


Operator Relief Vehicle Replacement



Current Operator Relief Vehicles (ORVs)

- Operational Need
 - ORVs are used for bus operator relief
 - 55 Vehicles required for 2 bases
- Vehicle Configuration
 - 2012 Honda Civic compressed natural gas (CNG) powered
 - Operating range 190 miles
 - Combined City/Hwy 32 miles per gallon (mpg) 
 - Emissions rating – Partial Zero Emission Vehicle (PZEV)
 - Useful life (UL) 7 years or 100,000 miles
 - UL years met
 - UL miles estimated to be reached mid 2020



Replacement ORV

- Minimum Specifications
 - Compact 4-door sedan
 - Accommodate 4 adults
 - 200-mile operating range
 - Combined city/highway 32 mpg
- Preferred Specifications
 - Emissions rating PZEV or better
- Analysis Considerations
 - Fuel type
 - Gasoline
 - Electric
 - Hybrid
 - Capital cost
 - Total cost of ownership
 - Basic and powertrain warranties
 - Cost reduction incentives

2020 Honda Civic - Gasoline

- ✓ Compact 4-door sedan
- ✓ Accommodates 4 adults
- ✓ 200-mile operating range
- ✓ 32 Combined mpg
 - ✓ 32 mpg
- × Emissions rating PZEV or better
 - × LEV-III SULEV30 (Super Ultra Low)
 - × Environmental Protection Agency (EPA) Smog Rating



2020 Toyota Corolla - Gasoline Hybrid





















- ✓ Compact 4-door sedan
- ✓ Accommodates 4 adults
- ✓ 200-mile operating range
- ✓ 32 Combined mpg
 - ✓ 52 mpg
- × Emissions rating PZEV or better
 - × LEV-III SULEV30 (Super Ultra Low)
 - × EPA Smog Rating



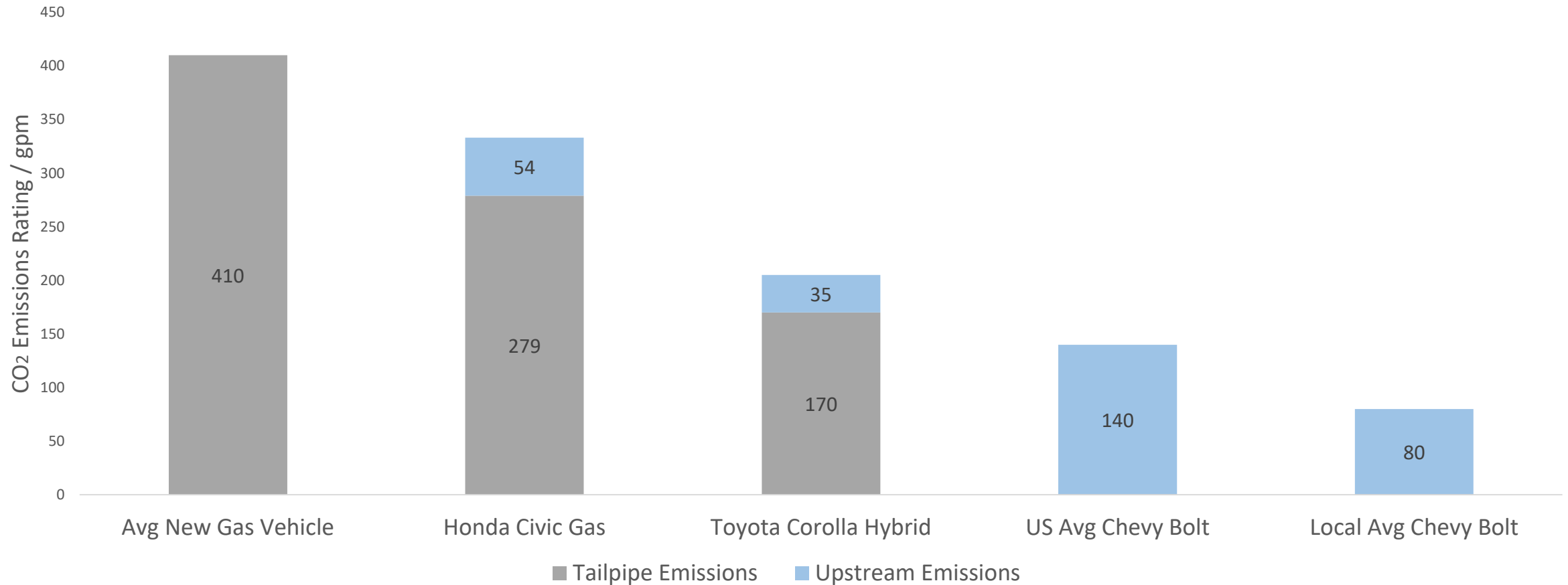
2019 Chevrolet Bolt – All Electric

- ✓ Compact 4-door sedan
- ✓ Accommodates 4 adults
- ✓ 200-mile operating range
- ✓ 32 Combined mpg
 - ✓ 119 mpge
- ✓ Emissions rating PZEV or better
 - ✓ ZEV (zero emission vehicle)
 - ✓ EPA Smog Rating









 Compressed Natural Gas Vehicle	 Electric Vehicle	 Hybrid Vehicle Gasoline	 Gasoline Vehicle
			
2012 Honda Civic Natural Gas	2019 Chevrolet Bolt Electric	2020 Toyota Corolla Hybrid	2020 Honda Civic Gasoline
MSRP: \$26,155	MSRP: \$36,620 (\$32,572)	MSRP: \$23,100	MSRP: \$21,650
 31 MPGe combined city highway city/highway 3.2 gal/100mi	 119 MPGe combined city highway city/highway 28 kWh/100 mi	 52 MPG combined city highway city/highway 1.9 gal/100mi	 32 MPG combined city highway city/highway 3.1 gal/100mi
Natural Gas  190 miles Total Range	Electricity  238 miles Total Range	Gasoline  593 miles Total Range	Gasoline  397 miles Total Range
Rebates - NO	Rebates - YES (up to \$4500)	Rebates - NO	Rebates - NO
Smog Rating			
			
Emissions Rating			
PZEV	ZEV	LEV-III SULEV30	LEV-III SULEV30

Greenhouse Gas Emissions



CO₂ – Carbon Dioxide
Avg – Average
US – United States
GPM – grams per mile

Total Cost of Ownership

	 Electric Vehicle	 Hybrid Vehicle Gasoline	 Gasoline Vehicle
			
	2019 Chevrolet Bolt Electric	2020 Toyota Corolla Hybrid	2020 Honda Civic Gasoline
Total Fleet Capital Cost	\$2,006,435	\$1,422,960	\$1,333,640
Total Fleet Capital Cost After Rebates	-\$187,500	\$0	\$0
	\$1,818,935	\$1,422,960	\$1,333,640
Total Fleet Fuel and Maintenance Cost	\$161,765	\$571,859	\$748,229
Total Cost of Ownership	\$1,980,700	\$1,994,819	\$2,081,869
Basic Warranty	3 years / 36,000 miles	3 years / 36,000 miles	3 years / 36,000 miles
Powertrain Warranty	8 years / 100,000 miles	5 years / 60,000 miles	5 years / 60,000 miles

Electric Vehicle Infrastructure



Chargers

- 30 Access Controlled Chargers at each Base for ORVs
- 1 Access Controlled Fast Charger at each Base for ORVs
- 4 Pay Chargers at each Base for employees and visitors

\$80k-100k

Utility

- Design for 2 Bases
- Electrical Equipment and piping
- Separate Meter

\$500k

Installation

- 18 Charging Stations
- Wiring to Utility
- Access Controls
- Pay Controls

\$50k-100k

Estimated Total

\$600k-
\$700k

SCE Charge Ready Program

VW Settlement



Recommendation / Next Steps

Recommendation

- Staff recommends electric vehicle for ORV replacement

Next Steps

- Transit Committee input
- Initiate Board of Directors approval to release invitation for bids