

# **(d)2 – Electric Mobility Roadmap**

Smart Cities and Service Improvements Committee  
December 5, 2019

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# San José Electric Mobility Roadmap

2020-2022



## INFRASTRUCTURE

## FLEET VEHICLES



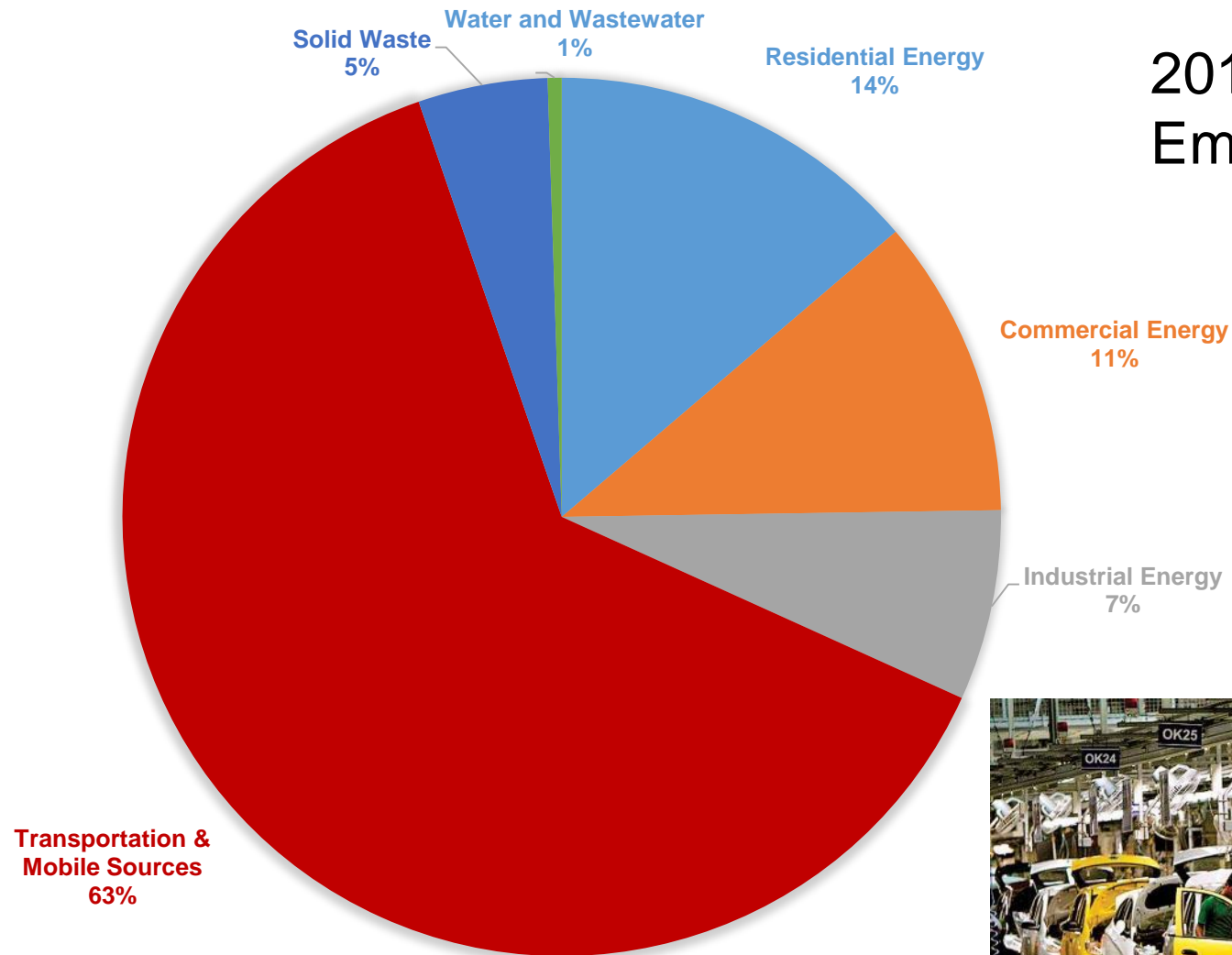
## SHARED MOBILITY



## PERSONAL OWNERSHIP

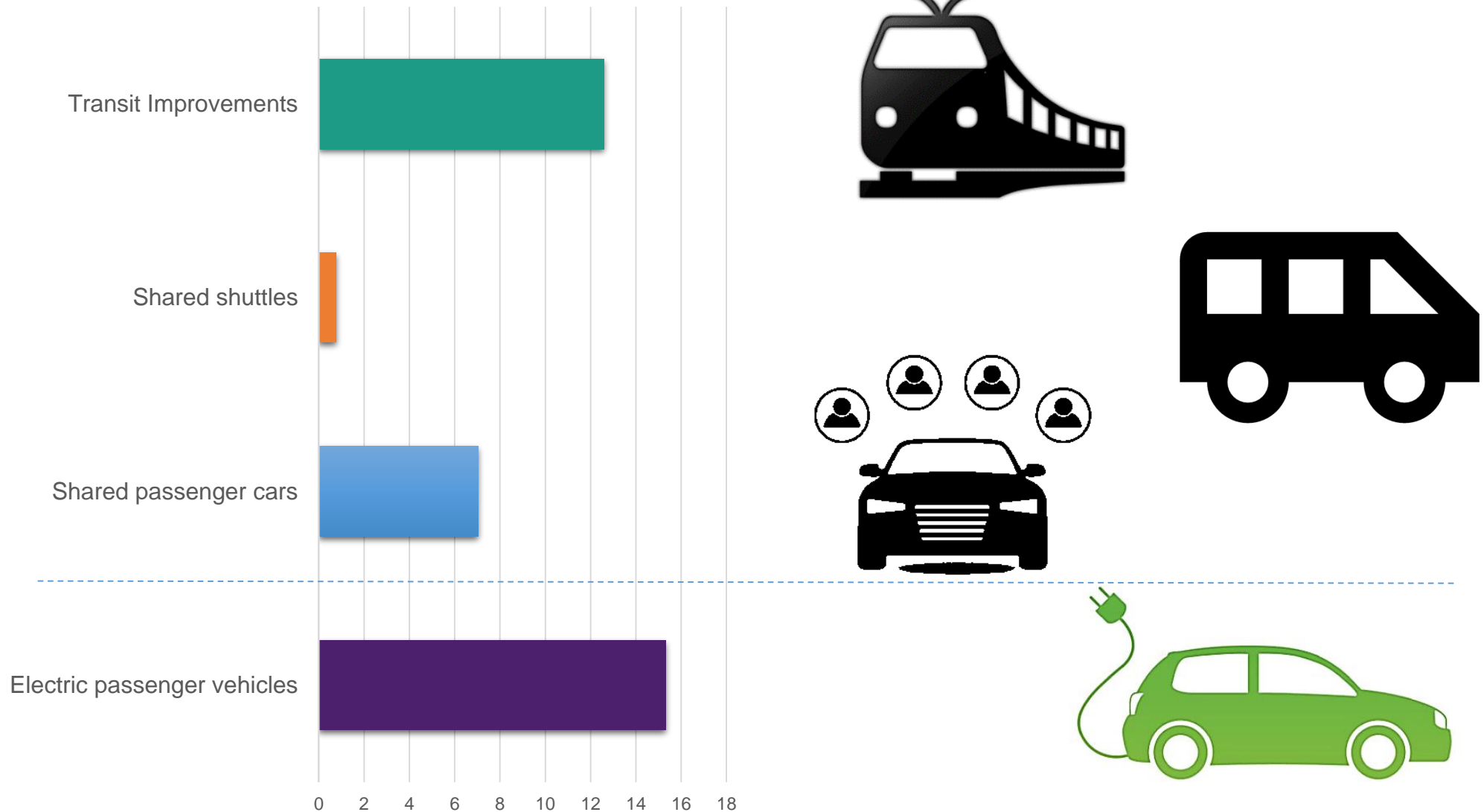


# Why Electric Mobility Roadmap



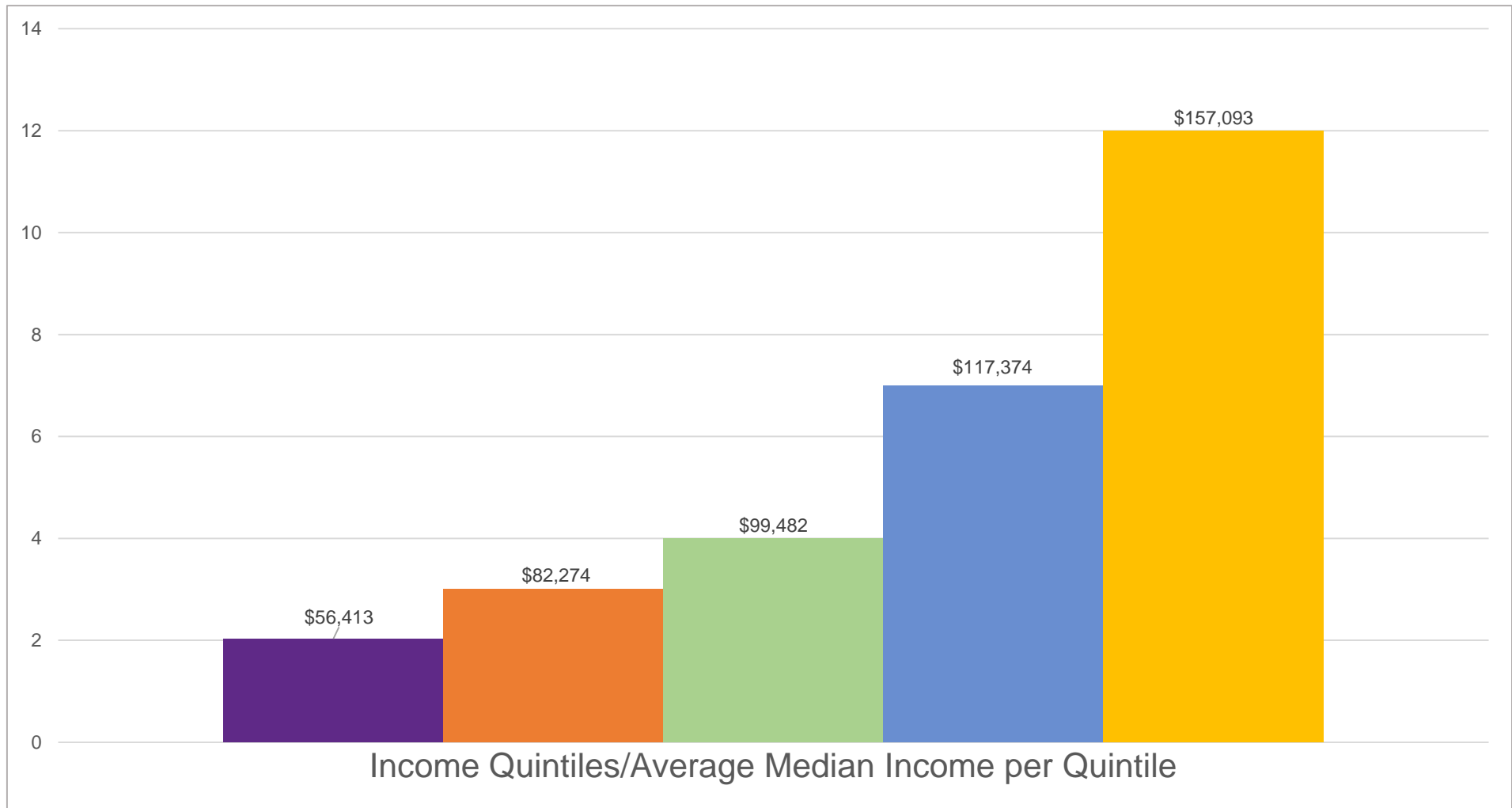
# How Electric Mobility Roadmap

Tons of CO2e Reduced



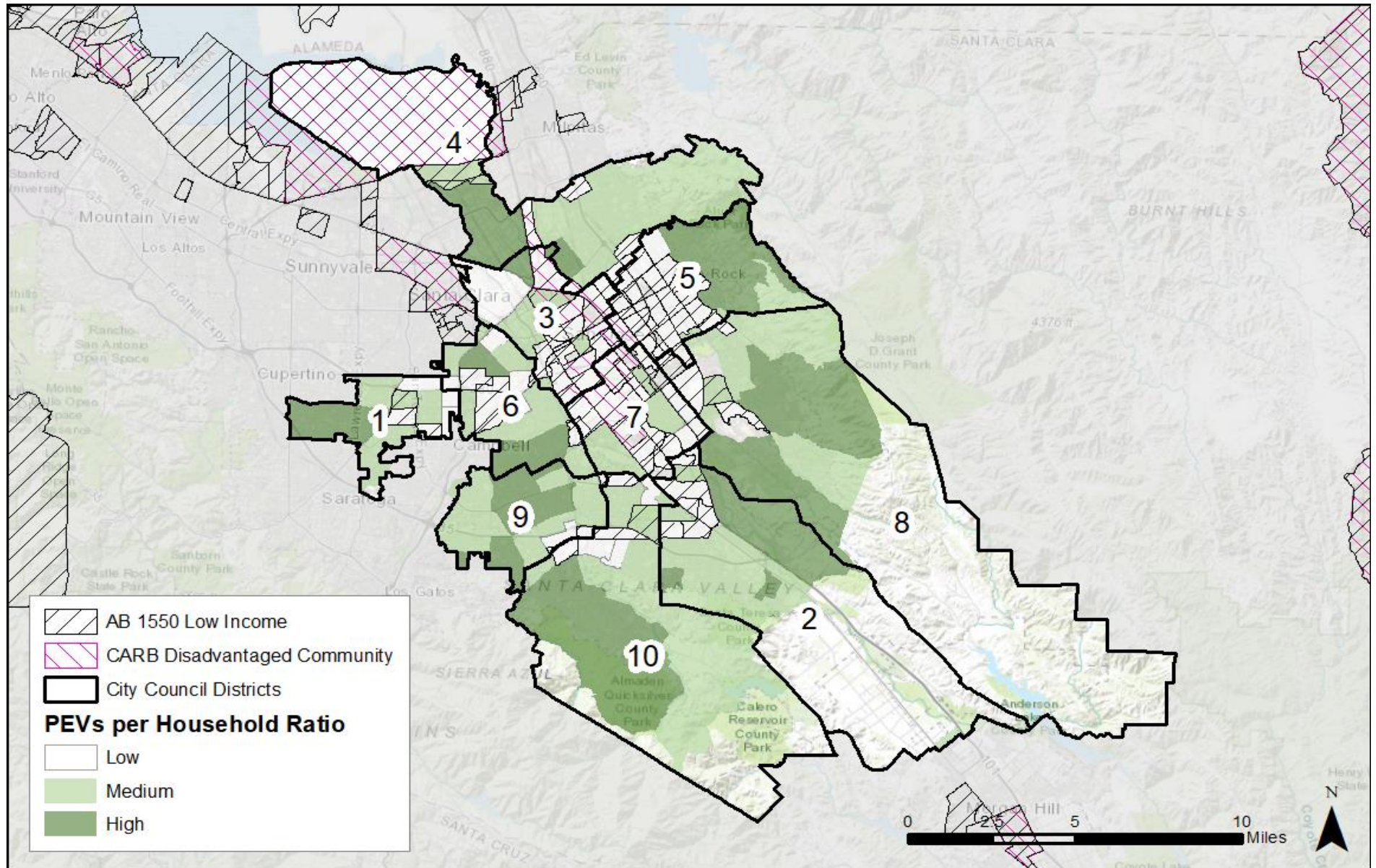
# An Equity Lens

Average Number of Registered EVs Per 100 Households By Quintile





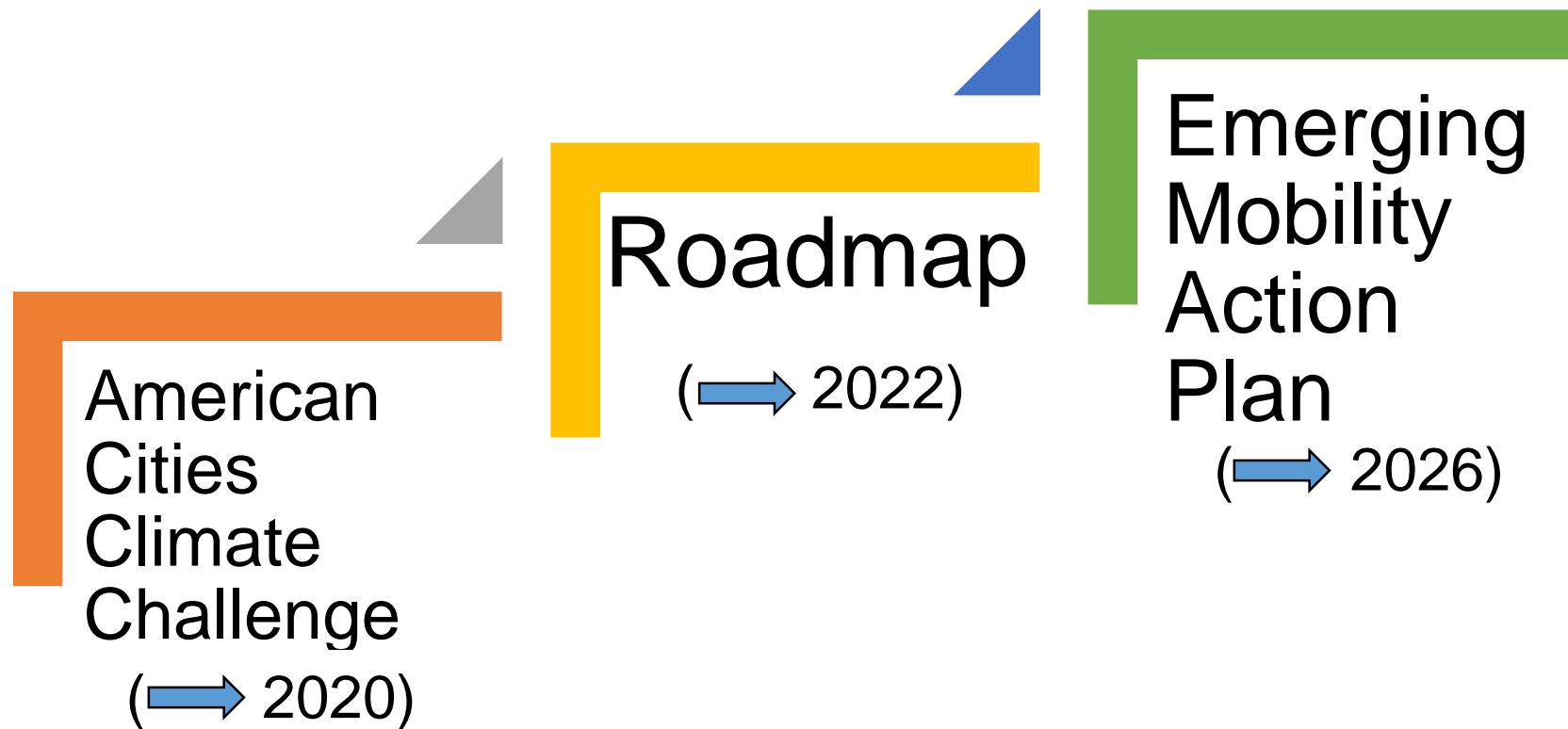
# An Equity Lens



Source: Shared-Use Mobility Center

# Building Blocks to Achieve City Goals

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Climate Smart San Jose

Envision San Jose 2040

# The Electric Mobility Roadmap



1. Infrastructure



2. Fleet



3. Personal Vehicles



4. Shared Mobility



# Electric Vehicle Chargers

Level 1 (110 v.)



Level 2 (240 v.)



Direct Current Fast Charger (480+ v.)



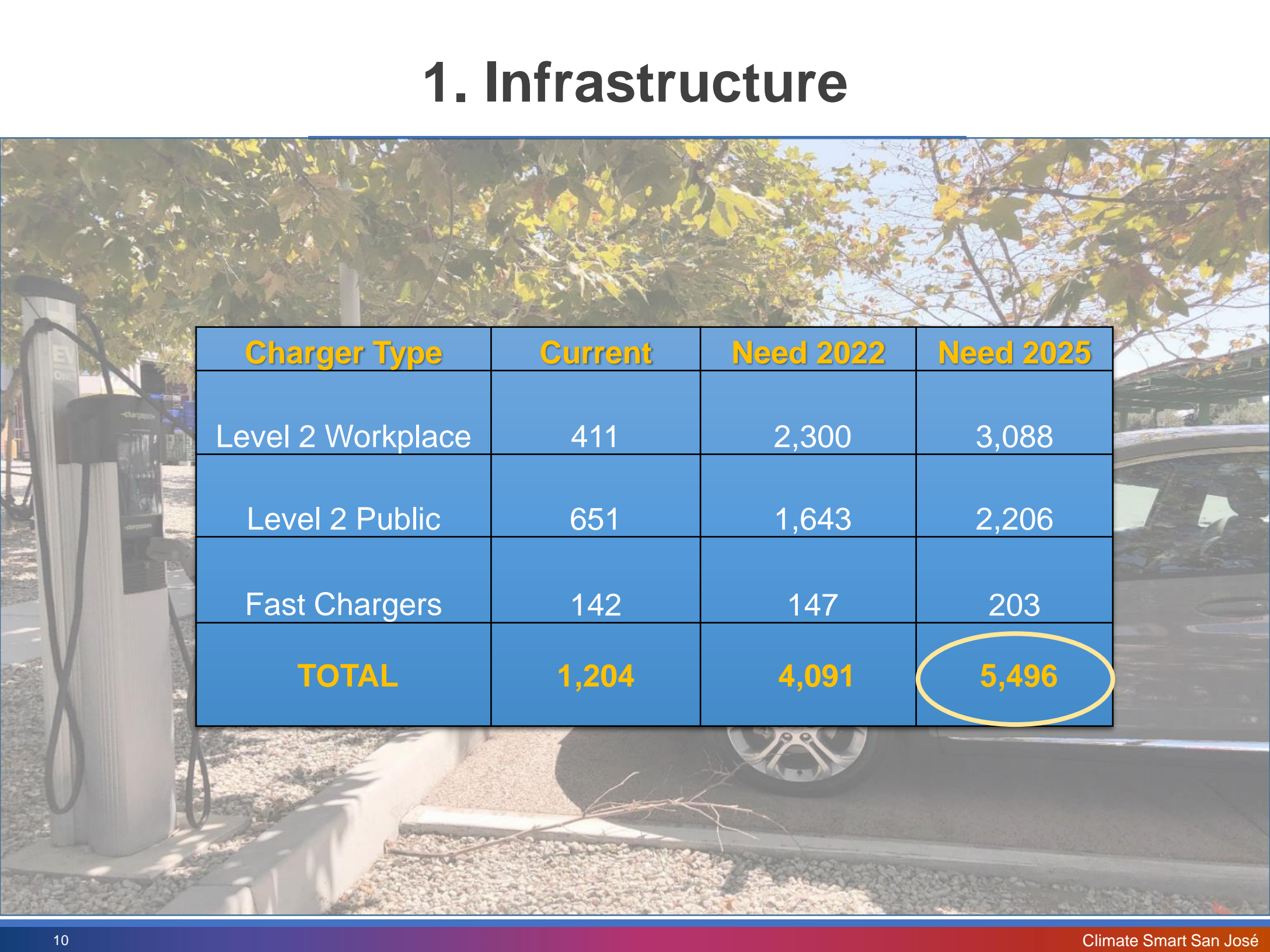
Time required to fully charge a Nissan Leaf:

20 hours

4-8 hours

30 minutes

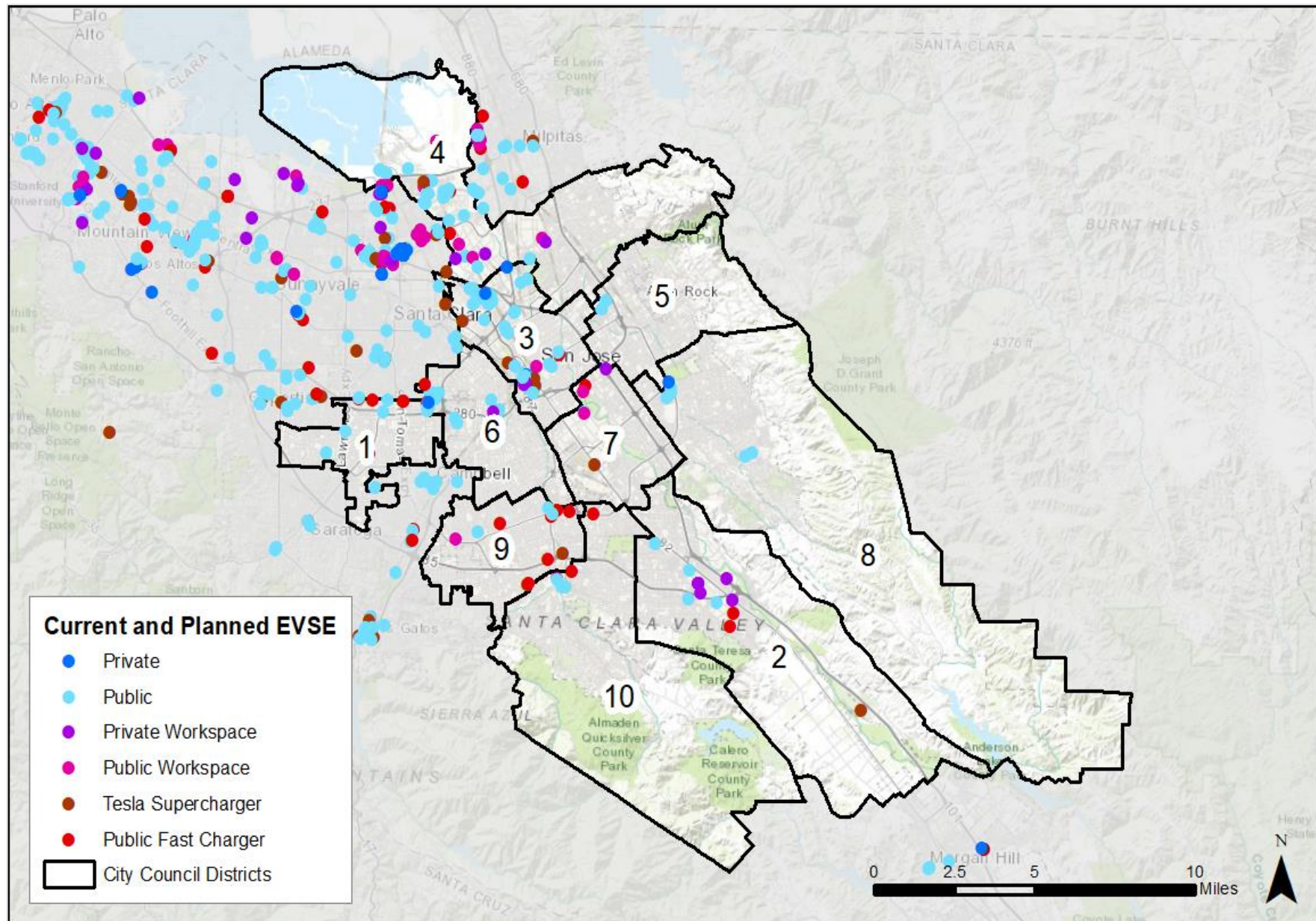
# 1. Infrastructure



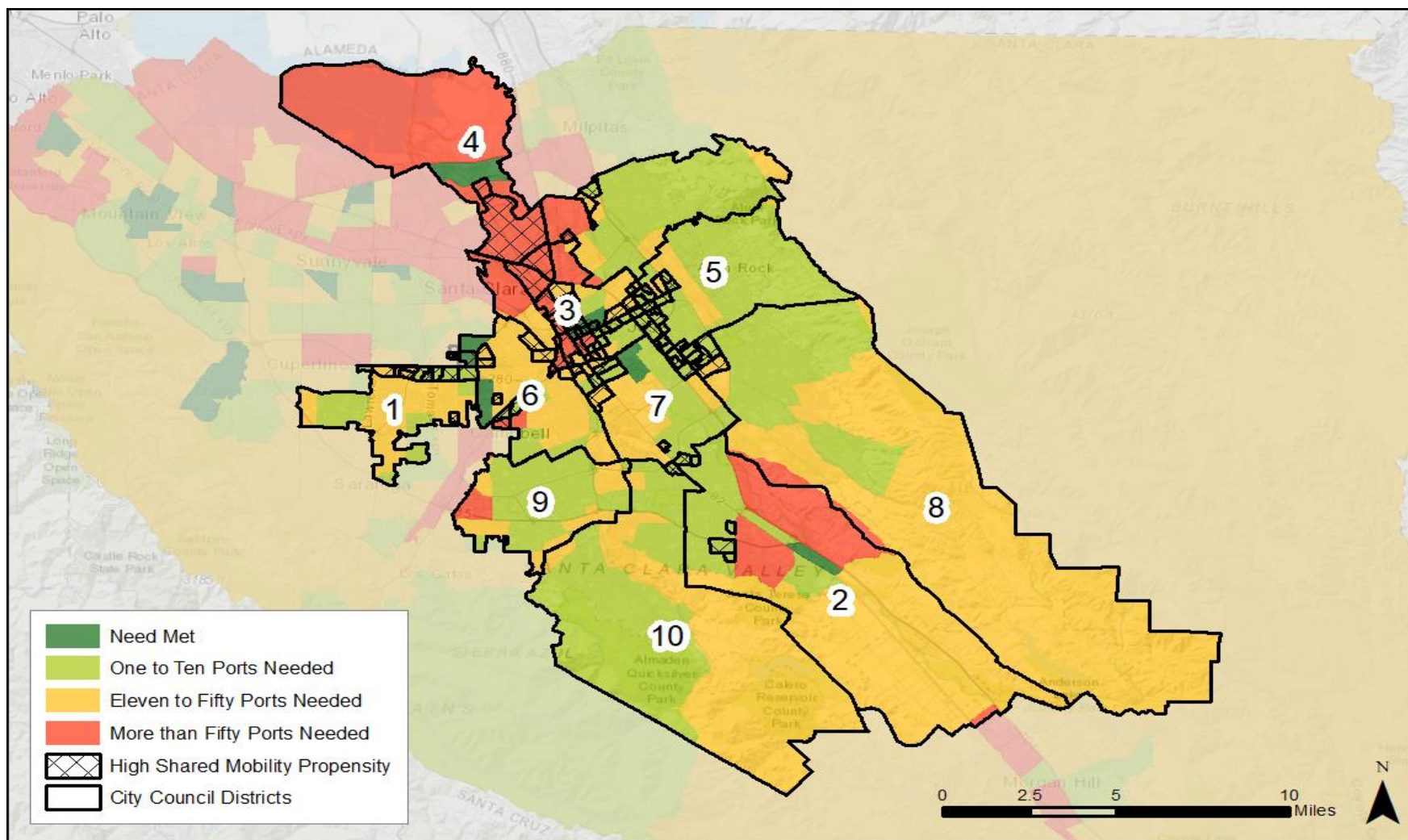
Charger Type	Current	Need 2022	Need 2025
Level 2 Workplace	411	2,300	3,088
Level 2 Public	651	1,643	2,206
Fast Chargers	142	147	203
<b>TOTAL</b>	<b>1,204</b>	<b>4,091</b>	<b>5,496</b>



# Where Non-Residential Charging Is Currently Located



# 2025 Projected Demand for L2 Charging

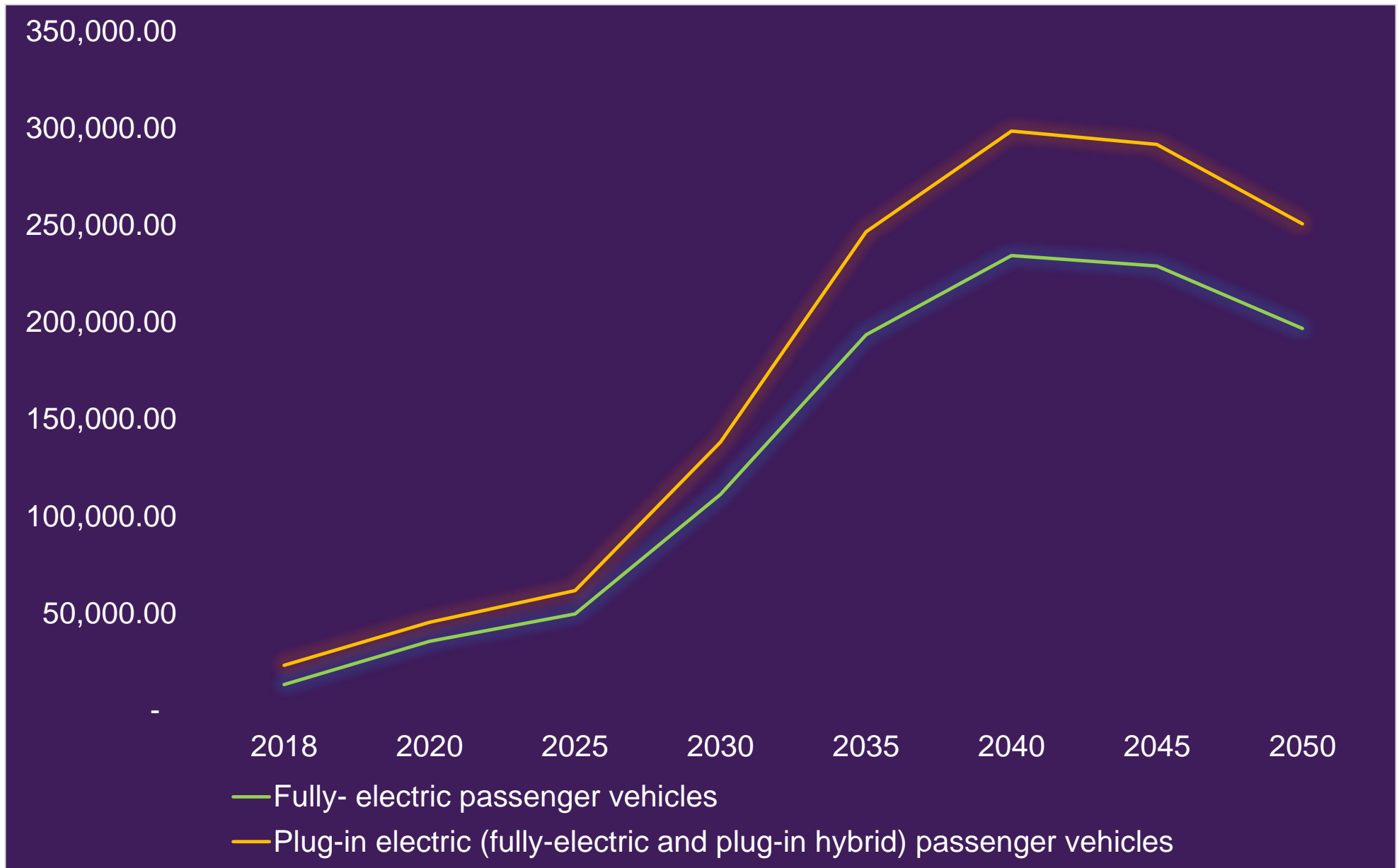




## 2. Fleet



### 3. Personal Vehicles



### 3. Personal Vehicles



— Monthly sales before group buy  
— Monthly sales during group buy



### 3. Shared Mobility





### 3. Shared Mobility

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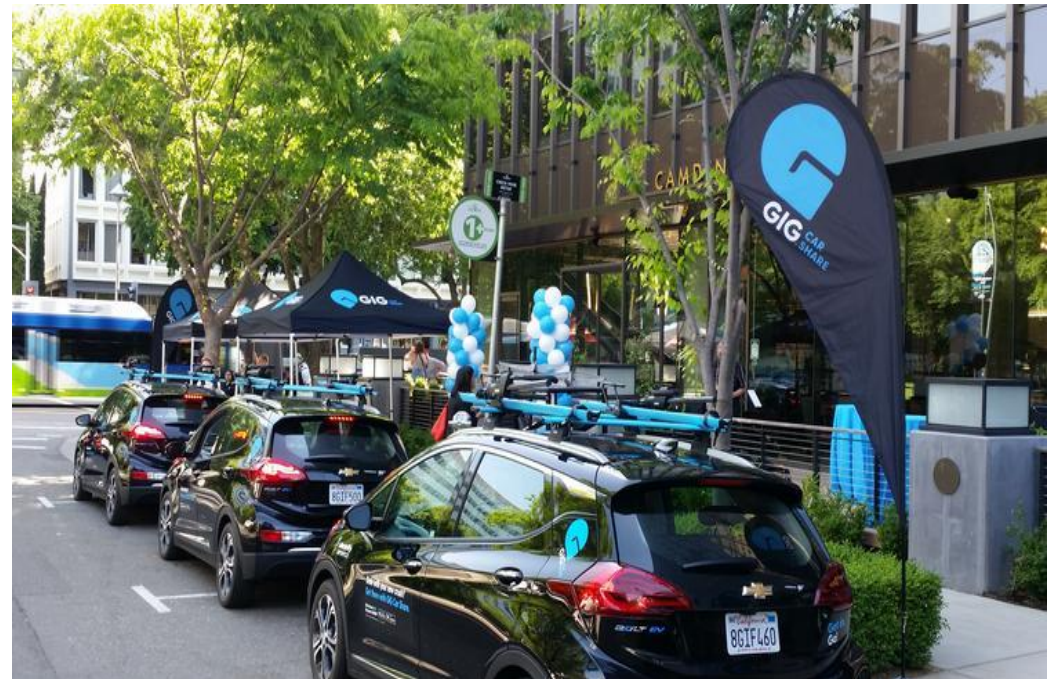


#### Lyft To Add 200 Electric Vehicles To Its Denver Fleet

Colorado Public Radio, Nov 14, 2019

#### Nation's largest all-electric car fleet rolls out in Sacramento

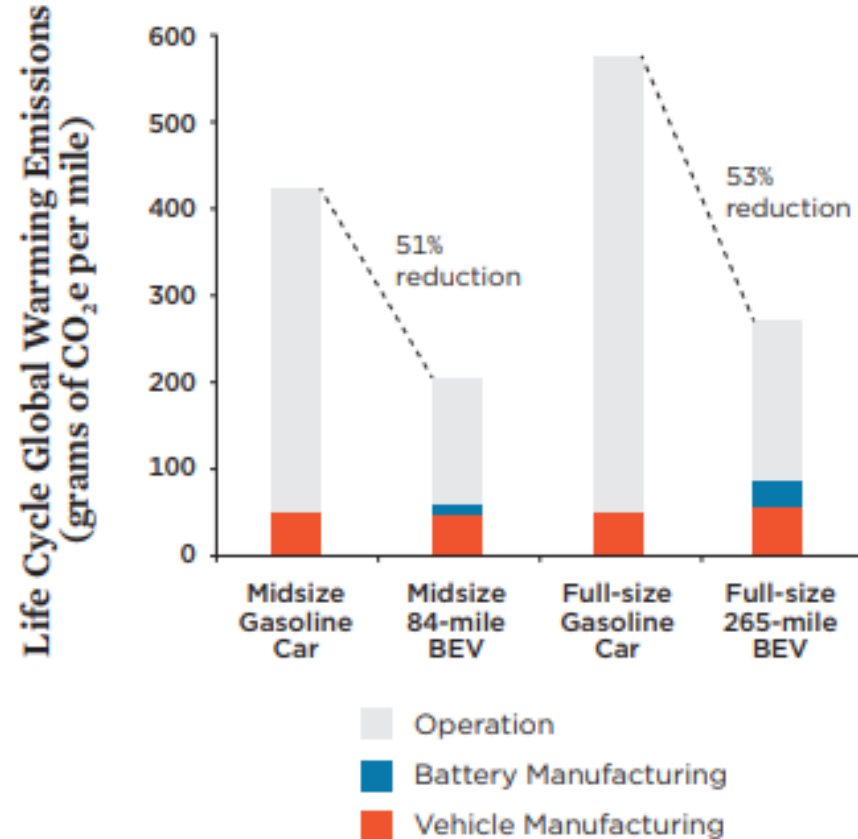
Sacramento Business Journal, Apr 29, 2019



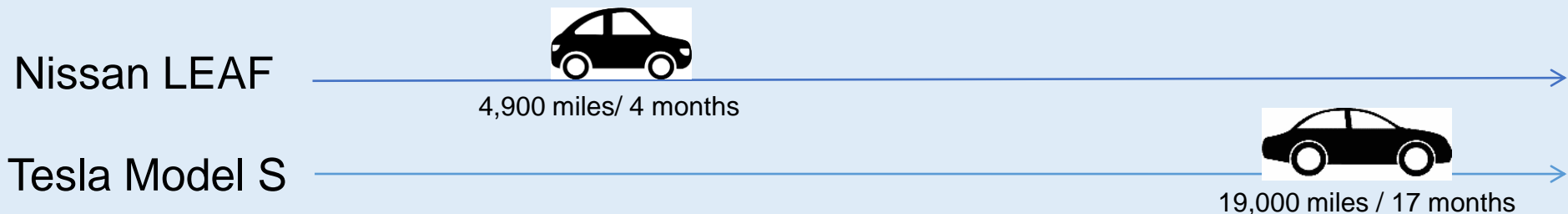
# Life Cycle Emissions

## Electric vs. Gas-Powered Vehicles

- Higher emissions EV production
- Lower operating emissions offset:
  - 50% lower life cycle emissions nationally
  - 75% lower in California
- CA: electricity 42% carbon-neutral; goal 100% by 2025.
- San José: 80% now; 100% by 2021
- EV short “break-even” point



### Current Break-Even Point for BEVs in California



# Repurposing & Recycling Batteries

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## Repurposing

- Vehicle battery life: 10 yrs / 30% of capacity
- 70% of capacity available for other uses
  - Amsterdam Johan Crujff ArenA:  
148 LEAF batteries provide back up power, store renewable energy & serve as peak power shaver
  - Other applications:
    - power streetlights (Japan)
    - elevators (Paris)
    - data centers (U.S.)



Johan Crujff ArenA, Amsterdam

## Recycling

- Recent: 5x more \$\$ to reclaim lithium than mine it
- Current: Global EV boom; recycling now profitable & greener



# Next Steps

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- Dec 2019:
  - Seek feedback from Smart Cities & Service Improvement Committee
- Jan 2020:
  - Present final plan to City Council





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2020-2022

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## INFRASTRUCTURE



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# Electric Mobility Roadmap: Dec. 2019

Charging Infrastructure	Streamline charger permitting	PG&E EV Charger Network program	Electrify America program	Adopt Electric Vehicle Reach Code	Comm-unity engagement around charger installations	Fund CALeVIP Regional Program	Use CALeVIP to install priority chargers	Adopt & implement EV electrical rate	Monitor and improve EV Reach Code	Designate Electric Mobility Infrastructure Leads	Create City EV Charger Fund	Partner with private entities to get priority EV chargers installed	Provide technical assistance to small building owners/managers & low-income residents	Wayfinding for EV chargers.
	Develop 2020-21 fleet conversion plan	Electrify public transit	Pilot new medium and heavy-duty EV fleet applications	Replace City's older, non-police sedans	Develop emergency back-up plan for the City's electric fleet	Pursue battery recycling energy storage pilot	Update Green Fleet policy	Encourage private fleet conversion	Boost electrification of urban freight	Promote electric-powered cargo bikes				
Personally-Owned EVs	Organize Ride & Drive events	Create EV webpage	Create dealer education program	Organize discount group buy										
Shared Electric Mobility	Develop an EV shared mobility pilot program	Adopt a parking management and pricing policy	Expand shared micro-mobility services and usage	Expand Bike Network and Protected Bike Lanes	Establish parking policies that support electric & shared vehicles	Pursue grants with CBO partners to fund EV shared mobility pilots	Expand and electrify car-share services	Accelerate electrification of ride-hailing						

## LEGEND – PROJECT STATUS



ON TRACK



ISSUES WITH SCHEDULE,  
BUDGET OR SCOPE



AT RISK, CORRECTIVE  
ACTIONS NEEDED



INITIATING