Welcome!

‘Getting to 80 X 30: Your Transportation Vision for Palo Alto’ webinar will begin shortly

November 18, 2020
Questions?

Click on Q&A anytime during the presentation to ask questions
Today’s Presenters

Moderator:

Karin North
Public Works

Presenters:

Sylvia Star-Lack
Office of Transportation

Rosie Mesterhazy
Transportation
Safe Routes to School

Hiromi Kelty
Utilities

Nathan Baird
Transportation
Parking Manager

Panelists:

Jonathan Abendschein
Assistant Director Utilities

Shiva Swaminathan
Utilities
Senior Resource Planner
Today’s Objective

- Review the 2020 Sustainability and Climate Action Plan (S/CAP) Potential High Impact Goals and Key Actions related to greenhouse gas (GHG) emissions reduction

- Review the Spectrum of Tools for Achieving Climate Goals

- Get your feedback on the updated High Impact Goals & Key Actions
GHG Emission Sources in Palo Alto

- Road travel into, from, and within City, 64%
- Natural gas use in buildings and distribution leakage, 32%
- Electricity use, 0%
- Landfill-related, 3%
- Wastewater process, 1%

Source: 2018 Palo Alto Municipal Operations & Community GHG Emissions
Emissions from Typical Passenger Vehicles

- Gas-fueled passenger vehicle → 4.6 metric tons of CO2 per year

- All electric vehicle → 0 metric tons CO2 per year

Source: United States Environmental Protection Agency  www.fueleconomy.gov
Where Does Palo Alto’s Electricity Come From?

Palo Alto’s electricity has been 100% carbon neutral since 2013

Palo Alto Utilities 2019 Power Content Label

Source: City of Palo Alto Utilities 2019 Power Content Label
## Areas of Highest Potential GHG Reduction

### GHG Reduction Areas

<table>
<thead>
<tr>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce Vehicle Miles Traveled (VMT)</td>
</tr>
<tr>
<td>Electrify majority of vehicle trips</td>
</tr>
<tr>
<td>Electrify most residential buildings</td>
</tr>
<tr>
<td>Reduce fossil fuel use in large commercial buildings</td>
</tr>
</tbody>
</table>
GHG Emissions & Space per Occupant in Melbourne, 2018

- **243.8** Gt CO₂/km for an **Average Victorian car**
- **209.1** Gt CO₂/km for a **Top Range EV (Victorian grid)**
- **121.9** Gt CO₂/km for a **Dual occupancy car**
- **119.6** Gt CO₂/km for a **Motorcycle**
- **28.6** Gt CO₂/km for a **Train**
- **20.2** Gt CO₂/km for a **Tram**
- **20.2** Gt CO₂/km for a **Bus**
- **17.7** Gt CO₂/km for a **Top Range EV (Green power)**
- **1.9** Gt CO₂/km for **Walking**
- **1.5** Gt CO₂/km for **Bike**
- **9.7** Gt CO₂/km for **PA Utilities Green Power Now**
- **9.7** Gt CO₂/km for **Caltrain Electrified 2022**
- **4.9** Gt CO₂/km for **VTA Buses Electric 2040**

- **9.7** m² required for a **Person**
- **4.9** m² required for a **Dual occupancy car**
- **1.9** m² required for a **Motorcycle**
- **1.5** m² required for a **Bike**
- **1.5** m² required for a **Walking**

= Grams of CO₂ per person kilometre travelled

= Space in square metres required per occupant

Proposed Goal: Reduce Transportation Related Emissions From 300,000 MT CO2e to 60,000 MT CO2e by 2030

Mobility

a. Increase the mode share for active transportation (walking, biking, and transit)
b. Increase availability of transit and shared mobility services
c. Create a housing density & land-use mix that supports transit & non-SOV transportation
d. Utilize pricing, fees, & other tools to encourage reductions in GHGs & VMT

Electric Vehicles

a. Increase EVs in Palo Alto from 4,500 (2019) to 42,000 (80% of vehicles)
b. Increase the share of EV commute vehicles from single digits to 80% by 2030
c. Develop a public and private charging network to support high levels of EV penetration
Spectrum of Tools for Achieving Climate Goals

**Low Intervention**

Examples:
- Early Adopters
- Voluntary Programs
- Education and Outreach
- Pilot Projects

**Some Intervention**

Examples:
- Council Policies, Plans, and Reach Codes
- Local and State Financial Incentives
- State level grants to reduce GHG emissions
- Governor’s ZEV Executive Order

**Higher Intervention**

Examples:
- City-wide Voter-Approved Mandates or Financing
- Utility-scale Infrastructure Shift
- Council Bans and Mandates

Voluntary Market driven solutions  Government driven solutions
Mobility High Impact Key Actions

1. Provide safer streets
2. Reduce parking requirements and price parking
3. Build transit-supportive roadways
4. Enhance the traffic signal system
5. Improve trip reduction strategies – i.e. normalize telecommuting
6. Create neighborhoods to accommodate walking, biking, and transit

Metrics: 10-minute milk test
20-minute walk/bike/transit test
1. Require a percentage of all parking spaces at Palo Alto’s 800+ multi-family properties install EV chargers

2. Require a percentage of EV charger installations at all commercial parking spots

3. Implement a Palo Alto-specific Internal Combustion Engine (ICE) vehicle fee or tax

4. Ban the registration of gasoline vehicles in Palo Alto by 2030

Note: The above are proposed key actions. Final decisions will ultimately be community driven.
Transportation Choices

Acting Now for a Resilient Future
# Some Transportation Mode Considerations

<table>
<thead>
<tr>
<th>Mode/Category</th>
<th>Walk</th>
<th>Bicycle</th>
<th>E-Bike</th>
<th>EV</th>
<th>Gas Car</th>
<th>Uber/Lyft</th>
<th>E-Uber/Lyft*</th>
<th>Bus/Shuttle</th>
<th>Caltrain</th>
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</thead>
<tbody>
<tr>
<td>Reduces GHG</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Reduces Circling for Parking/Riders/Idling</td>
<td>+</td>
<td>+</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Reduces Congestion</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Reduces Stress</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>-</td>
<td>+</td>
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<tr>
<td>Supports Public Health</td>
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<td>-</td>
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<tr>
<td>Road Safety</td>
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<td>-</td>
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</tr>
<tr>
<td>Cost</td>
<td>+</td>
<td>+</td>
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<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Trip Distance Maximum</td>
<td>Local</td>
<td>Local</td>
<td>Local+</td>
<td>Region</td>
<td>Region</td>
<td>Region</td>
<td>Region</td>
<td>Region</td>
<td>Region</td>
</tr>
</tbody>
</table>

*Uber & Lyft have committed to electrify their fleets by 2030.

Note: 81% of all US 1 to 2-mile trips are made by car, National Household Travel Survey
Barriers to Going EV

- Perceived higher purchase price
- Range anxiety - Concern about refueling infrastructure
- Uncertainty towards EV technology
### Economy Model Comparison

<table>
<thead>
<tr>
<th>Description</th>
<th>Hyundai Kona AWD</th>
<th>Hyundai Kona Electric</th>
<th>Nissan LEAF Plus</th>
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</thead>
<tbody>
<tr>
<td>Vehicle Cost Net Incentives</td>
<td>$20,300</td>
<td>$29,690 ($7,500)</td>
<td>$23,200 ($7,500)</td>
</tr>
<tr>
<td>Annual Maintenance</td>
<td>$600</td>
<td>$350</td>
<td>$352</td>
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<tr>
<td>Annual Insurance</td>
<td>$1,680</td>
<td>$1,780</td>
<td>$1,790</td>
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<tr>
<td>Annual Electricity/Gas</td>
<td>$1,269</td>
<td>$597</td>
<td>$640</td>
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<tr>
<td>MPG</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>258</td>
<td>226</td>
<td></td>
</tr>
<tr>
<td>Annual Cost of Ownership</td>
<td>$6,015</td>
<td>$6,334</td>
<td>$5,601</td>
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</table>
## EV vs Gas – Which is Cheaper to Own?

### The ‘Model 3’ Comparison

<table>
<thead>
<tr>
<th>Description</th>
<th>Audi A4 All Road Quattro</th>
<th>Toyota Avalon Hybrid XLE</th>
<th>Tesla Model 3 Standard Range Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Cost Net Incentives</td>
<td>$37,400</td>
<td>$35,875</td>
<td>$37,990</td>
</tr>
<tr>
<td>Annual Maintenance</td>
<td>$660</td>
<td>$660</td>
<td>$341</td>
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<tr>
<td>Annual Insurance</td>
<td>$1,760</td>
<td>$1,760</td>
<td>$1,760</td>
</tr>
<tr>
<td>Annual Electricity/Gas</td>
<td>$1,435</td>
<td>$767</td>
<td>$512</td>
</tr>
<tr>
<td>MPG</td>
<td>23</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td></td>
<td>310</td>
</tr>
<tr>
<td>Annual Cost of Ownership</td>
<td>$8,399</td>
<td>$7,546</td>
<td>$7,229</td>
</tr>
</tbody>
</table>

**EV Cost Calculator:** [cityofpaloalto.org/ev](http://cityofpaloalto.org/ev)
Case Studies
Scenario #1 – The Golden Years

- Longtime Palo Alto resident
- Empty-nester
- 1-2 car household

How could we help this resident transition to a greener transportation future?

- **Walking** – Safe Routes for Older Adults
- **Biking** – Adult tricycles, electric bicycles, biking classes for older adults
- **Transit** – How to use VTA, on-demand transit, carsharing/Zipcar, Uber/Lyft (upcoming electrification), Caltrain (electrified soon!)
- **Electric Vehicle** – Incentives to purchase a new or used EV, education and outreach, EV charging infrastructure

cityofpaloalto.org/climateaction
Scenario #2 – Families with Children

- Families account for 12% of households but 50% of program participation
- Family with school-age children
- 2-3 car household

How could we help this family transition to a greener transportation future?

- **Walking** – Safe Routes to School
- **Biking** – Safe Routes to School, electric bicycles, bike plan, infrastructure
- **Transit** – On-demand Shuttle
- **Electric Vehicle** – Incentives to purchase a new or used EV, expanding EV charging network
Scenario #3 – Single

- Singles account for over 53% of households and 26% of program participation
- 0-1 car household

How could we help this resident transition to a greener transportation future?

- **Walking** – Walkable, vibrant neighborhoods with shopping/services
- **Biking** – Infrastructure, bike parking, electric bicycles, bike-share/e-scooters
- **Transit** – Transit-supportive roadways, on-demand transit, car-sharing and ride-shares, Caltrain (electric soon!)
- **Electric Vehicle** – EV Charging infrastructure at MF properties, incentives for new or used EVs
We Want to Hear From You

POLL QUESTION 1: What are some barriers that prevent you from going EV? (Select all that apply)
1. Cost
2. Current EVs don’t have enough range
3. I live at a multifamily residence and cannot install EV charging
4. I rent a single family home and cannot install EV charging
5. Concern about power outages
6. My current car is not ready for retirement
7. I am not interested in owning a vehicle

POLL QUESTION 2: If you are interested in an EV, what could the City provide to help you make this decision? (Select all that apply)
1. More publicly accessible EV chargers
2. Education – workshops and ride and drive events
3. Financial assistance – rebates
4. Special electricity rate for EVs
5. Not interested or other reason
POLL QUESTION 3: Would you support protected bike lanes on busier streets if it means less available street parking? Protected bike lanes have barriers between moving vehicles and the bike lane.
1. Yes
2. No
3. Depends

POLL QUESTION 4: Would you support a ballot measure that raises funds to reduce Greenhouse Gas emissions?
1. Yes
2. No
3. Depends

For a post webinar survey: https://www.surveymonkey.com/r/SKLWNR2
Upcoming Webinars & Next Steps

• December 8: The Importance of the Natural Environment in Meeting our Sustainability Goals

• November / December: Update on the Sea Level Rise Adaptation Plan

• February 2021: Virtual Forum – Reviewing the Results of the Impact Analysis

• Spring 2021: Webinar on S/CAP Packages Of Options
Questions?
Click on the Q&A at the bottom of your screen

Web Resources
cityofpaloalto.org/ev
cityofpaloalto.org/transportation

Post-Webinar Survey: https://www.surveymonkey.com/r/SKLWNR2