



PROPOSED ZERO-EMISSION AIRPORT SHUTTLE REGULATION

February 21, 2019



CALIFORNIA
AIR RESOURCES BOARD

Overview

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2. Proposed Zero-Emission Airport Shuttle regulation
3. Economic Analysis
4. Environmental Analysis
5. Next steps before second hearing



Zero-Emission Airport Shuttle SIP Measure

1. Complement existing programs to achieve NOx and GHG emission reductions through use of zero-emission technology
2. Increase the penetration of the first wave of zero-emission heavy-duty technology

*-- 2016 State Strategy for the State
Implementation Plan, March 2017*

California's Airport Sector is Diverse

Large - 3

- Los Angeles (LAX)
- San Diego (SAN)
- San Francisco (SFO)






Medium - 6

- Burbank (BUR)
- Oakland (OAK)
- Ontario (ONT)
- Santa Ana (SNA)
- Sacramento (SMF)
- San Jose (SJC)

Small - 4

- Fresno (FAT)
- Long Beach (LGB)
- Palm Springs (PSP)
- Santa Barbara (SBA)

Airport Shuttles Include Every Class Size

Vehicle Weight Class	Vehicle Type	Number of Vehicles (All Fuels)		
		On-Airport	Off-Airport	Total
Class 2b-3	  Van Cutaway	3	277	280
Class 4-5	 Cutaway	82	409	491
Class 7-8	 Low-Floor Bus	156	0	156
Class 8	 Articulated Bus	21	0	21
Total		262	686	948

Many Airports Are Adopting Zero-Emission Airport Shuttles

California Airports	On-Airport	Off-Airport
Hollywood Burbank Airport (BUR)		✓
John Wayne Airport (SNA)		✓
Long Beach Airport (LGB)		✓
Los Angeles International Airport (LAX)	✓	✓
Mineta San Jose International Airport (SJC)	✓	✓
Oakland International Airport (OAK)		✓
Ontario International Airport (ONT)	✓	✓
Sacramento International Airport (SMF)	✓	
San Francisco International (SFO)		✓

Many Airports Are Adopting Zero-Emission Airport Shuttles

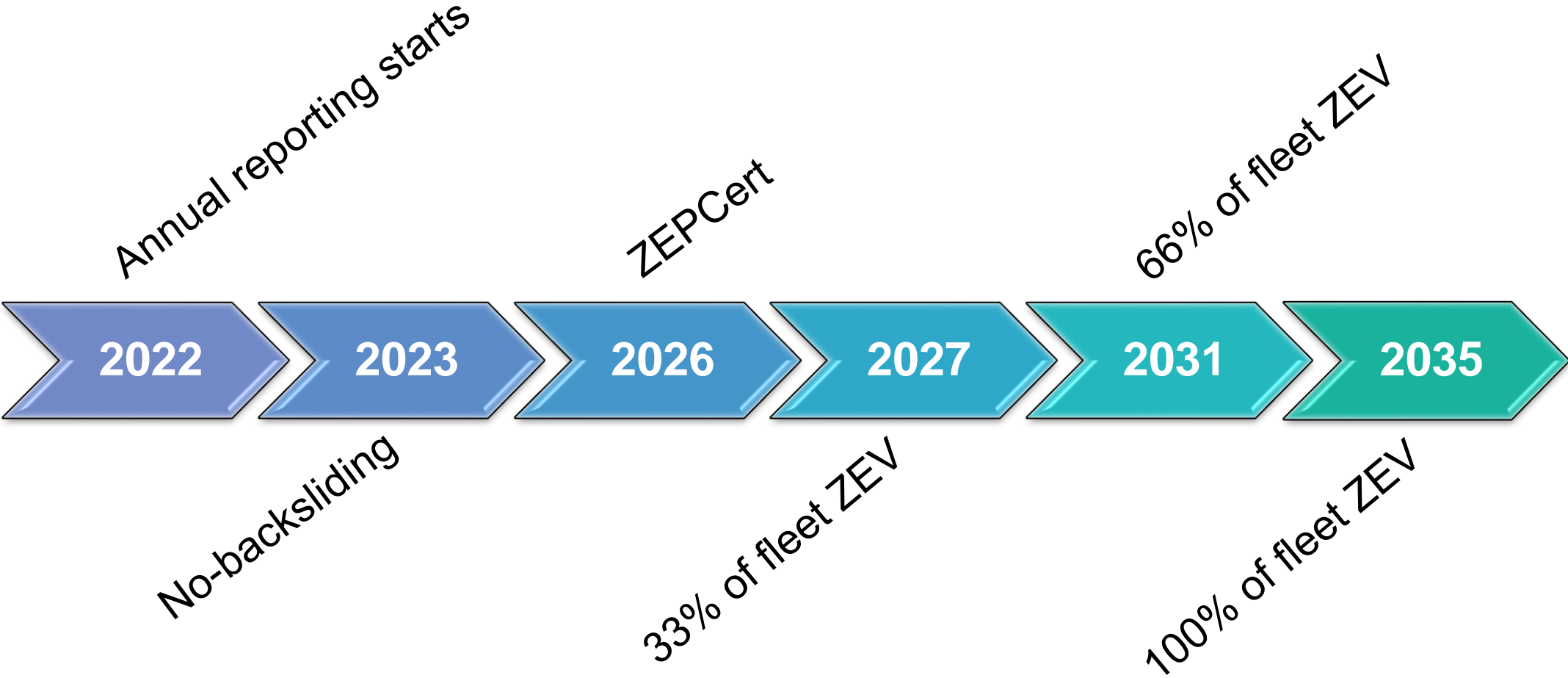
Other US Airports	On-Airport
Hartfield-Jackson Atlanta International Airport (ATL)	✓
Indianapolis International Airport (IND)	✓
John F. Kennedy International Airport (JFK)	✓
Kansas City International Airport (MCI)	✓
LaGuardia Airport (LGA)	✓
Newark Airport (EWR)	✓

ZEV Technology Fits Airport Shuttle Operation

- Operational characteristics:
 - Short, fixed routes
 - Significant miles
 - Stop and go operation
 - Low average speeds
 - Centrally maintained and fueled



Airport Shuttle Proposal: ZEV Transition



Flexibilities Ensure Service Continuity

- Allow shuttles designated as “reserve” to operate up to 3,000 miles per year
- Proposed 15-day change to address emergencies
- Provide fleets ability to apply to EO for a one-time “infrastructure facility” site delay
- Include “compliance extension” consideration by EO for unforeseen, temporary, or extenuating circumstances outside of the fleet’s control
- Exempt transit vehicles subject to the Innovative Clean Transit regulation

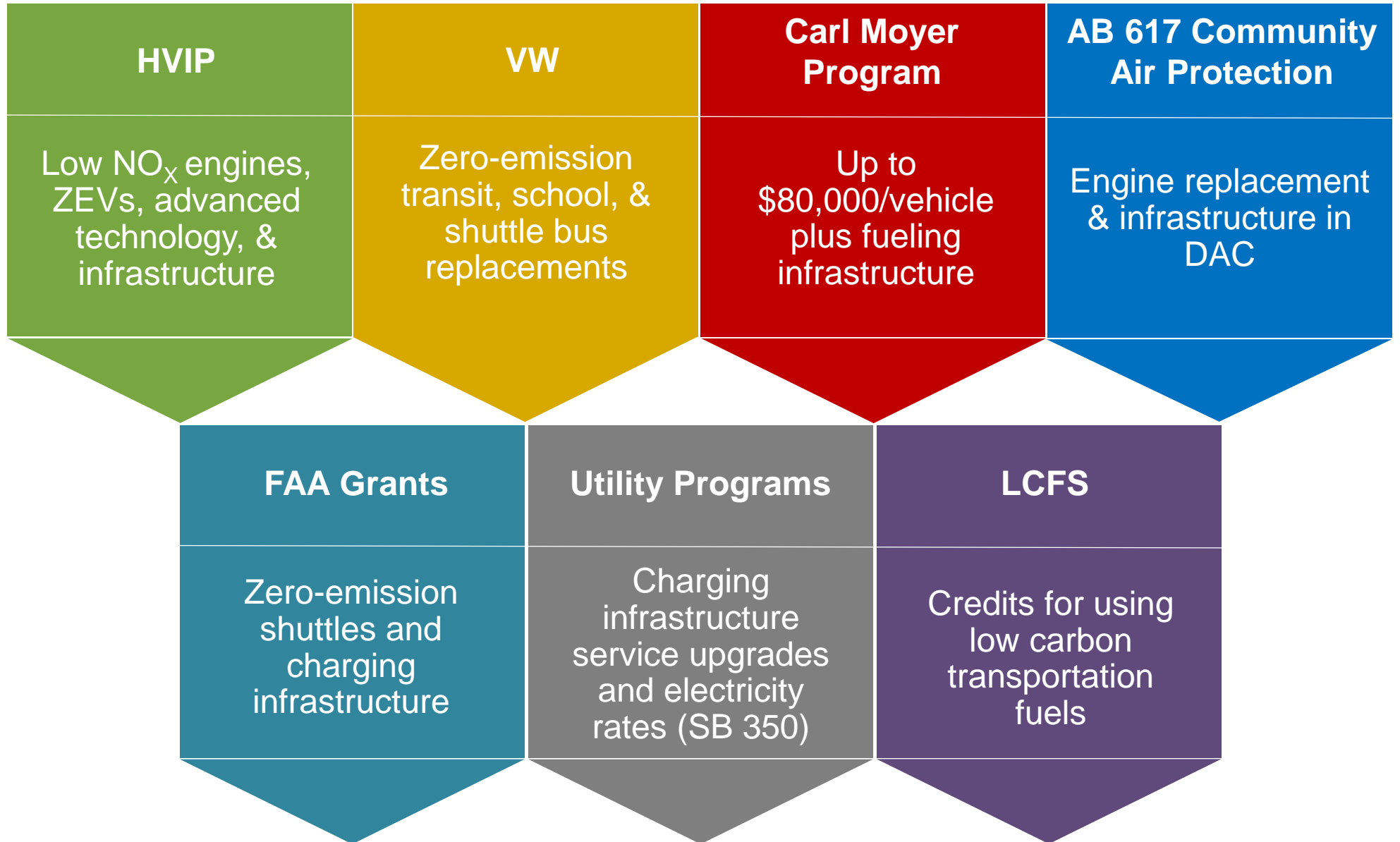
Long-Term Savings for Shuttle Operators

- Significant upfront capital costs for shuttle and infrastructure purchases
- Overall cost reductions from 2020 to 2040
 - Statewide cost-reductions of \$30 million
 - Includes low carbon fuel standard credits
 - Excludes other incentives
 - Savings outweigh costs by 8th year of operation
- Incentive opportunities can reduce or eliminate early costs

Class 4 Cutaway ZEV Shuttle

Category	Costs Over 12 Year Lifetime
Costs	
ZEV Shuttle (incremental over CNG, in 2027)	\$66,600
Infrastructure	\$58,000
Electricity	\$88,800
Combined Savings (Fuel Savings, Maintenance, LCFS)	(\$294,000)
Net Savings	(\$80,600)
<i>HVIP Voucher Amount</i>	<i>up to \$90,000</i>

Proposal Maintains Opportunity For ZEV Incentives



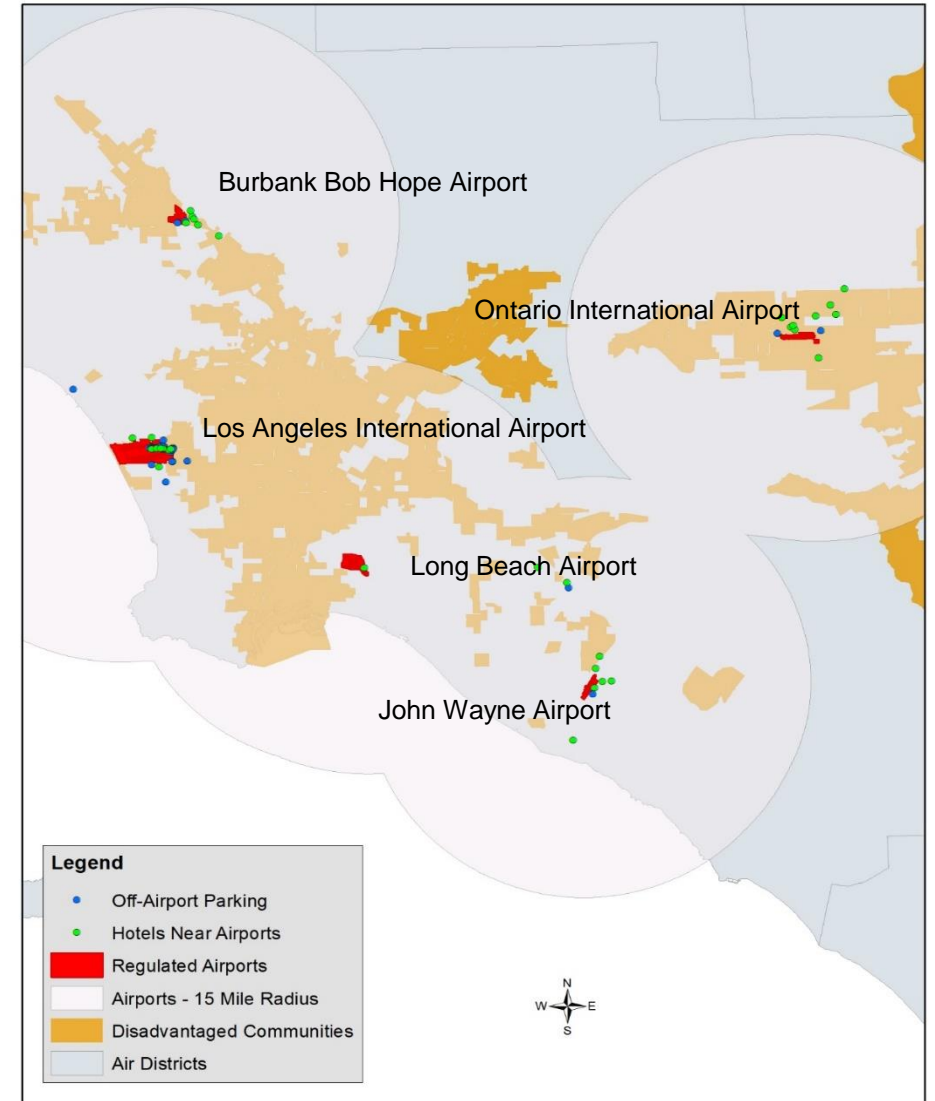
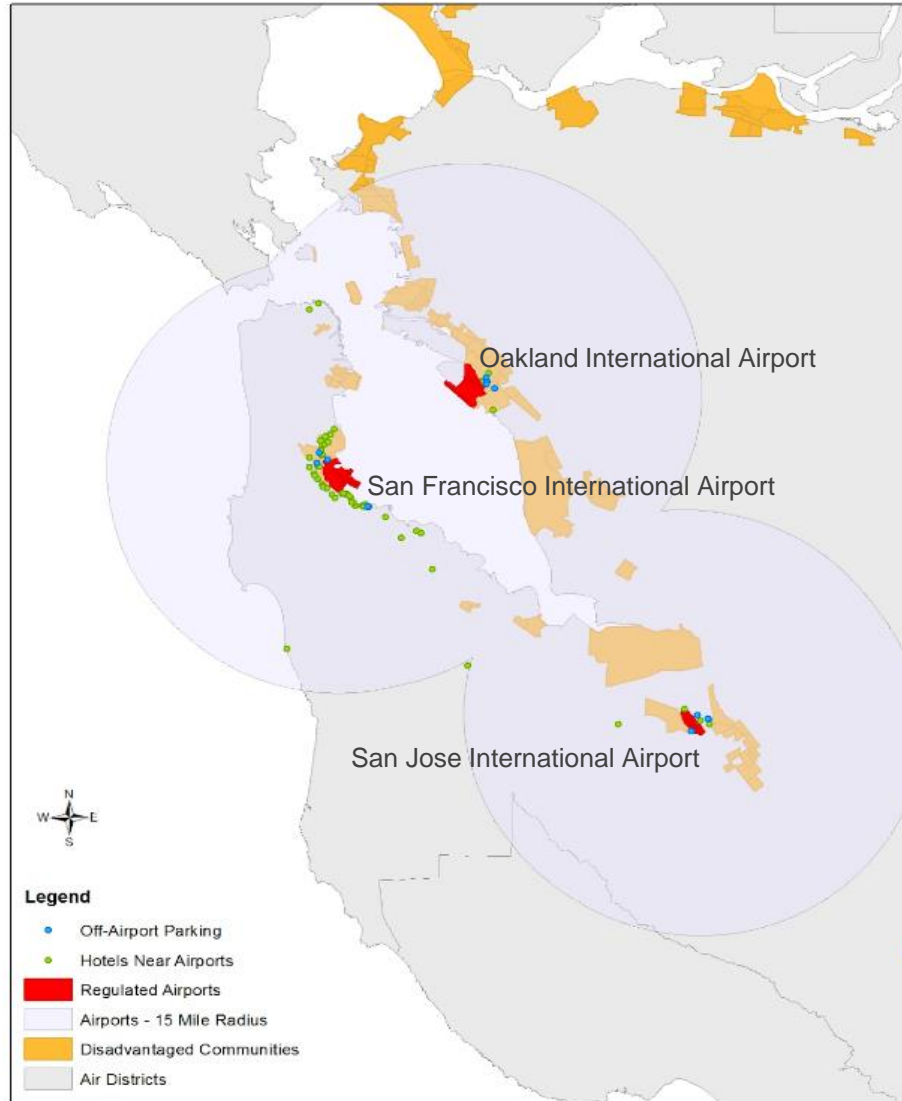
Environmental Analysis (EA)

- Draft EA Completed
 - Released for 45-day public comment period:
January 4, 2019 – February 19, 2019
 - Prepare written responses to comments raising significant environmental issues
- Early Summer 2019
 - Present Final EA and written responses to comments on Draft EA to Board at the second Board Hearing

Benefits of Proposed Regulation

- Health benefits, especially to communities proximate to airports
 - 138 tons of NOx reduction by 2040
- 90% reduction in GHGs
- Less dependence on petroleum fuels
- Promote the adoption of ZEV technology
- Supports new and enhanced heavy-duty ZEV certification

ZEV Shuttles Provide Benefits To Our Most Impacted Communities



Other Regional and Statewide Efforts

- SCAQMD and basin airports developing MOUs to achieve emission reductions
- SB 1014 will require Transportation Network Companies (Uber/Lyft) to reduce GHGs and transition to ZEVs
- CARB GSE proposal
- Airports' land use planning efforts replacing shuttles with electric rail or public transit

Staff Recommendation

- Adopt resolution directing staff to return with final proposed regulation to ensure ZEV adoption for airport shuttles
- Next Steps
 - Staff's proposed 15-day changes
 - Release for public comments March/April
 - Second hearing anticipated May 2019

