North Central Texas Council of Governments

Dallas-Fort Worth CLEAN CITIES

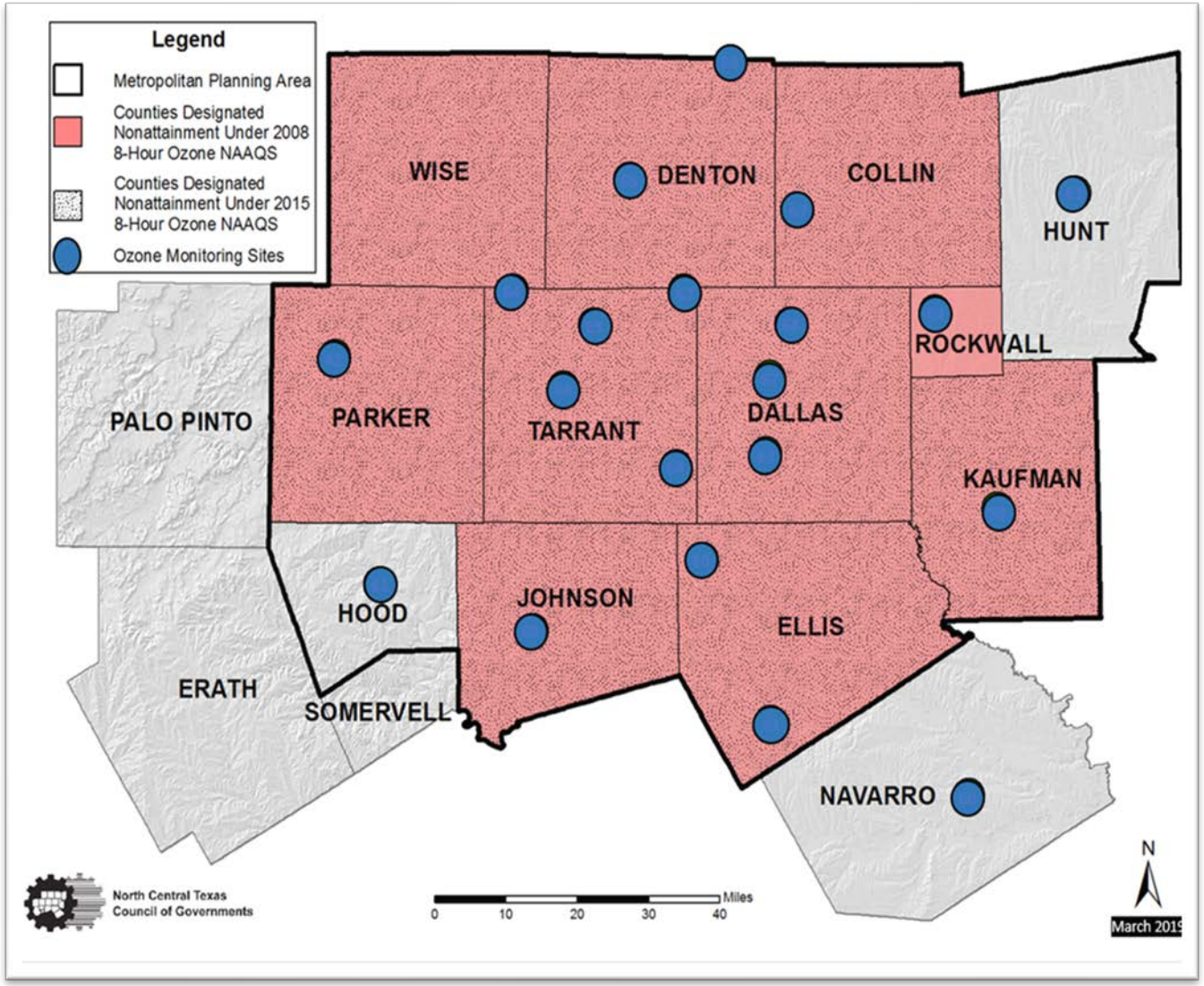
EV Infrastructure Planning & Economic Development

Amy Hodges, Principal Air Quality Planner

June 15, 2023

North Central Texas Economic Development District

Who We Are



North Central Texas Council of Governments

Regional Planning Agency

Regional Transportation Council

Metropolitan Planning Organization (MPO)

Dallas-Fort Worth CLEAN CITIES

Local Clean Cities Coalition

National Network of Clean Cities Coalitions

More than 75 Clean Cities coalitions with thousands of stakeholders, representing ~80% of U.S. population

Designated by the Department of Energy

Clean Cities Portfolio

Light-, Medium-, and Heavy-Duty Vehicles

Alternative and Renewable Fuels and Infrastructure

Idle Reduction Measures and Fuel Economy Improvements

New Mobility Choices and Emerging Transportation Technologies

What We Do

Funding Support

Assist with Navigating Programs and Developing Grant Applications

Administer Funding

Technical Assistance

Maintain and Analyze Data

Hold Webinars, Workshops, Peer Exchange

Develop Best Practices and Template Resources

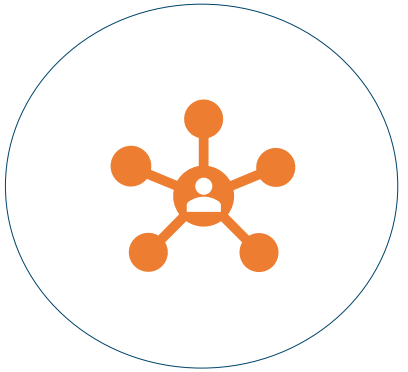
Planning the Future

Alternative Fuel Corridors

Texas EV Charging Plan

ZEV Infrastructure

Organic Waste to RNG Feasibility Study



Raising Awareness

Facilitating Relationships

National Drive Electric Week

Fleet Recognition

Success Stories and Community Events

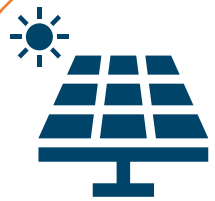
Key Focus Areas and Goals

Fleet/Driver Guidance and Planning

- Support Transition to Zero Emission Vehicle (ZEV) and Other Alternative Fuel Technologies
- Assist Deployment of Clean Vehicle Technologies by Identifying, Promoting, and Providing Funding

Infrastructure Planning & Readiness

- Increase Equitable Access to EV Charging Infrastructure
- Build Publicly-Accessible Infrastructure Network to Support ZEV Transition in Medium- and Heavy-Duty Sector
- Ensure Local Governments are Informed and Prepared to Support Local EV Adoption
- Reduce Barriers, Delay, and Cost in Local Infrastructure Development



Energy Integration

- Minimize Negative Electric Grid Impacts Associated with Transportation Electrification
- Increase Local Availability of Renewable Fuels (electricity, natural gas, hydrogen, biodiesel)
- Improve Resilience against Fuel/Energy Interruptions

TYPES OF ELECTRIC VEHICLES (EV)

Plug-In Hybrid Electric Vehicles (PHEV)

- Powered by an electric motor and engine
- Uses electric vehicle supply equipment (EVSE) to charge the battery

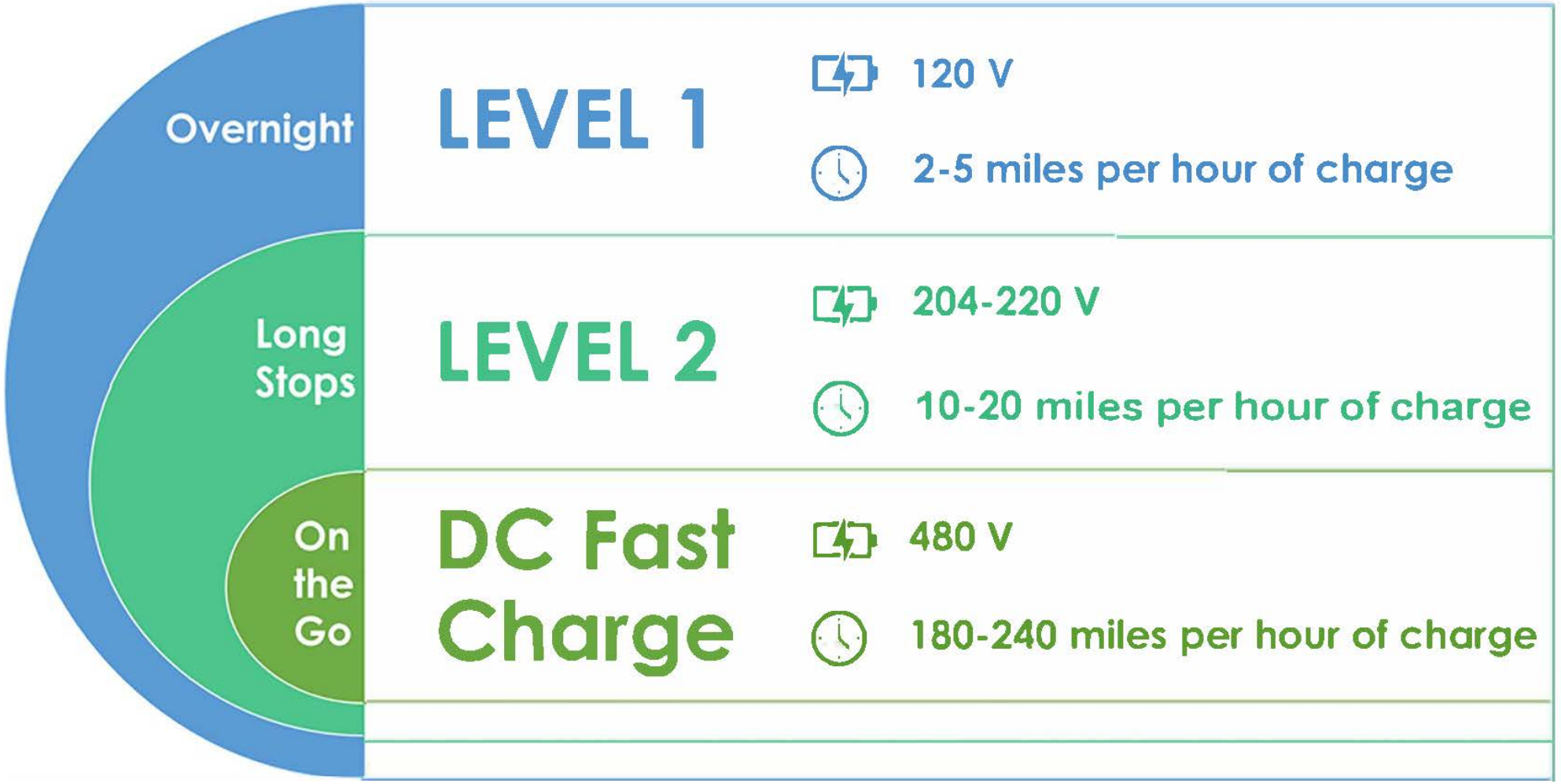
All-Electric Vehicle (EV)

- Powered by an electric motor
- Uses EVSE to charge the battery

Fuel Cell Electric Vehicle (FCEV)

- Powered by compressed hydrogen and an electric motor
- Uses hydrogen fuel to charge the battery; does not use EVSE

TYPES OF EV CHARGING AND INFRASTRUCTURE



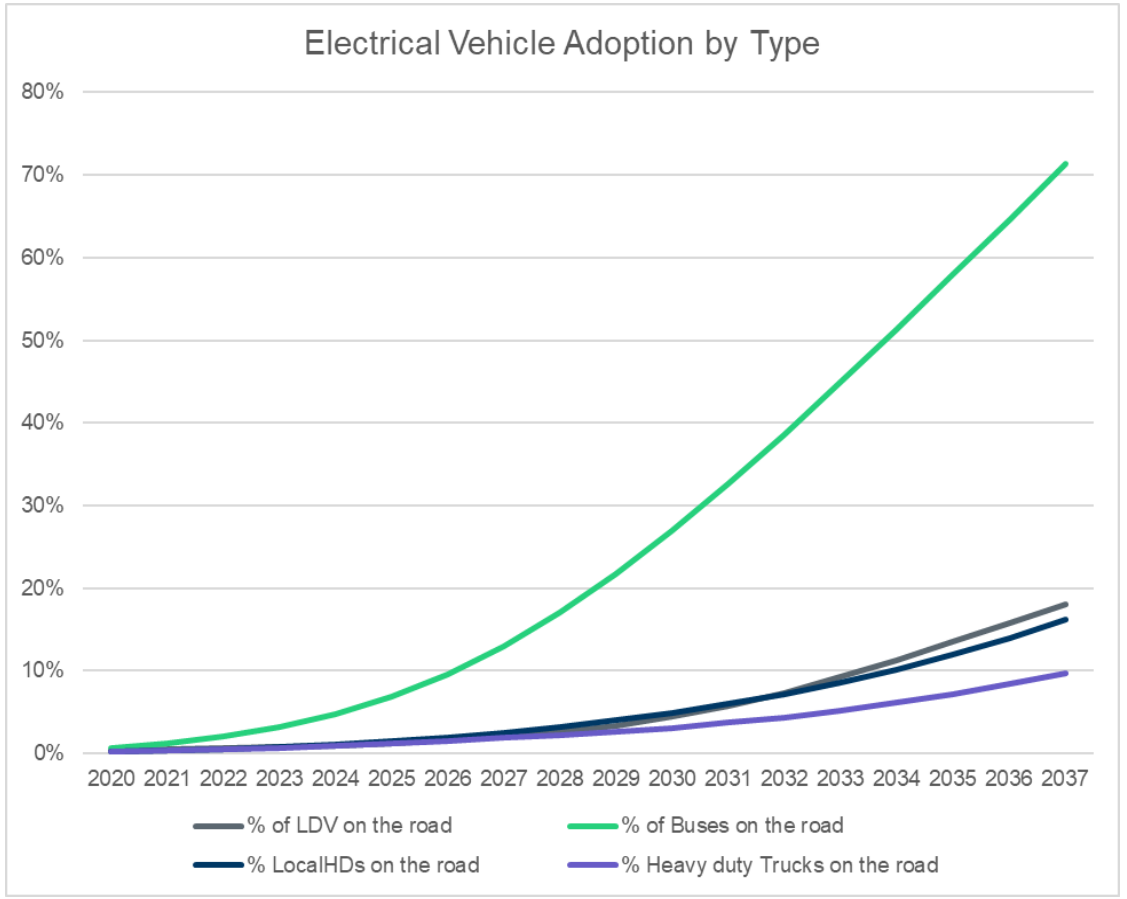
National Electric Vehicle Trends

Plug-In Vehicle Sales in March 2023 Were Up 25.2% From Sales in March 2022, Capturing 7.37% of Total Light-Duty Sales in March 2023.[1]

EV Fleet Has Doubled in Past 4 Years[2]

Bloomberg New Energy Finance Suggests EVs ~20-30% of New Sales by 2025[3]

Executive Order Aims for Half of All New Vehicles Sold in 2030 be Zero-Emission[4]



Source: Electric Reliability Council of Texas (ERCOT) Long-Term System Assessment, https://www.ercot.com/gridinfo/planning. Uses an adjusted (delayed) forecast from Bloomberg New Energy Finance Electric Vehicle Outlook (https://about.bnef.com/electric-vehicle-outlook/).

[1]Argonne National Laboratory (Light Duty Electric Drive Vehicles Monthly Sales Updates | Argonne National Laboratory (anl.gov)); [2]EPA Automotive Trends Report (https://www.epa.gov/automotive-trends); [3] Zero-Emission Vehicles Factbook (https://assets.bbhub.io/professional/sites/24/BNEF-Zero-Emission-Vehicles-Factbook_FINAL.pdf);
[4] White House News Room (https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/05/fact-sheet-president-biden-announces-steps-to-drive-american-leadership-forward-on-clean-cars-and-trucks/)

Electrification Transition Goals of Manufacturers

(% of Sales) | Data as of 7/8/2022

*This list is not comprehensive, and manufacturers are not endorsed by NCTCOG

FCEV – Fuel Cell Electric Vehicle

PHEV – Plug-In Hybrid Electric Vehicle

ICE – Internal Combustion Engine

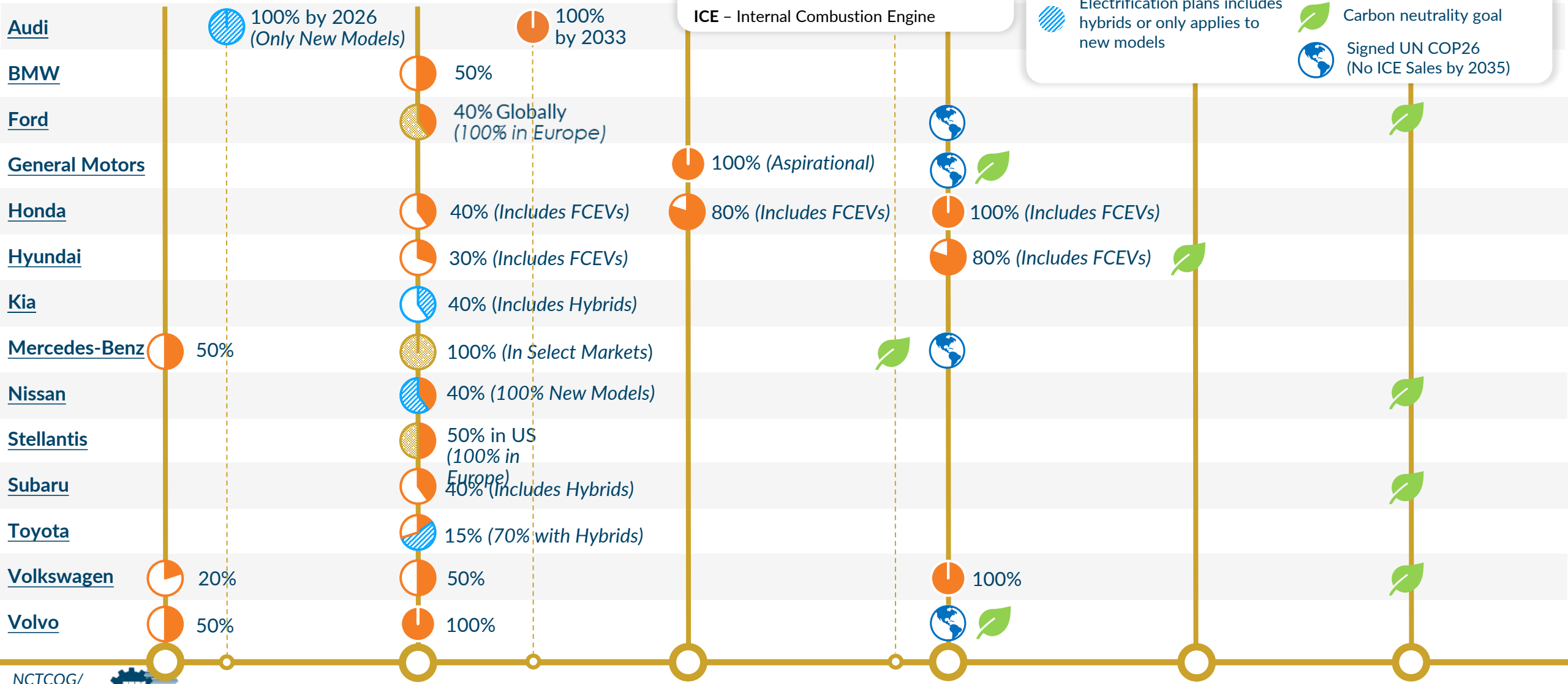
% of sales that do not use ICEs

Electrification plans includes hybrids or only applies to new models

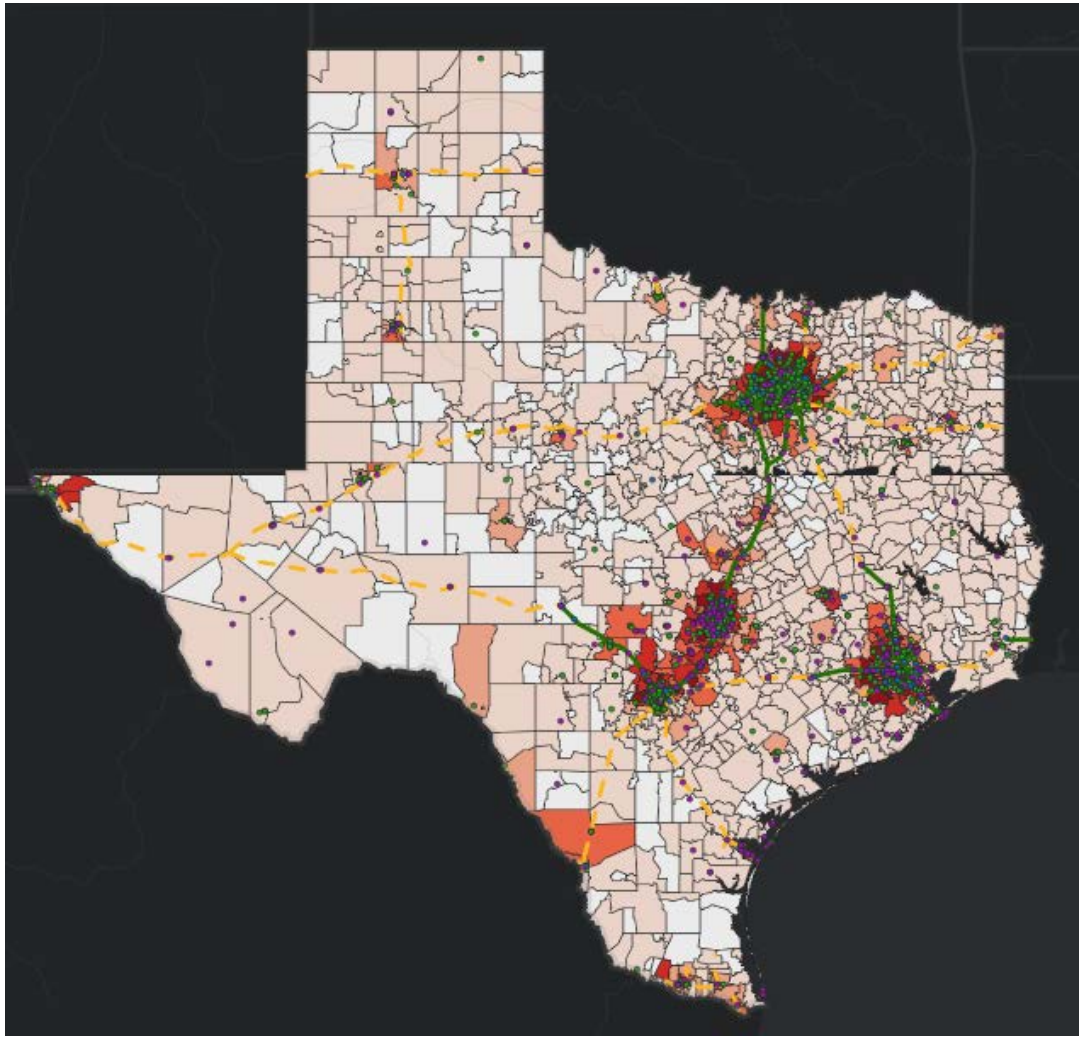
OEM has phased out ICEs in a region other than the United States

Carbon neutrality goal

Signed UN COP26 (No ICE Sales by 2035)



Texas Data And Trends



Electric Vehicle (EV) Registration Data

www.dfwcleancities.org/evnt -> EVs and Texas

	May 2022	May 2023	Increase
Texas	125,418	191,690	53%
DFW	44,847	69,996	56%

Charging Station Dashboard

https://txdot.mysocialpinpoint.com/tx_ev_plan

Charging Sites Statewide (includes Tesla):

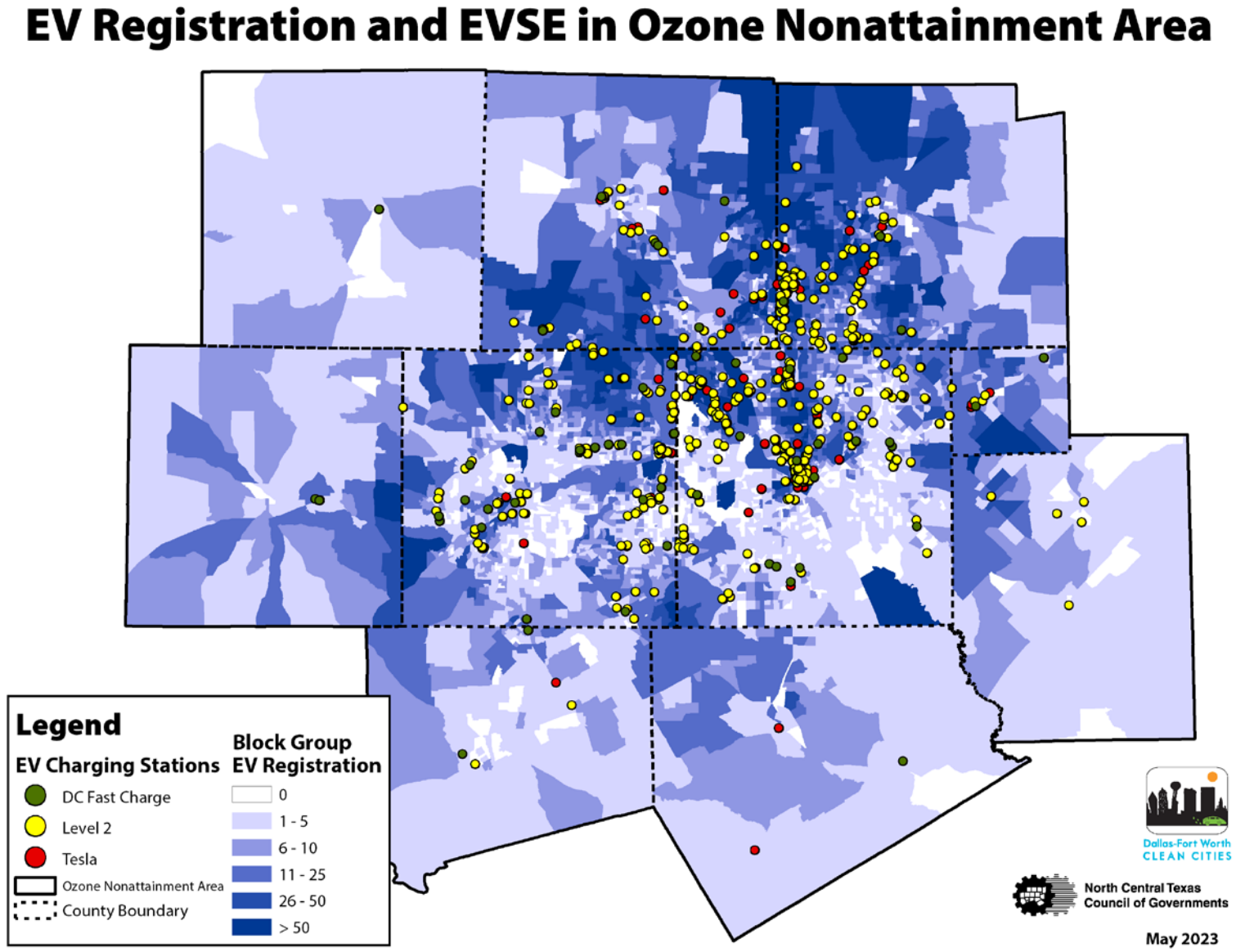
2,644 Level 2

343 DC Fast

EV Adoption and Infrastructure Availability

County	Level 2 Plugs*	DC Fast Charge Plugs*
Collin	238	6
Dallas	574	20
Denton	98	15
Ellis	0	4
Johnson	5	2
Kaufman	12	0
Parker	4	2
Rockwall	9	5
Tarrant	354	26
Wise	2	1

**As of May 2023; Excludes Tesla Stations*



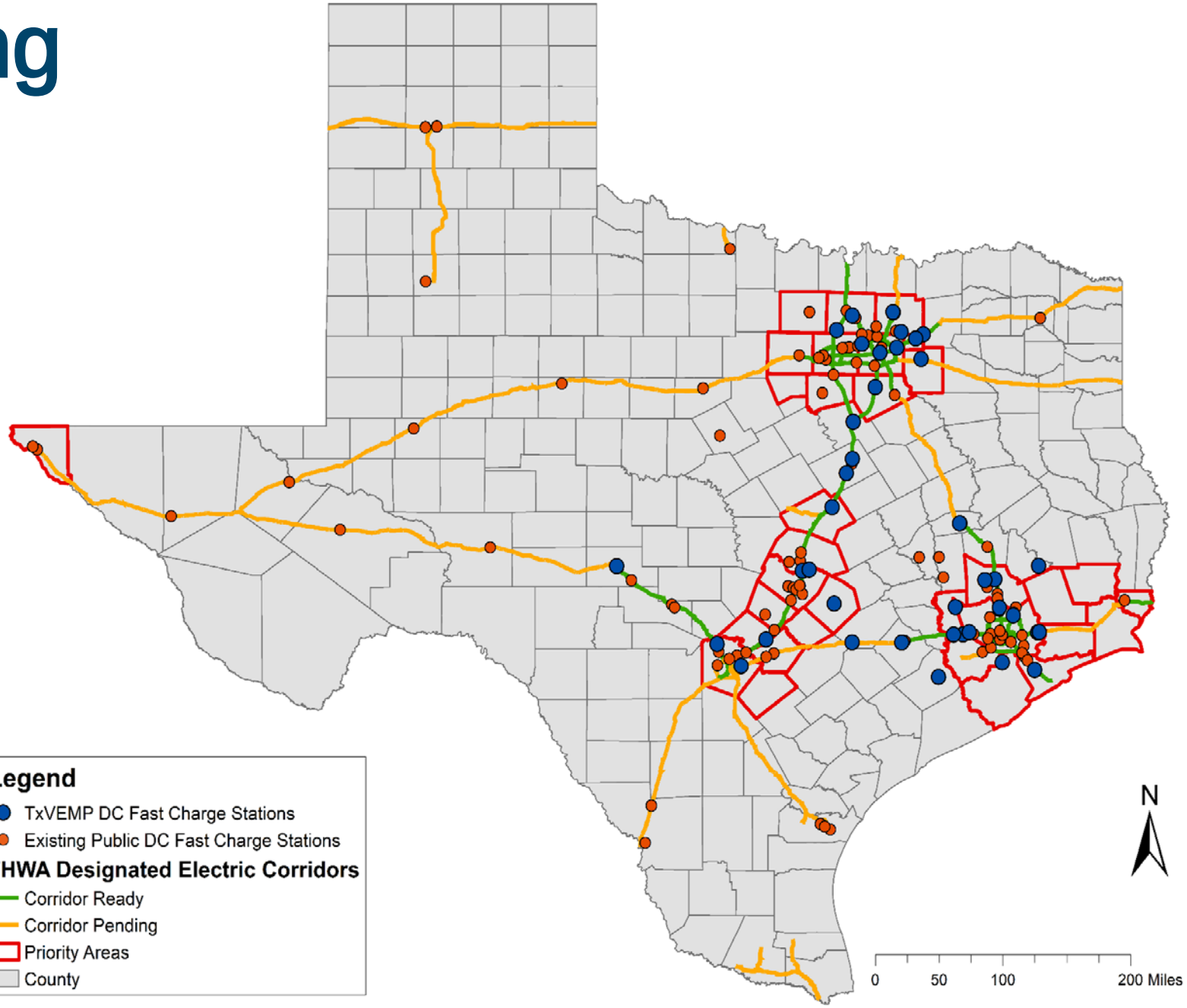
DC Fast Charging Across Texas

Texas Volkswagen Environmental Mitigation Program:

~$20.9 Million DC Fast Charging

170 Plugs at 41 Sites

96% of Funds to Fuel Retailer Sites



*Existing Station Data from Department of Energy Alternative Fueling Station Locator as of May 2023

NEVI Formula Funding Impacts to Texas

Texas Department of Transportation (TxDOT) to Receive and Administer ~$408 Million Over Five years to Deploy EV Charging

Statewide Infrastructure Deployment Plan Required

- Provide at Least One Qualifying Station Every 50 Miles Along Designated Corridors
  - Be Within One Mile of Designated EV Corridor Exit
  - Include at Least Four CCS-type DC Fast Charge Connectors, Minimum 150kW Power Output at All Times
  - Minimum Site Power Capacity 600 kW
- Restrict Funding to Designated EV Corridors until Demonstration that all Designated Highways are “Saturated” With Qualifying Stations

Highlights Of Texas EV Charging Plan

Posted at https://txdot.mysocialpinpoint.com/tx_ev_plan

Year 1	Install DC Fast Chargers Along Alternative Fuel Corridors (Estimated 55 Stations Statewide; $48.51M Federal)
Years 2-5	Work with Counties and Small Urban Areas to Install DC Fast Charge Sites In/Near County Seats (Estimated 190 Locations, $159.7M Federal) Work ***with MPOs*** to Identify Locations and Appropriate Combination of Charging Sites (Number Locations TBD, Estimated $198.92M Federal)
Throughout	Collect Data

For Reference: 343 DC Fast Charging Sites Statewide as of June 14, 2023

Texas EV Charging Plan Impacts To NCTCOG Region

Phase 1:

Install DC fast charging in recommended study areas along designated corridors

"Dark Blue Dots"

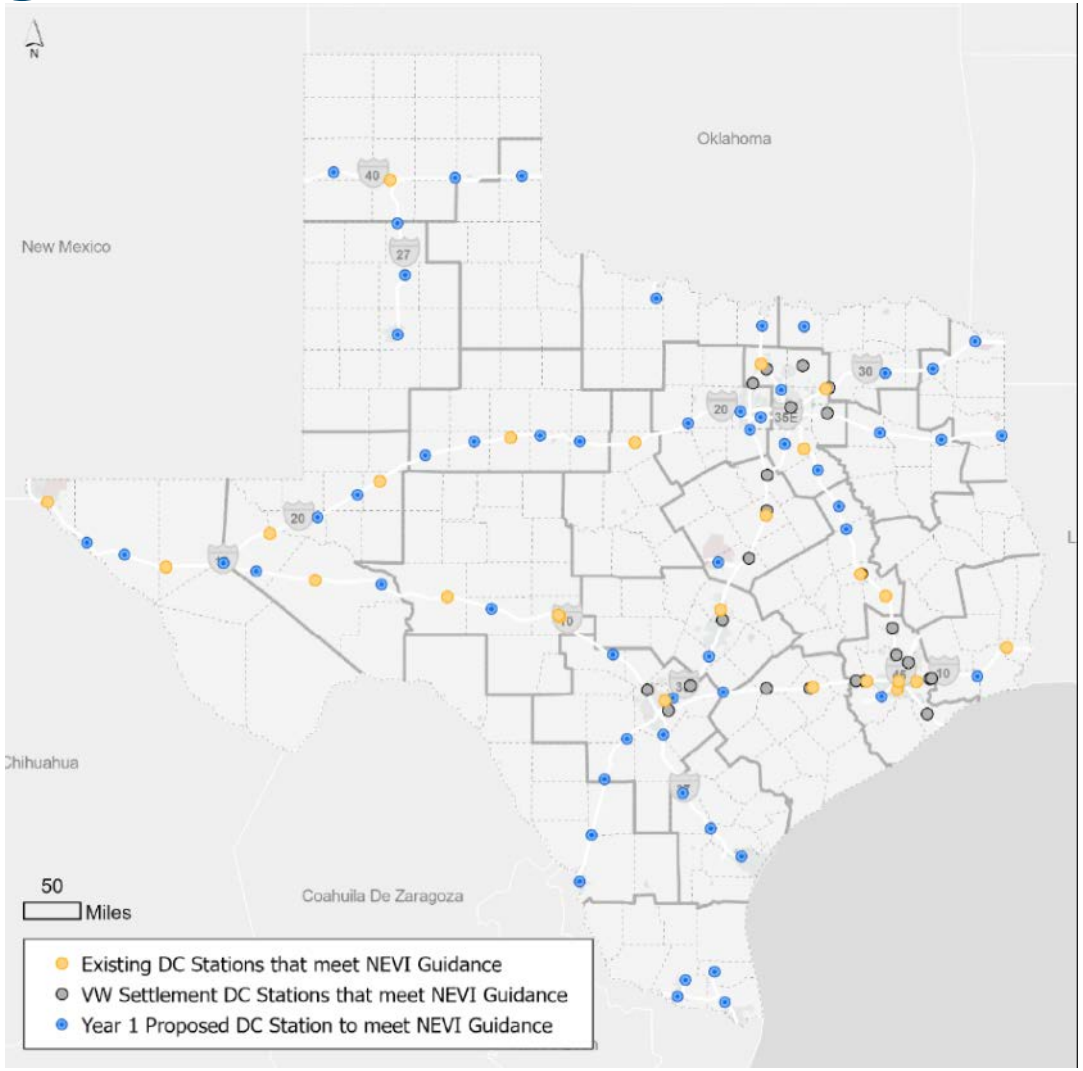
5 within the 12-County Metropolitan Planning Area (MPA)

1 Each in Navarro and Palo Pinto Counties

Objective is 1 station with at least 4 connectors every 50 miles

Competitive grant program opening soon

www.txdot.gov/projects/projects-studies/statewide/texas-electric-vehicle-planning-03-22-22.html



Source: TxDOT Texas EV Charging Plan Story Map: Texas Electric Vehicle Infrastructure Plan (arcgis.com)

Texas EV Charging Plan Impacts To NCTCOG Region

Phase 2: (2 Parallel Approaches)

Build Infrastructure in Rural Areas, Focused on County Seats

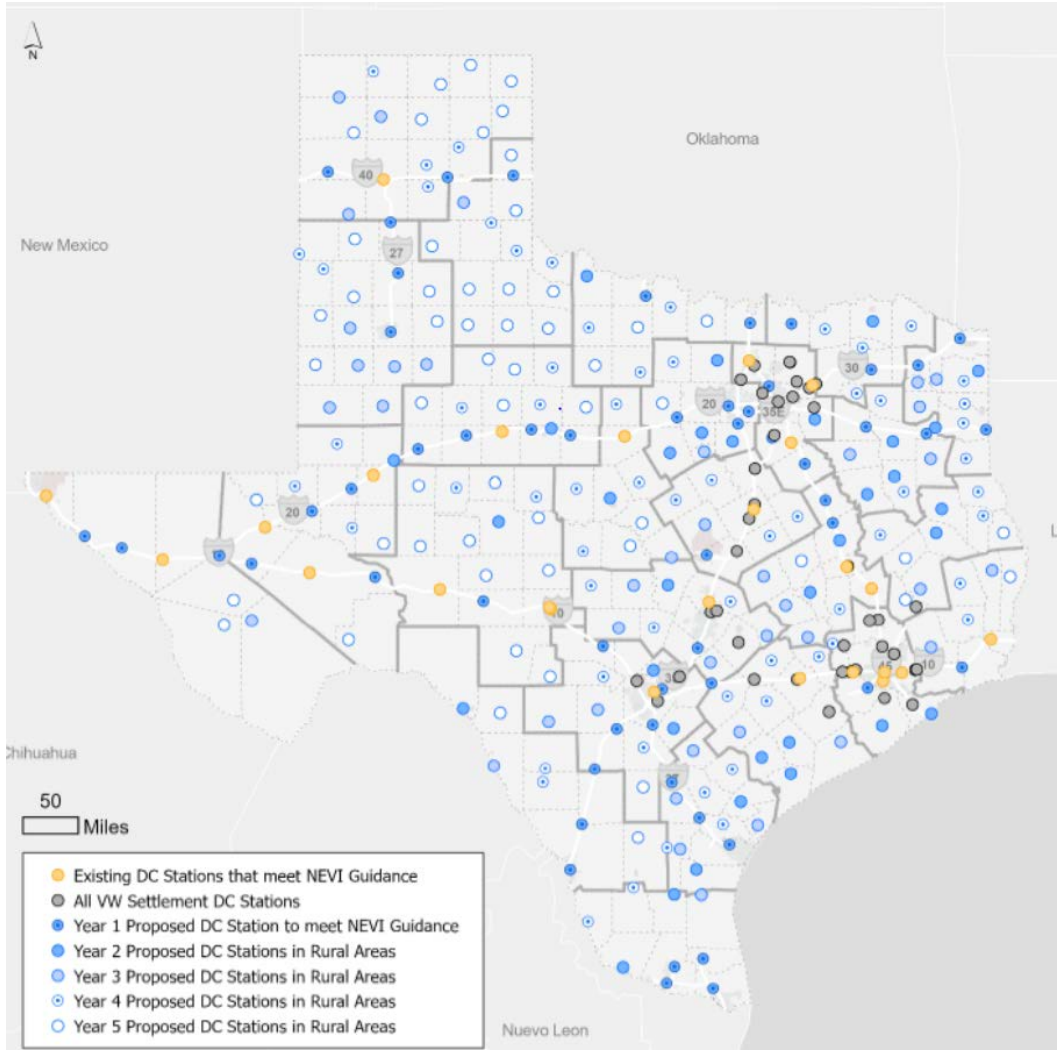
"Other Blue Dots"

Work With Metropolitan Planning Organizations (MPOs) to Add More Infrastructure in Urbanized Areas (Add Blue Dots!)

MPOs Recommend Type and Locations

NCTCOG 12-County MPA: $64.5 Million Allocation

www.txdot.gov/projects/projects-studies/statewide/texas-electric-vehicle-planning-03-22-22.html



Source: TxDOT Texas EV Charging Plan Story Map: Texas Electric Vehicle Infrastructure Plan (arcgis.com)

Preliminary NCTCOG Approach to Phase 2

Step 1: Identify priority "secondary highways" on the National Highway System; Recommend study areas to meet NEVI corridor criteria

- High-Volume Corridors within Urbanized Areas
- Major Inter-Regional Connectors (e.g., US 287, US 175)

Step 2 (pending availability of funds): Identify study areas to address "Community Charging" needs

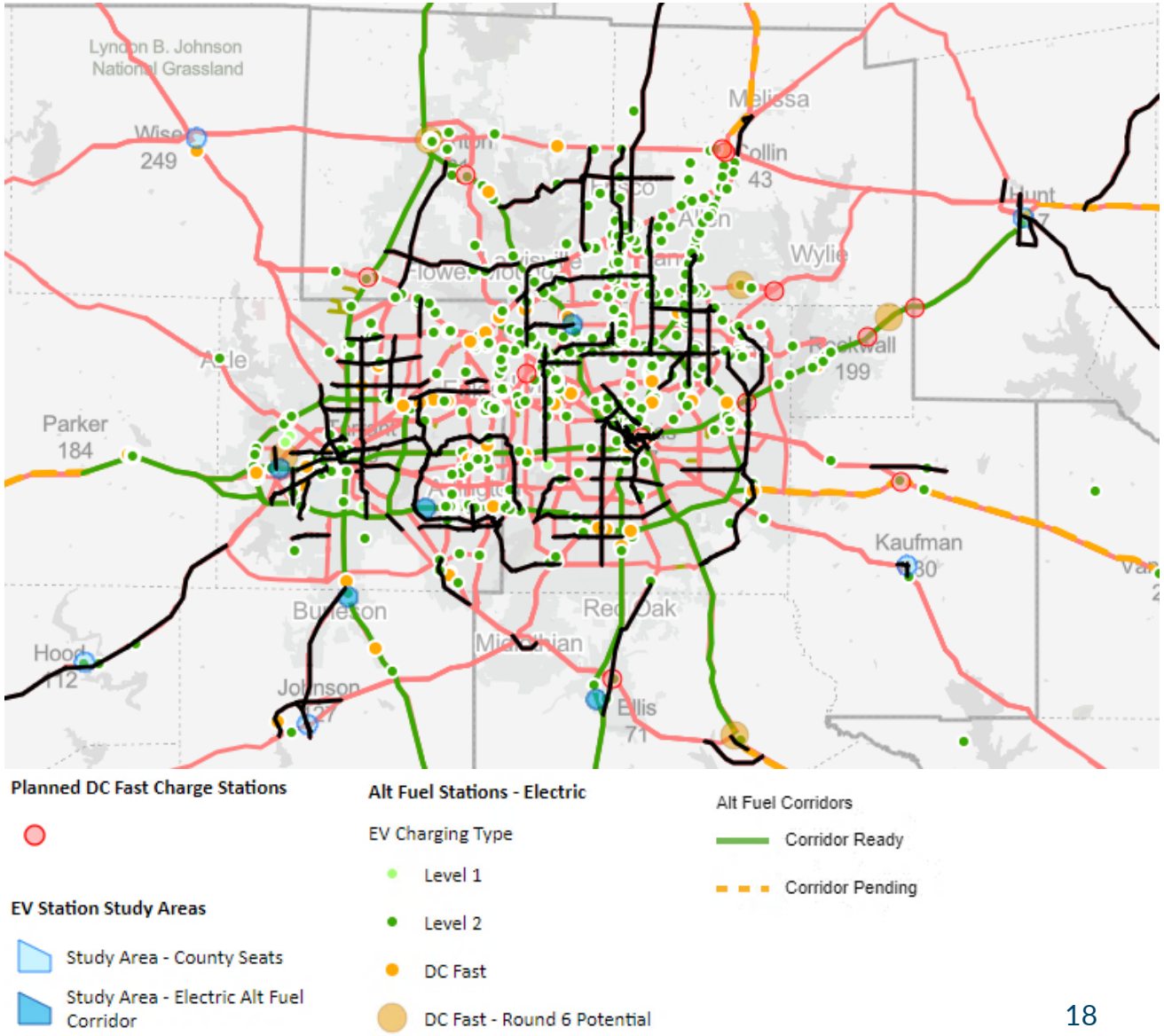
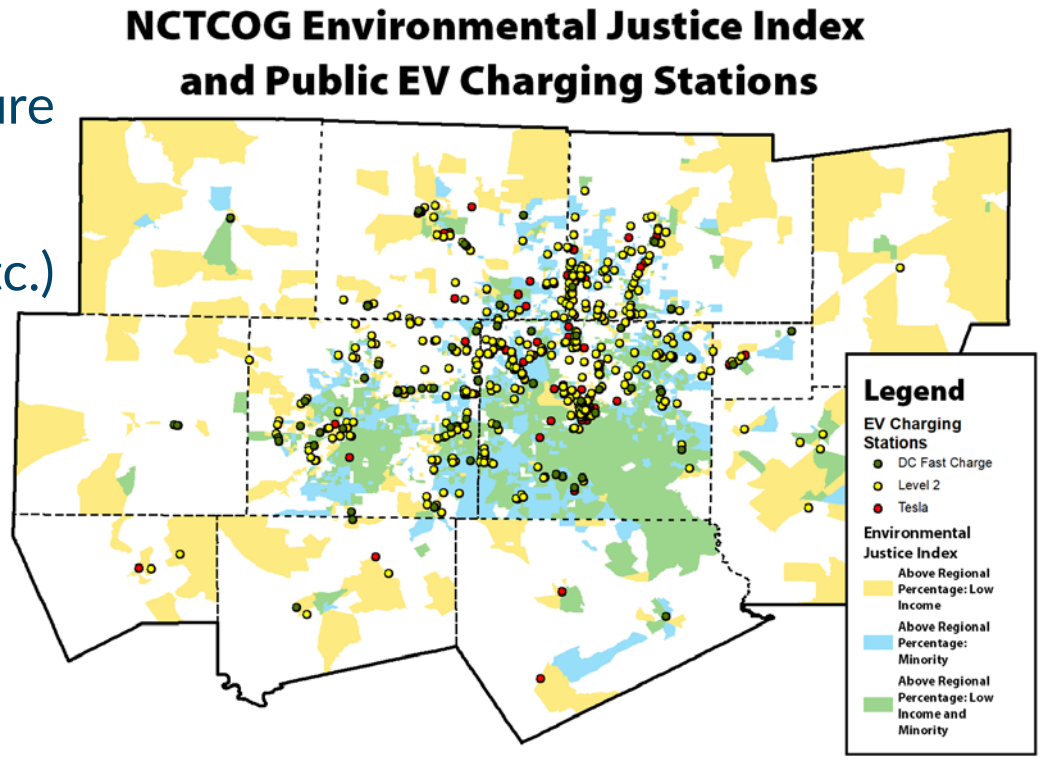


Image Source: TxDOT Statewide Planning Map, https://www.txdot.gov/apps/statewide_mapping/StatewidePlanningMap.html

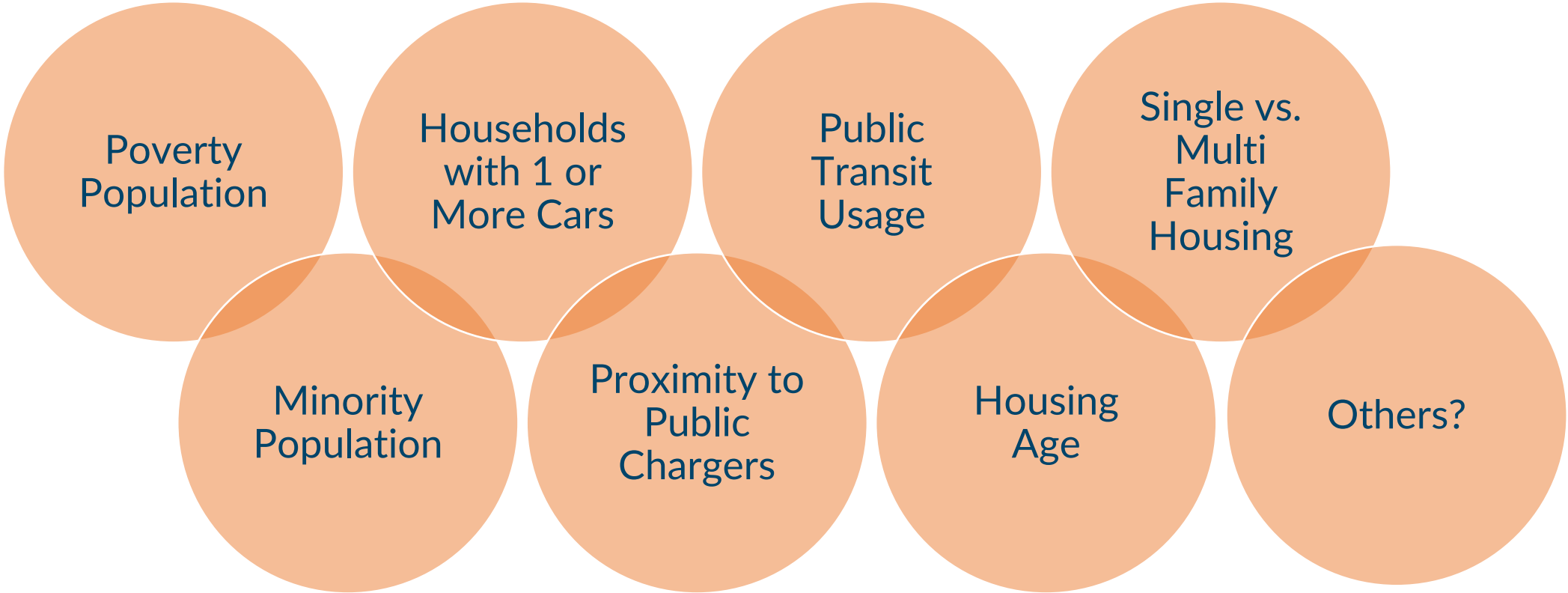
Recommendations for Community Charging

- Engage the community, understand needs & wants
  - Ensure Justice40 objectives are met
- Fill in gaps left by existing stations and planned infrastructure (e.g., NEVI, Texas Volkswagen Environmental Mitigation Program)
  - Identify goals (e.g., charger within x miles, x minutes, etc.)
  - Ensure stations along major travel corridors
  - Focus on areas that are still underserved
  - Engage with multi-family properties and major employers
- Consider grid resilience and how EVs can contribute
- Update regulatory processes to streamline investments
  - Establish EV-ready building codes
  - Review/update permitting processes



Identifying Community Needs

Factors to Consider Equity, Environmental Justice, and Highest Need



Recommendations for Medium - and Heavy-Duty

Consider integrating charging with other freight needs
- Identify areas where trucks queue/linger
- Integrate with truck parking
- Engage with warehouse and freight-oriented developers

Incorporate medium- and heavy-duty when building other EV infrastructure, where appropriate
- Pull-through capabilities
- Site layouts to accommodate large vehicles

Engage with utility provider to plan for electricity needs

Enabling freight transition away from diesel can reduce diesel exposure among communities that live and work near freight-heavy areas

Photo source: Portland General Electric & Daimler Truck

Medium - and Heavy -Duty Projects

Public Sector:

Transit Buses: DART and Trinity Metro

School Buses: Everman ISD

Refuse Hauler: City of Plano *(funded)*

Source: NCTCOG

Source: NCTCOG

Private Sector:

$3.43 Million Awarded by NCTCOG to 22 Electric Replacements

Terminal Tractors

Short Haul Trucks

Airport Ground Support Equipment

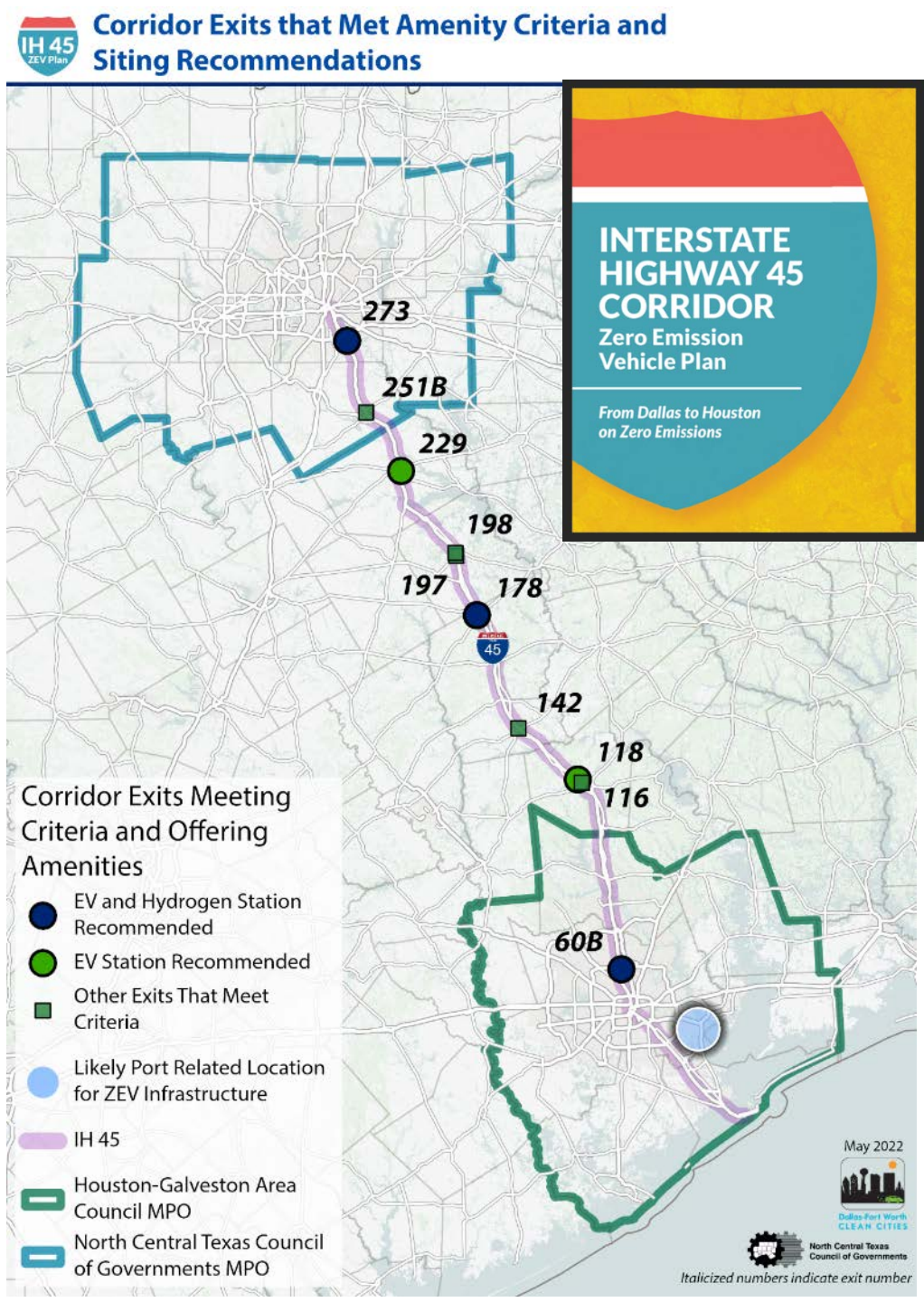
Medium - and Heavy -Duty Infrastructure

Goal:

Build Publicly-Accessible Infrastructure Network to Support Zero Emission Vehicle (ZEV) Transition in Medium- and Heavy-Duty Sector

Key Activities:

- Publicize IH 45 ZEV Corridor Plan
  - Completed in August 2022
  - North Central Texas Council of Governments - IH 45 Corridor Zero Emission Vehicle (nctcog.org)
- Support/Partner on Implementation of IH 45 Recommendations
- Develop Additional Corridor Plans
- Collaborate with TxDOT to Nominate Alternative Fuel Freight Corridors



Charging and Fueling Infrastructure Program

Established by the Bipartisan Infrastructure Law to deploy publicly accessible electric vehicle (EV) charging and other alternative fueling infrastructure in communities and along designated Alternative Fuel Corridors (AFC)

For Fiscal Year (FY) 2022 and FY2023, $700M split evenly in two funding categories:

Corridor Program ($350M Available)

- Minimum: $1,000,000
- No maximum

Community Program ($350M Available)

- Minimum: $500,000
- Maximum: $15,000,000

Federal share: up to 80 percent of the total project cost

Eligible entities that contract with a private entity must include that the private entity will be responsible for the non-Federal share of the project cost

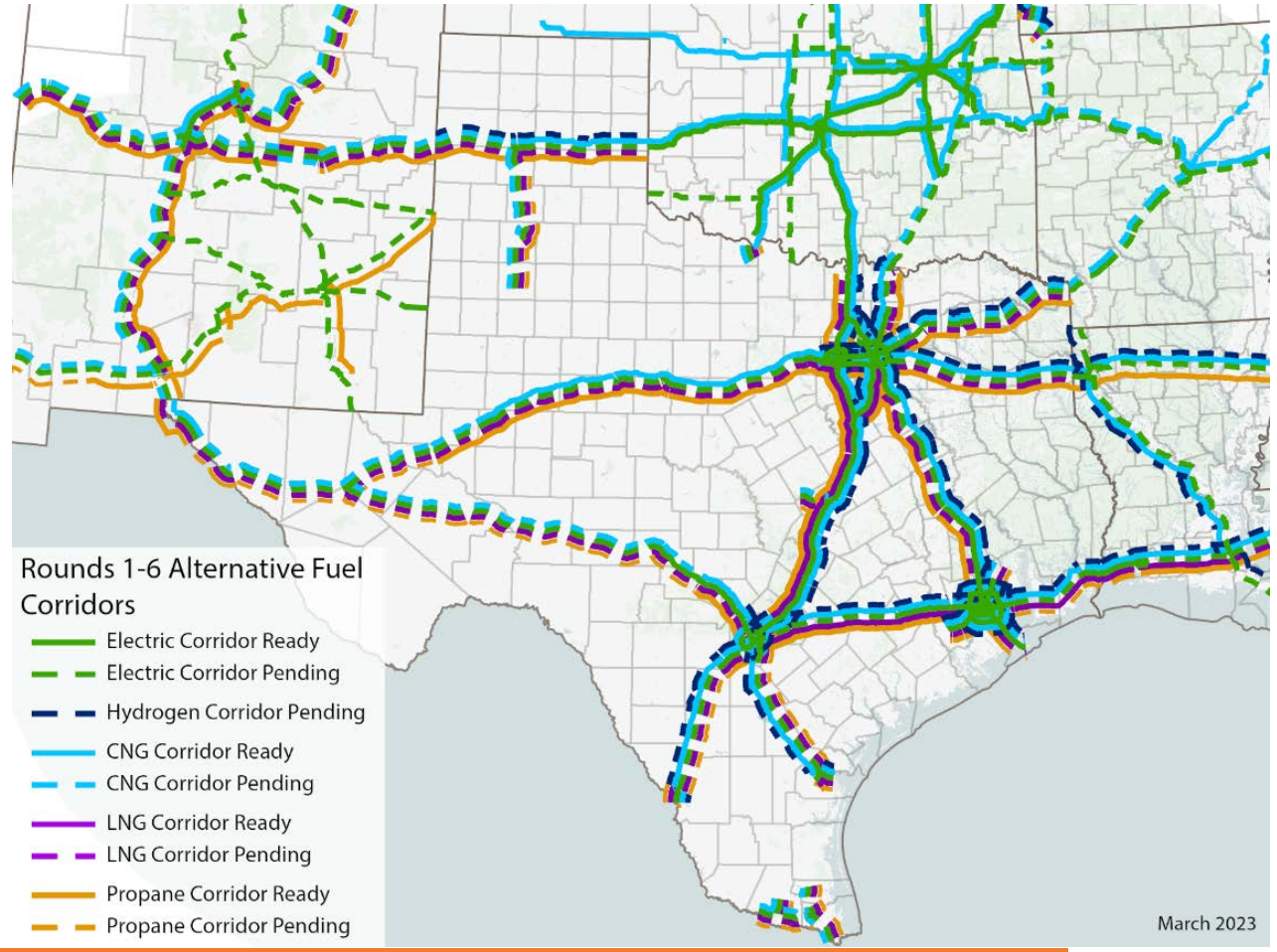
https://www.fhwa.dot.gov/environment/cfi/

Corridor Program: Eligibility and Need

Designed to build EV charging or alternative fueling infrastructure along designated Alternative Fuel Corridors (AFC)

Opportunity to Start Deploying Recommendations from IH-45 Zero Emission Vehicle Infrastructure Plan

- Battery Electric for Local Freight
- Hydrogen Fuel Cell Electric for Long Haul Freight



Medium/Heavy-Duty Vehicle Impacts:
Only ~5 % of Miles Traveled but
Nearly ~40% of Nitrogen Oxides (NO_X)

CFI Corridor Program: Approach

Call for Partners opened on March 6, 2023

- Establish public-private partnerships between NCTCOG and project teams
- Scope zero-emission vehicle (ZEV) infrastructure projects to support medium- and heavy-duty ZEVs
- Publicly accessible electric charging and/or hydrogen refueling equipment
- Located along a designated AFC for the proposed fuel

Received 12 proposals by deadline of April 7, 2023

Selected top proposals and coordinated with Proposal Teams to Refine Project Scopes for Federal Highway Administration (FHWA) Proposal

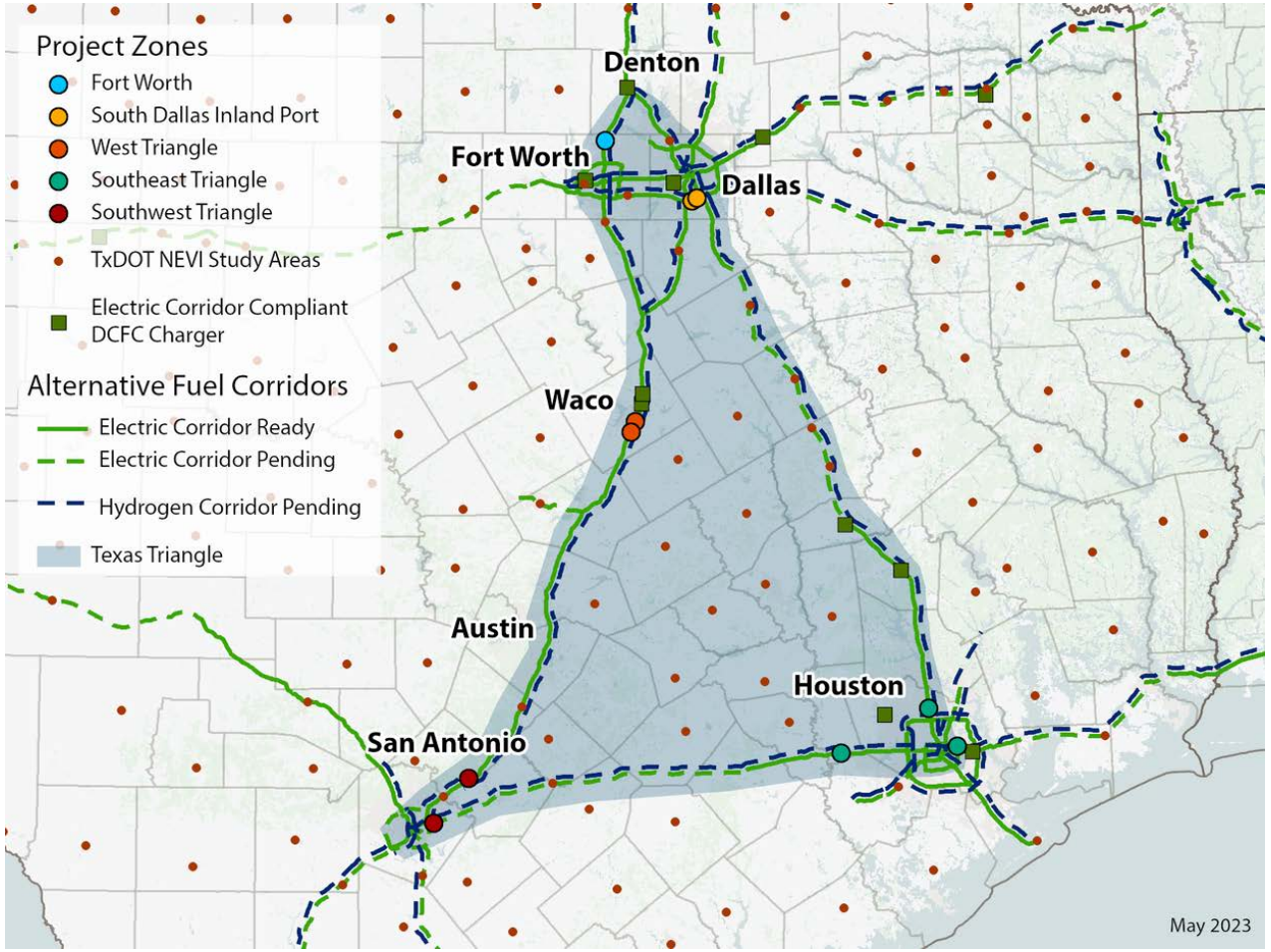
CFI Corridor Program: Proposal

Hydrogen refueling for up to 5 stations (zones) around Texas Triangle

Project Zones

Fort Worth Zone –
Alliance Texas Global Logistics Hub
Dallas Zone –
Southern Dallas County Inland Port
Southeast Triangle Zone – Houston
Southwest Triangle Zone – San Antonio
West Triangle Zone - Waco

Submitted proposal for $70 Million on June 13



CFI Community Program: Approach and Proposal

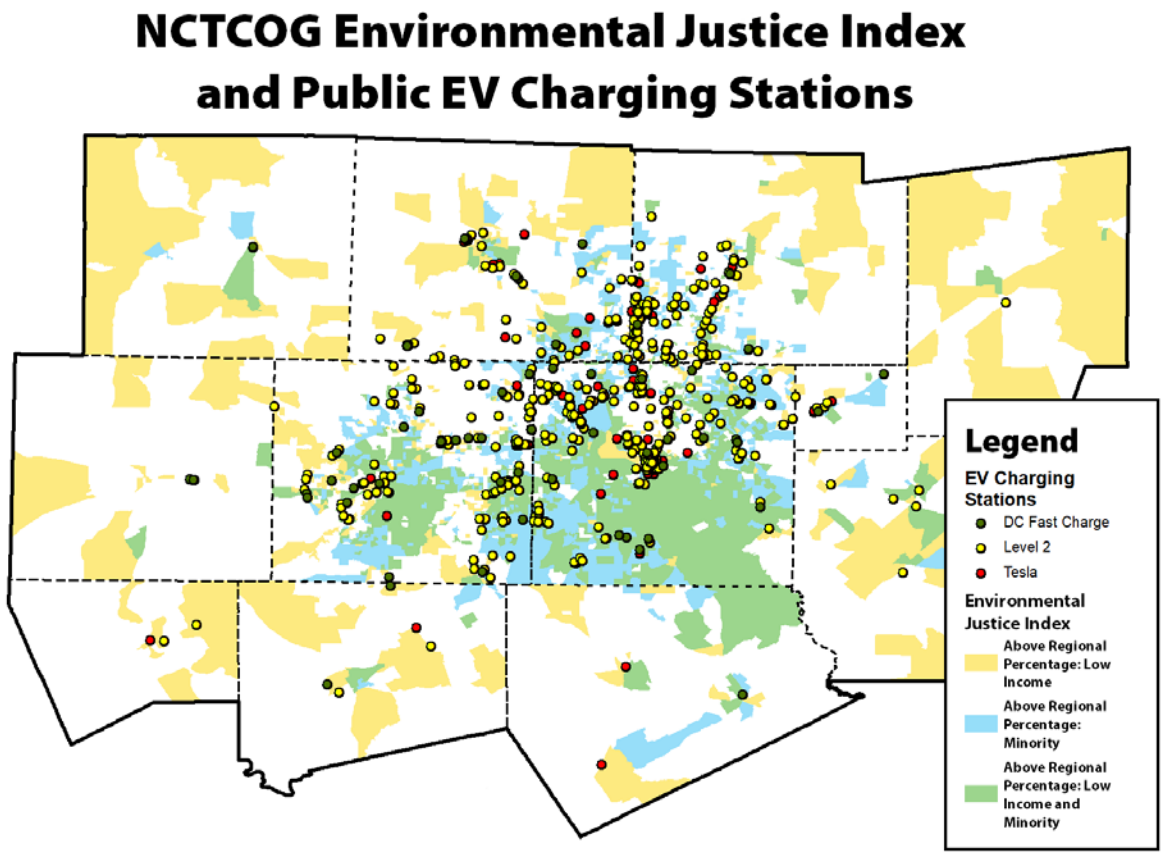
Apply on behalf of the region for funding

- Build EV charging stations to provide up to 100 charging ports regionwide
- At least 50% in Justice40 Areas
- Emphasizing Focus Areas

Create specialized technical teams to streamline project implementation

- Zoning, permitting, codes, Buy America, NEPA

Submitted proposal for maximum award of $15 Million on June 13



Climate Pollution Reduction Grants

Created by Section 60114 of the Inflation Reduction Act

Purpose: Develop and implement plans for reducing greenhouse gas emissions (GHG) and other harmful air pollutants

Will be administered by the Environmental Protection Agency (EPA) in two phases:

- Phase 1: $250 Million Non-Competitive Planning Grants
- Phase 2: $4.6 Billion in Competitive Implementation Grants

https://www.epa.gov/inflation-reduction-act/climate-pollution-reduction-grants

Phase 1: Planning Grants

$1 million is available for the Dallas-Fort Worth (DFW)-Arlington metropolitan statistical area (MSA)

- NCTCOG is the lead organization on behalf of the DFW-Arlington MSA
  - Responsible for oversight for managing grant funds
  - Coordinate activities and deliverables pertaining to the grant
- Includes Wise, Denton, Collin, Parker, Tarrant, Dallas, Rockwall, Kaufman, Ellis, Johnson, and Hunt counties
- Inclusion of neighboring jurisdictions, outside the boundary lines of the MSA, is allowed and encouraged

$3 million to each State, DC, and Puerto Rico

- Texas chose to receive planning funds

To be eligible to apply for Phase 2 Implementation funding, entities and proposed projects must be covered by either a State or MSA Phase 1 planning grant

Phase 1 Deliverables - Planning Grants

Deliverable #1: Priority Climate Action Plan (PCAP) – March 1, 2024

- GHG inventory and quantified GHG reduction measures
- Low-income and disadvantaged communities' benefits analysis
- Review of authority to implement

Deliverable #2: Comprehensive Climate Action Plan (CCAP) – Summer 2025

- GHG emissions projections, reduction targets, and reduction measures
- Benefits analysis for full geographic scope and population covered by the plan
- Low-income communities benefit and workforce analysis
- Plan to leverage other federal funding

Deliverable #3: Final Report – Summer 2027

- Report on progress towards GHG reduction and next steps

Next Steps - Planning Grants

Development of the Dallas-Fort Worth (DFW) Climate Action Plan (CAP) will begin in Summer 2023

- NCTCOG will host a working group of local governments to develop the DFW CAP
- Information about the CPRG Implementation Grants will be released in Summer 2023

Local governments interested in participating in the development of the DFW CAP should contact Savana Nance at snance@nctcog.org

Additional details are available at www.PublicInput.com/nctcog-cprg

Charging As A Destination

Road trip anyone? Will your town be ready?

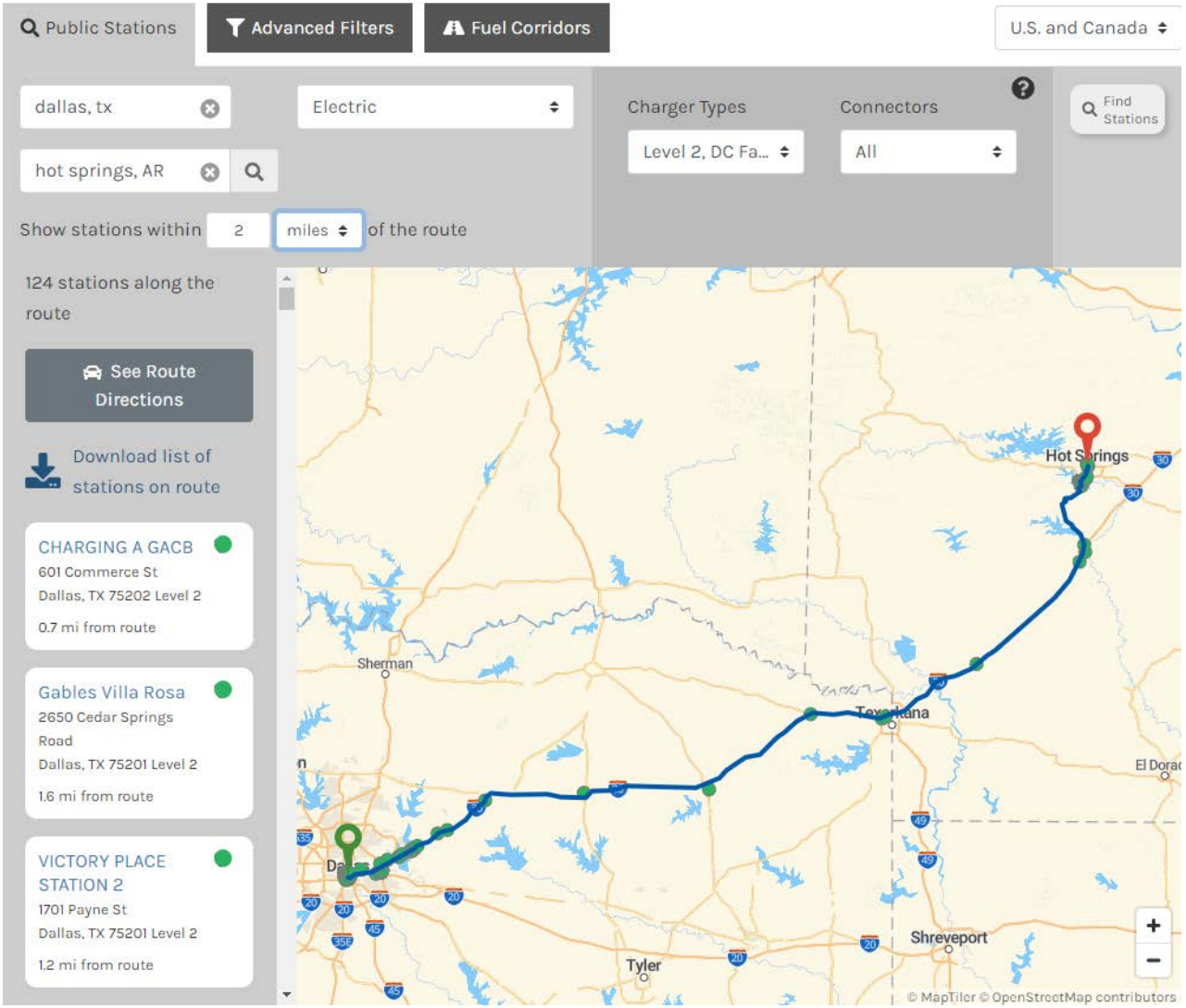
EV drivers plan ahead for their charging needs and are looking for fun things to do while charging!

Break for 30 minutes to 2 hours – DCFC

- Restaurants, movie, shopping, parks, rest stops, sports stadiums, museums, etc.
- Walking distance from charger
- Level 2 chargers work for a lot of these examples

Overnight – Level 2 Charger

Hotels, campgrounds



Charging As A Destination Resources

EV Destination Charging | Consumer Avenue (transportationenergy.org)

Reports (transportationenergy.org) The Transportation Energy Institute is a non-advocacy research organization dedicated to studying transportation-energy.

Rural EV Infrastructure Toolkit – one-stop resource to help rural communities scope, plan, and identify ways to fund EV-charging infrastructure

Leveraging EV Charging Infrastructure to Make Your Community a Destination – YouTube

Alternative Fuels Data Center: Alternative Fueling Station Locator (energy.gov)

EV Infrastructure Workforce Needs

Increased demand for EV infrastructure electricians and technicians anticipated

Availability and reliability requires adequate local workforce
- Deployment
- Ongoing maintenance

Opportunity for local community colleges

Training - Electric Vehicle Infrastructure Training Program (EVITP) certification
- Must be a state licensed or certified electrician
- Technical installation curriculum
- Developed in collaboration with industry

Funding for Vehicles and Infrastructure

Program/Incentive	Eligible Activities	Funding Amount	Deadline to Apply
Alternative Fuel Infrastructure Tax Credit	Purchase of qualified residential fueling equipment, such as EV charging infrastructure	Up to $1,000 tax credit	December 31, 2032
Electric Vehicle (EV) and Fuel Cell Electric Vehicle (FCEV) Tax Credit*	New EV, PHEV, or FCEV with a GVWR of 14,000 lbs. or less with final assembly in North America	$2,500 - $7,500 tax credit	No Deadline
Previously Owned Clean Vehicle Credit*	Used EV, PHEV, or FCEV with a GVWR of 14,000 lbs. or less	Up to $4,000 tax credit	No Deadline
Light-Duty Motor Vehicle Purchase or Lease Incentive Program*	New purchase or lease of a light-duty EV, PHEV, or FCEV	Up to $2,500	Available on a first-come, first-served basis starting September 1 of each odd-numbered year
GreenSense Incentive Program* for Denton Municipal Electric (DME) customers	EVs and PHEVs	$300	No Deadline
United Cooperative Services Rebates for United Cooperative Services customers	Electric vehicle charger	50% up to $500 on a Level 2 (240 Volt) EV charger	End of 2023 or until funds are depleted

www.nctcog.org/aqfunding

Funding for Infrastructure

Funding Agency	Program	Typical Schedule	Eligible Applicants	Eligible Activities	Eligible Funding Levels
USDA	**Rural Business Development Grants**	Closed- Anticipated Opening Spring 2023	State and local governmental authorities, federally recognized tribes, nonprofit corporations, institutions of higher education, and rural cooperatives (if organized as a nonprofit corporation).	EV charging stations can be funded through this grant if local small businesses can provide Letters of Support that state the charging stations will support job growth/retention	There is no maximum grant amount; however, smaller requests are given higher priority. There is no cost sharing requirement. Opportunity grants are limited to up to 10 percent of the total Rural Business Development Grant annual funding.
TCEQ	**TERP Alternative Fueling Facilities Program**	Closed; Expected Summer 2024	Public or private entities/individuals	Funds new construction or the expansion of existing alternative or natural gas fueling facilities	Up to $400,000 for a compressed natural gas CNG or LNG project Up to $600,000 for a combined CNG and LNG project Up to 50% or maximum of $600,000, whichever is less, for fuels other than natural gas

www.nctcog.org/aqfunding

Upcoming Projects Through US Department of Energy

Develop & deploy EV charging station maintenance training curriculum to support NEVI implementation

NCTCOG Role: Replicate EV technician training developed by Louisiana's Clean Cities Coalition in the DFW area, in collaboration w/community colleges & will coordinate w/Workforce

ZEV infrastructure plan along Texas Triangle & Interstate 10 Corridor - hydrogen

NCTCOG Role: Support planning and stakeholder convening, ensure local needs integrated into plan

Develop & deploy designation program to recognize cities that implement EV-friendly processes/rules

NCTCOG Role: Guide local govts to establish best practices as set by a national designation/recognition program and receive the designation/recognition

Demonstrate electric/autonomous multimodal (UAS/delivery bot/surface vehicle) first- and last-mile deliveries to address demonstrated needs in ZIP code 76010

NCTCOG Role: Assist in developing and evaluating performance metrics; guide development of best practice/replication guide and identify how successful projects can be replicated/scaled up beyond Arlington to the regional level

Contact Us

Lori Clark
Senior Program Manager &
DFWCC Director
lclark@nctcog.org

Amy Hodges
Principal Air Quality Planner
ahodges@nctcog.org

Dallas-Fort Worth CLEAN CITIES

dfwcleancities.org

cleancities@nctcog.org