

# Clean Communities EVs & Municipalities

National Drive Electric Week Webinar Series

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- ▶ For Audio, dial:
- ▶ 1-800-250-3900
- ▶ Participant PIN: 55197039#

Thursday, September 14, 2017

# Clean Communities EVs & Municipalities

## National Drive Electric Week Webinar Series

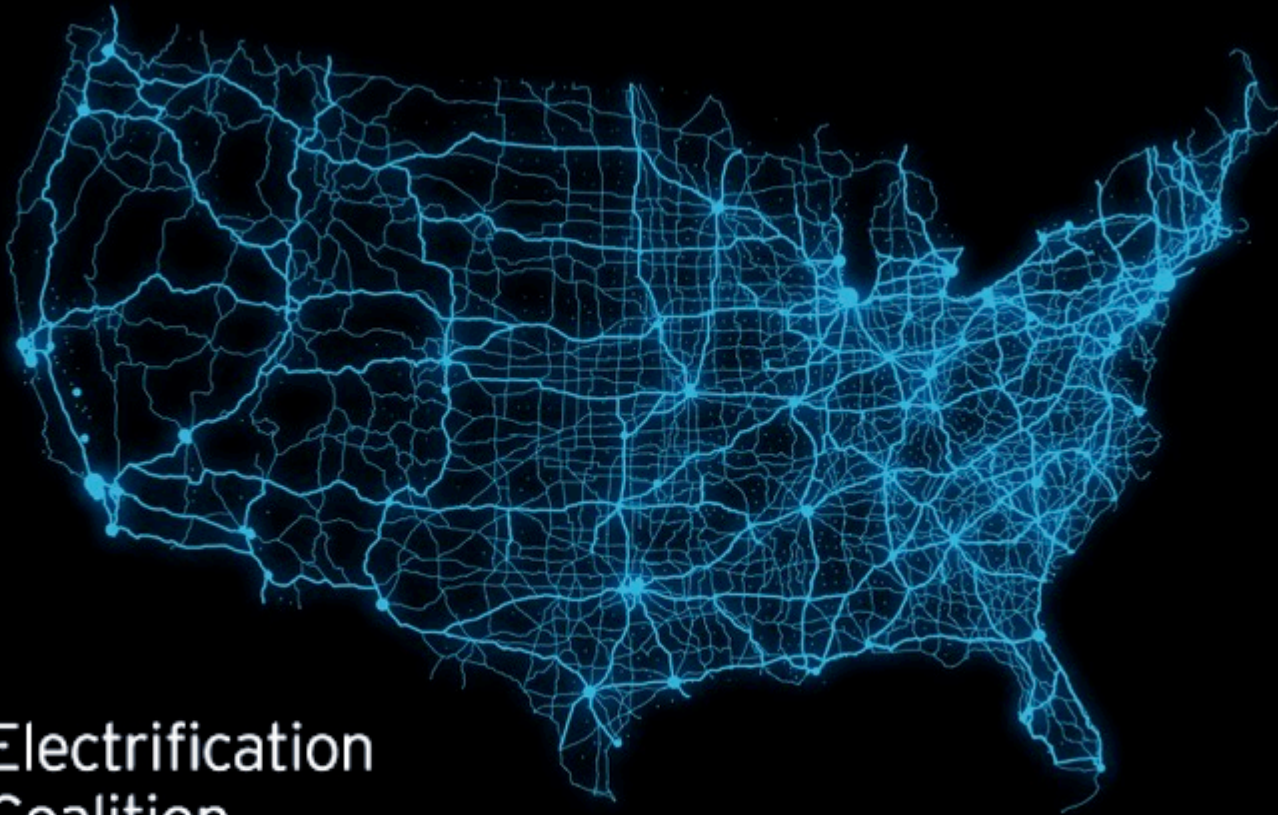
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- Justin Brightharp, Electrification Coalition
- Jed Greenfield, City of Houston
- Duy Vu, City of Cedar Hill
- Steven Patrick, City of Lewisville
- Bailey Muller, North Central Texas Council of Governments



#texasEV

# Electrification Coalition



Electrification  
Coalition

# Agenda

- Mission
- Introduction
- Electrification Coalition Programs
  - Drive Electric Northern Colorado
  - Rochester EV Accelerator
  - Energy Secure Cities Coalition
  - City of Atlanta Partnership
- Benefits to Municipalities

# Electrification Coalition Mission

The Electrification Coalition (EC) is a nonpartisan, non-for-profit group of business leaders committed to promoting policies and actions that facilitate the deployment of electric vehicles on a mass scale in order to combat the economic, environmental, and national security dangers caused by our nation's dependence on oil.

# Welcome and Introduction

Justin Brightharp, The Electrification Coalition

Technical Advisor based in Atlanta, Georgia

Assist the City of Atlanta on alternative fuel goals and overall strategy while furthering the Electrification Coalition mission

# Electrification Coalition Programs

- Drive Electric Northern Colorado
- Rochester EV Accelerator
- Energy Secure Cities Coalition
- City of Atlanta Partnership

# Drive Electric Northern Colorado

- Community-wide initiative that focuses on the mass deployment of electric vehicles
- Utilizes public-private partnerships to encourage wide spread adoption of plug-in electric vehicles (PEVs)
- Launched in February of 2013
- <http://driveelectricnoco.org/>
- 20+ businesses, universities, municipalities provided workplace charging for 15K individuals
- Led almost 100 ride and drive events
- City of Fort Collins and Loveland have employee workplace charging now





# Rochester EV Accelerator

- Partnership between the Electrification Coalition, City of Rochester, Genesee Region Clean Communities, & Energetics Incorporated
- Widespread EV adoption to achieve Rochester's sustainability goals
- Innovative partnerships with public & private sector for outreach, infrastructure, and coordination
- Provide assistance and expertise on the transition towards plug-in electric vehicles
  - EV readiness (policy)
  - EV education/awareness
  - EV experience
  - Fleet transition
  - Consumer purchasing



# Energy Secure Cities Coalition

- Goal: Unite 25 cities, retire 50,000 petroleum vehicles, save 500,000 barrels of oil every year
- Current cities: Indianapolis, Atlanta, Sacramento, San Diego, Oakland, Charlotte, West Palm Beach, Rochester
- Cities seeing the benefits of PEVs to taxpayers, environment, and national security



**ENERGY SECURE CITIES**  
COALITION

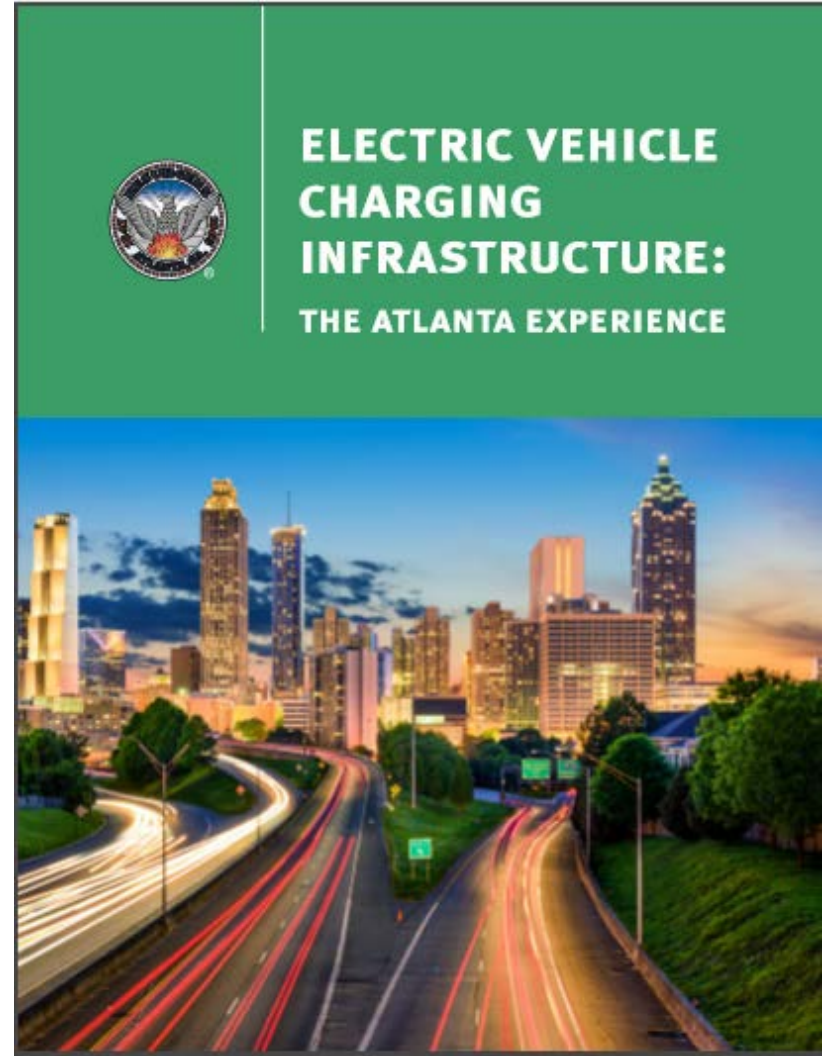
# City of Atlanta Partnership

- Memorandum of Understanding (MOU) entered in Summer of 2016
- Created Technical advisor position within the Electrification Coalition housed at City of Atlanta
  - Assist in achieving the City's alternative fuel vehicle goals
  - Create opportunities for public outreach and awareness on PEVs
  - Identify policy opportunities and barriers to transitioning towards PEVs



# Atlanta Infrastructure Document

- Developed a document on the EV infrastructure experience in Atlanta
- Described experience of installing electric vehicle supply equipment (EVSE) and barriers encountered
- Available for other municipalities to utilize



# Benefits to Municipalities

- Data-driven information for best options for transitioning to electric vehicles
- Access to a network of cities for best practices and policy solutions
- Consistent information on federal activity on electric vehicles and national programs
- Connections to manufacturers and organizations in new technologies/innovation and electric vehicles

# Contact

- Justin Brightharp, The Electrification Coalition
- Email: [JABrightharp@atlantaga.gov](mailto:JABrightharp@atlantaga.gov)
- Phone: (404) 330-6510



# City of Houston EV's

## Transportation by the plug

Electrification Coalition

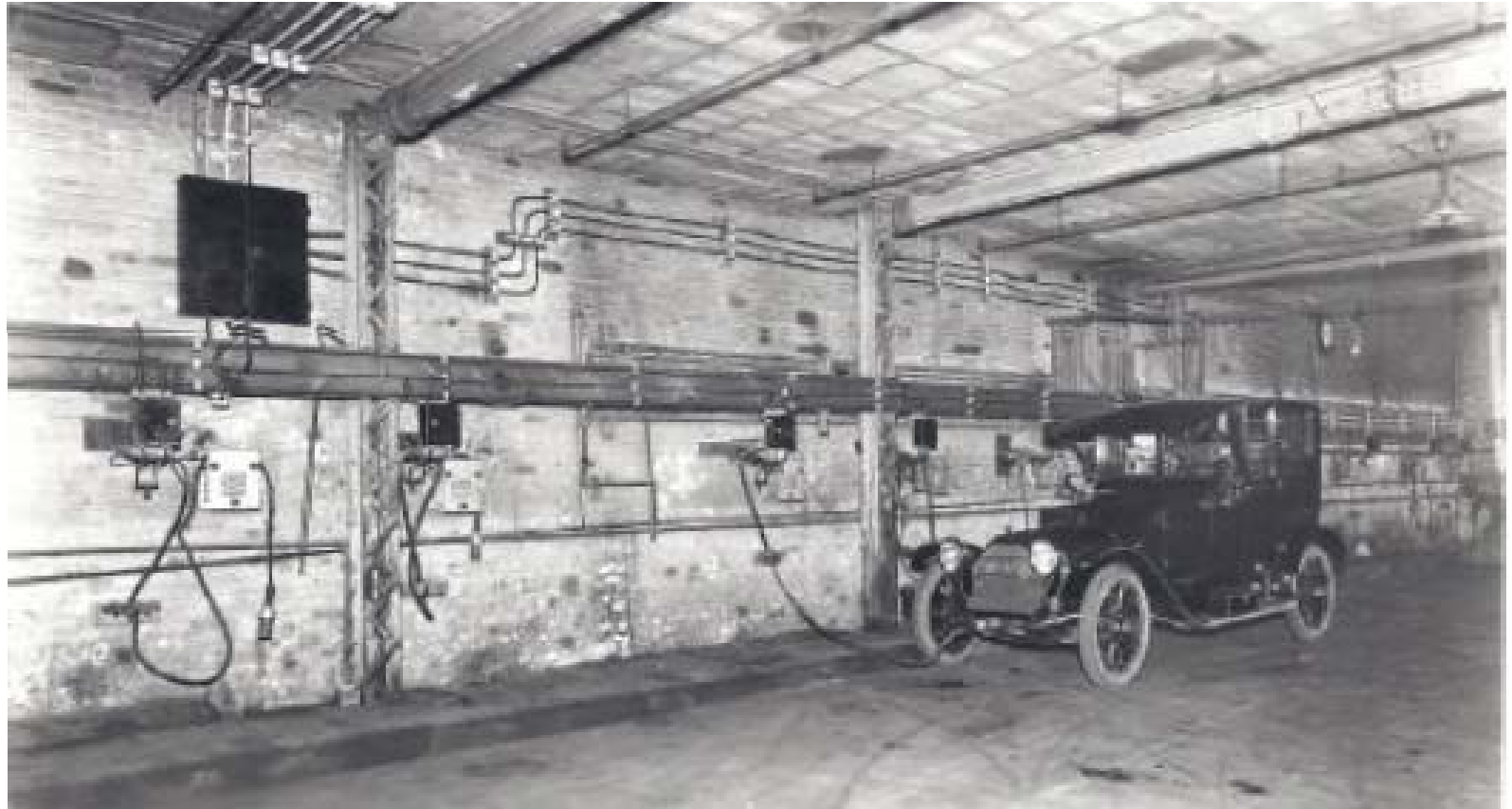
September 14, 2017

Jedediah Greenfield, MPA  
Fleet Management Department  
City of Houston



City of Houston, Fleet Management Department

## Vision from the past

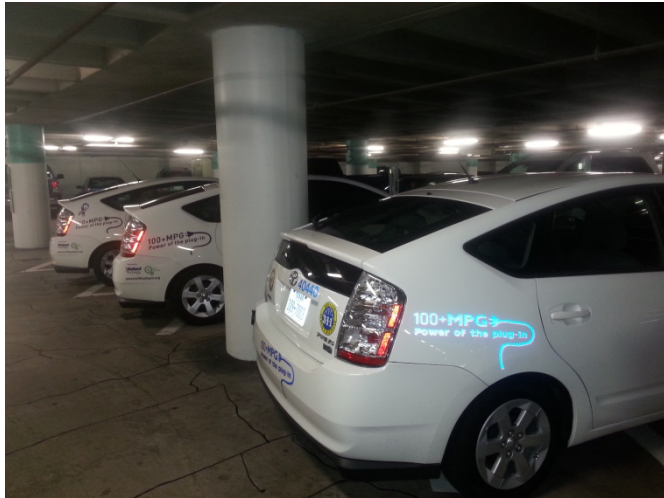




## Vision of the future



# Overview of City of Houston Alt. Fuel



- EV's
  - 27 - Nissan Leafs
- PHEV's
  - 15 Toyota Prius (Hymotion)
- Hybrid
  - 757
    - Prius, Escape, Malibu, Tahoe
    - 2 Recycling trucks
- CNG
  - Refuse truck (Pilot)
- Propane
  - 3 Ford F series
  - 20 mowers

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**Approximate Total Vehicles – 12,000**



# Electric Vehicle Supply Equipment (EVSE)



The City of Houston has a total of 110 EVSE's at City facilities

- Blink Network and GridBot Network
- DC Fast Charger
- 37 are dedicated for FleetShare vehicles





# City of Houston EV's

## FleetShare

- Online reservation vehicle pool managed by the Fleet Management Department
  - Fast Fleet by Zipcar

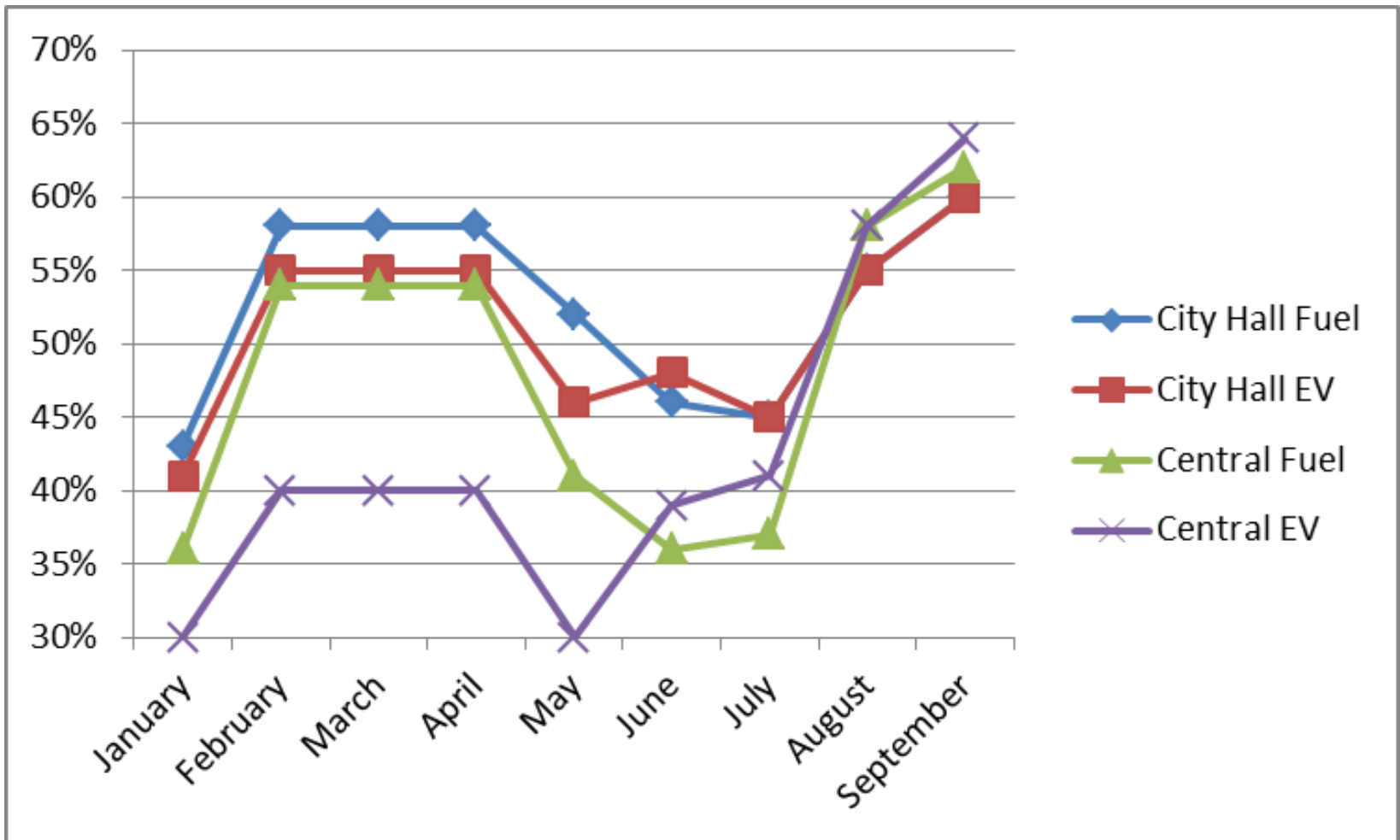
## EV Management Best Practices

- Ownership
  - Central Fleet Department
- Monitoring
  - Car attendant
  - Carwings app used to ensure full charge
- Education (leading by example)
  - Training class and videos
  - Analyze driving behavior and offer corrections
  - Ride alongs



# Vehicle Utilization Fuel vs. EV

Monday to Friday – 8 a.m. to 5 p.m.



# City of Houston 600 Square Miles



**Jedediah Greenfield, MPA**  
Fleet Management Department  
City of Houston

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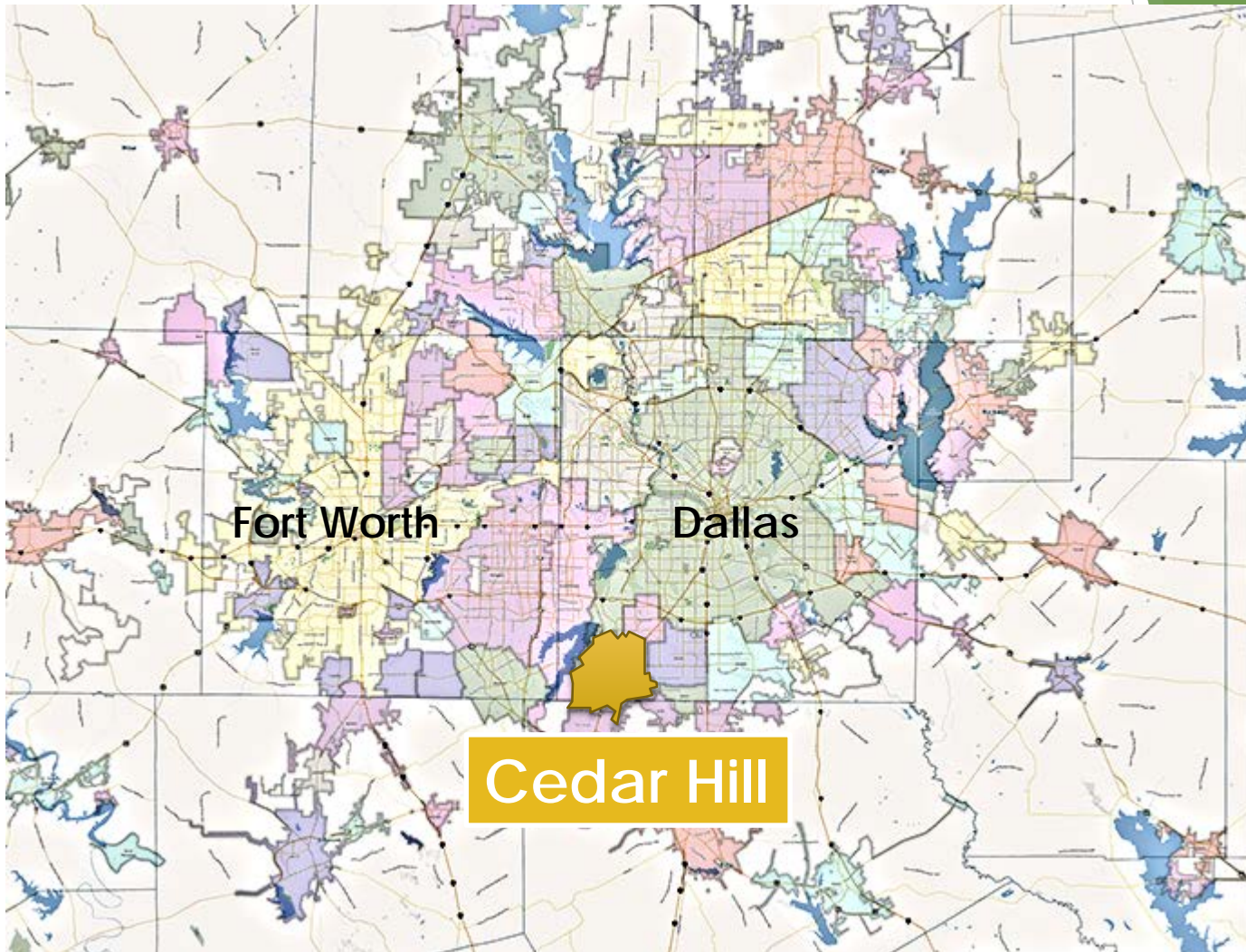
## A City within a Park

Duy Vu

Environmental Manager

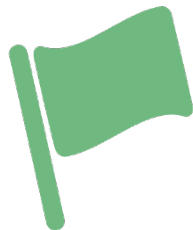








Population  
46,500



Established  
1846



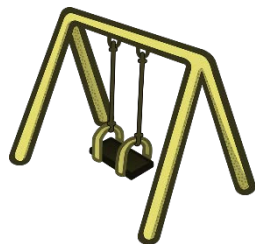
Elevation  
880 ft



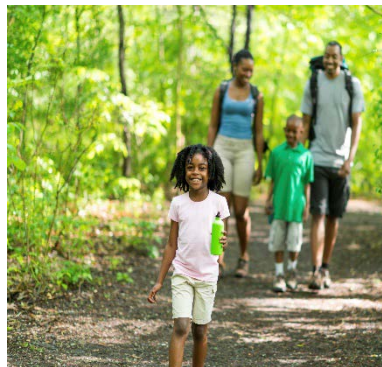
Green Space  
34%



Tree Canopy  
7,938 acres

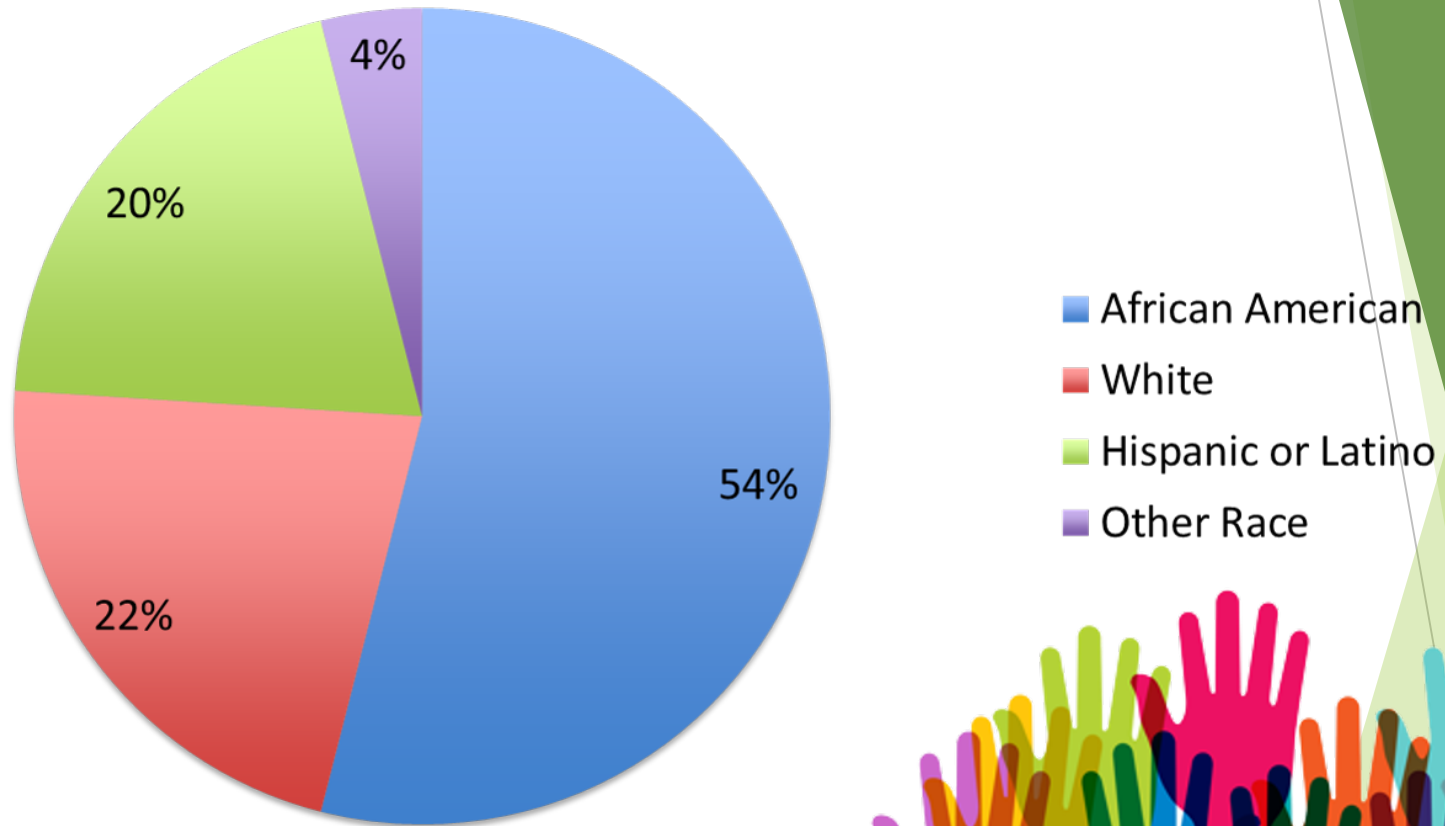


Number of Parks  
19



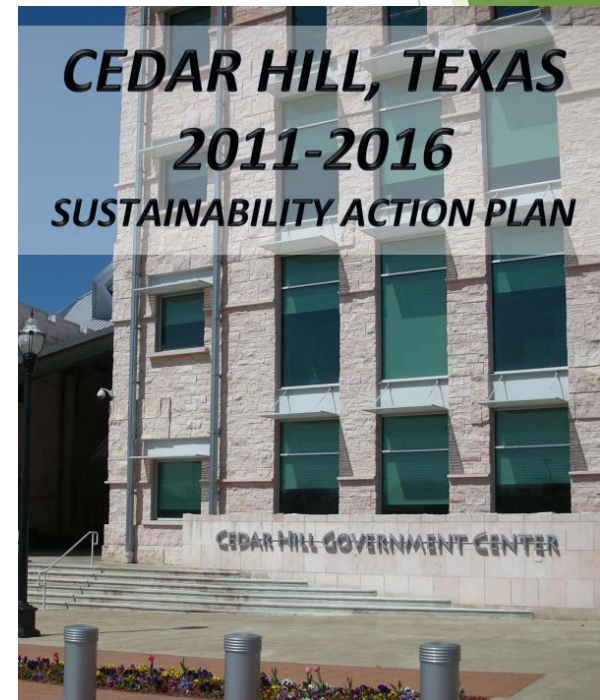


# Cedar Hill is Diverse



# Growing Green

- ▶ Comprehensive sustainability program through the Environmental Division
- ▶ Sustainability Action Plan, 2011
  - ▶ Urban conservation
  - ▶ Water conservation and management
  - ▶ Transportation
  - ▶ Green infrastructure
  - ▶ Renewable energy
- ▶ Currently being updated



## Vision

*We envision Cedar Hill as a regionally engaged sustainable community that manages resources wisely, conserves natural beauty, and promotes open space.*

## Mission

*The City of Cedar Hill's Mission is to invest in practical planning today for a sustainable community tomorrow.*

# Renewable Energy

## ► Solar PV System

- 152.64 kW PV system
- 210,030 kWh annually
- Grant funding
  - \$952,000 SECO funds
  - \$164,500 ONCOR program
  - \$26,000 City

### Solar: part of City's green initiative

You can't see them from the ground, but the solar panels installed on the roof of the Government Center will soon start cutting the City's electric bill by as much as a year.

The system is not a replacement for the old, but the solar panels are strategically located at the most prominent in city in Cedar Hill for maximum energy production and awareness to those living in and visiting the City.



Indicates finished connecting solar panels on the Government Center roof in June.

Assistant City Manager Melissa Stephens began submitting grant applications in August, 2009 to fund most of this project. It will cost over \$1,000,000 to install the system and bring it online.

Federal, state and an ONCOR grant covered all but \$25,000. The City expects to save about \$25,000 a year in electricity costs at the government Center. It will take just over a year to recover the cost.

and businesses to look for ways to recycle, conserve energy and water resources, reduce emissions and increase efficiency.

Responsible consumption today will pay dividends now and well into the future.

### City begins solar panel installation



# Yes, even a wind turbine

- ▶ 4.335 kW vertical axis
- ▶ Grant funded
  - ▶ \$50,000 SECO funds
  - ▶ \$1,500 ONCOR incentive
  - ▶ \$12,500 City budgeted





# Green Infrastructure

- ▶ Four EV stations installed at Government Center
  - ▶ 2 for City vehicles
  - ▶ 2 for public use - operated by Blink
- ▶ 100% Grant funded
- ▶ Powered by solar and wind





# Electric Vehicles



- ▶ Purchased two all electric Leafs in 2011
- ▶ Both vehicles wrapped
- ▶ Powered by solar and wind
- ▶ Assigned to Neighborhood Services (Code Enforcement) and the Recreation Center (Parks)

# Leafs by the Numbers

- ▶ ~22,000 miles driven combined
  - ▶ Almost always driven within the City limits
  - ▶ Strategically driven when outside City limits
  - ▶ Never had a case where the Leaf ran out of batteries
- ▶ Low maintenance
  - ▶ One battery replacement (\$125)
  - ▶ Tires, wipers
- ▶ Not affected by fuel shortages



# Future Wishes

- ▶ Highly encourage the purchase of all electric vehicles
- ▶ Electric powered truck
  - ▶ Increased clearance for inspection staff
  - ▶ Haul capacity
- ▶ Expanded range
  - ▶ 150+ miles more ideal
  - ▶ Drive to destination is usually fine
  - ▶ Drive back to Cedar Hill always the concern



# SolSmart Designation

- ▶ National solar designation program
- ▶ Working with NCTCOG
- ▶ Bronze designation pending with the intention to be Gold designated









# LEWISVILLE 2025 BIG MOVES

- As part of Lewisville 2025 Big Move Initiative, Sustainability is considered as a priority.
- In 2014 Sustainability auditors conducted Citywide audit of City facilities and fleet.
- The report recommended the City to explore ways and invest in alternative energy, including Solar, wind, Brite white roofing, electric and hybrid vehicles.

# ELECTRIC & HYBRID VEHICLES

Pushback from the departments:

- None of the departments needed electric vehicles or Hybrids
- Requested Nissan to provide us two electric vehicles for a week to test run
- All departments, including Police had the Nissan Leaf for a few days
- After the test run, a few departments showed interest in these vehicles

# ELECTRIC & HYBRID VEHICLES

Departments using the electric/Hybrid vehicles:

- Sustainability Office: 1 Electric Vehicle
- Neighborhood Services: 1 Electric/1 Hybrid
- Sanitarian: 3 Electric
- Fleet Pool Vehicles: 1 Hybrid
- Police/CID: 7 Hybrids
- Engineering: 2 Chevy Colorado (4 Cylinders)
- Public Works: 1 Chevy Colorado (4 Cylinders)
- Facilities: 2 Ford Transit Vans (4 Cylinders)
- ECS/Fleet: 2 LPG Forklifts



# ELECTRIC & HYBRID VEHICLES

- Total Electric Vehicles: 5
- Total Hybrids: 9 (Prius, Fusion and Camry)
- Colorado Trucks: 3 (4 cylinders)
- Transit Vans: 2
- LPG Forklifts: 2

## FY 17-18 Purchase:

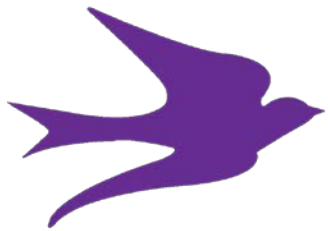
- Action Step has been initiated for 2 more electric vehicles for Environmental & Health Services and replacing F150's with 4 cylinder trucks.
- Replace Diesel/Gas landscape equipment's with Propane landscape equipment.
- Police Admin: 5 Hybrids sedans

# ELECTRIC & HYBRID VEHICLES

## Nissan Contribution to Electric Vehicle Infrastructure:

- For every two Nissan Leafs, Nissan Donated 2 Level II charging stations - 4 Hour Charge
- Nissan pledged to donate DC Fast charging station at the end of this fiscal year (80% capacity charge in less than 30 minutes)

# SUSTAINABILITY 2025 CITY'S ELECTRIC FLEET



**LEWISVILLE**

Deep Roots. Broad Wings. Bright Future.

# AVERAGE MPG

Miles Per Gallons:

- Hybrids – 42.7 mpg
- Ford F150 – 10.37 mpg
- Chevy Colorado – 14.8
- Transit Vans – 15.5 mpg
- Nissan Leaf MPGe – 94 MPGe = 36kWh = \$4.32

# BENEFITS OF ELECTRIC VEHICLES AND WHY THEY WORK FOR THE CITY

- Reduced maintenance workload
- Big savings on gas
- Zero emissions
- 90% battery charge will cost around \$4.00
- In 2015, City was awarded Bronze Fleet Award



# CITYWIDE FUEL USAGE

## Fleet Fuel Usage

Year	Fuel Usage Gallons	Fuel Usage Cost	Equipment Count	Average Gallons/Equipment
FY 10 -11	302,082.06	\$895,141.28	221	1367
FY 11 - 12	303,732.20	\$957,156.90	243	1250
FY 12 - 13	304,390.03	\$944,448.83	254	1198
FY 13 - 14	308,844.58	\$927,677.75	303	1019
FY 14 - 15	304,424.00	\$584,125.00	321	948
FY 15 - 16	294,220.00	\$463,527.00	325	905
FY 16 - 17	169,100.00	\$295,912.77	326	519
Fuel usage reduction from 2013 - 2016: 14,624 gallons				
FY 16-17 = Up to May 3rd 2017				

# FUEL USAGE REDUCTION

- All City vehicles have GPS
- Modified City working hours
- Electric Vehicles
- Hybrid Vehicles
- Fuel efficient 4 cylinder trucks





# QUESTIONS

- Overall, we think that EVs are a good investment for the city
  - contributes to clean air
  - saves \$\$\$ on gas
  - reduces the workload for fleet shop
- Any Questions?

# Air Quality Funding Opportunities

Bailey Muller, Air Quality Planner

North Central Texas Council of Governments  
(NCTCOG)



# Infrastructure Funding Opportunities



# TERP Alternative Fuel Facility Program (AFFP)

Grants For The Construction Or Expansion of Alternative Fuel Fueling Stations That Will Provide New Fueling Service Or Capacity Within The Clean Transportation Zone

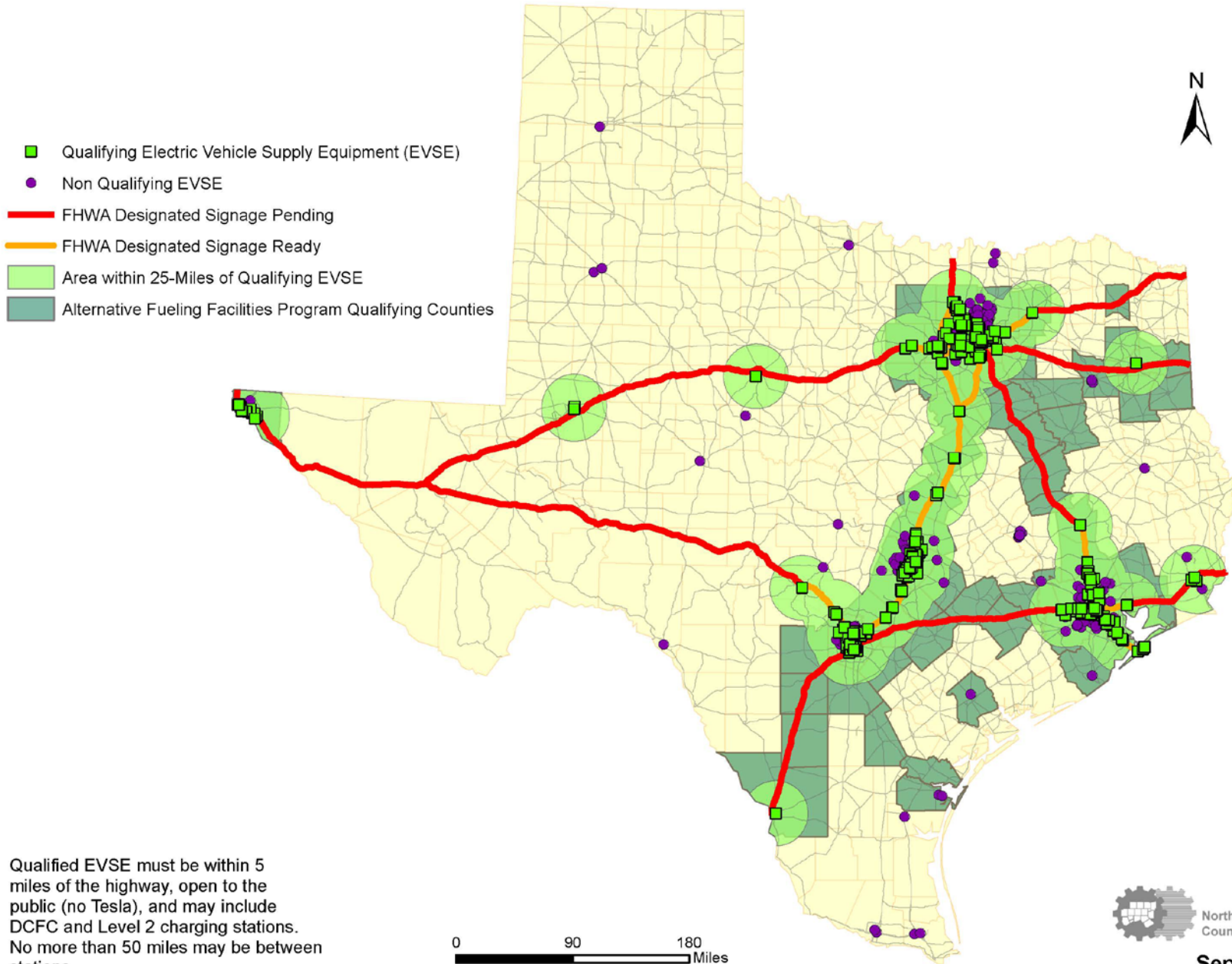
- ▶ Electric Charging; Natural Gas (CNG and/or LNG); Biodiesel; Hydrogen; Methanol; or Propane

Project Requirements:

- ▶ Projects Must be Accessible and Available to the Public at Times Designated by the Grant Contract
- ▶ Located Not More Than One Mile From An Interstate Highway System Within The Eligible Counties

Expected to Open Spring 2018

# TERP Alternative Fuel Facility Program (AFFP): Project Area Eligibility



North Central Texas  
Council of Governments

September 2017

# Volkswagen Settlement: Coming Soon

## National ZEV Investment Plan

\$1.2 Billion Commitment Nationwide (Excludes California)  
over 4 Cycles, Ending in 2026

\$300 Million for Cycle 1, from 2017-2019

- ▶ ~\$250 Million of Cycle 1 allocated for Charging Infrastructure Installation
  - ▶ Long Distance Highway Network ~\$190 Million
  - ▶ Community Charging ~\$40 Million



# Volkswagen Settlement:

## Coming Soon

### Environmental Mitigation Trust

\$2.7 Billion Designated to be Distributed to States

- ▶ Texas Share: \$210 Million
- ▶ States Must File to Become a Beneficiary and Select a Lead Agency to Administer Funds

10 Eligible Mitigation actions:

- ▶ Action 9: Light-Duty ZEV Supply Equipment
- ▶ Other Actions include: Replacing/Repowering of Class 4-8 Freight and Buses, Freight Switchers, Airport Ground Support Equipment, Forklifts, and others.

For more VW Settlement Info & Updates Visit:

<http://www.nctcog.org/trans/air/VWsettlement/>

# Vehicle Funding Opportunities



# Federal Tax Credit

The Federal Internal Revenue Service (IRS) Tax Credit Is For \$2,500 To \$7,500 Per New EV Purchased For Use In The U.S

- ▶ Size Of The Tax Credit Depends On Size Of The Vehicle And Battery Capacity
- ▶ Specific Tax Credit Amounts For Individual Vehicles, Can Be Found On [Fueleconomy.Gov's Tax Credits For Electric Vehicles](https://www.fueleconomy.gov/fec/taxcredits)

For Tax Exempt Agencies (Public Fleets):

- ▶ Vehicle Seller Entitled To The Tax Credit, But Only If The Seller Clearly Discloses The Tentative Credit Amount Allowable For The Vehicle In Writing To The Purchaser
- ▶ [IRS Form 8936](#), Qualified Plug-in Electric Drive Motor Vehicle Credit, for further detail

# TERP Light-Duty Motor Vehicle Purchase or Lease Incentive Program (LDPLI)

- ▶ Incentives For The Purchase Or Lease Of New Light-duty Vehicle Powered By Electricity, Compressed Natural Gas (CNG), Propane, Or Hydrogen.
- ▶ Electric Drive Vehicles Powered By A Battery Or Hydrogen Fuel Cell Are Eligible For A Rebate Of \$2,500
- ▶ One Rebate Will Be Available Per Eligible Vehicle.

Anticipated Grant Round Opening In Spring 2018

For More Info, Visit: [www.terpgrants.org](http://www.terpgrants.org)

# Fleets for the Future (F4F)

## Purpose:

- ▶ Achieve Volume Discounts Beyond List Prices On Existing Purchasing Cooperatives (E.G. HGAC Buy, Buyboard)
- ▶ Deliver Value-added Through Infrastructure, Monetized Incentives, And/Or Other Service Offerings

## Who's Eligible:

- ▶ All Public Fleets



North Central Texas  
Council of Governments



Dallas-Fort Worth  
CLEAN CITIES

# Fleets for the Future:

## NCTCOG Vehicles of Focus

Category	Type	Description *or equivalent		
			BEV/EV	PHEV
Sedans	SUB-COMPACT Sedan	Ford Focus Electric, Chevy Bolt, Nissan Leaf*	✓	
	COMPACT Sedan	Ford Fusion Energi, Chevy Volt, Prius Prime*		✓

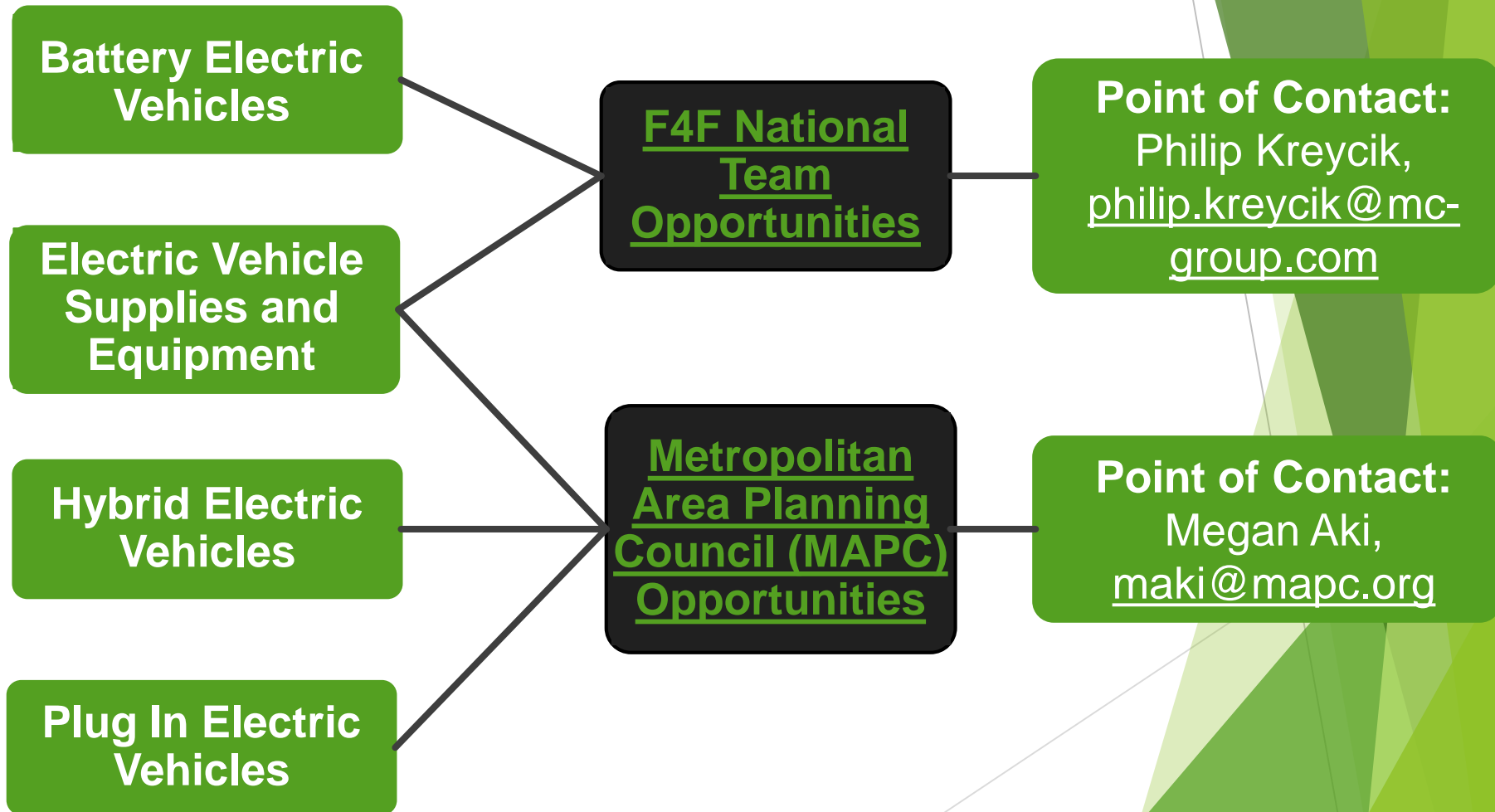
For More Information:

[www.nctcog.org/f4f](http://www.nctcog.org/f4f)



# Fleets for the Future:

## National Opportunities



**Justin Brightharp**  
Electrification Coalition  
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**Jed Greenfield**  
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[Jedediah.Greenfield@houstontx.gov](mailto:Jedediah.Greenfield@houstontx.gov)

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[www.DFWCleanCities.org/EVNT](http://www.DFWCleanCities.org/EVNT) **#texasEV**

# Questions & Discussion