time.

- Mesa scenarios are developed with assumption that even with rapid EV sales growth, most vehicles on the road in the medium-term will run on gasoline.



## VEHICLES ON THE ROAD TODAY

These personal light-weight vehicles represents the 280 million cars, S.U.V.s, vans, and pickup trucks on America's roads today. The vast majority run on gasoline.



## PROJECTED ON THE ROAD IN 2035

Electric vehicles sales have been growing. Even if they reached 100% of sales in 2035, 60% or more of vehicles on the road would still be powered by gasoline.



## PROJECTED ON THE ROAD IN 2050

Even in 2050, after 15 years of selling only EVs, a small but significant share of vehicles on the road will still run on gasoline.

■ Electric ■ Gasoline

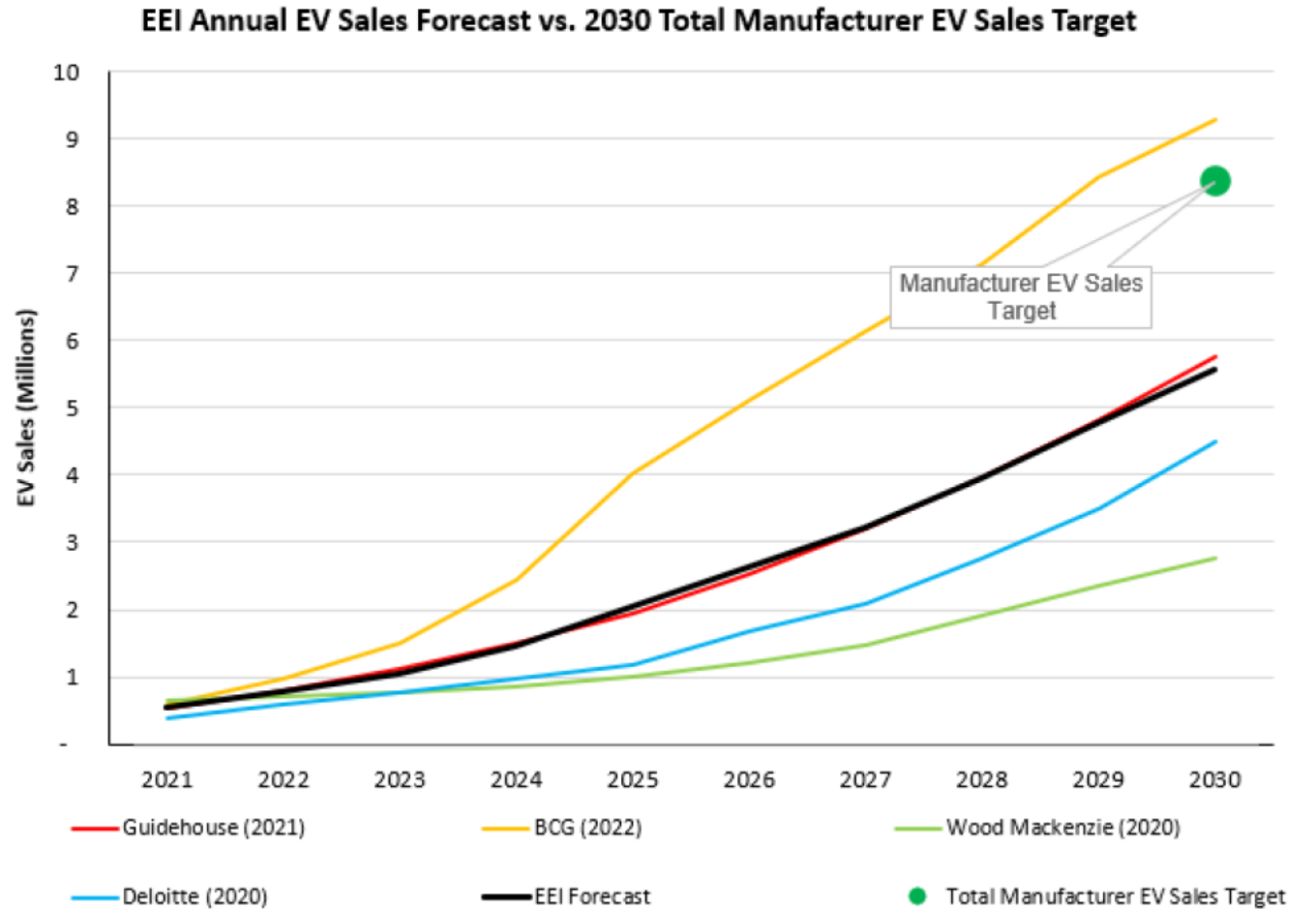
Sources: U.S. National Blueprint for Transportation Decarbonization. USDOT. 2023.





# The transition to EVs will take time.

- Mesa scenarios use a moderate growth scenario (black line/EEI Forecast in chart to the right).
- While moderate, it is still a 1000% increase in EV sales growth over a 10-year period.
- In 2030, EV sales are projected to be 32% of annual light-duty vehicles in the US.



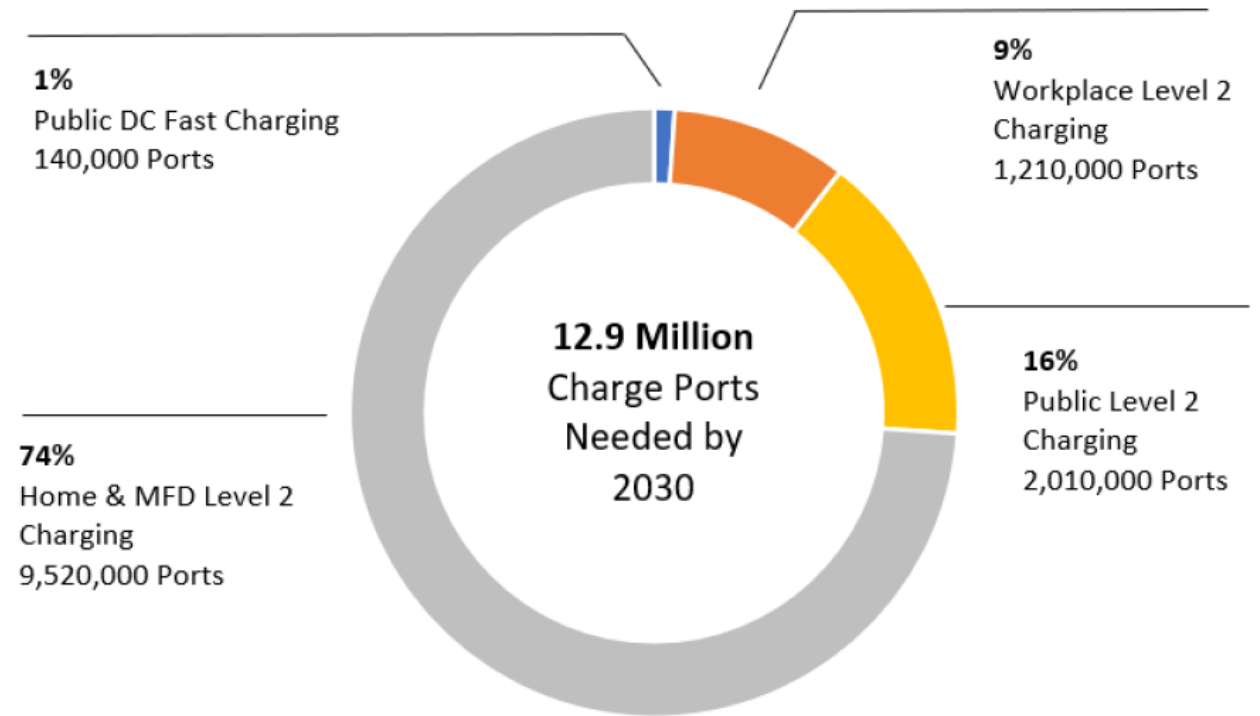
Source: Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022.



# National Projections for EV Charging Demand

- Nationally, the majority of EV charging will take place at home.
- Most public charging will be Level 2 charging at work or other public charging locations, like at a shopping center or other daily destinations.
- Public DC Fast Charging will represent a small number of total ports, and primarily be used by people traveling longer distances away from home.

## US Projection of Ports needed by 2030



Source: Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022.

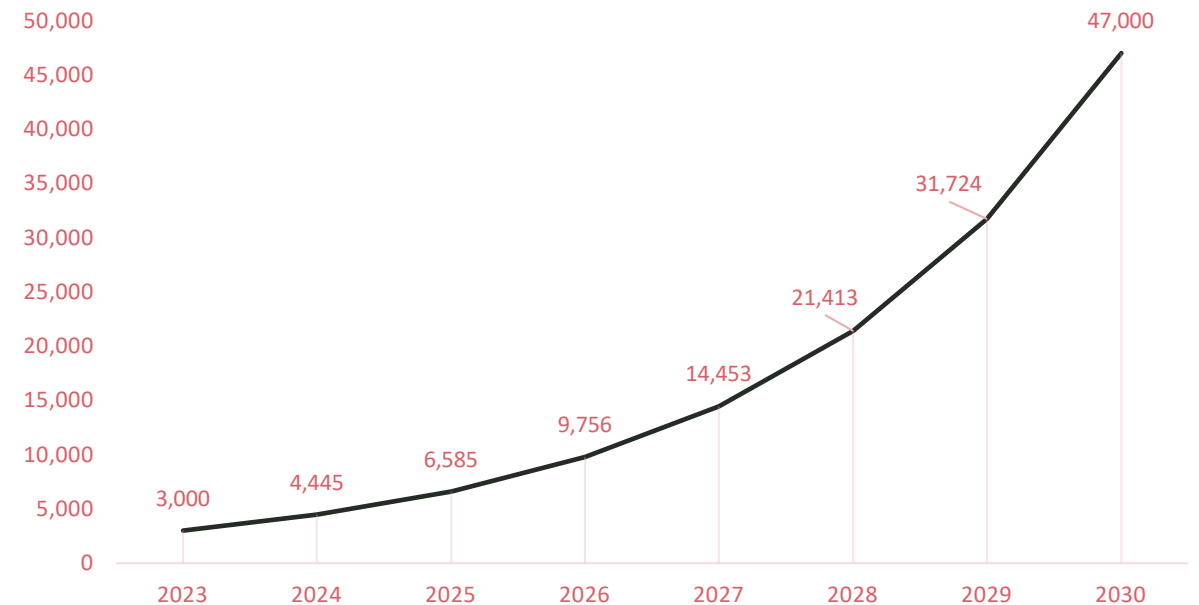


# Projected EV Growth In Mesa to 2030

- The number of EVs in Mesa are projected to increase by 1,000% and account for 32% of all vehicles on the road by 2030.
- Today, EVs represent just over 1% of all vehicles on the road.



**Projected EVs on the Road in Mesa**



Source: ADOT; Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022.



# EV Scenarios and Access to Home Charging

- The ratio of single-family to multi-family housing units is important for EV projections. Access to EV charging at multi-family housing is limited. It will mean more people will need access to public charging throughout the day. This will impact travel choices and influence peak power demand on the electric grid.
- The national distribution is 72% single-family housing units. 62% single-family housing units is used with Mesa's EV scenarios as a "business as usual" scenario. 72% single-family housing units is used as a number to show how policy changes and incentives for multi-family EV charging can influence public charging demand.

## Existing Share of Housing Units in Mesa by Type

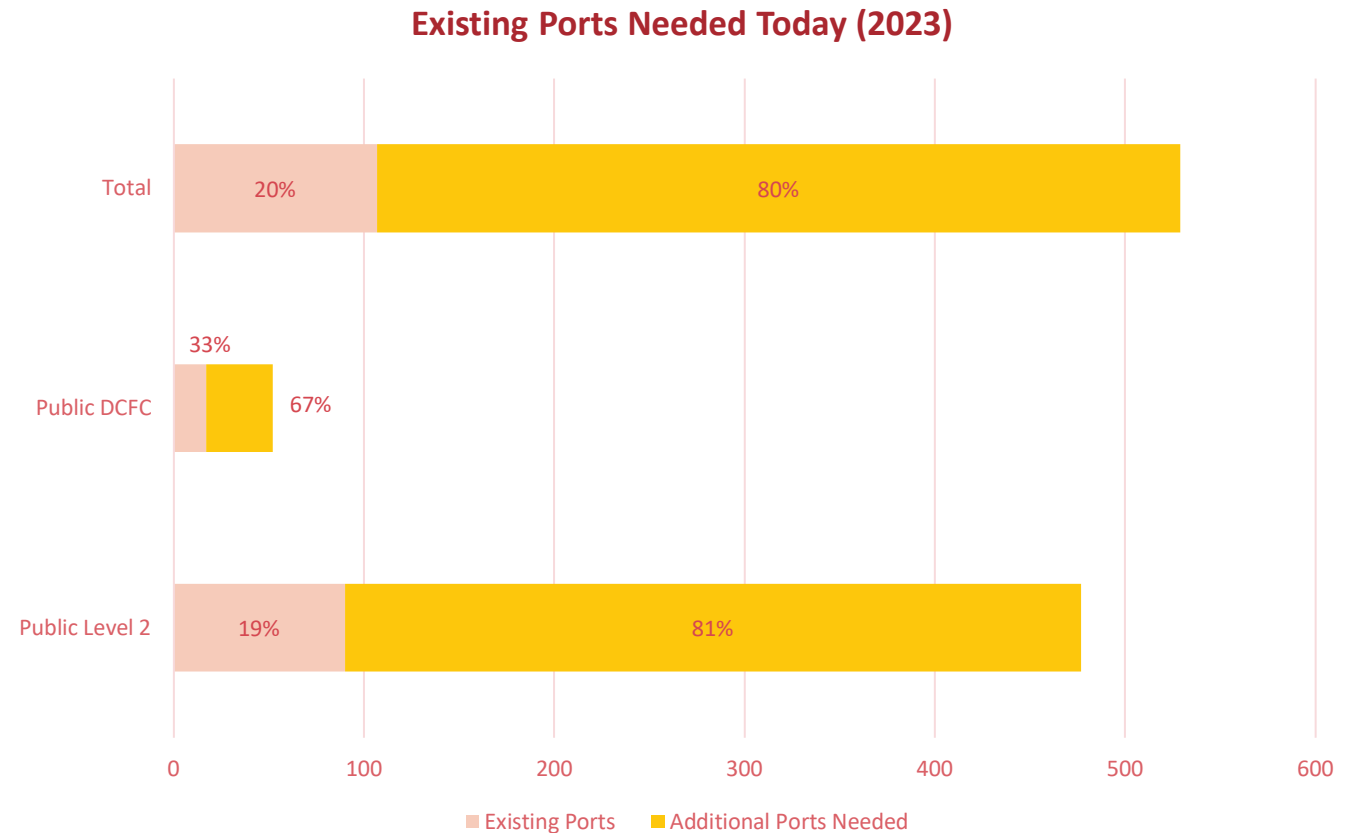


Source: ADOT; Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022.



# EV Charging Ports Needed Today

- There is a significant gap in the number of public charging ports needed in Mesa today, with the greatest need being for additional Level 2 charging ports.
- Today, existing ports only cover 20% of the projected need for public charging ports.
- In total, there is a gap of 422 public charging ports.

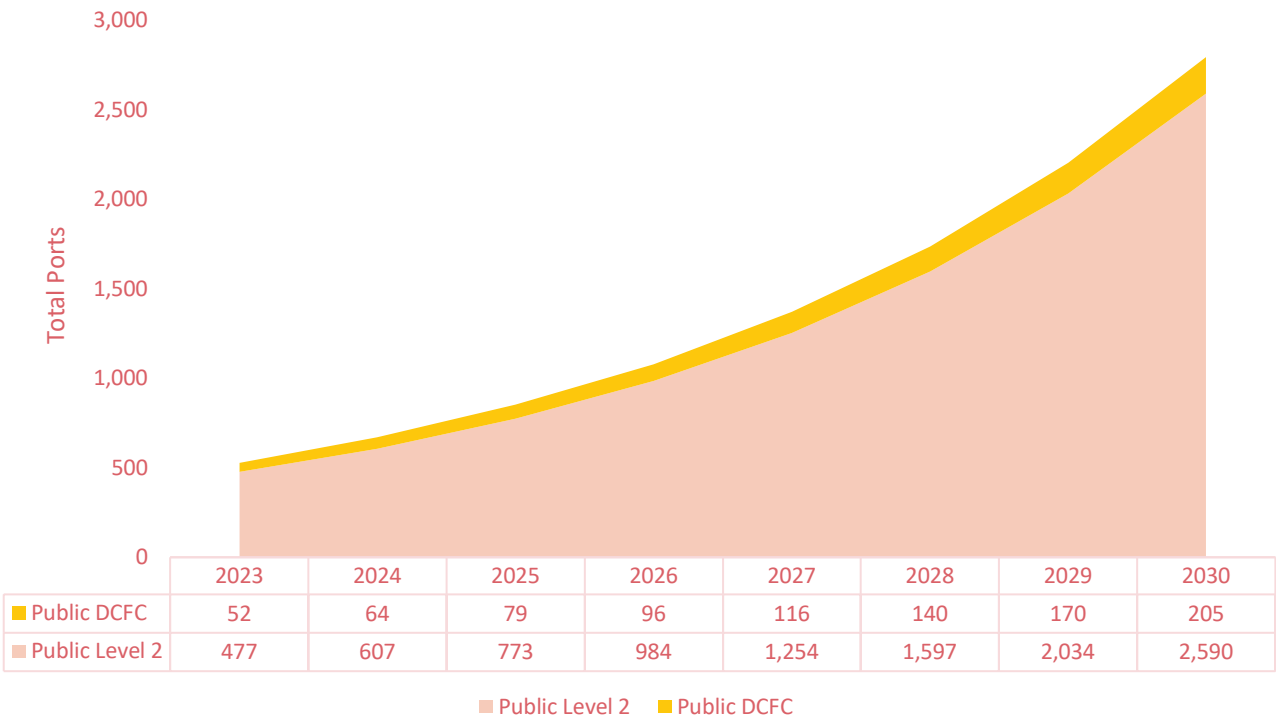


Source: ADOT; Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022; US Department of Energy Alternative Fuels Data Center – Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite.



# EV Charging Port Demand to 2030

- Demand for public charging will grow exponentially as the number of EVs on the road grows exponentially as well.
- On average, there will need to be an average of 386 ports built per year over the next 7 years to meet the public charging demands in 2030.

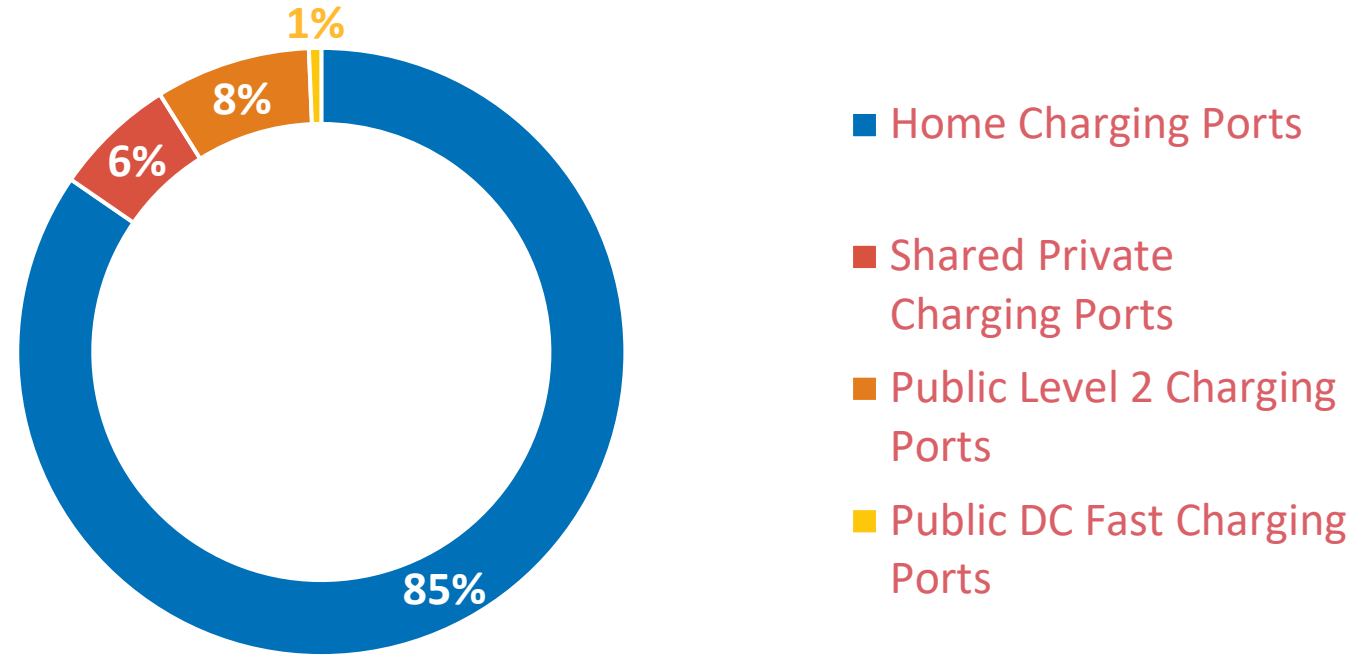


Source: ADOT; Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022; [US Department of Energy Alternative Fuels Data Center – Electric Vehicle Infrastructure Projection Tool \(EVI-Pro\) Lite.](#)



# Where people will charge in Mesa in 2030

- In 2030 with 62% of households having access to home charging, the total charging port demand distribution is shown to the right.
- While most charging will occur at home, 15% of charging needs will be met with public charging stations.
- Public charging stations are stations at gathering locations such as workplaces and shopping centers.
- By 2030, Mesa will need 2,795 public charging ports.



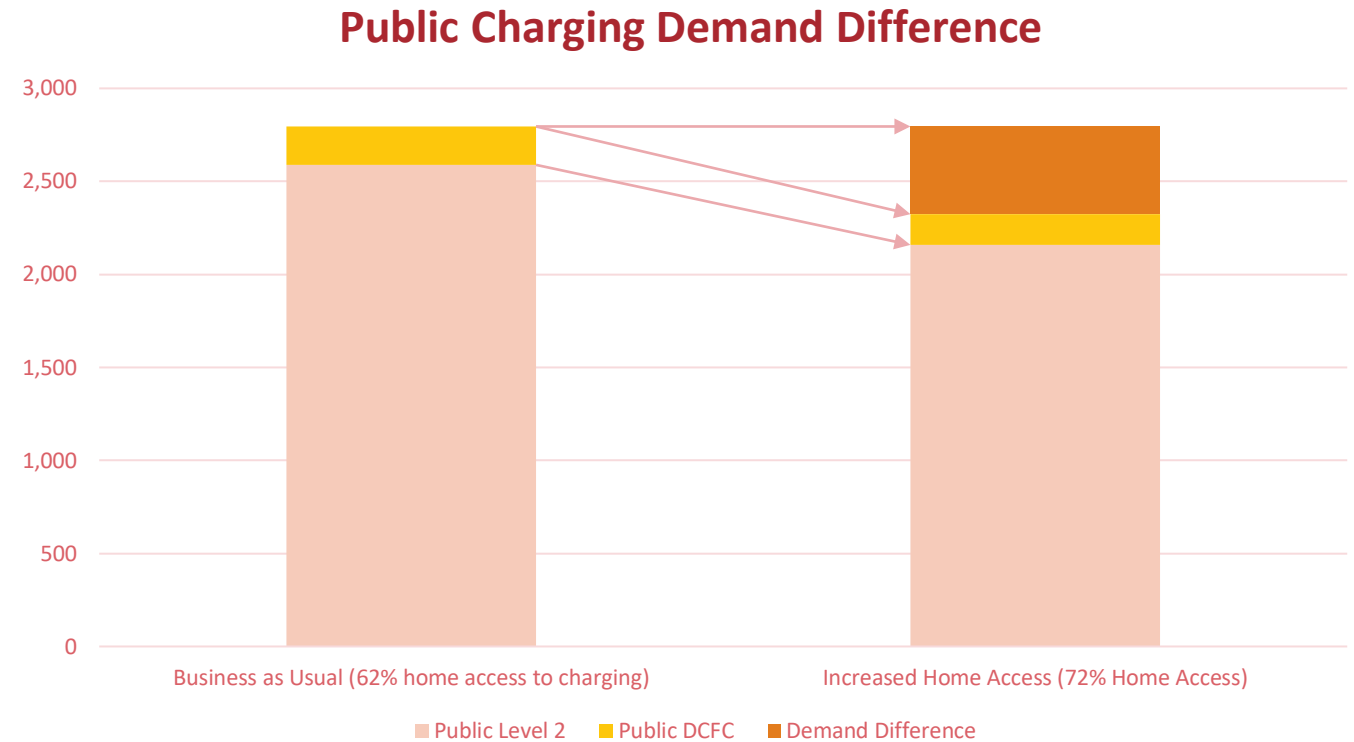
Source: ADOT; Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022; US Department of Energy Alternative Fuels Data Center – Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite.





# 2030 EV Scenario Comparison

- A 10% increase in home charging port access will result in a 17% decrease in public charging port demand.
- The additional decrease in public charging demand is the result of longer charging time at home. People will be able to get a fuller charge and need to charge less while out for daily driving trips.



Source: ADOT; Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022; US Department of Energy Alternative Fuels Data Center – Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite.

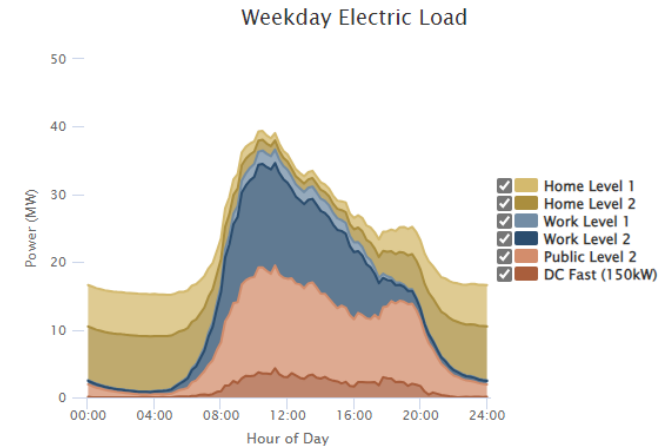




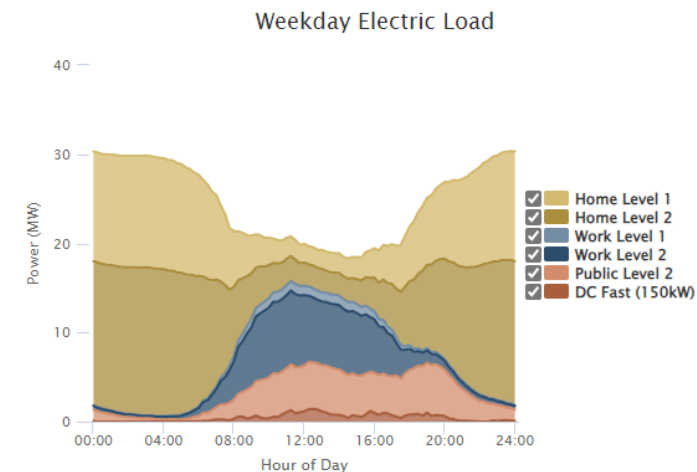
# 2030 EV Public Charging Scenarios: Time of Day Electric Load Comparison

- The two scenarios to the right illustrate how access to home charging influences peak demand by time of day. Both scenarios below assume 50% of EVs on the road are battery electric vehicles (BEVs) and 50% of the vehicles are plug-in hybrid (PHEVs).
- With less access to home charging, charging demand is pushed to the middle of the day, raising work-place charging demand. With more access to charging at home, peak demand shifts to the evening and people charge vehicles through the evening.

## 50% access to home charging



## 100% access to home charging



Source: ADOT; Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022; US Department of Energy Alternative Fuels Data Center – Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite.



# EV Public Charging Demand Scenario Assumptions

- The US Department of Energy EVI-Pro Lite Tool was used to project the number of public EV charging ports are needed today and in 2030.
- The statewide model was used. The number of EVs in Mesa is assumed to remain constant at 7% of registered EVs in the state. The Edison Institute growth projection of 1,000% increase in EVs by 2030 is used to estimate the number of EVs on the road in 2030.
- The only variation in scenarios is the use of 62% and 72% rates for home charging access.
- To the right is an example of the output from the tool.

## Change Assumptions

Light duty vehicles (as of 2021): 5,920,500  
Plug-in Electric Vehicles (as of 2021): 59,100

### Supported Vehicles

Vehicles supported: 59200

### Vehicle Mix

PEV Sedans 38 %  
PEV C/SUVs 36 %  
PEV Pickups 22 %  
PEV Vans 4 %  
Total: 100%

PHEV Share of PEVs 30 %

### PHEV support

How much support do you want to provide for plug-in hybrid electric vehicles(PHEVs)?

- ☐ Full support  
Most PHEV drivers wouldn't need to use gasoline on a typical day
- ☒ Partial support  
Calculate using half of full support assumption.
- ☐ Do not count PHEVs in charging demand estimates.

### Home Charging Access

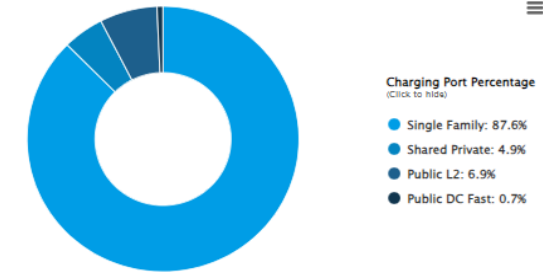
Percent of drivers with access to home charging 72 %

## Results: 46,988 Charging Ports

Recalculate

Download Results

To support 59,200 plug-in electric vehicles in Arizona you would need:



What kinds of charging ports are needed?

Click on the categories to see how they break down by location

41,148

Single Family Charging Ports



2,289

Shared Private Charging Ports



3,221

Public Level 2 Charging Ports



330

Public DC Fast Charging Ports



Source: ADOT; Electric Vehicle Sales and the Charging Infrastructure Required Through 2030. Edison Institute. 2022; US Department of Energy Alternative Fuels Data Center – Electric Vehicle Infrastructure Projection Tool (EVI-Pro) Lite.

# What the community shared about EVs

Public survey responses about EVs



# What we heard about EVs – Summary Notes

- Survey responses highlighted low access to charging at home and at public locations
- There is growing interest in EV ownership in Mesa
- Vehicle costs and access to charging are the biggest specific barriers to EV adoption in Mesa
- Personal vehicles, public transit, and private fleets received the highest priority rankings for types of zero-emission vehicles to receive policy and funding.

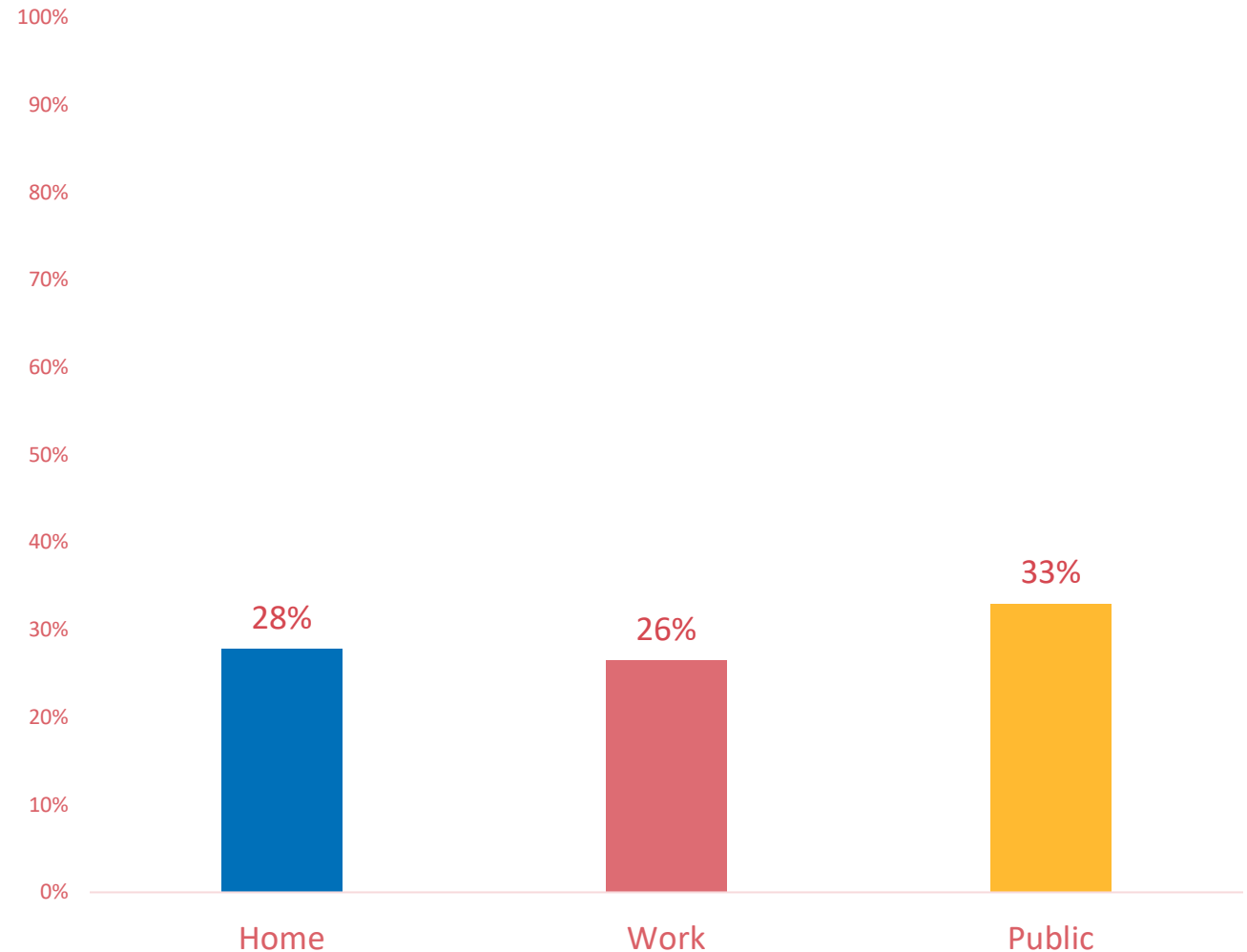


## Question 1

# Do you have access to EV charging?

- Survey responses highlight low access to charging at home, at work, and in public.
- Of the 575 survey responses received, 28% said they have access to charging at home, 26% at work, and 33% in public.
- These results highlight the real and perceived gaps in access to EV charging in Mesa.

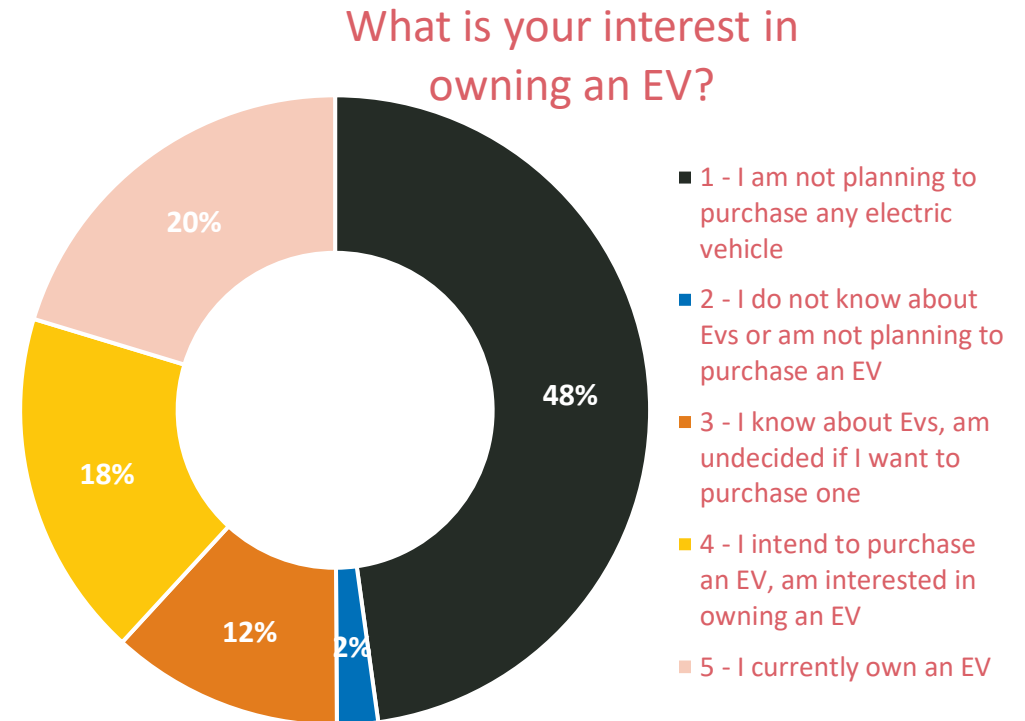
Do you have access to EV charging?



## Question 2

### What is your interest in owning an EV?

- There is growing interest in EV ownership.
- 20% of survey respondents own an EV.
- 18% said they are interested in owning an EV.

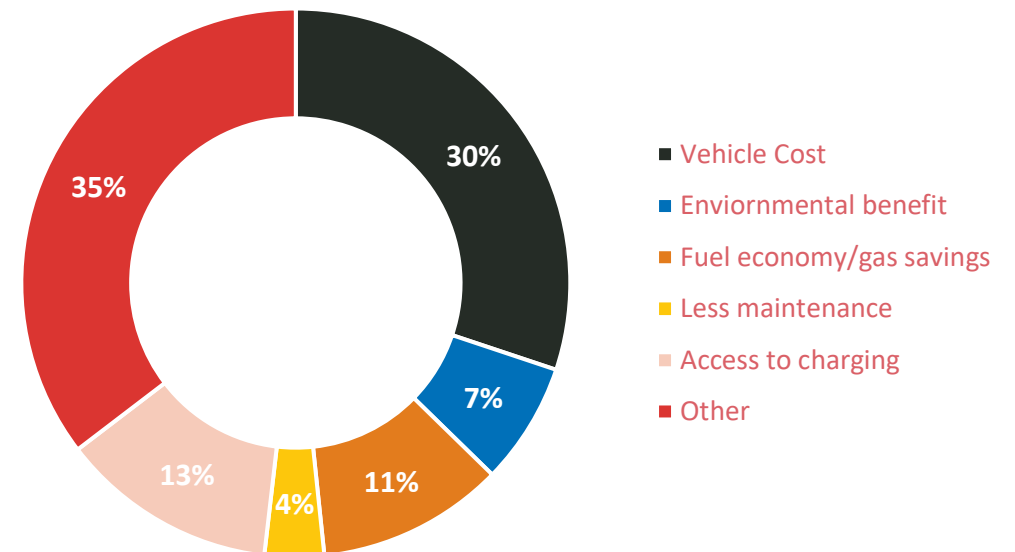


## Question 3

What would be the most important factor in buying an EV?

- There is growing interest in EV ownership.
- 20% of survey respondents own an EV.
- 18% said they are interested in owning an EV.

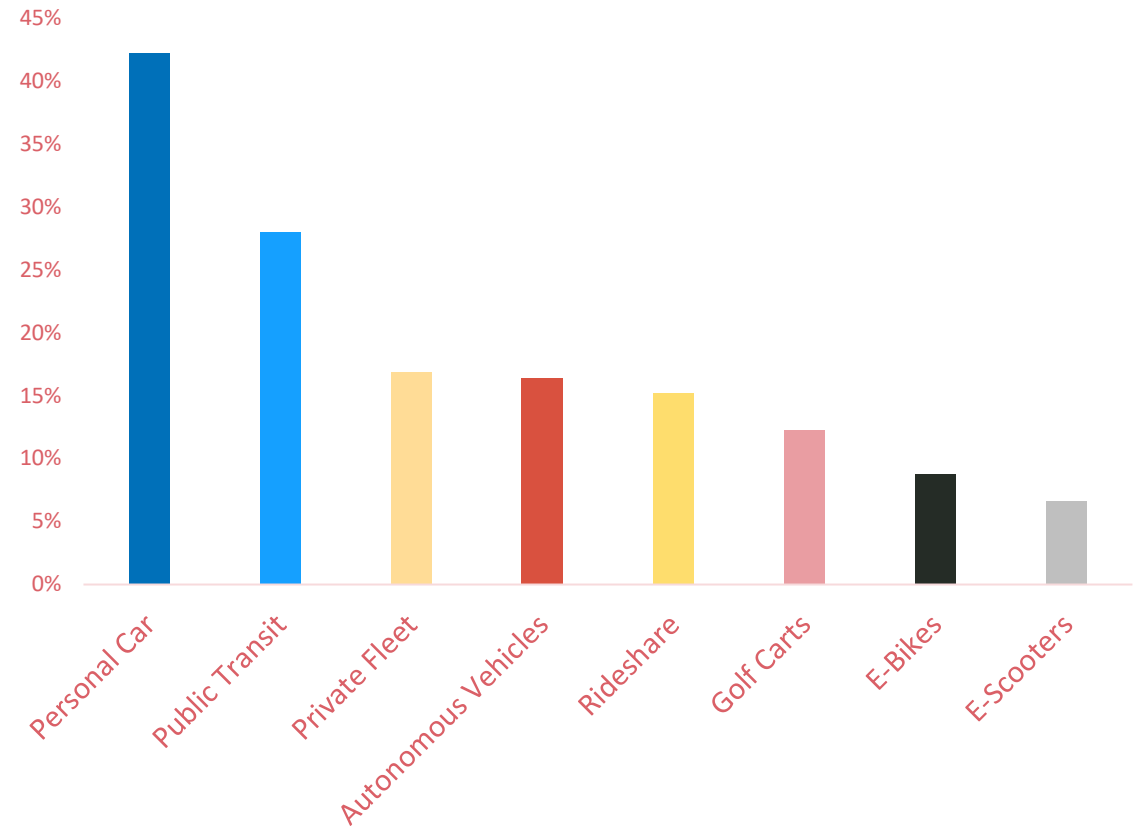
What would be the most important factor in buying an EV?



## Question 4

How would you rate the level of importance for these different modes?

- Personal vehicles, private fleets, and public transit received the highest priority rankings for types of zero-emission vehicles to receive policy and funding.

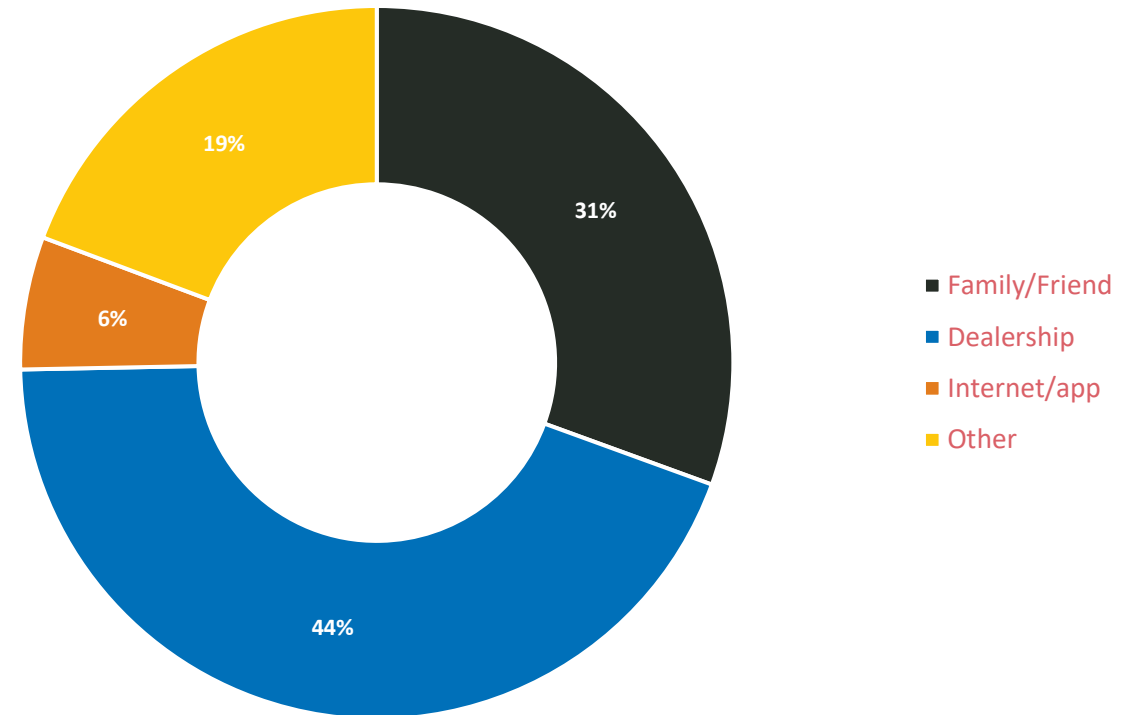




## Question 5

What source do you feel most confident in to inform you about EV charging infrastructure?

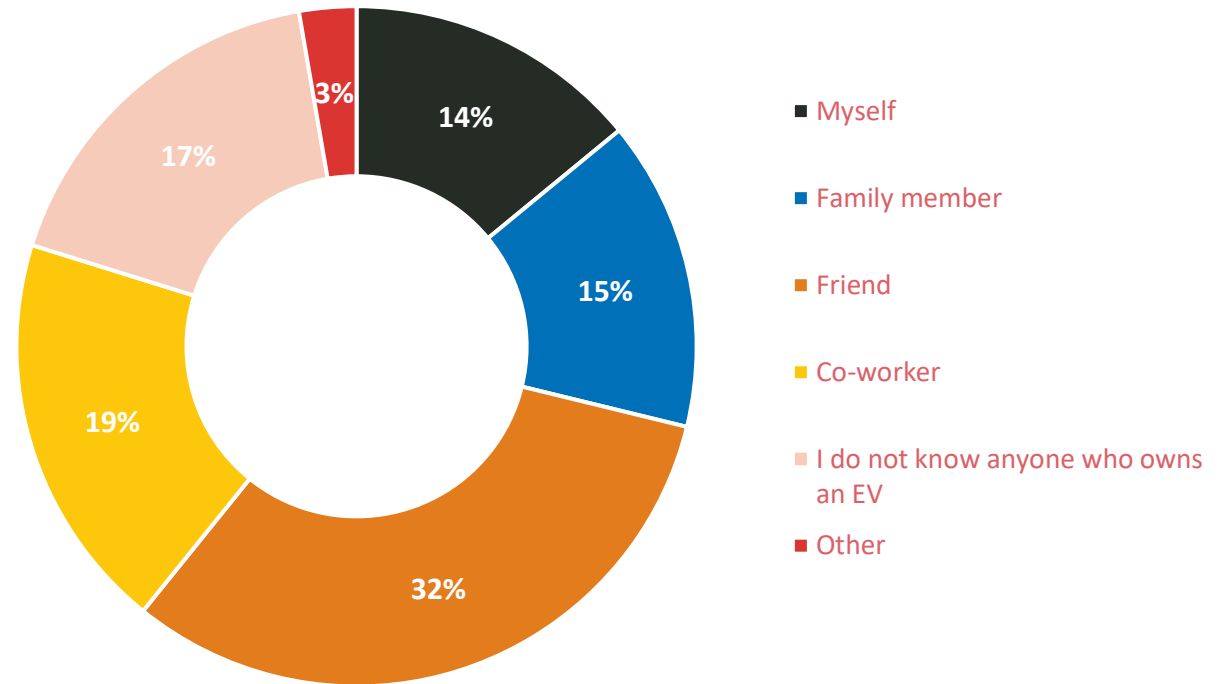
Which source do you feel most confident in to inform you about EV charging infrastructure?



## Question 6

Do you or someone you know own an EV?

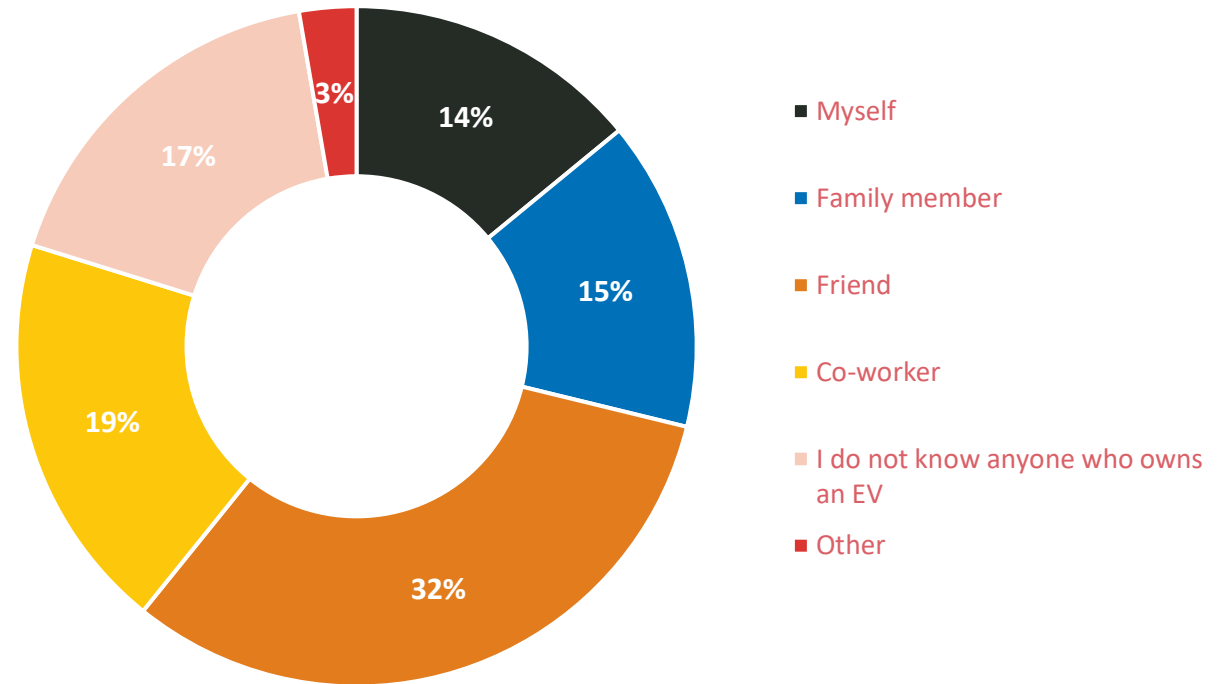
Do you or someone you know own an EV?



## Question 7

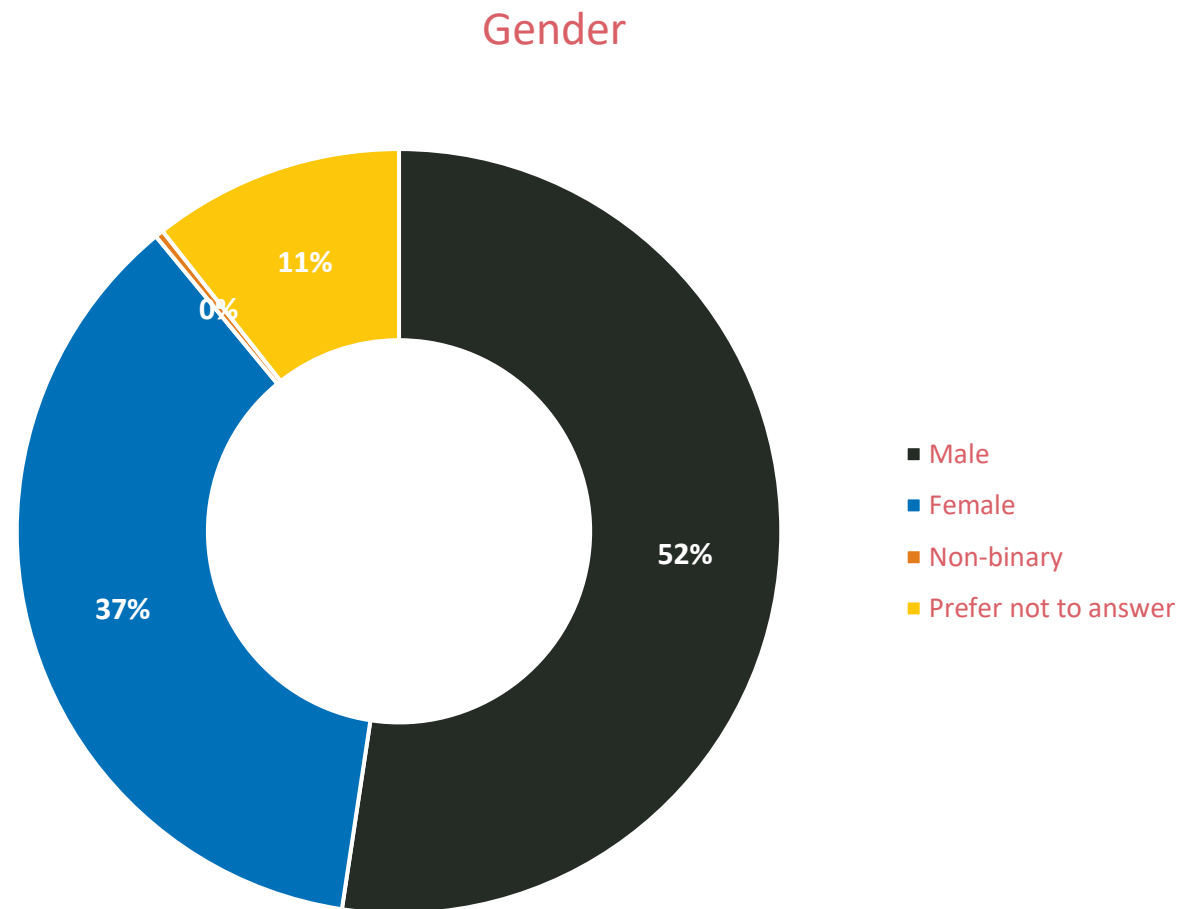
### What is your household income?

Do you or someone you know own an EV?



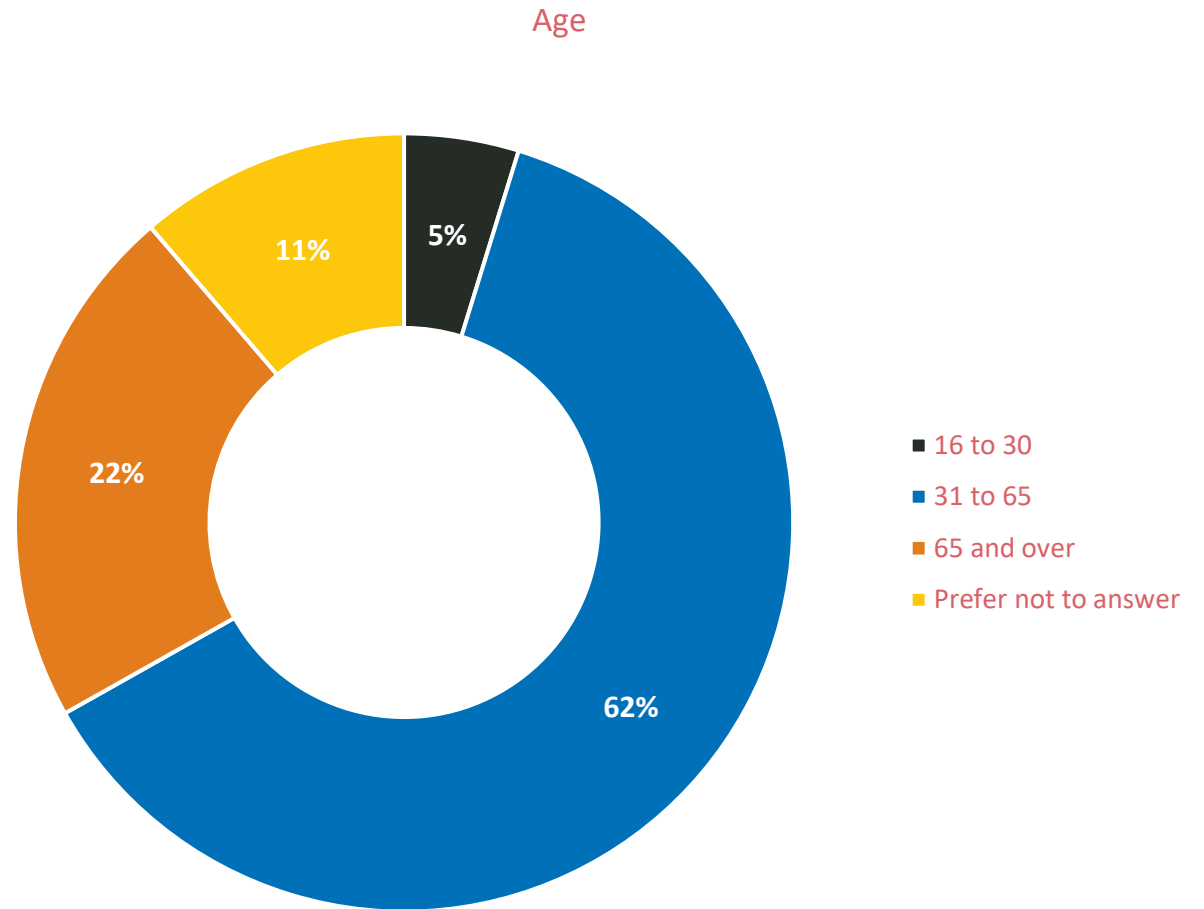
## Question 8

What is your gender?



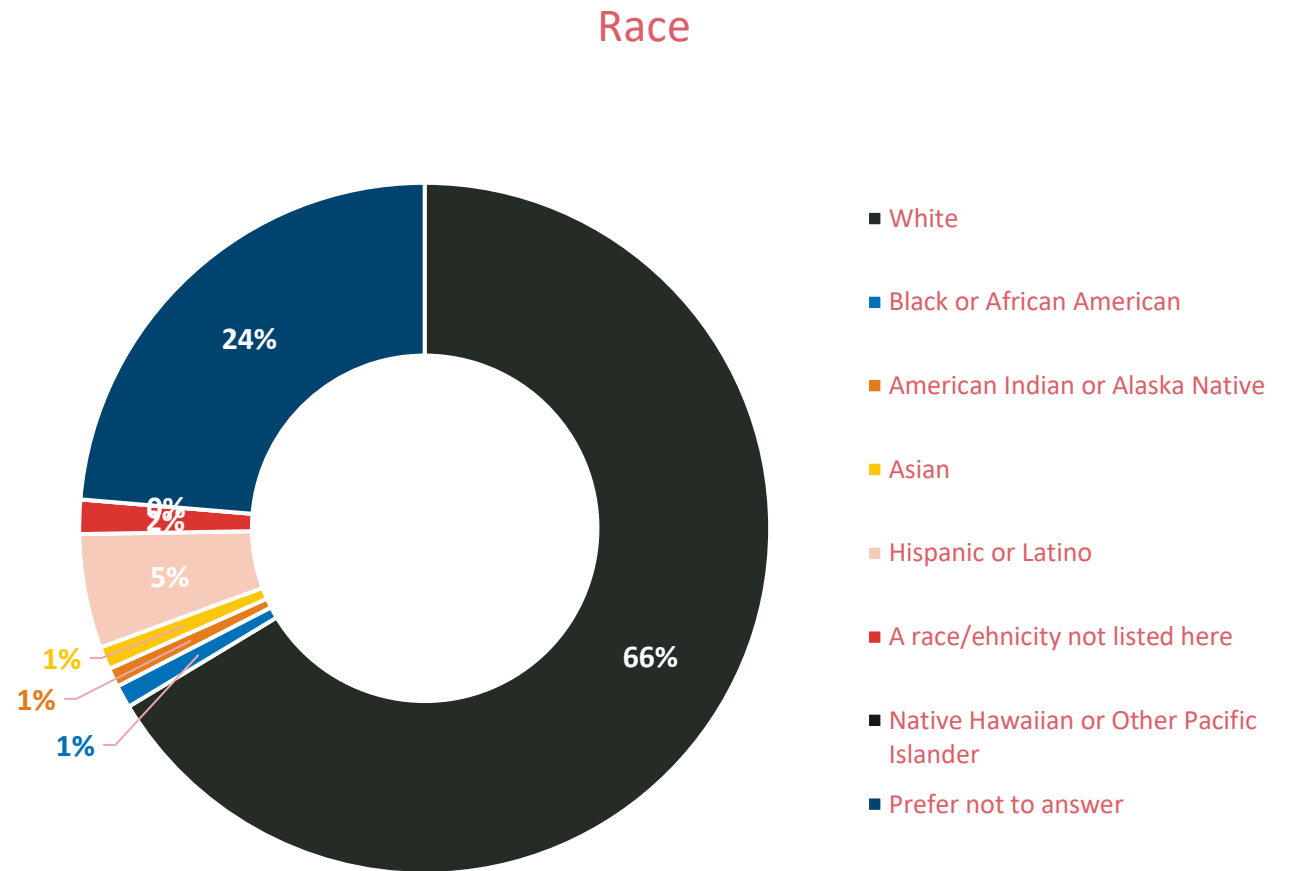
## Question 9

What age group are you in?



## Question 10

### What is your race?



# Mesa EV Strategies

Strategies to expand access and opportunity to decarbonize the City's transportation system



# EV Action Plan Strategy Topics



1. Increase charging access at home, particularly for people in multifamily housing.



2. Increase access to public charging in neighborhoods, at work, and where home charging is less accessible.



3. Support multi-modal access to electrification, including e-bikes, transit, neighborhood electric vehicles, and other micromobility devices.



4. Support development of a wide range of energy sources that reduce greenhouse gas emissions.







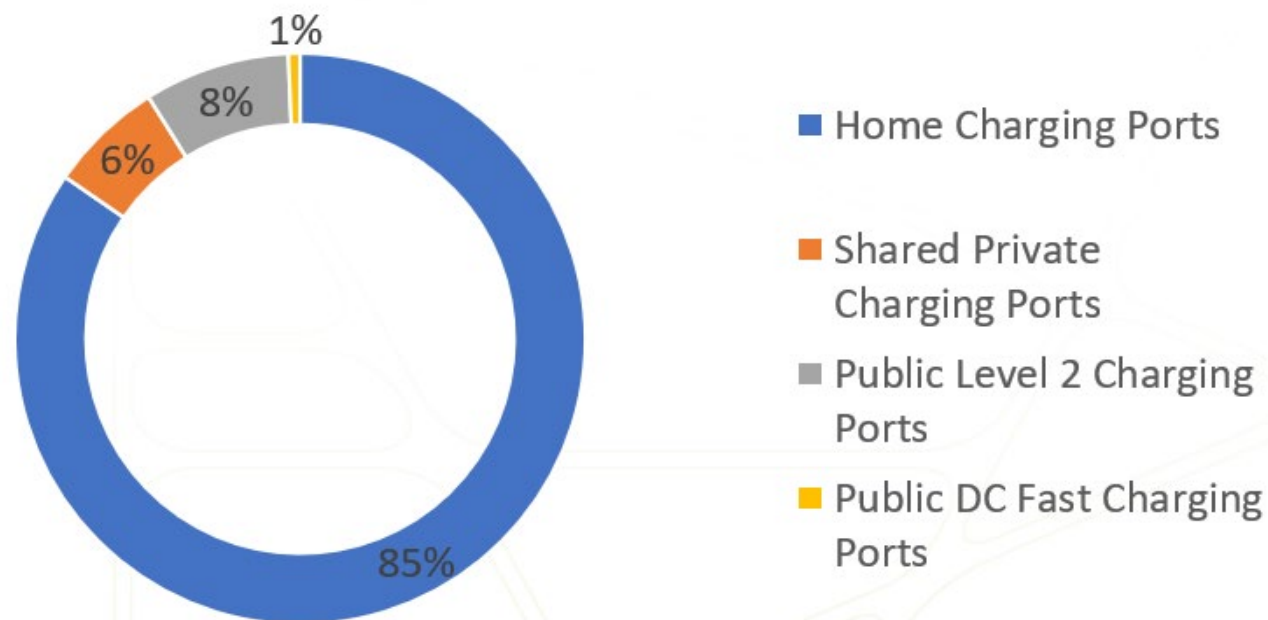
## Topic 1

# Increase charging access at home, particularly for people in multifamily homes

### Intent

By 2030, it is projected that 85% of EV charging will occur at home. Currently in Mesa, 62% of housing units are single-family and 38% are multifamily. Access to home charging will need to increase to meet demand. It will also need to increase to reduce demand for and on public charging. Mesa will need to focus policy on multifamily households, where access to charging is more difficult to obtain.

## EV Charging Port Demand in 2030 By Charging Location



# 1.1. Adopt EV Charging Ordinance

## Summary

An EV charging ordinance codifies requirements for EV Charging infrastructure for new construction projects and building renovations. An EV Ordinance should include requirements for minimum ampere and voltage requirements as well as location requirements for charging equipment.

## Additional Considerations

- Consider a minimum threshold of construction value
- Apply to a variety of land uses including residential, commercial, and industrial
- Set thresholds for what EV ready means (i.e. full circuitry installed but does not include charging equipment)
- Incorporate accessibility requirements in line with the latest guidance from the U.S. Access Board

## Action to Implement

- Draft and adopt EV charging ordinance into the City’s Code of Ordinances

		Degree of Difficulty to Implement		
		Easy		Hard
Cost	Low			
	High			



### **1.1.1. Case Study**

## **City of Atlanta**

- The City of Atlanta has codified requirements for all new construction to be made “electric vehicle ready,” which includes necessary voltage and ampere support and space for electric vehicles to charge and their respective charging equipment, but not the installation of Electric Vehicle charging equipment. Rather than providing monetary or other incentives, the City of Atlanta took a more direct approach that could be implemented for no cost by Mesa.

### **1.1.2. Case Study**

## **Miami-Dade County**

- Miami-Dade County has a requirement for electric vehicle charging readiness in larger parking facilities (those with more than 10 spaces) that defines what is an electric vehicle, what electric vehicle charging equipment includes, and the requirements for a charging space. Codifying clear definitions of electric vehicles and the requirements to support them will ease adoption and minimize confusion when developing required spaces or readiness.



# 1.2. Streamline EV charger permitting

**Summary:**

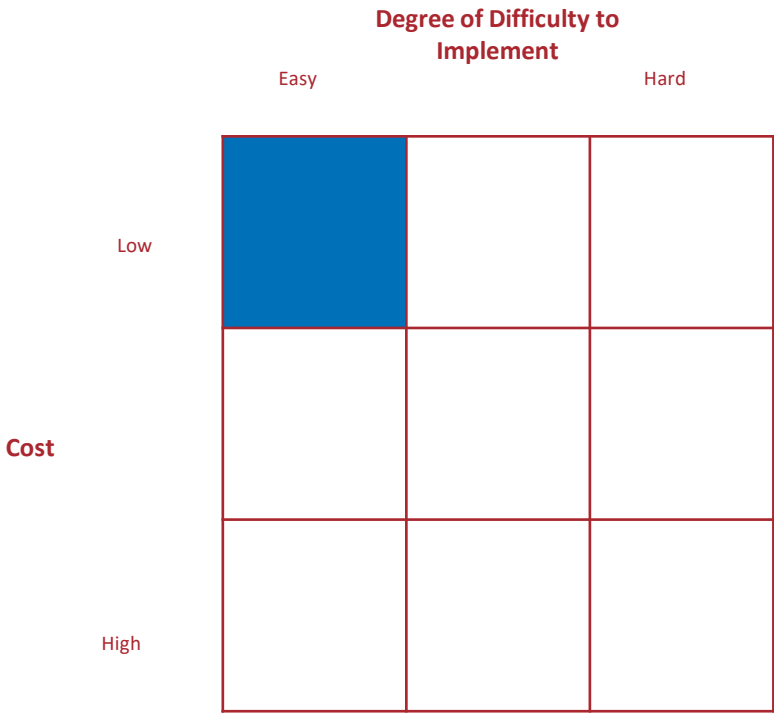
Incentive programs for charging port and outlet installation encourage the implementation of wider coverage of charging infrastructure, particularly in residential areas. Often, cost is a major inhibiting factor to EV adoption. Providing a means to mitigate adoption cost facilitates further adoption

**Additional Considerations:**

- Streamlining application is a low-cost
- Allowing applications for a variety of land uses including residential, commercial, and industrial
- Set requirements for minimum standards and charging type
- Incorporate accessibility requirements in line with the latest guidance from the U.S. Access Board
- Incentives can also be in the form of awareness, creating a city website for available existing incentives

**Action to Implement:**

Codify a rebate program through city-owned services or provide “express permitting” for EV charging projects



## 1.2.1. Case Study

### City of Los Angeles

- The City of Los Angeles has an express permit system that was expanded to include the installation of electrical vehicle charging equipment in single-family homes. Express permits do not require review or approval and are processed automatically, which creates a rapid way to report to the city the installation of electric vehicle charging infrastructure without having to go through the entire permitting process, which can make adoption far easier.





# 1.3. Create incentives for homeowners and property owners to install charging ports and outlets.

## Summary:

Incentive programs for charging port and outlet installation encourage the implementation of wider coverage of charging infrastructure, particularly in residential areas. Often, cost is a major inhibiting factor to EV adoption. Incentives come in a variety of forms, including financial rebate programs and code incentives. Providing a means to mitigate adoption cost facilitates further adoption. Code incentives act to encourage and streamline the adoption of electric vehicles by encouraging the installation of necessary EV charging equipment in various land uses.

## Additional Considerations:

- Code incentives do not need to be financial incentives
- Expanding land use definitions to allow for EV charging equipment explicitly removes gray zones for implementation
- Set thresholds for when EV ready (full circuitry installed but does not include electrical vehicle supply equipment (EVSE))
- Incorporate accessibility requirements in line with the latest guidance from the U.S. Access Board

## Action to Implement:

Draft and adopt incentive programs and expanded use definitions into the City's Code of Ordinances

		Degree of Difficulty to Implement		
		Easy		Hard
Cost	Low			
	High			



### **1.3.1. Case Study**

## **City of Atlanta**

- In addition to requiring EV readiness for all new construction, the City of Atlanta permits accessory units for structures explicitly for housing electric vehicle charging stations and other necessary equipment. This creates flexibility, particularly for smaller lots and older structures.

### **1.3.2. Case Study**

## **City of Anaheim**

- The City of Anaheim offers a rebate program through the City of Anaheim Public Utilities for customers of all types (residential, commercial, and industrial) that install EV chargers in existing structures ranging from \$1500 to \$3000. The rebate can be used to offset the cost of the charger, installation cost, building upgrades to accommodate chargers, or city permit fees for installation.







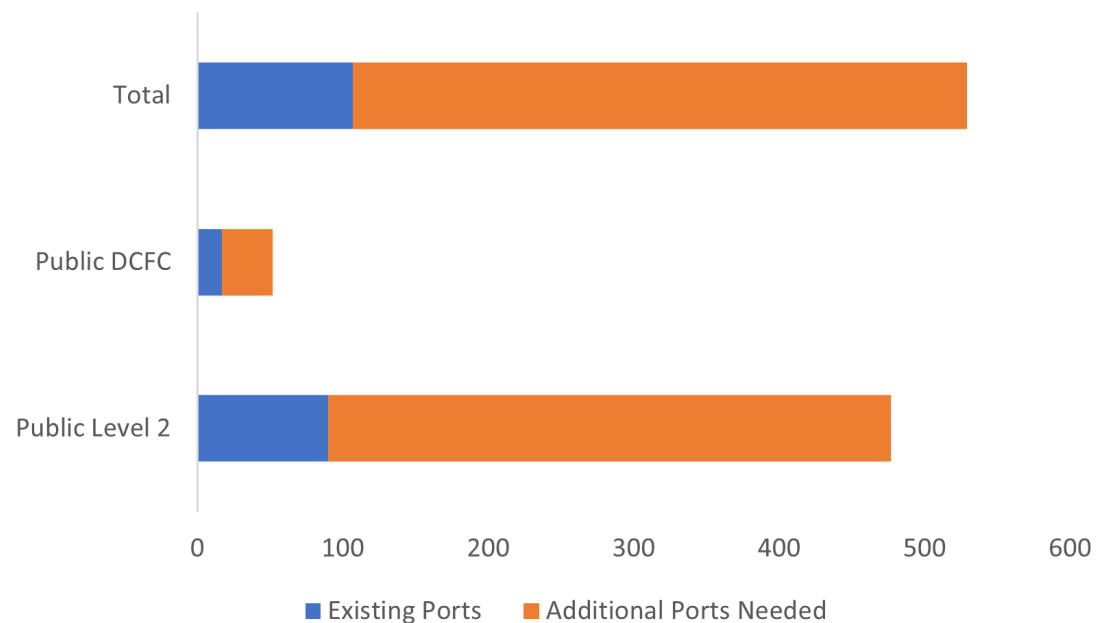
## Topic 2

**Increase access to public charging in neighborhoods, at work, and where home charging is less accessible**

### Intent

By 2030, it is projected Mesa will need 2,795 public charging ports. Today, Mesa currently has 107 public charging ports and a deficit 422 ports needed to keep pace with projected demand. Access to public charging will need to increase to meet demand. Public charging provides unique visibility for charging infrastructure, mitigating the effect of perceived charging gaps and range anxiety, which are strong deterrents to EV ownership and adoption

### EV Charging Ports Needed Today



# 2.1. Invest in charging hubs at civic destination

**Summary:**

City-Owned Charging Hubs can come in a variety of forms and do not need to be independent structures. Often, city-owned hubs can be incorporated into various municipal structures, including parking garages. Private partnerships can expedite implementation

**Additional Considerations:**

- Private charging companies can be used as partners for public charging hubs.
- Municipal structures are highly visible and locations are often well known and centrally located
- Incorporate accessibility requirements in line with the latest guidance from the U.S. Access Board

**Action to Implement:**

Create Partnerships with private charging companies or install charging infrastructure directly

		Degree of Difficulty to Implement		
		Easy		Hard
Cost	Low			
	High			



## 2.1.1. Case Study City of Oakland

- The City of Oakland partners with electric vehicle charging companies such as EVgo to install public charging facilities at city-owned parking garages and other municipal structures. The City prioritizes installation in areas of higher density and older housing to help cover charging gaps that could be exacerbated by older residential buildings not being able to support EV charging.



## 2.2. Develop strategies to support private fleet transition

### Summary:

Provide strategic investment, education, coordination, and design guidance for private fleet owners to purchase EV's and install supporting charging infrastructure.

### Additional Considerations:

- Make private fleet owners aware of existing public grant opportunities and tax incentives for EV fleet conversion
- Ensuring there is adequate electrical capacity to serve fleet charging sites
- Create streamlined permitting for private EV fleet infrastructure
- Private property owners can charge for EV charging access

### Action to Implement:

Develop partnerships and provide incentives for the installation of charging infrastructure and streamline private fleet adoption





# 2.3. Promote workplace charging

**Summary:**

Civic destinations provide great locations for EV charging stations: they are highly visible, centrally located, easily accessible, and highly trafficked. All these factors allow public charging at civic destinations expand real and perceived EV charging infrastructure

**Additional Considerations:**

- Public charging at Civic Destinations do not have to be owned or managed by the City
- Cost can be minimized for the city by partnering with private electric charging companies or property owners
- Ensuring there is adequate electrical equipment can determine more optimal locations
- Incorporate accessibility requirements in line with the latest guidance from the U.S. Access Board
- Private property owners can charge for EV charging access

**Action to Implement:**

Develop partnerships and provide incentives for the installation of charging infrastructure at civic destinations

		Degree of Difficulty to Implement		
		Easy		Hard
Cost	Low			
	High			



## 2.2.1. Case Study

### City of Los Angeles

- The City of Los Angeles's Department of Water and Power offers a rebate program for charging installation on commercial properties, similar to those for home installation. Commercial properties often act as civic destinations, particularly shopping centers. Offering rebates for the private sector, in addition to expanding charging at municipal structures, expands coverage potential of public charging. Mesa's own utility company could offer similar rebate opportunities.



**EV charging stations  
are good for business!**

Learn more today



**Charging Ahead!**





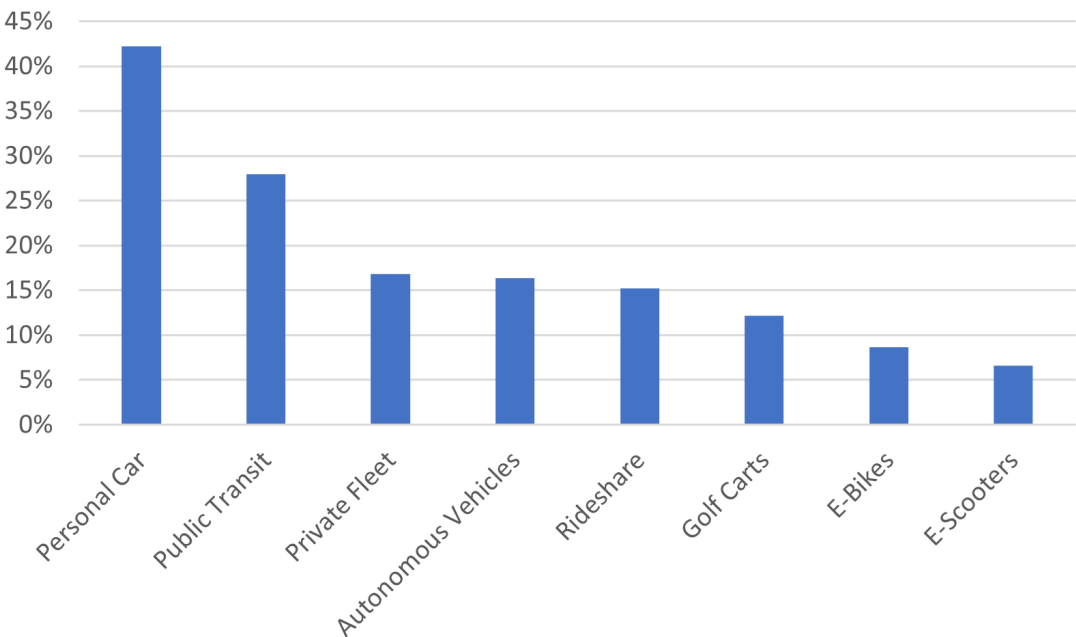
### Topic 3

**Support multi-modal access to electrification including e-bikes, transit, neighborhood electric vehicles, and other micromobility devices.**

#### Intent

Personal electric cars are no the only type of EV. Electric vehicles also include e-bikes, transit, neighborhood electric vehicles, and other micro-mobility devices. Ensuring transportation flexibility is a great way to support Mesa's electrification.

#### **Public Expressed Importance of Multimodal Options**





# 3.1. Create a Micromobility Incentive Program

## Summary:

Micromobility systems are a growing additional type of electric vehicle. Micromobility includes e-bikes, electric golf carts, e-scooters, and other small electric vehicles. Often, adoption is hindered by cost, as with all electric vehicles. Providing incentives for electric micromobility vehicle adoption can have positive impacts on both EV adoption rate and air quality.

## Additional Considerations:

- Electric micromobility systems also need charging infrastructure
- Cost can be minimized for the city by looking for regional partners
- Existing pedestrian and bike infrastructure can support many forms of micromobility
- Alternative transportation systems have an added effect of mitigating air pollution

## Action to Implement:

Develop regional partnerships and provide incentives for the adoption of various micromobility electric vehicles.

		Degree of Difficulty to Implement		
		Easy		Hard
Cost	Low			
	High			



## 3.1.1. Case Study

# South Coast Air Quality Management District

- The South Coast Air Quality Management District (SCAQMD) is a regional organization in Southern California created to promote programs that mitigate air pollution. The SCAQMD has an extensive rebate system designed to support lower income residents of their jurisdiction to adopt transportation methods that produce less air pollution, including a plethora of alternative fuel and transportation systems. This includes rebate program for people that purchase various micromobility systems, such as e-bikes, and is designed to help offset cost and promote more air quality-friendly transportation methods



E-bike rack, From:  
[bicycleretailer.com](http://bicycleretailer.com)



## 3.2. Expand Transportation Demand with Subsidized Transit Passes

### Summary:

Utilization of public transit can be an inhibitive factor to transitioning to electric rollingstock. Public transit demand can remain low if the cost of using a personal car is less than using public transit. Mesa can create an incentive program for those that switch to public transit, which would boost demand.

### Additional Considerations:

- Rebates based on income, with lower income applicants receiving proportionally a larger rebate
- Public transit is an effective reducer of air pollution, even without electric rolling stock
- Ensuring the ability to acquire subsidies for transit passes is easy
- Discounts for frequent ridership or monthly passes encourages use
- Electrified transit will be most impactful with higher ridership

### Action to Implement:

Expand Mesa's existing reduced fare program to provide a rebate system for those that switch to public transportation from private vehicles.

		Degree of Difficulty to Implement		
		Easy		Hard
Cost	Low			
	High			







Valley Metro in Downtown Mesa, From: kjzz.org

### 3.2.1. Case Study

## Los Angeles County

- The Los Angeles County Metropolitan Transportation Authority (Metro) offers a reduced fare program called “LIFE” (Low Income Fare is Easy). “LIFE” can be used on all Metro systems and information to qualify and acquire a LIFE pass is easily accessible online. This program is very similar to Mesa’s existing fare reduction program. Additional subsidies exist through the South Coast Air Quality Management District. A rebate can be applied for someone switching their primary transit mode to Metro.







## **Topic 4** **Supporting Development of a Wide Range of Alternative Fuel Sources**

### **Intent**

Electric vehicles are not the only type of alternative fuel vehicle. An important way to support climate resiliency efforts is a diversity of fuel options to ensure a smooth transition from fossil fuel reliance for transportation. As the demand for electric vehicles grows, so will the demand for other alternative fuel vehicles.



# 4.1. Identify locations for hydrogen fuel stations

## Summary:

Hydrogen fuel station identification and planning similar to those that exist more extensively for electric vehicles are not as common, particularly at the municipal level. Implementing a well defined location identification plan for all types of alternative fuel vehicles will encourage early adoption for emerging technologies, creating more streamlined adoption later on.

## Additional Considerations:

- Lack of existing infrastructure requires higher investment and would be difficult to implement
- Pursing hydrogen fuel support would establish Mesa as a leader in alternative fuels
- Encouraging early adoption will expediate larger-scale adoption long term
- Raising awareness of non-electric alternatives is crucial

## Action to Implement:

- Develop a system to identify locations for hydrogen fuel stations, similar to EV charging station infrastructure plans.

		Degree of Difficulty to Implement		
		Easy		Hard
Cost	Low			
	High			



## 4.2. Bio-fuel Production and Sales Incentives

### Summary:

Biofuel is an additional alternative fuel source that has an established presence in US markets and, like other alternative fuels, has a growing role in the US energy and fuel market. Offering incentives for production and research for the use of biofuels helps expediate implementation.

### Additional Considerations:

- Biofuel has a wide variety of types
- Incentives do not have to be exclusively financial in nature
- Encouraging production systems locally allows for a more robust supply chain
- Raising awareness of non-electric alternative fuels is a crucial component, as with hydrogen

### Action to Implement:

Codify biofuel incentives in addition to other alternative fuel incentives. Develop a comprehensive list of all incentives available to residents and businesses within Mesa

		Degree of Difficulty to Implement		
		Easy		Hard
Cost	Low			
	High			



## 4.2.1. Case Study State of Georgia

- The State of Georgia through the Georgia Department of Revenue provides tax exemptions for the production and sale of biofuel material for the use of energy production. As the City of Mesa has both use and sales tax, this provides an opportunity to implement a similar method for no additional cost to the City.

## 4.2.2. Case Study City of Los Angeles

- Although the City of Los Angeles does not have an independent funding source for biofuel, the City has assembled a comprehensive list of all alternative fuel incentives available to businesses within Los Angeles, including vehicle adoption, fuel production, and fuel sales. This acts as a low cost measure to promote adoption of alternative fuel systems.





## 4.3. Pursuing grant opportunities to expand opportunities for low and zero-carbon fuels

### Summary:

The availability of funding is a primary limiting factor in alternative fuel vehicle adoption and infrastructure development. Ensuring ample opportunities for alternative fuel related projects within Mesa allow the city to become a leader in low and zero carbon options. Additionally, a wider diversity of fuel options creates a more resilient transportation system providing critical flexibility.

### Additional Considerations:

- A wide variety of funding sources and applicability are preferable
- Raising awareness of non-electric alternative fuels is a crucial component to EV adoption strategies
- Mesa already has pursued grant opportunities at the federal level for EVs infrastructure

### Action to Implement:

The City of Mesa should pursue a variety of grant opportunities relating to supporting EV implementation to provide funding sources for those that wish to convert within the City of Mesa.

		Degree of Difficulty to Implement		
		Easy		Hard
Cost	Low			
	High			



# Mesa EV Vision and Guiding Principles

Mesa's strategies for a decarbonized future



# Mesa EV Vision Statement

- Mesa will be well prepared for and optimally leverage an EV transportation future that is clean, connected, and easily accessible. The vehicles and devices people use to travel and move goods around Mesa will be available equitably, reduce carbon emissions, create opportunities for good jobs, be resilient, and expand mobility choices.
- The City will achieve these desired outcomes by making strategic investments in public infrastructure, partnering with private companies to bring new EV transportation technology to the City, and adopting policies that streamline the City's vision for a transformed transportation future. Mesa's strategy goes beyond EVs as well. Mesa will be future-ready by proactively seeking and responding to a wide range of zero-emission fuels, vehicles, and supporting energy infrastructure.





# EV Vision and Guiding Principles

- **Convenient.** Convenience of charging access so as not to inhibit someone's adoption of EVs
- **Prosperous.** Local source of jobs and economic activity strengthening Mesa's economic base
- **Diverse.** Promoting multimodal transit systems is the best way to further Mesa's sustainability goals
- **Equitable.** Electric vehicles and other alternative fuel vehicles can help reduce air pollution in the East Valley
- **Resilient.** Diversifying fuel systems and multimodal systems create a more resilient transportation system with more flexibility
- **Ambitious.** Mesa is committed to being a leader in alternative fuel adoption.
- **Safe.** The operation of EVs and the charging of EVs will be safe.



# Charging and Fueling Infrastructure Program – Community Grant Application

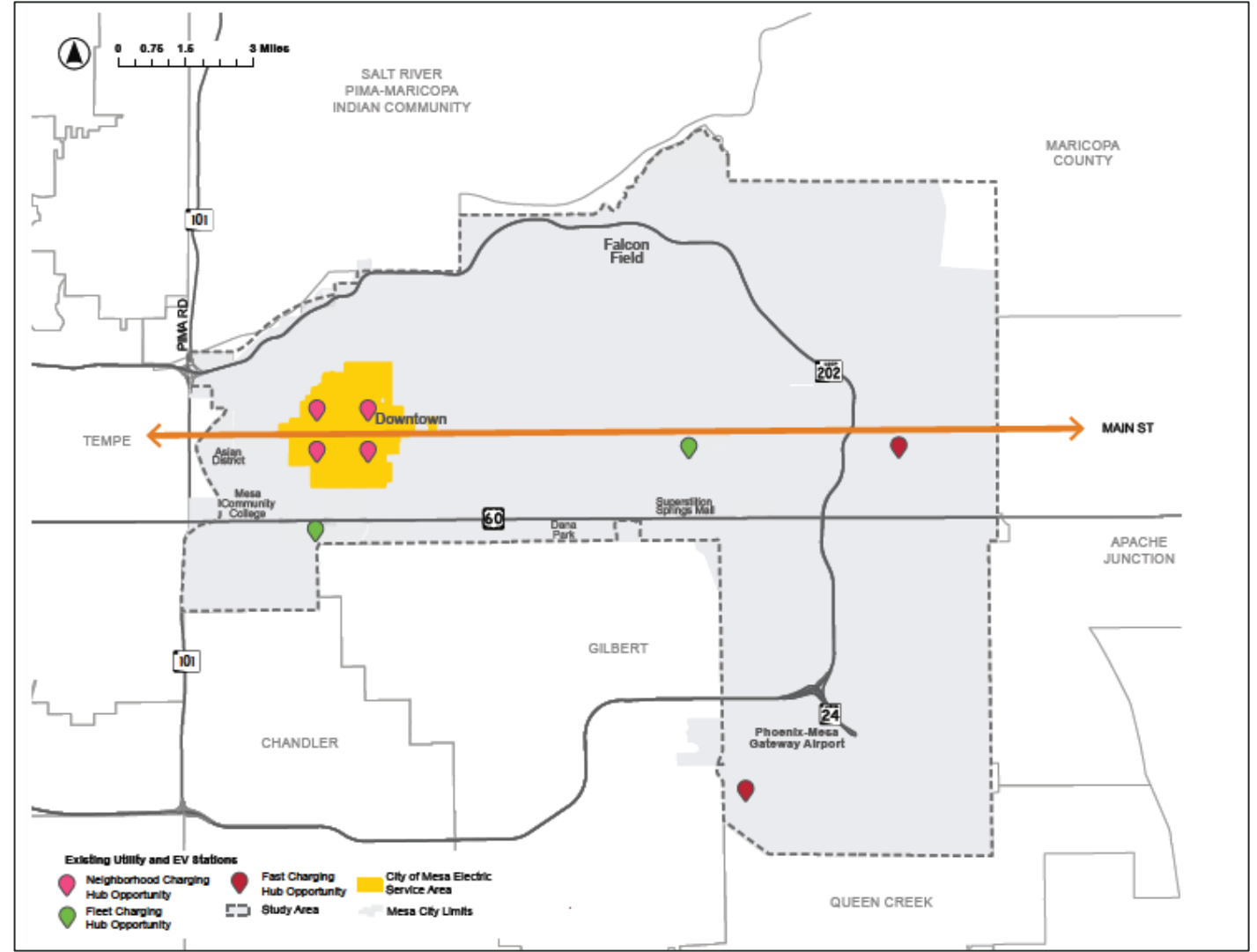
Federal grant application for public EV charging stations



# Grant Application Summary

- Total Project Cost: \$14,873,215
- Grant Requested: \$11,898,571
- Matching Funds: \$2,974,644 (20%)
- Number of Proposed Charging Stations: 8
- Number of Proposed Ports: 48

## Proposed Public EV Charging Hubs



# Summary of Proposed Charging Stations

## Neighborhood Charging Hubs

- Summary: Neighborhood Charging Hubs are intended primarily to meet the needs of citizens and visitors in and around the Downtown Mesa area and provide an equitable expansion of infrastructure by serving disadvantaged communities.
- Number of Stations: 4
- Level II Ports Per Station: 4 (19kW each)
- Level III Ports Per Station: 2 (50-60kW each)
- Ebike Charging Docking Stations Per Station: 5

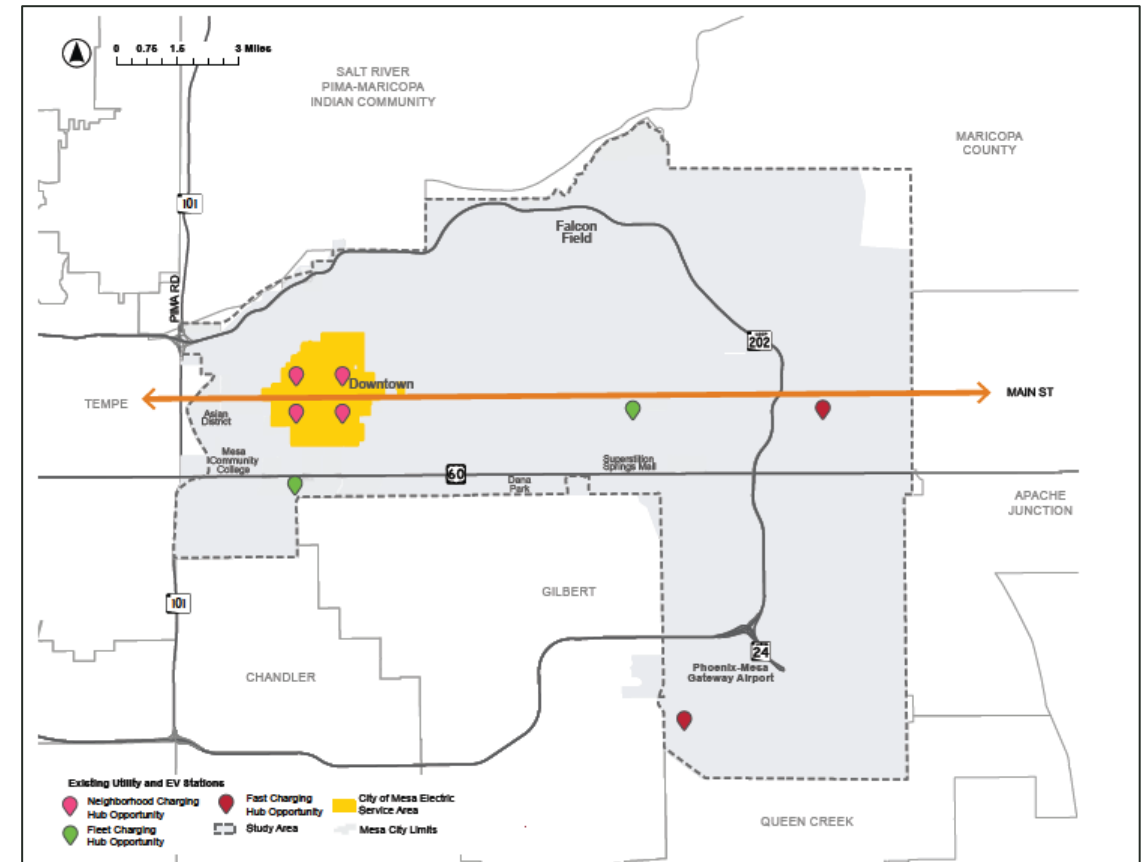
## Public Fleet Charging Hubs

- Summary: Public Fleet Charging Hubs are intended to meet the needs of a wider array of vehicle types and the faster charger needs associated with local small business commercial fleet vehicles while still providing public access.
- Number of Stations: 2
- Level III Ports Per Station: 4 (150-180kW each)
- Level III Ports Per Station: 4 (50-60kW each)

## Fast Charging Hubs

- Summary: Fast Charging Hubs are intended to expand community access to shorter charging times, as well as increasing accessibility near rural, industrial, or tribal areas.
- Number of Stations: 2
- Level III Ports Per Station: 4 (150-180kW each)

## Proposed Public EV Charging Hubs





# Suitability Analysis Criteria

- To ensure the Project will expand community-based infrastructure and fill gaps in access by equitably expanding the deployment of publicly available EV charging infrastructure, a suitability analysis was done using GIS. The City developed criteria to compare and rank Census Block Groups according to the EV infrastructure needs of the community, seeking to serve concentrations of multi-family residences, fill gaps in the fast-charging network, and serve small business commercial fleets as well as public charging.
- The City identified a desire to provide charging hubs in their community in the following categories:
- Neighborhood Charging Hubs
- Public Fleet Charging Hubs
- Fast Charging Hubs

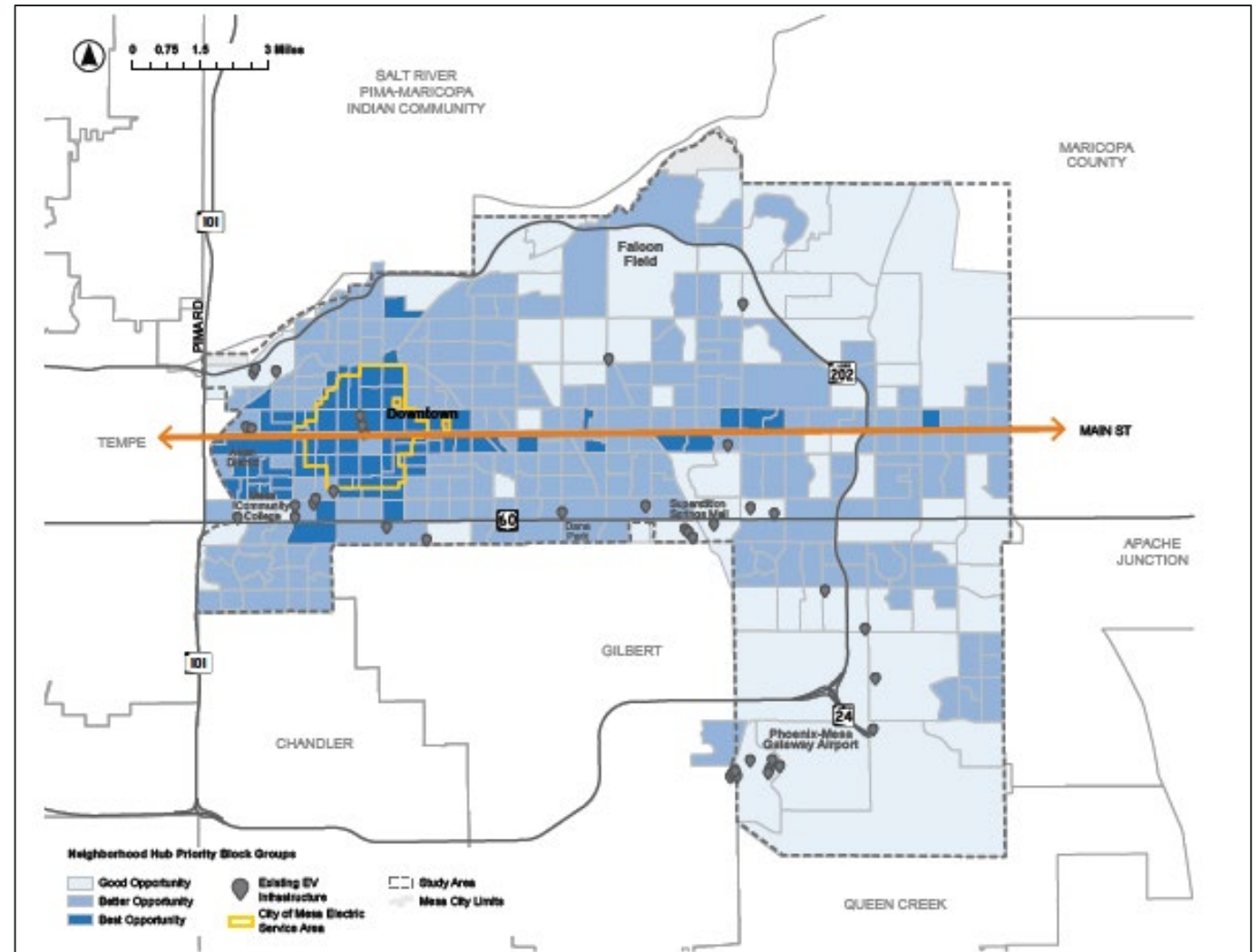
What We're Measuring	How We're Measuring	Scoring Criteria
<b>Neighborhood Charging Hub</b>		
Where People Live	Population density per square mile by block group	Low - 1 point - lower third of population density in Mesa Medium - 2 points - middle third of population density in Mesa High - 3 points - top third of population density in Mesa
Density of Multifamily Households	Total number of multifamily households within a block group	Low - 1 point - Lower third of number of multi-family units Medium - 2 points - middle third of total number of multi-family units High - 3 points - top third highest number of multi-family units
Equity	Justice40 designated block groups	Yes - 3 points No - 0 points
Existing Public Charging Access	Ports per 1k population	Low - 3 point - lower third of port density Medium - 2 points - middle third of port density High - 1 points - top third port density
City of Mesa Utility Service Area	Within the utility service area	Yes - 3 points No - 0 points
<b>Fast-Charging Hub</b>		
Equity	Justice40 designated block groups	Yes - 3 points No - 0 points
Proximity to Interstates/ Limited Access Freeways	Proximity to AZ 202, US 60, and AZ 87	Within 1 mile - 3 point Within 5 miles - 2 points More than 5 miles - 1 points
Existing Public Fast Charging Access	DCFC ports per 1k population	Low - 3 point - lower third of port density Medium - 2 points - middle third of port density High - 1 points - top third port density
Trip Volume	Volume of daily trips that end in the block group	Low - 1 point - lower third of daily trip volume Medium - 2 points - middle third of daily trip volume High - 3 points - top daily trip volume
<b>Public Fleet Charging Hub</b>		
Where People Work	Job density per square mile	Low - 1 point - lower third of job density in Mesa Medium - 2 points - middle third of job density in Mesa High - 3 points - top third of job density in Mesa
Industrial Activity	Share of land dedicated to industrial land uses	Low - 1 point - lower third of share of industrial land in Mesa Medium - 2 points - middle third of share of industrial land in Mesa High - 3 points - top third of share of industrial land in Mesa
City of Mesa Fleet location	City fleet locations located within a block group	Yes - 3 points No - 0 points
Equity	Justice40 designated block groups	Yes - 3 points No - 0 points
Existing Public Charging Access	Ports per 1k of jobs	Low - 3 point - lower third of port density Medium - 2 points - middle third of port density High - 1 points - top third port density
Proximity to Major Freight Corridors	Proximity to National Highway Freight Network	Within 1 mile - 3 point Within 5 miles - 2 points More than 5 miles - 1 points



# Neighborhood Charging Hub Suitability Analysis Map

## Criteria Analyzed

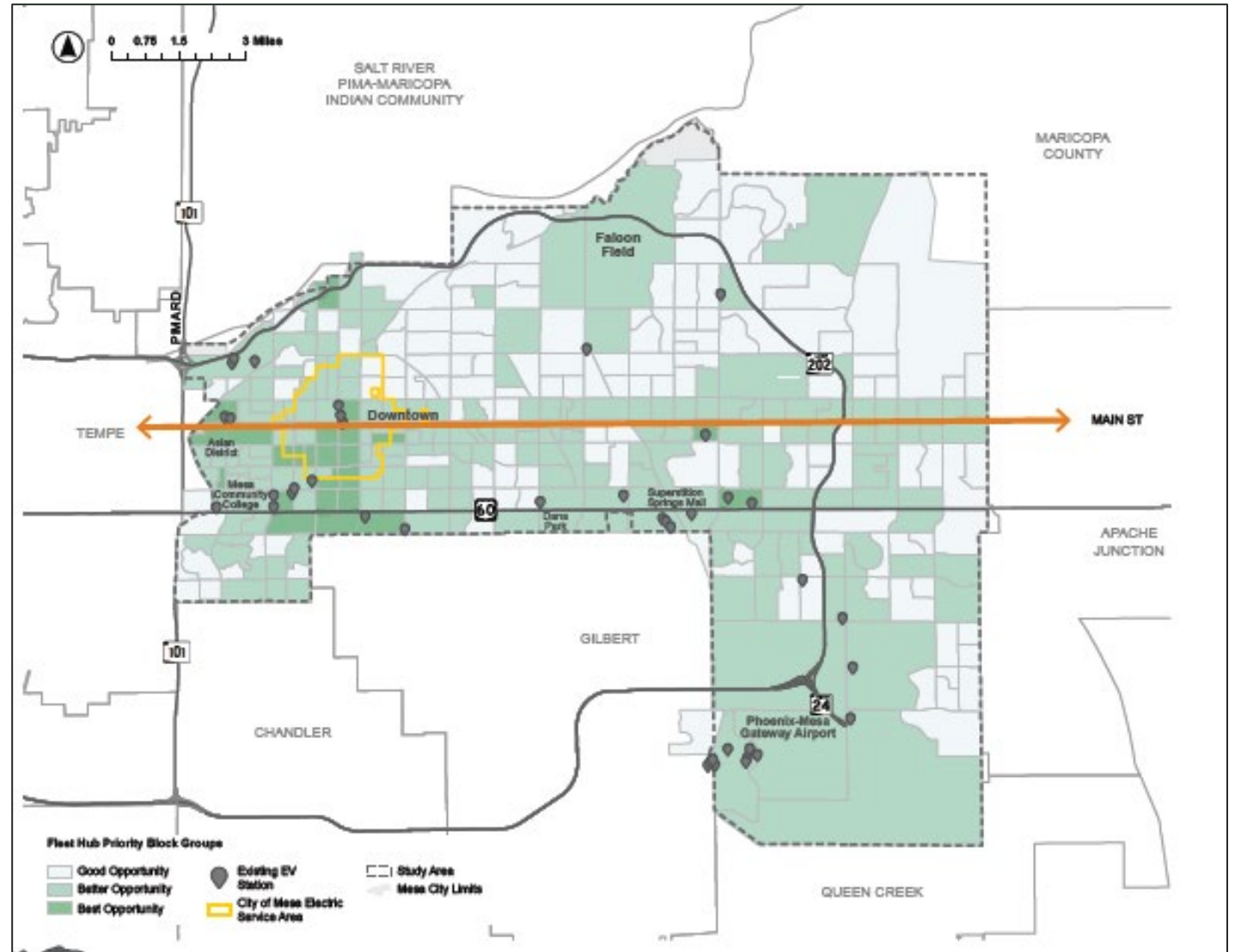
- Where people live
- Density of multifamily households
- Equity
- Existing public charging access
- City of Mesa utility service area



# Public Fleet Charging Hub Suitability Analysis Map

## Criteria Analyzed

- Where people work
- Industrial activity
- City of Mesa fleet location
- Equity
- Existing public charging access
- Proximity to major freight corridors

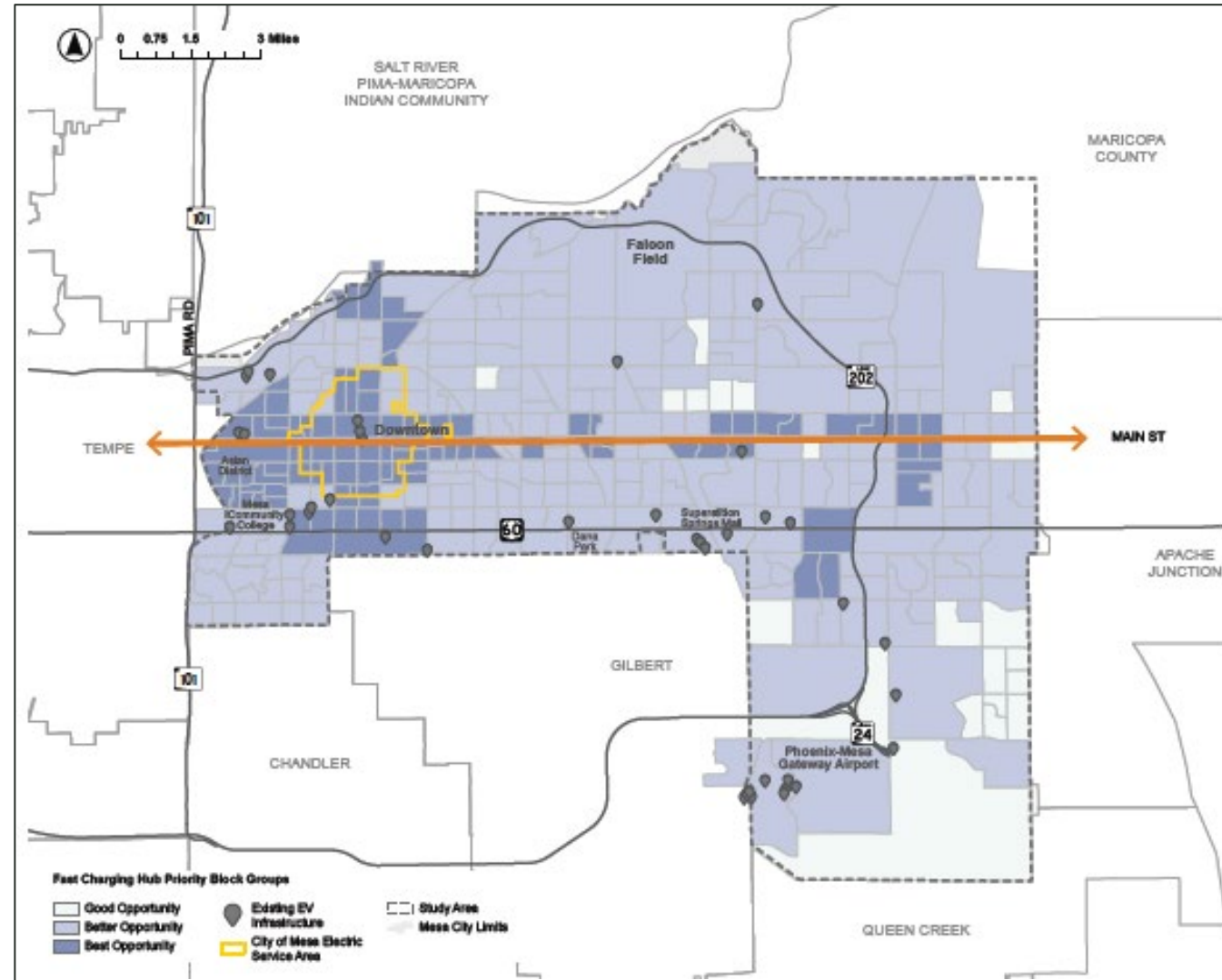




# Fast-Charging Hub Suitability Analysis Map

## Criteria Analyzed

- Equity
- Proximity to interstate/limited access freeways
- Existing public fast-charging access
- Trip volume

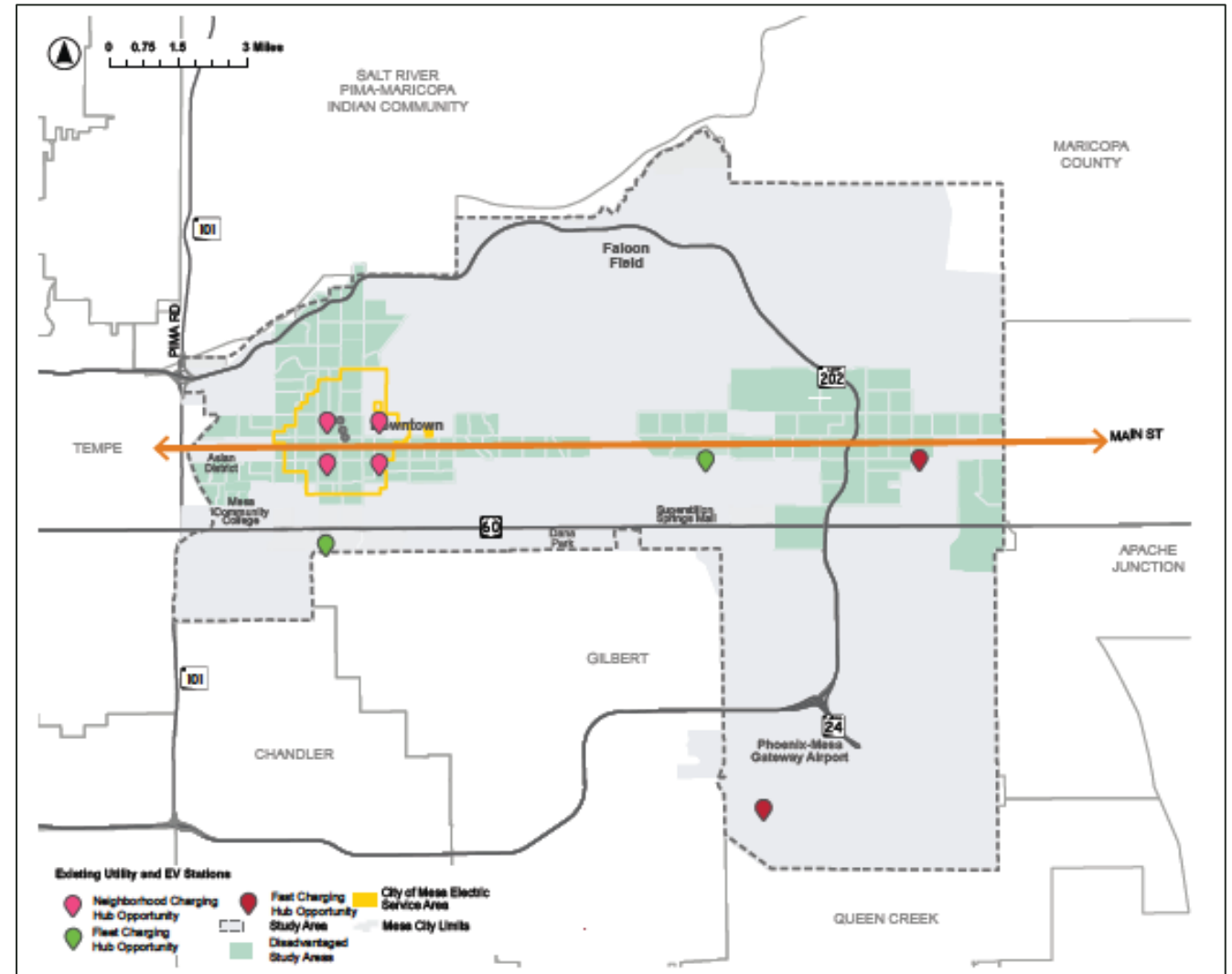


# Priority Areas for Proposed Charging Stations

- Based on the suitability analysis results, the City seeks to focus the expansion of community-based charging infrastructure in these priority block groups. An estimated five of the eight new hubs will be provided in a disadvantaged (Justice40) block group.

Charging Hub Type	Potential Block Groups	Number of Charging Ports	Maximum kW Per Hour Power Capacity
Neighborhood Charging Hub	040134213021 (D) 040134211022 (D) 040134214001 (D) 040134210021 (D) 040134209022 040134215022 040134214002 (D) 040134215011 (D) 040134219024 (D) 040134220011 (D) 0134221062 (D) 040134221063 (D) 040134213022 (D)	24	784
Public Fleet Charging Hub	040134226282 (D) 040135228021	16	1920
Fast Charging Hub	040134222033 040134226252 (D)	8	1440

(D) = Disadvantaged per the Electric Vehicle Charging Justice40 Map, USDOT, 2023



# Simplified CFI Grant Budget

Activity	Funding Categories		Activity Total	% of Total
	CFI	Non-Federal		
Design Service	\$560,000	\$140,000	\$700,000	5%
Utility Connection	\$752,000	\$188,000	\$940,000	6%
EVCS <sup>1</sup>	\$1,760,000	\$440,000	\$2,200,000	15%
Electrical Construction	\$1,673,856	\$418,464	\$2,092,320	14%
Solar Canopy	\$3,200,000	\$800,000	\$4,000,000	27%
Limited Site Work	\$226,240	\$56,560	\$282,800	2%
Contingencies	\$3,268,838	\$817,210	\$4,086,048	27%
Educational Campaign Development	\$457,637	\$114,410	\$572,047	4%
Total	\$11,898,571	\$2,974,644	\$14,873,215	
%	80%	20%	100%	

1. Electric Vehicle Charging Station



# Project Costs by Hub Type, Source, and Activity

Activity	Funding Categories		Activity Total	% of Total
	CFI	Non-Federal		
Neighborhood Charging Hub				
Design Service	\$320,000	\$80,000	\$400,000	3%
Utility Connection	\$200,000	\$50,000	\$250,000	2%
EVCS	\$368,000	\$92,000	\$460,000	3%
Electrical Construction	\$725,520	\$181,380	\$906,900	6%
Solar Canopy	\$1,600,000	\$400,000	\$2,000,000	13%
Limited Site Work	\$112,320	\$28,080	\$140,400	1%
Contingencies	\$1,330,336	\$332,584	\$1,662,920	11%
Educational Campaign Development	\$186,247	\$46,562	\$232,809	1.6%
Subtotal	\$4,842,423	\$1,210,606	\$6,053,029	41%
Fast-Charging Hub				
Design Service	\$120,000	\$30,000	\$150,000	1%
Utility Connection	\$276,000	\$69,000	\$345,000	2%
EVCS	\$576,000	\$144,000	\$720,000	5%
Electrical Construction	\$424,568	\$106,142	\$530,710	4%
Solar Canopy	\$800,000	\$200,000	\$1,000,000	7%
Limited Site Work	\$43,040	\$10,760	\$53,800	0.4%
Contingencies	\$895,843	\$223,961	\$1,119,804	8%
Educational Campaign Development	\$125,418	\$31,355	\$156,773	1.1%
Subtotal	\$3,260,869	\$815,218	\$4,076,087	27%
Public Fleet Charging Hub				
Design Service	\$120,000	\$30,000	\$150,000	1%
Utility Connection	\$276,000	\$69,000	\$345,000	2%
EVCS	\$816,000	\$204,000	\$1,020,000	7%
Electrical Construction	\$523,768	\$130,942	\$654,710	4%
Solar Canopy	\$800,000	\$200,000	\$1,000,000	7%
Limited Site Work	\$70,880	\$17,720	\$88,600	1%
Contingencies	\$1,042,659	\$260,665	\$1,303,324	9%
Educational Campaign Development	\$145,972	\$36,493	\$182,465	1.2%
Subtotal	\$3,795,279	\$948,820	\$4,744,099	32%
Project Totals				
Project Total	\$11,898,571	\$2,974,644	\$14,873,215	100%
%	80%	20%	100%	

