

City of Pittsburgh EV Plans and Initiatives

DEP Coalition Meeting
March 12, 2019

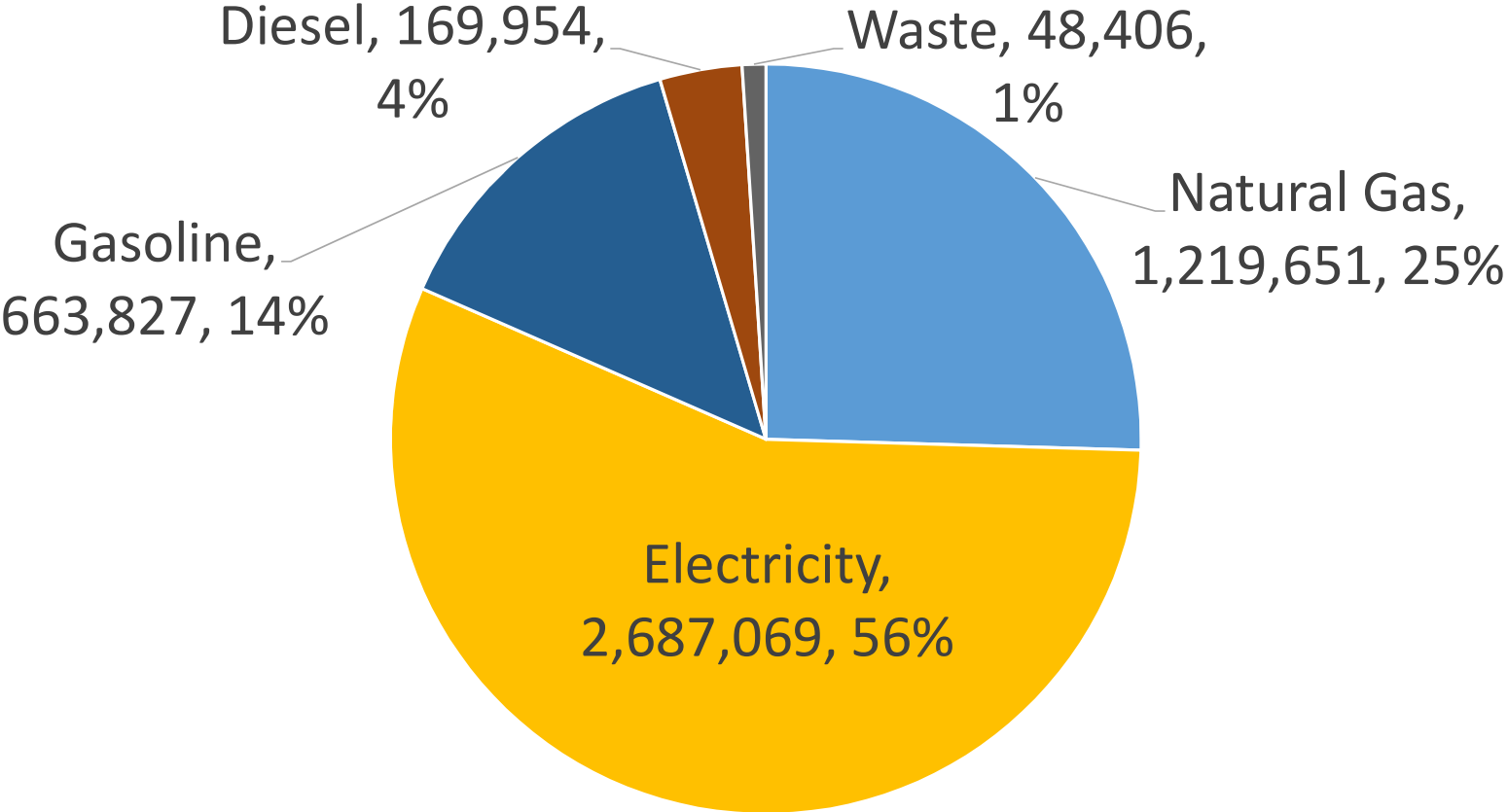


Agenda

- Climate Action Plan
- CYPT Tool
- EV Task Force and e-Mobility Workshop
- Current Fleet

Climate Action Plan

2013 Weather Normalized Source Breakdown

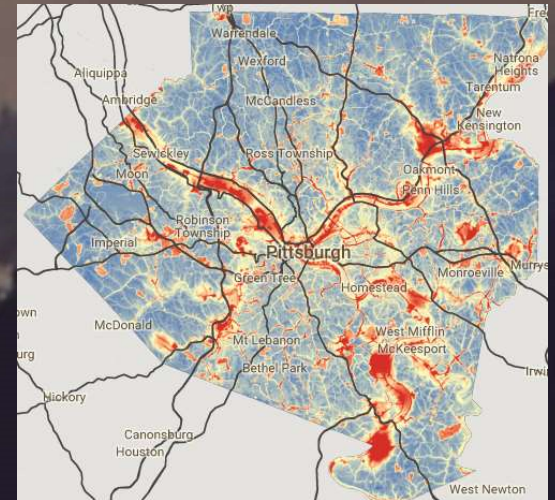
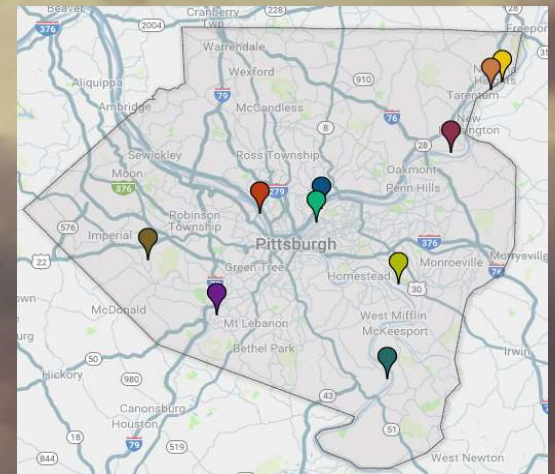


Sources of Pollution

“Toxic 10” point source polluters

Pittsburgh’s topography lends itself to inversion events, causing pollution from regional energy generation to linger

Vehicle emissions



Climate Action Plan Targets

Reduce emissions from on-road transportation by 50% below 2013 levels by 2030

- Reduce Vehicle Miles Traveled per capita by 50% below 2013 levels by 2030
- Fuel Shift: Vehicle Electrification
- Reduce freight emissions by 25% by 2030

Operate a 100% fossil fuel free fleet

Source 100% renewable energy

Mode Shift Objectives

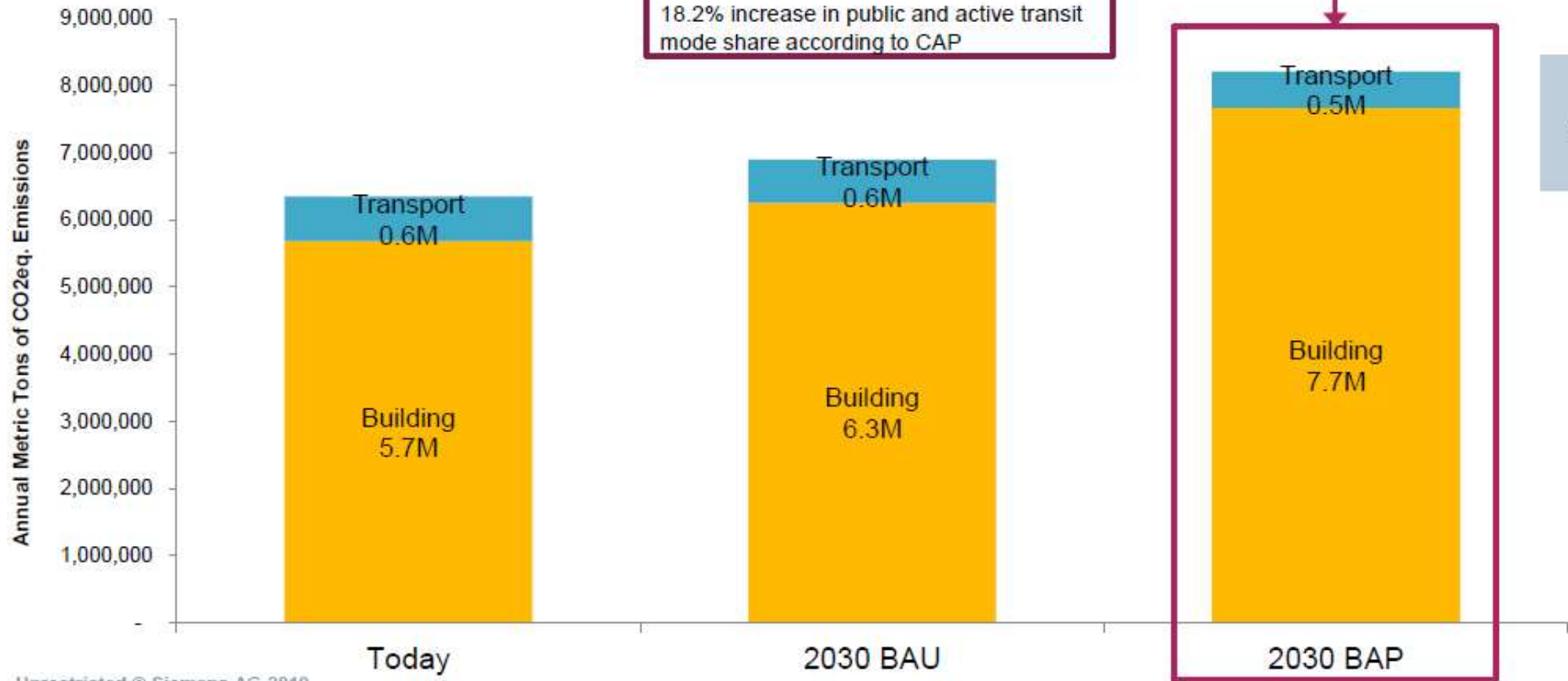
Mode	2014 Commuter Mode Split	Objective	2030 Commuter Mode Split Goal
Walk	10.9% (+/- 0.6)	50% increase	16.4%
Bike	1.8% (+/- 0.2)	100% increase	3.6%
Public Transit	16.9% (+/- 0.7)	100% increase	33.8%
Single Occupancy Vehicle (Drove Alone)	55.5% (+/- 0.9)	50% decrease	27.75%

Siemens City Performance Tool Findings

GHG Emissions, Today to 2030 Projected



Business-as-Planned (BAP) Scenario
 0% Nuclear. Nuclear is distributed between Coal (25%) and NG (75%)
 18.2% increase in public and active transit mode share according to CAP



+29% as compared to Today

Modeled Technologies and Adoption Rates

RESIDENTIAL (2) + NON-RESIDENTIAL BUILDINGS (3)

Lever	Unit	Adoption, Today	Adoption, 2030
Wall insulation (Residential)	% of building stock with lever	10%	50%
Home Automation (Residential)	% of building stock with lever	5%	30%
Window Glazing (NR)	% of building stock with lever	20%	60%
Building Automation (NR)	% of building stock with lever	3%	25%
Room Automation Lighting, HVAC (NR)	% of building stock with lever	2%	20%

PUBLIC (3) + PRIVATE TRANSPORTATION (2)

Lever	Unit	Adoption, Today	Adoption, 2030
eBuses	% of public bus fleet	0%	50%
eBRT - New Lines	Total no. of lines	0	2
Tram – New Lines	Total no. of lines	3	5
Shared E-Cars	Total no. of shared e-cars	0	450
Electric Cars	% of cars on the road	0%	35%
Electric Taxis	% of taxis on the road	0%	50%

TRANSPORTATION INFRASTRUCTURE (1)

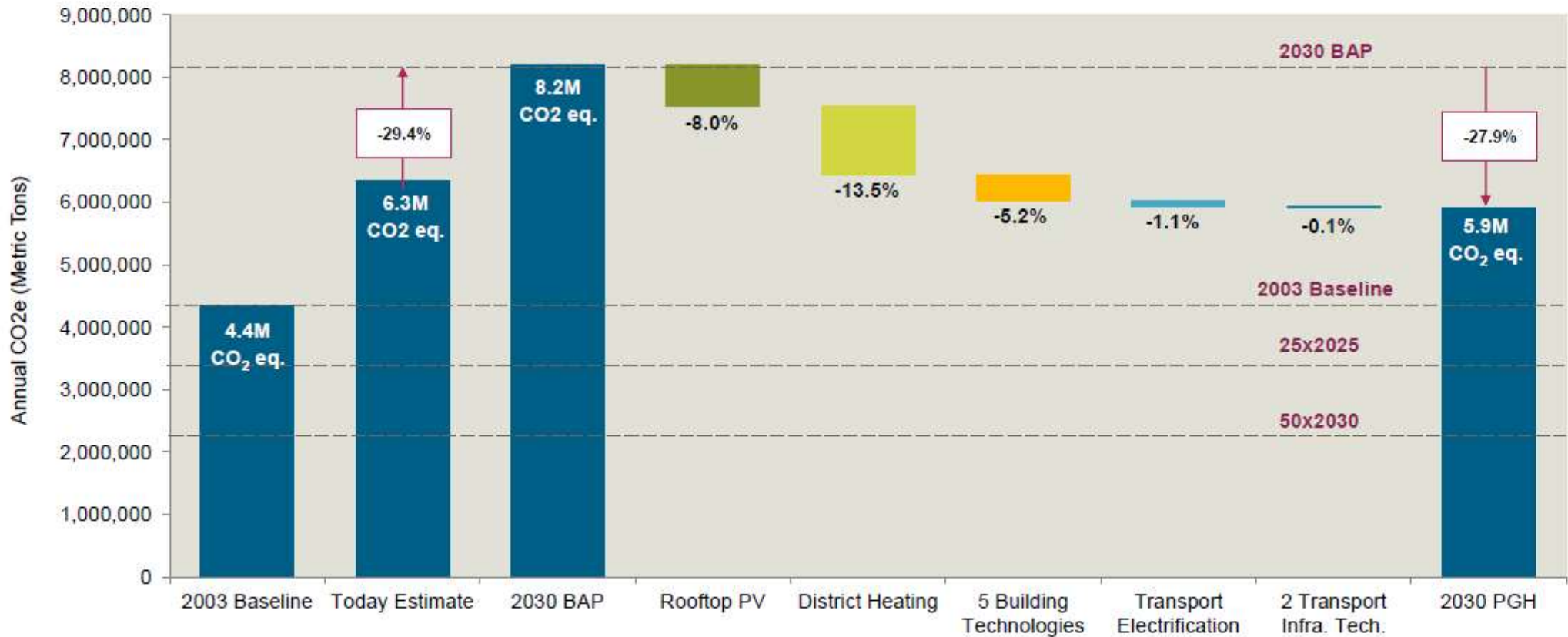
Lever	Unit	Adoption, Today	Adoption, 2030
Intelligent Traffic Light Management	% of traffic lights	0%	75%

ENERGY (1)

Lever	Unit	Adoption, Today	Adoption, 2030
Rooftop PV	% of electricity generated	0.1%	15%
NG District Heating	% Heating demand	0%	50%

Towards Achieving Emission Targets

Business-as-Planned Scenario

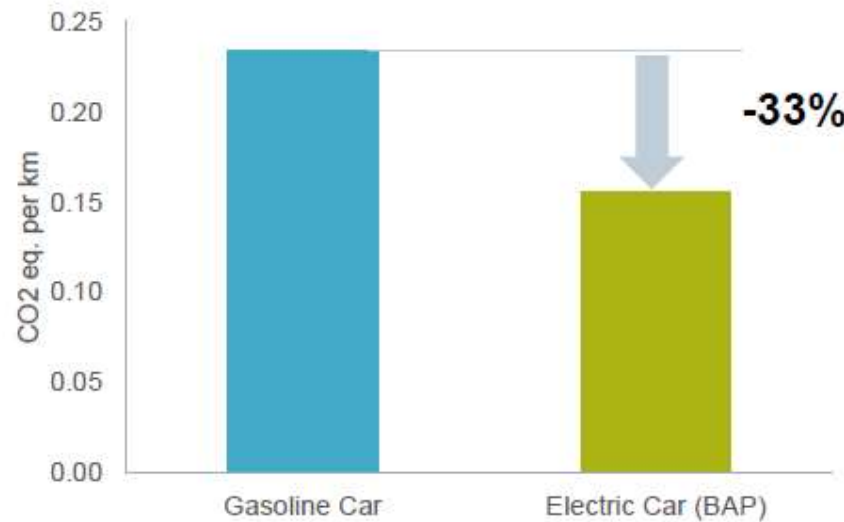


Environmental Impacts

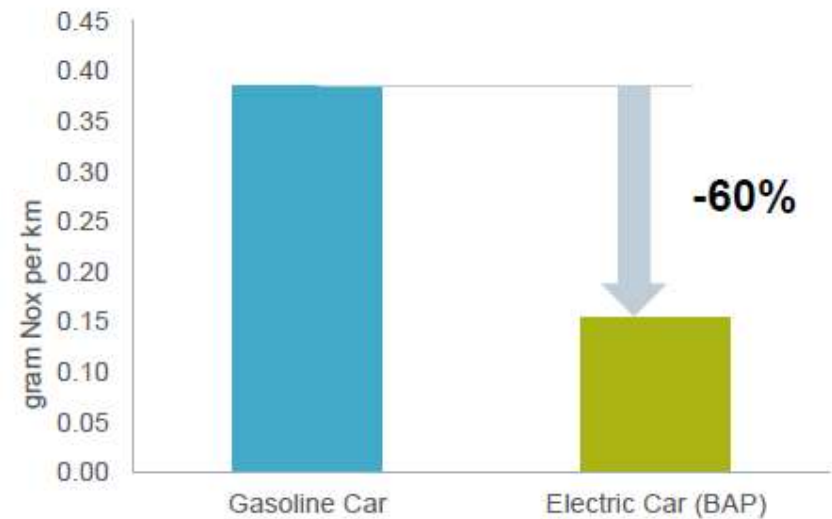
Gasoline Car Vs. Electric Car

Electric cars in Pittsburgh would have lower emissions as compared to gasoline cars
33% reduction in **CO₂ eq.** emissions per km
60% reduction in **NOx** emissions per km

CO2 eq. emissions per km



NOx emissions per km



EV Task Force and Encouraging Fuel Shift

Electrification Goals

EV Task Force formed September, 2018 to enable EV adoption city-wide.

Audience	Needs	Strategy
Municipal Fleet	Purchase and deploy vehicles	Start with sedans and existing infrastructure
	Purchase and deploy charging infrastructure	Couple with renewable energy generation, ensure ease of use
Other Fleets (car share, taxis, private businesses, etc.)	Enable and incentivize charging infrastructure development for fleets operating in City of Pittsburgh	DC fast charging in convenient locations for taxis
		Find opportunities to share fleet charging infrastructure with gov't or residential
Residential	Enable charging opportunities for residents (esp. those without driveways)	Permitting within the right of way, neighborhood hubs for level 2 and DCFC
	Reduce "range anxiety" for long trips	DC fast charging along interstates and main thoroughfares

e-Mobility Workshop Takeaways 1/30/19

*EV's include not just passenger cars and trucks, but electric bikes, scooters, busses and industrial/freight trucks.

Breakout groups

- **EV Infrastructure**

- Education for fleet managers
- Model need and where to locate infrastructure, improve data sharing
- Increase in building energy may be a disincentive to install infrastructure
- Infrastructure compatible with charging micromobility- bikes, scooters

- **Policy and Governance**

- Lack of standards and regulations for EV infrastructure, obsolete technologies
- Training and education
- Universal signage



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e-Mobility Workshop Takeaways cont'd

- **Energy Demand and Renewable Supply**
 - Couple with renewable energy to maximize environmental and health benefits
 - Coordination between government, utility and private sector to ensure enough electricity where needed
 - Support for nuclear as a green energy source
 - Improved solar panel and battery technology
- **Equity and Accessibility**
 - Ensure geographic and general inclusion- infrastructure build-out should reflect needs of different neighborhoods
 - Provide cultural and age appropriate training and accessibility for EVs

Current Fleet and Charging Infrastructure

CURRENT FLEET MAKEUP

1200 Total Fleet



24 Biofuel +
2 CNG
Refuse Packers
(+2 CNG in 2019)



10 EV Sedans
(+ 9 in 2019)
1 EV Forklift (2019)



10 Hybrid Sedans
(+7 Police in 2019)



By end of 2019, ~**5% of fleet** will be alt fueled

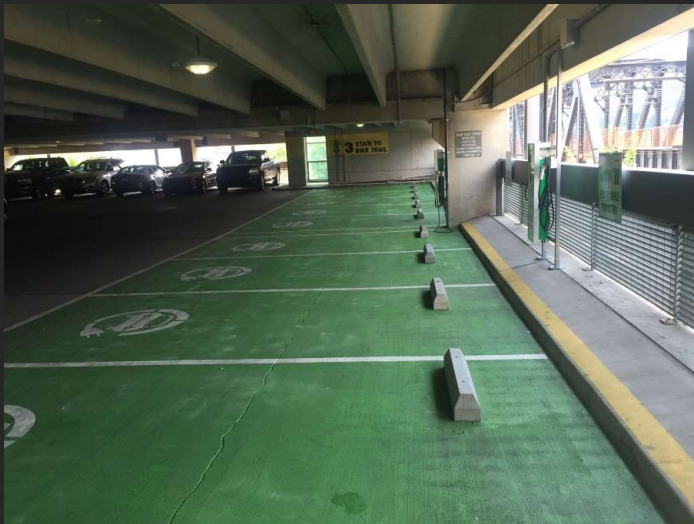
Current City-Owned Charging Infrastructure

Municipal Fleet



- 5 solar-powered dual-hose mobile units at Second Ave
 - 8 dual hose level 2s at Second Ave (2019)
 - 4 grid-tied level 2s at the Motorpool lot (+ 5 in 2019)
- Total by end of 2019 = 36 hoses

Public



- 11 level 2 chargers at Parking Authority Lots (+ 8 in 2019)
 - 2 dual hose DCFC + 4 dual hose level 2 in East Liberty (2019-2020)
- Total by end of 2019 = 31 hoses

MAP KEY

-  City of Pittsburgh
-  EV Charging Locations
-  Parking Authority Garages
-  East Liberty PAT Garage
-  East Busway
-  I-376
-  Major Roads
-  Port Authority Bus Routes
-  Water
- Population Density**
-  0 - 50
-  51 - 100
-  101 - 150
-  151 - 250
-  251 - 500



THANK YOU

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