

# PUBLIC EV CHARGING

Presented by Karen Apple  
& Danae Presler

Sustainable Cities Network  
EV Workgroup Meeting  
October 12, 2021



City of Phoenix



Avondale

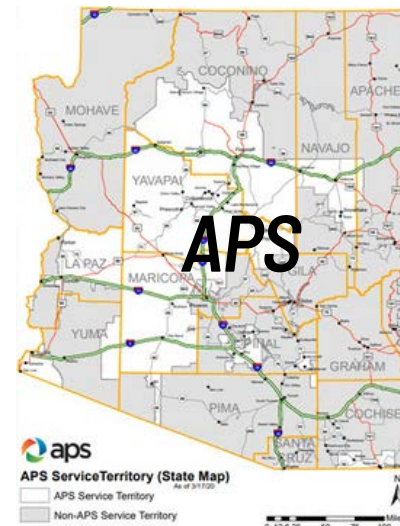




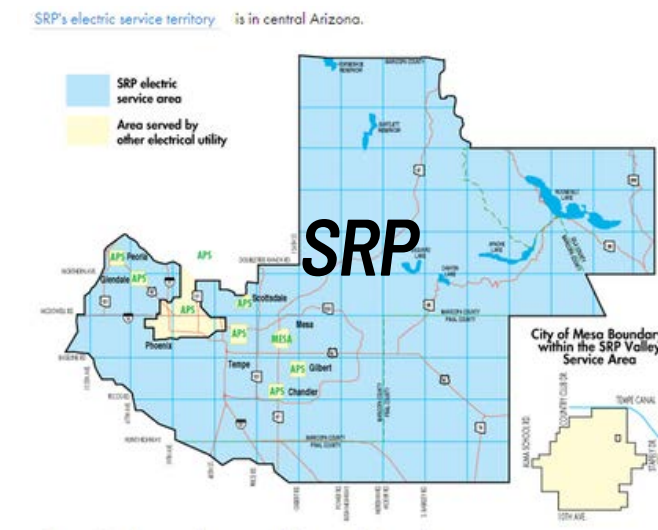
# Electric Vehicle Goals



**1.076 Million**  
registered EVs by 2030



**450,000 EVs**  
by 2030



**500,000 EVs**  
by 2035



## ***Federal Target***

50% of new car sales are electric by 2030

# We are 4% of the way there.





## Target based on Pop'n Projection

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AZ 2030 Pop'n Projection = 8,284,861  
(2017 U.S. Census Projections)

Avondale 2030 Pop'n Projection: 101,800  
(MAG Socioeconomic Projections)

$101,800 / 8,284,861 = \underline{1.23\%}$  of AZ population

$1,076,000 \text{ EVs in AZ} \times 0.0123 = \underline{13,221}$

**13,221 EVs in Avondale by 2030**

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### Assumptions:

- People pop'n is good proxy for vehicle pop'n
- Pop'n projections are accurate
- Statewide goal is sufficient



## Forecast based on Growth Rate

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8,546 EVs registered in Phoenix in 2020 (EPRI)

Apply 35% Annual Compounded Growth Rate

2025: 44,344 EVs

2030: 231,966 EVs

**231,966 EVs in Phoenix by 2030**

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### Assumptions:

- 35% compounded growth rate is accurate
- Statewide goal is sufficient

# 2020 EV Counts by City

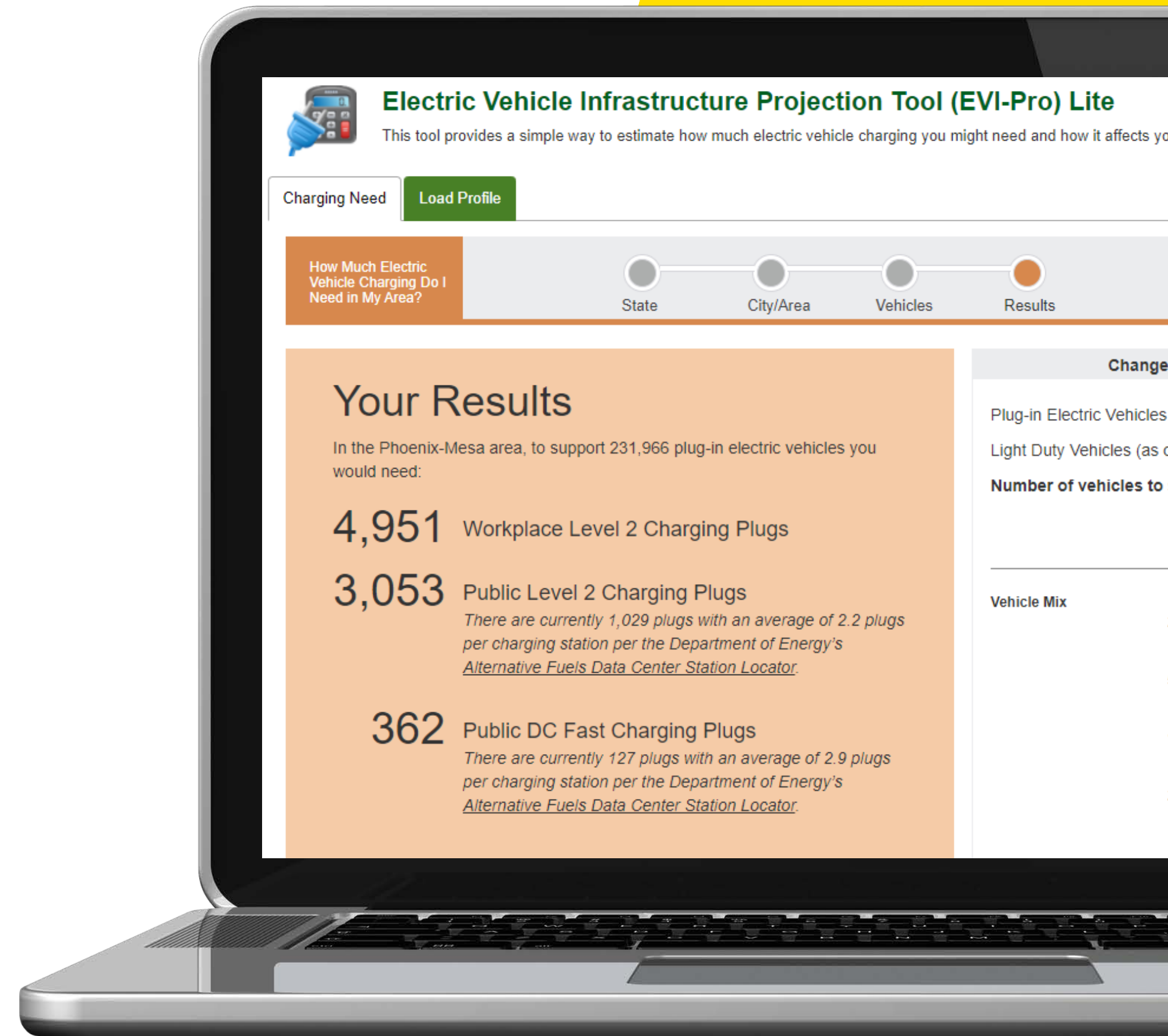
CITY	BEV	PHEV	Total
APACHE JUNCTION	125	81	206
AVONDALE	120	73	193
BUCKEYE	220	144	364
CAVE CREEK	328	111	439
CHANDLER	2643	1196	3839
FLAGSTAFF	193	130	323
GILBERT	2327	823	3150
GLENDALE	806	328	1134
GOODYEAR	377	198	575
LITCHFIELD PARK	183	75	258
MARICOPA	106	113	219
MESA	1795	895	2690

CITY	BEV	PHEV	Total
PEORIA	1013	357	1370
PHOENIX	6109	2437	8546
PRESCOTT	182	110	292
QUEEN CREEK	581	292	873
SCOTTSDALE	5254	1303	6557
SEDONA	120	78	198
SUN CITY	403	241	644
TEMPE	1441	951	2392
TOLLESON	359	198	557
TUCSON	2130	1109	3239
YUMA	112	103	215

# Estimating the # of EV charging stations needed

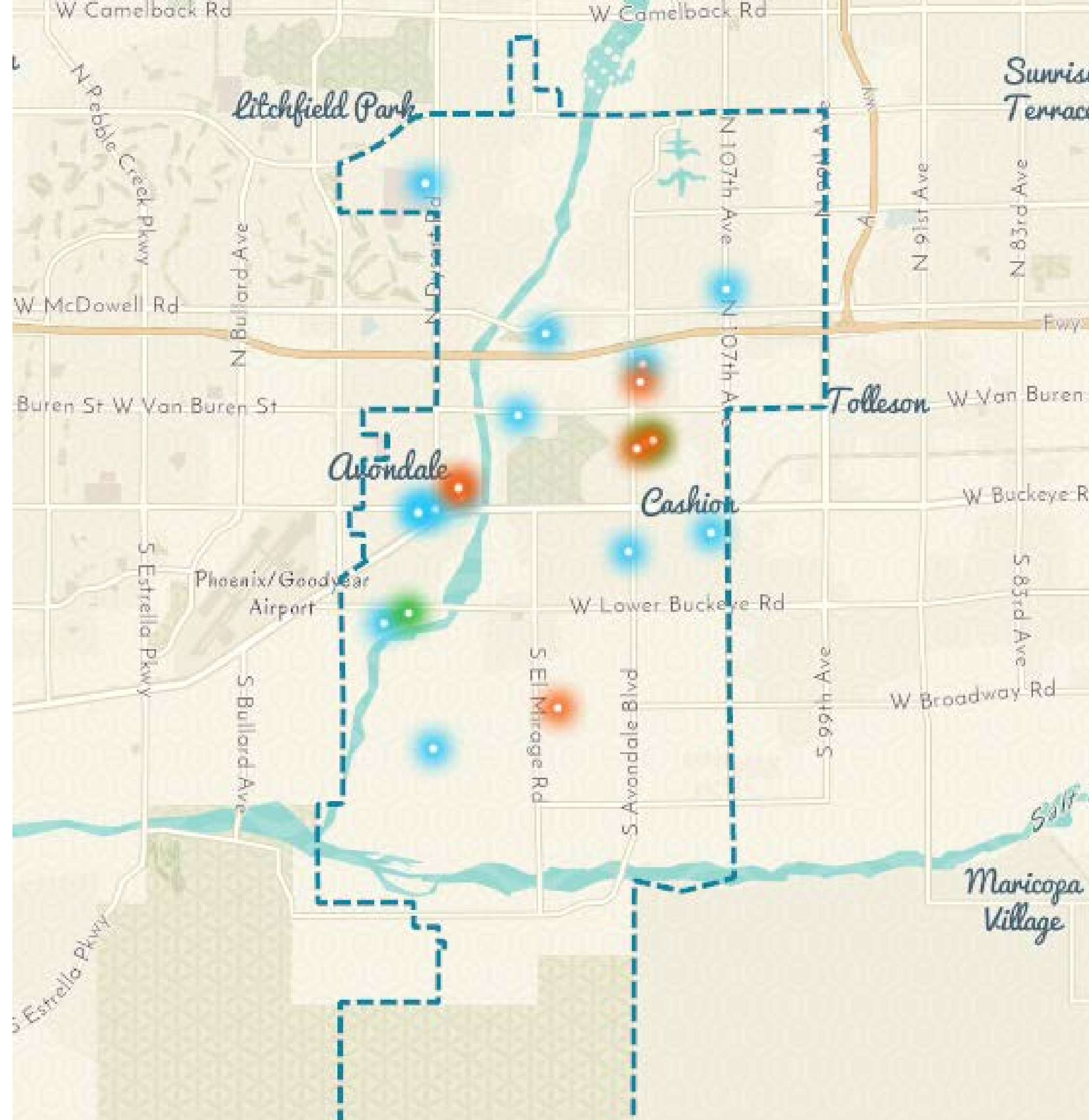
Cities in urban areas can use the Department of Energy's "EVI-Pro" tool to estimate charging infrastructure needs.

- 1 Go to <https://afdc.energy.gov/evi-pro-lite>
- 2 Choose state and relevant major urban area
- 3 Enter number of EVs you want to support
- 4 Adjust assumptions (e.g., % PHEVs vs. EVs)



# Prioritizing L2 station locations

- Where are existing stations?
- Where are there needs? Look for gaps.
- What public facilities are in the areas?
- What are the costs?
- How can costs be reduced?
- Create a timeline and budget.





# Costs

- Hardware
- Installation
- Network fees
- Warranty
- Electrical upgrades
- Trenching/boring
- Staff time

## Cost Recovery

- +Rebates/incentives
- +Fee collection

## Hardware Costs

	charger per pedestal	Per-port cost
<b>Non-networked</b>	1	\$1,182
<b>Non-networked</b>	2	\$938
<b>Networked</b>	1	\$3,127
<b>Networked</b>	2	\$2,793

## Installation Costs

	1 charger per site	2 chargers per site	3-5 chargers per site	6+ chargers per site
<b>Labor</b>	\$1,544	\$1,827	\$1,647	\$1,316
<b>Materials</b>	\$1,112	\$1,039	\$1,272	\$874
<b>Permit</b>	\$82	\$62	\$59	\$38
<b>Tax</b>	\$96	\$89	\$110	\$75
<b>Total</b>	<b>\$2,836</b>	<b>\$3,020</b>	<b>\$3,090</b>	<b>\$2,305</b>

Source: ICCT, 2019



# Resources

- Department of Energy Alternative Fuels Data Center
- Site Selection Prezi by Drive Electric MN:  
<https://prezi.com/view/cLgl9XsWmjArd0Phha0q/>
- PlugShare - EV Charging Station Map:  
<https://www.plugshare.com/>
- SRP & APS EV Incentive Programs
- Siting guides will be added to SCN EV Subgroup webpage \*coming soon\*





# Questions?

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