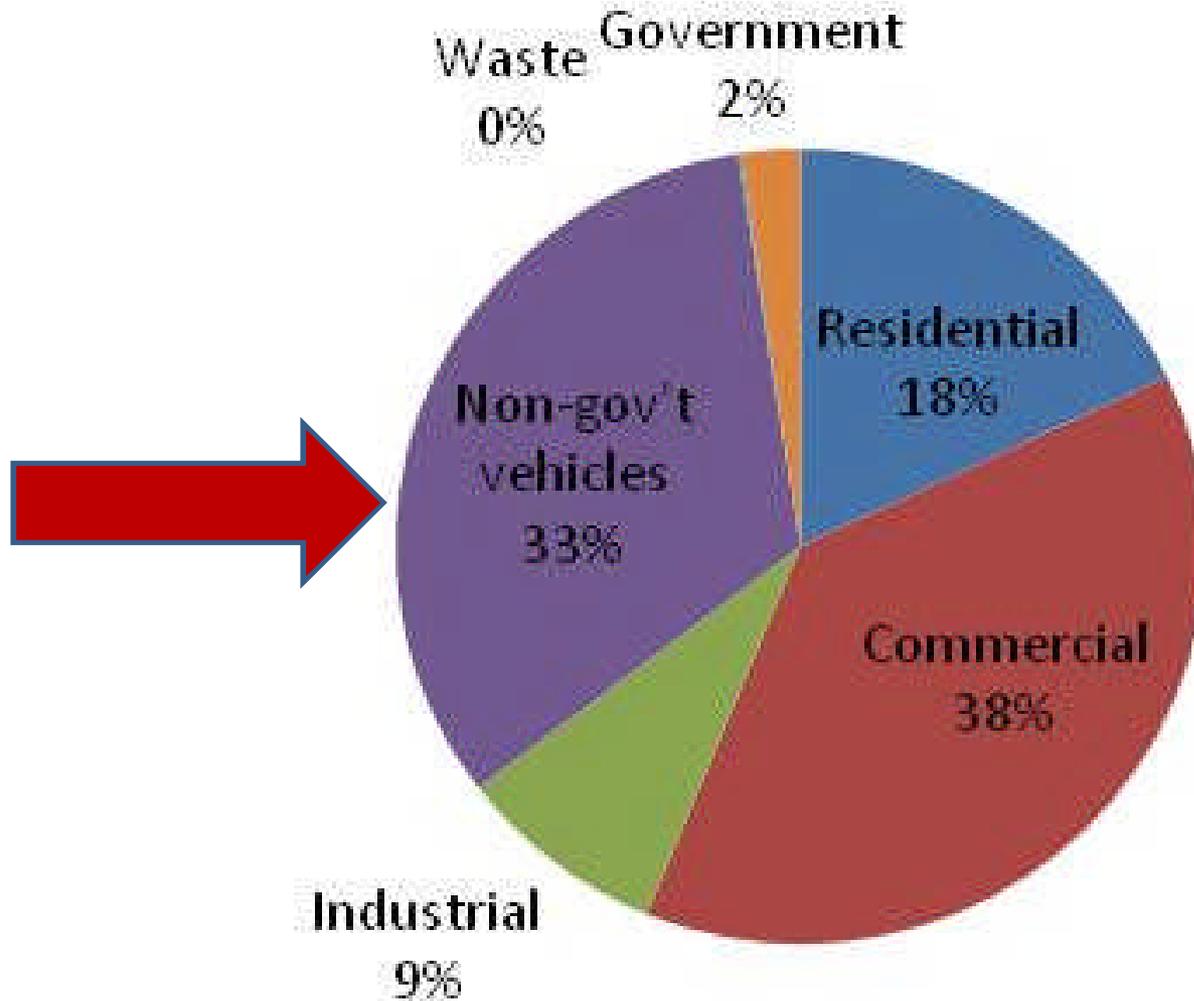


# Getting Ready for Electric Vehicles in Durham

January 5, 2012



# 2010 GHG Emissions



# Vehicle Types

## Hybrid Electric Vehicles (HEVs)



## Plug-in Electric Vehicles (PEVs)



### Plug-in Hybrid Electric Vehicles (PHEV or EREV)

### All-Electric Vehicles (EV)



Toyota Prius



GM Volt



Nissan Leaf

# Benefits of EVs

## Lower Cost



\$0.50 – \$0.75 per gallon equivalent, reduced maintenance

## Secure Energy



Reduced oil imports, distributed infrastructure, diversified fuel sources

## Fewer Emissions



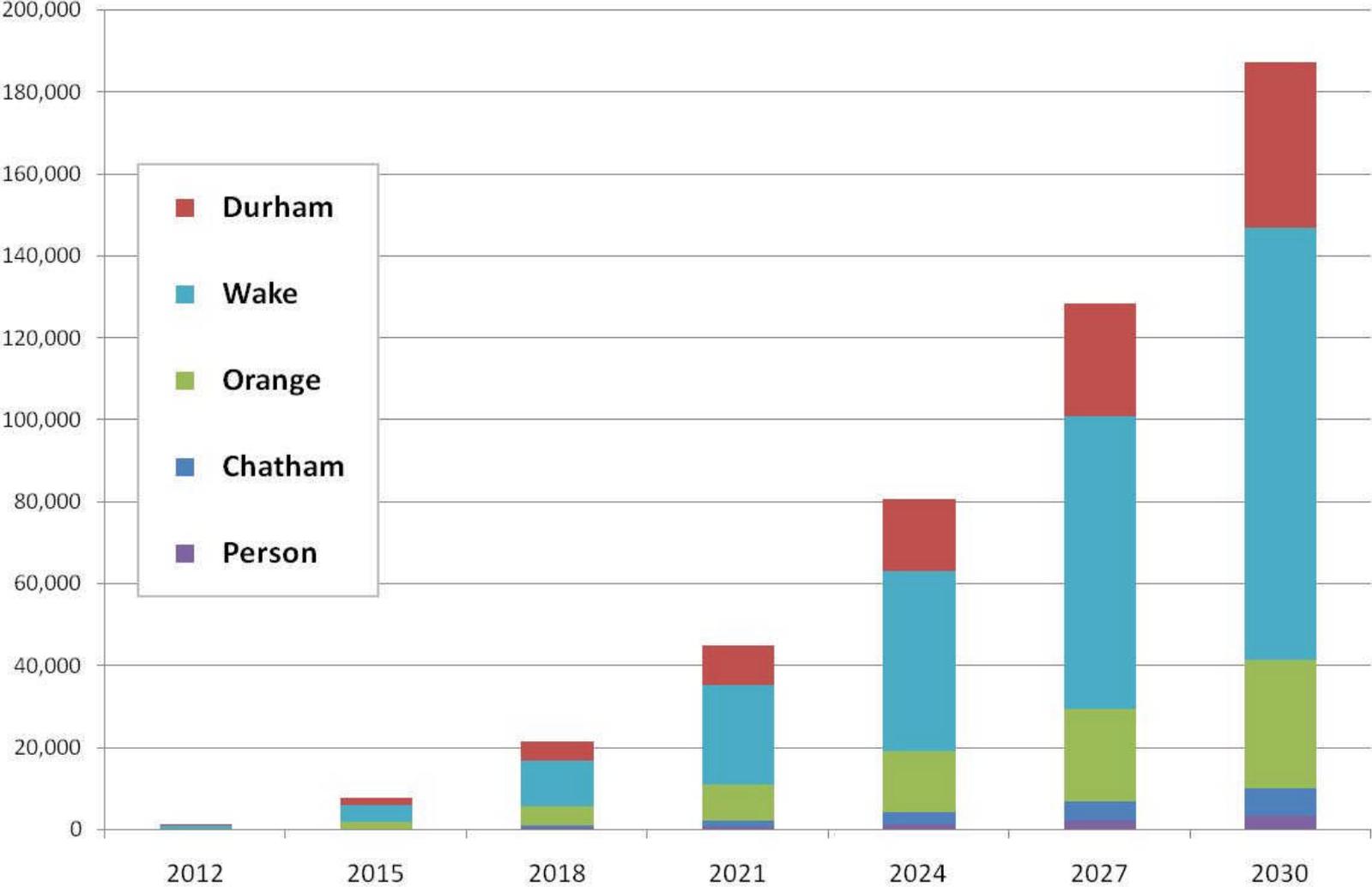
Reduced mobile source emissions, Increased benefit with greening of generation

## Better Performance



Instant torque, low center of gravity, pre-conditioning

# Cummulative PEV Fleet (#Vehicles) by County



Based on estimates from the Electric Power Research Institute

# Types of Charging Stations

## Level 1

- Separate cord (typically provided with vehicle)
- Standard grounded plug for **120V AC** receptacle, up to **16A**
- Eight to ten hours for typical daily charge\*



## Level 2

- Hardware Cost ~ \$500 (home) to \$2,500 (public)
- Cord is part of the charging station
- Hard-wired or cord-and-plug at **240V AC**, **30A** typical
- Two to three hours for typical daily charge\*
- Common for home & business



## DC Fast charge

- **480V AC**, **100+ A** (requires access to high voltage power from utility)
- Hard-wired
- 80% in under 30 min\*
- Not final for US market



\* Estimated charge times are based on a vehicle utilizing 40 miles of electric only driving between charges.

# EV and EVCS Plan

- Internal operations
- Charging Stations (fleet and public)
- Site Selection
- Reducing Barriers
- Future locations
- Public Information/signage



# Internal Operations

- Maintain City-owned EVCSs
- Evaluate new and replacement vehicle purchase requests
- Oversee electric vehicle purchase and maintenance
- Plan for future charging stations
- Add new EVCS as fleet EVs increase
- Oversight of policy development and annual review

# Site Selection

- Safety
- Hazards
- Proximity to Utility Equipment
- Convenience
- Communications
- Protection
- Visibility
- Access



# Planning for the Future

- Evaluate use and costs
- Identify future locations
- Include conduit in future construction
- Encourage commercial charging stations
- Inspections and permitting



# City and County EVCS

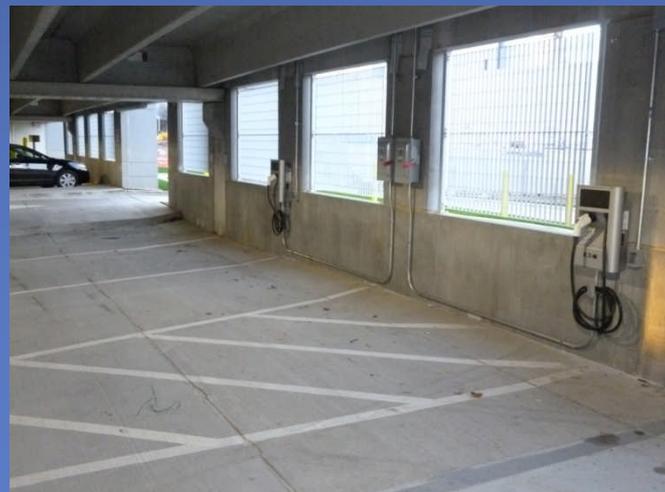
- Golden Belt
- Justice Center Deck
- Human Services Lot
- South Regional Library
- North Regional Library
- Main Library



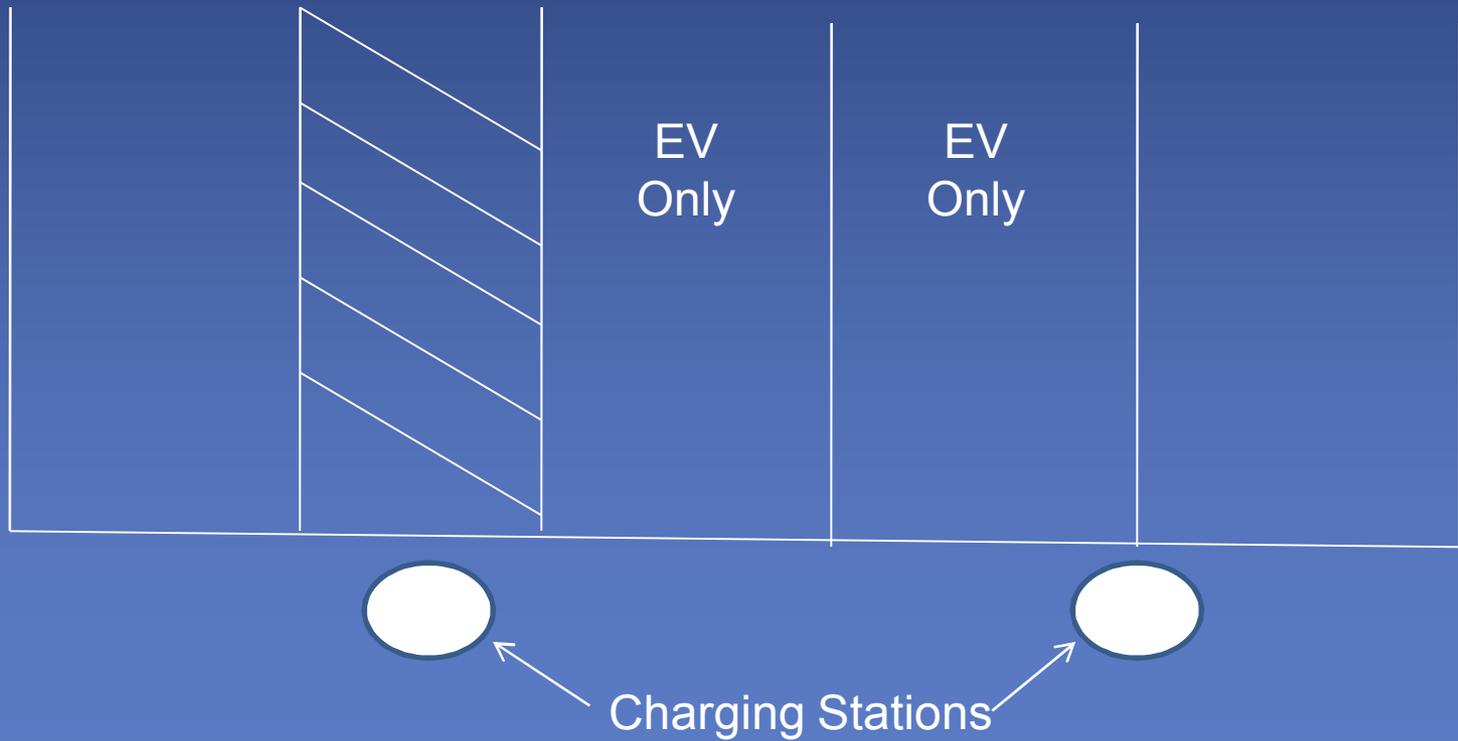


Main Library – Pedestal

Justice Center – Wall mounted



# Accessibility





INSIDE CITY HALL

CITY SERVICES

LIVE

WORK

PLAY

GETTING AROUND

ABOUT DURHAM

City of Durham / Inside City Hall / Office of the City Manager / Sustainability / Electric Vehicles and Charging Stations

## Electric Vehicles and Charging Stations

- Administrative and Support
- Audit Services Department
- City Council
- City Spotlight
- Community Building
- Office of Public Affairs
- Office of the City Attorney
- Office of the City Clerk
- Office of the City Manager
- Office of the Mayor
- Operations

Durham City and County are encouraging the use of electric vehicles to reduce local air pollution and greenhouse gas emissions. When charged in off-peak hours, electric vehicles result in fewer greenhouse gas emissions than gasoline-powered vehicles.

The City is purchasing four all-electric fleet vehicles for use by Community Development, Neighborhood Improvement Services, Planning, and Inspections. The City will use these vehicles as a pilot to evaluate the effectiveness of these vehicles for the City's fleet. The county is considering purchasing several electric cars later this year.

Durham City and County encourage citizens and visitors to use electric vehicles to reduce local air pollution and greenhouse gas emissions by installing publically accessible charging infrastructure throughout the community.

We encourage operators of all-electric vehicles to only charge vehicles in off-peak hours (usually over night) to reduce the greenhouse gases produced from electricity generation.

## Map of Planned/Current Charging Stations:



View Public Electric Vehicle Charging Stations in a larger map.



Sustainability Home

Home Energy Savings Program  
(now accepting applications)

Environmental Initiatives

Documents and Policies

Community

Events

Grant Projects

Greenhouse Gas Emissions

Neighborhood Energy Retrofit  
Program  
(no longer accepting applications)

## Contact the Sustainability Office:

Tobin L. Freid  
City-County Sustainability  
Manager  
120 E. Parrish St.  
1st Floor  
Durham, NC 27701  
(919) 560-7999

Aaron Milano  
Energy Program Specialist  
807 E. Main St.  
Suite 2-200  
(919) 560-4570, ext. 22231



# www.GreenerDurham.net

Public Electric Vehicle Charging Stations - Google Maps - Windows Internet Explorer

http://maps.google.com/maps/ms?msid=217464739577941445646.0004ad741f63895a7ee208msa=0&ll=35.994674,-78.905182&spn=0.29166,0.614548

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★ Favorites Google Docs - Home Durham County - Search Res... Public Electric Vehicle Cha... LongJump

+You Web Images Videos **Maps** News Shopping Mail More

tfreid@durhamcountync.gov

Google

Get directions My places

Collaborate **EDIT**

### Public Electric Vehicle Charging Stations

Locations of existing and planned electric vehicle charging stations that are publicly accessible in Durham, NC.

Public · 3 Collaborators · 126 views  
Created on Sep 21 · By · Updated 2 hours ago  
Rate this map · Write a comment · KML

- Durham County Human Services Complex**  
2 Level II stations  
Planned: January 2012  
Free
- Durham County Justice Center Parking Deck**  
4 Level II stations (2 each on levels 1 and 3)  
Planned: January  
Free
- Durham County Main Library**  
2 Level II stations  
Planned: January 2012  
Free
- Golden Belt**  
2 Level II stations  
Planned: January 2012  
Free.  
Owned by City of Durham
- American Tobacco Complex

2 mi  
5 km

Edit in Google Map Maker Report a problem

start

Inbox - Microsoft Out... 2 Internet Explorer 2 Windows Explorer Durham EVCS plan B... AAF - Blue Skies Gran... 1:35 PM

<http://g.co/maps/23npr>

# Questions?

