



Planning the IH-45 Zero Emissions Vehicle Corridor

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2022 Transportation Short Course

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Relevance to Regional Planning

Air Quality Emphasis Areas:

- ☒ High-Emitting Vehicles/Equipment
- ☒ Idling
- Hard Accelerations
- Low Speeds
- Cold Starts
- Vehicle Miles of Travel
- ☒ Energy and Fuel Use

Performance Measure:

Mobility 2045 Policies:

AQ3-003: Support and implement educational, operational, technological, and other innovative strategies that improve air quality in North Central Texas, including participation in collaborative efforts...

AQ3-004: Support and implement strategies that promote energy conservation, address public health concerns, reduce demand for energy needs, reduce petroleum consumption, and/or decrease greenhouse gas emissions.

[Mobility 2045 Chapter 4 – Environmental Considerations](#)

[Appendix C – Environmental Considerations](#)



IH 45 Corridor Zero Emission Vehicle Plan Grant Background

\$80,000 FHWA Award May 2020

Alternative Fuel Corridor Program

Key Deliverables



Stakeholder List & Meetings

August 2020 to June 2022



Corridor Workshop



ZEV Ride & Drives and Display

ZEV Workshop Held April 26, 2022



Infrastructure Deployment Plan with Stakeholder Letters of Support

Published August 31, 2022



Plan Goals

Provide Actionable Recommendations to Facilitate ZEV Deployments:

Battery Electric

Hydrogen Fuel Cell Electric

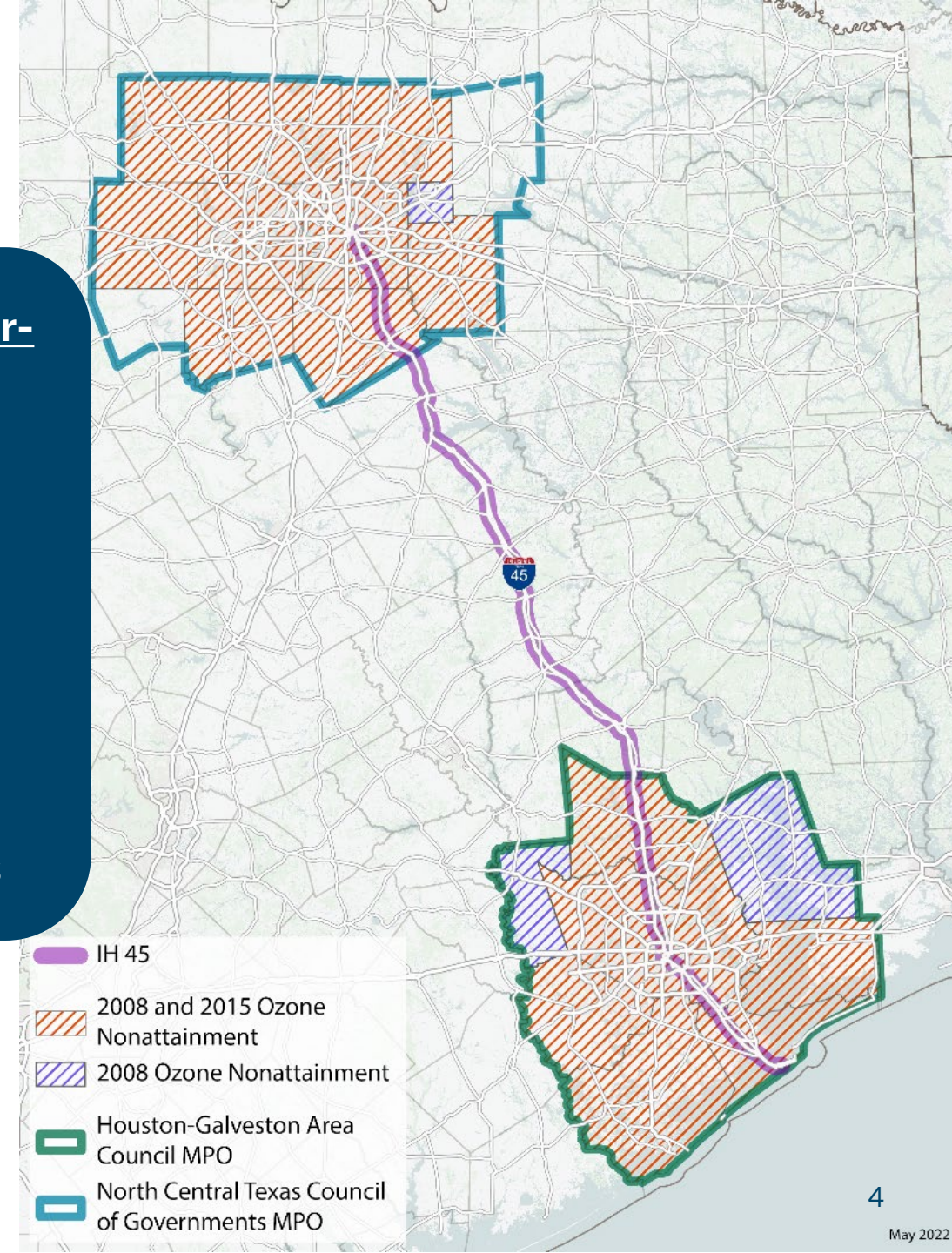
Support Future Strategic Initiatives (e.g., Autonomous Vehicles)

Engage Wide Range of Stakeholders

To Achieve Corridor-Ready Status

1 Qualifying EV Charger Every 50 Miles

1 Hydrogen Fueling Site Every 150 Miles



Light-Duty Battery EV Charging

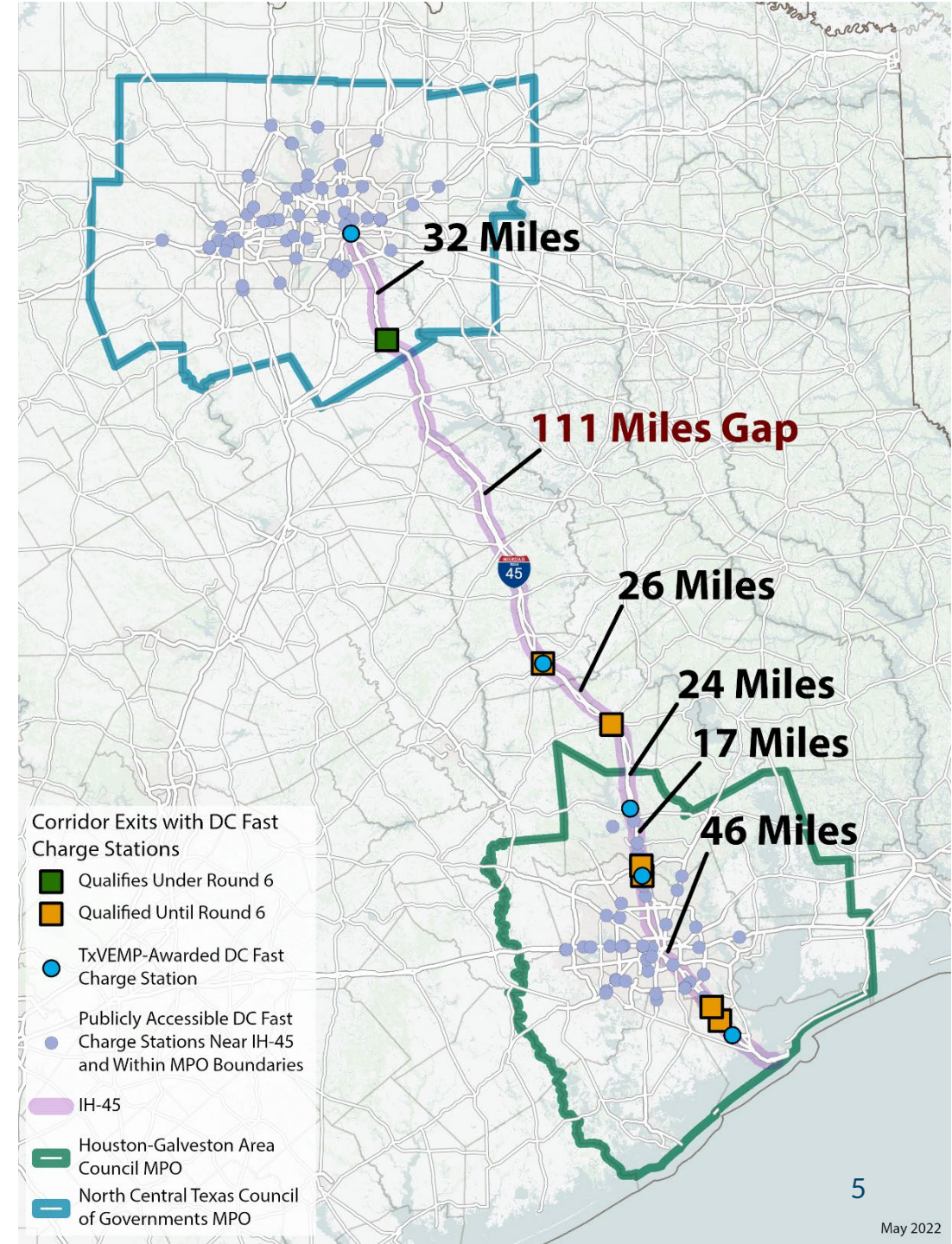
Current Status

111 Mile Gap from Ennis to Madisonville

As of February 2022, Qualifying Stations Must:

- Be Within 1 Mile of the Corridor Exit
- Provide at Least 4 CCS Connectors Capable of Providing at Least 150 kW Charging Simultaneously

CCS = Combined Charging System



Light-Duty Battery EV Charging

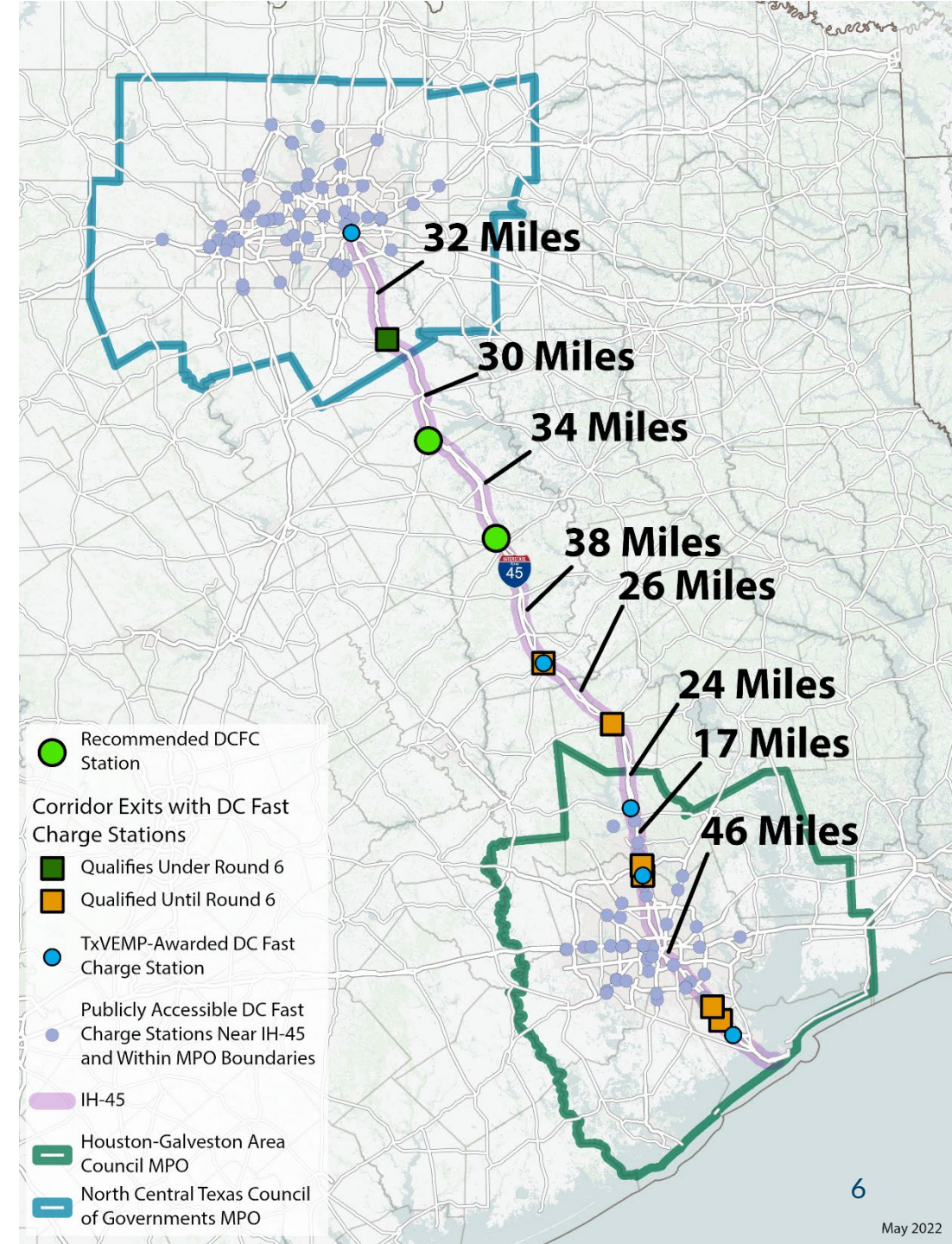
Data-Driven Approach

1. Located in the “Pending” Gap
2. Intersects Another National Highway System Corridor
3. Number of Amenity Types (e.g., food, shopping, etc.)
4. No Direct-Connect Ramps

Recommendations

2 Charging Stations: Buffalo and Corsicana

Staff has Coordinated with TxDOT to Ensure Inclusion in Texas EV Charging Plan



Medium- and Heavy-Duty Truck Impact on Regional Air Quality

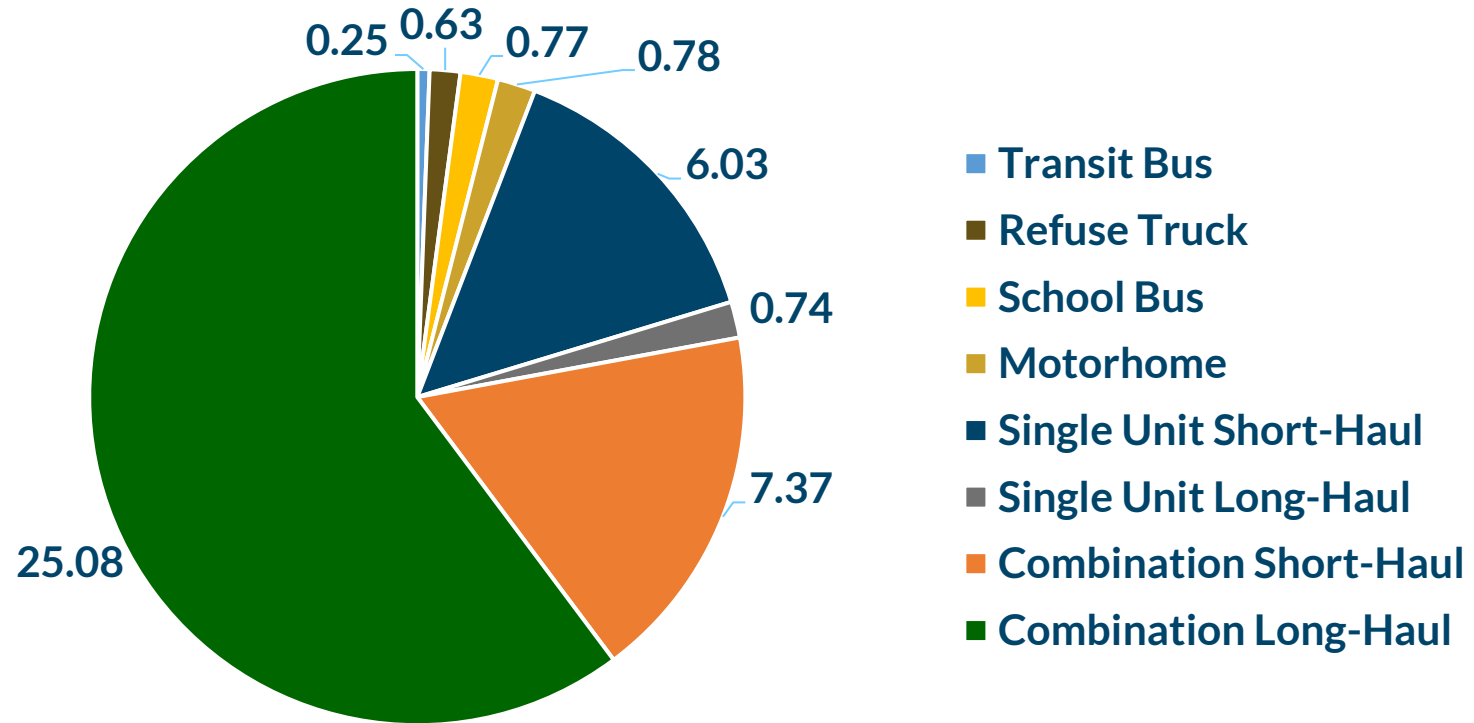
Medium/Heavy Duty Vehicle Impacts:

- ~5 % of Miles Traveled
- ~40% of Nitrogen Oxides (NO_x)

Key Factors in Choosing ZEV Platform:

- Weight
- Refueling Time
- Range (Route Length)

NO_x Emissions in Tons per Day by Medium/Heavy-Duty Vehicle Type



StreetLight Analysis

Used “Top Routes” Analysis to Visualize Truck Routes Traveled after Passing Through a Zone Placed on IH 45 or at a Freight-Oriented Development

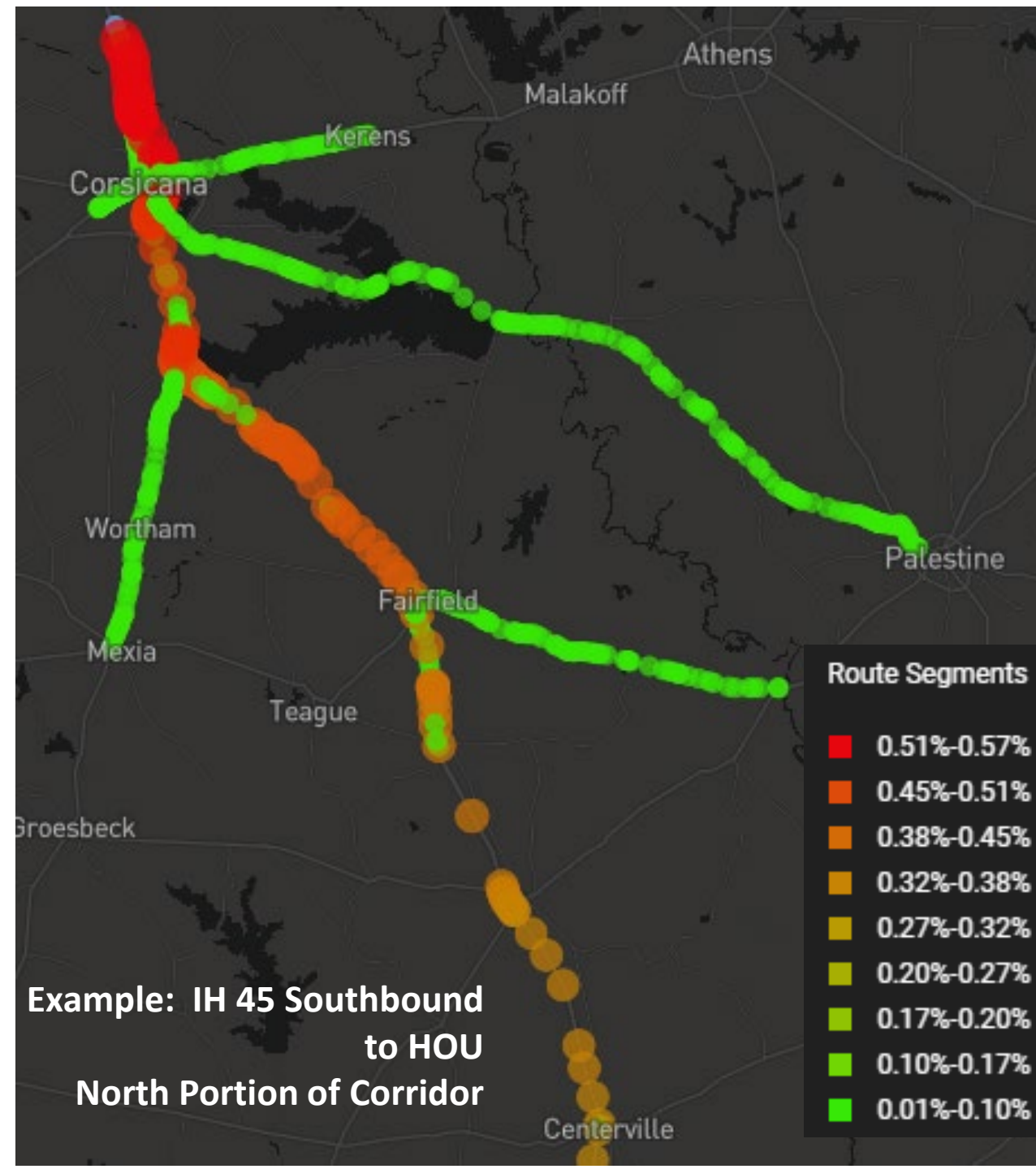
Confirms the Nature of Traffic Leaving Houston is Largely Destined for DFW, and Vice-Versa

Few Turnoff Points between Metros

Analysis Provided by
Larry Meyer, Houston-
Galveston Area Council



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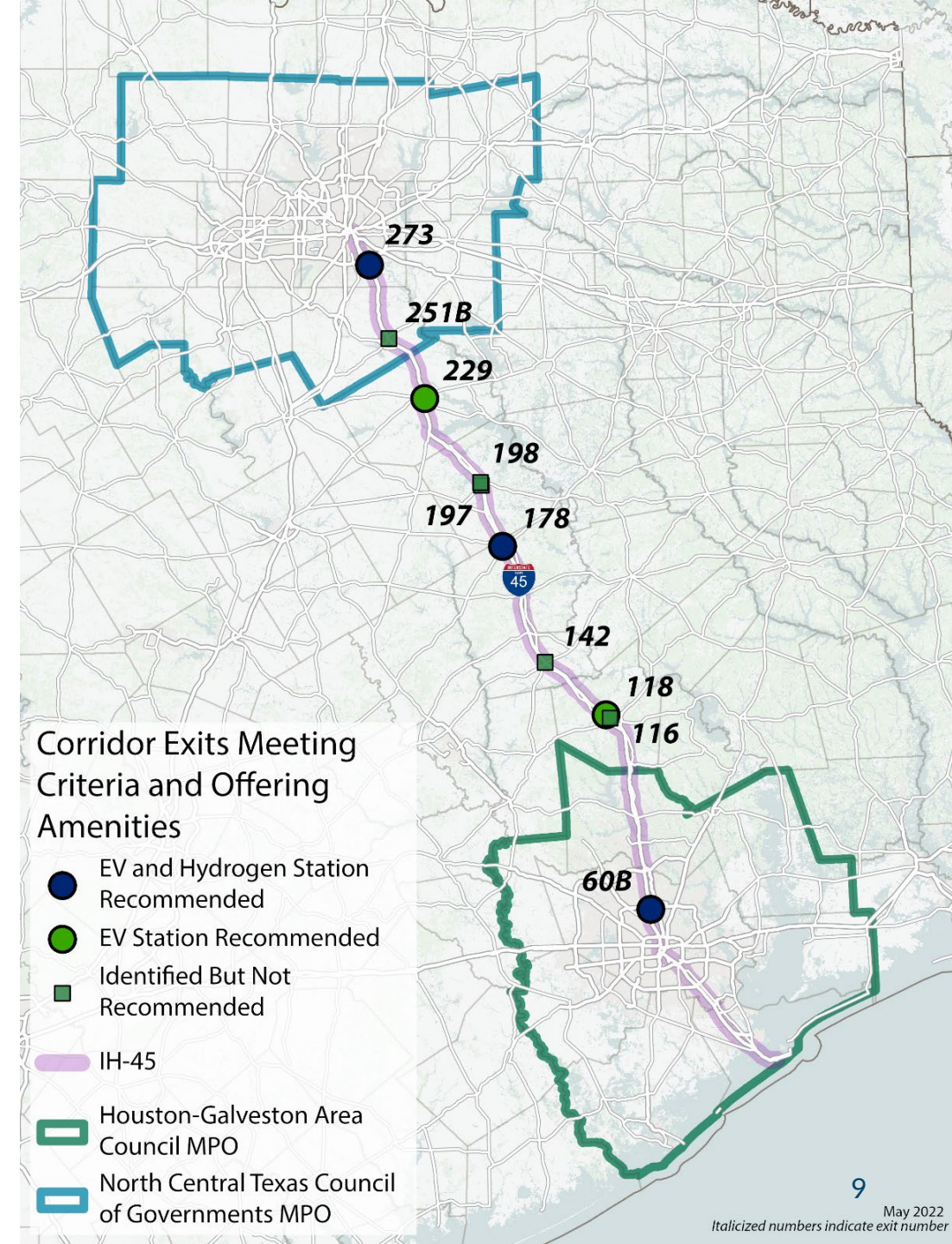
Infrastructure for Heavy-Duty Vehicles

Data-Driven Approach

1. Intersects a Freight System Corridor
2. No Direct-Connect Ramps
3. Cross Street Accessible from Both NB and SB Directions of Travel
4. Turning Point Indicated by StreetLight Data
5. Access to at Least 2 Types of Amenities - Truck Stops Key

Recommendations:

- 5 EV Charging Sites: Houston, Huntsville, Buffalo, Corsicana, near UP Intermodal Facility
- 3 Hydrogen Fueling Sites: Houston, Buffalo, near UP Intermodal Facility



Implementation Considerations

Estimated Costs per Site

\$600,000 for Light-Duty Charging

\$6-\$18 Million for Heavy-Duty Charging

\$6-\$26 Million for Heavy-Duty Hydrogen

Futureproofing & Resilience

Standardization

Co-Location of Fuels

Design to Accommodate Autonomous Vehicles

Development of Additional Corridors, Notably Texas Triangle



Policies, Regulations, and Incentives

Federal Actions Providing Momentum for ZEV Projects

State-Level Factors Mixed

- Favorable Economics

- Lack of State-Level Policies and Complications of Deregulation

Dallas and Houston Climate Action Plans Provide Supportive Local Framework

Expanding Availability of Incentives

- Inventory of Incentive Programs

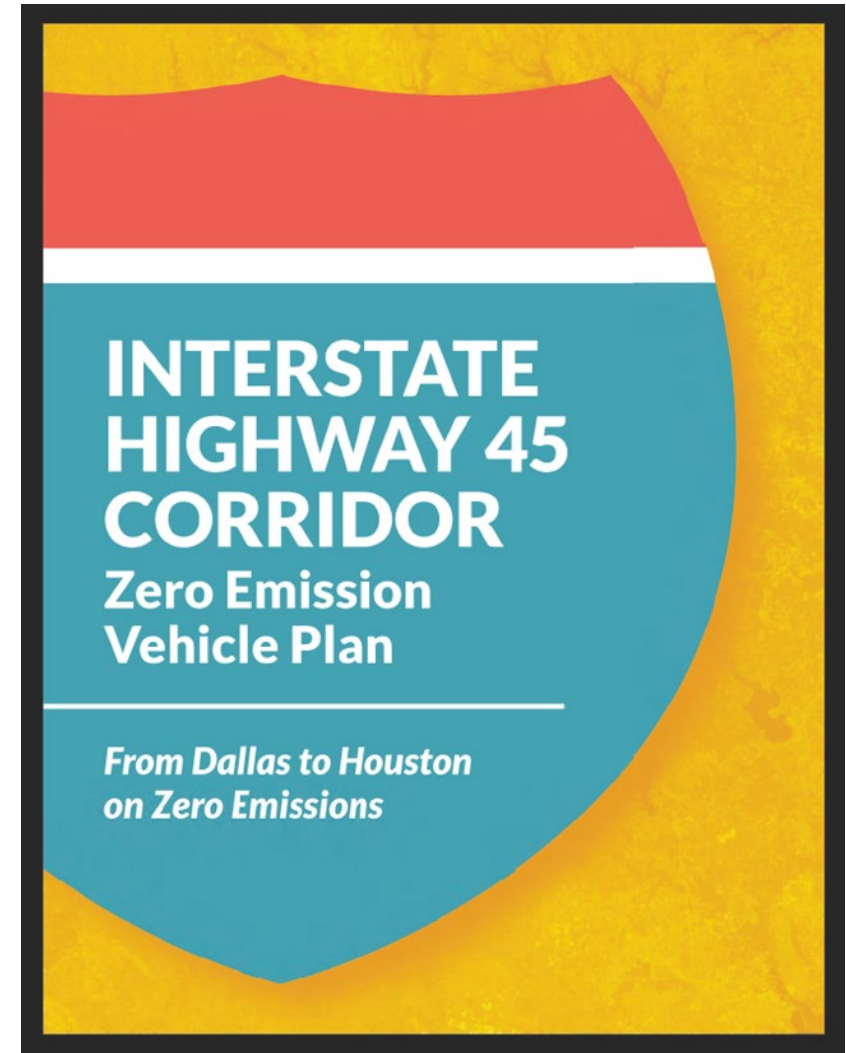
- Identification of Key Barriers and Potential Solutions



Final Document

- Chapter 1 – Introduction
- Chapter 2 – The Importance of ZEV Projects Along the IH 45 Corridor
- Chapter 3 – Filling the Gaps: EV Charging for Light-Duty Passenger Vehicles
- Chapter 4 – Building a Corridor for Medium- and Heavy-Duty Freight Vehicles
- Chapter 5 – Implementation Resources
- Chapter 6 – Policy and Regulator Landscape
- Chapter 7 – Federal and State Incentives to Support Zero Emission Vehicle Deployments
- Chapter 8 – Accomplishments and Recommended Next Steps

www.nctcog.org/IH45-ZEV



Next Steps

Complete Light-Duty Recommendations Through Texas EV Charging Plan

(National EV Infrastructure Formula Program)

Leverage Stakeholder Network for Project Planning

Additional Corridor Plans – Potential Through Department of Energy

Refueling/Recharging Site Development – Potential Through \$2.5 Billion Discretionary Grant Program for Charging and Fueling Infrastructure



For More Information



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www.nctcog.org/IH45-ZEV

www.driveelectricdfw.org

NCTCOG Summer 2023 Internship opportunities

