

Status Report on IH 45 Zero Emission Vehicle Corridor Infrastructure Plan

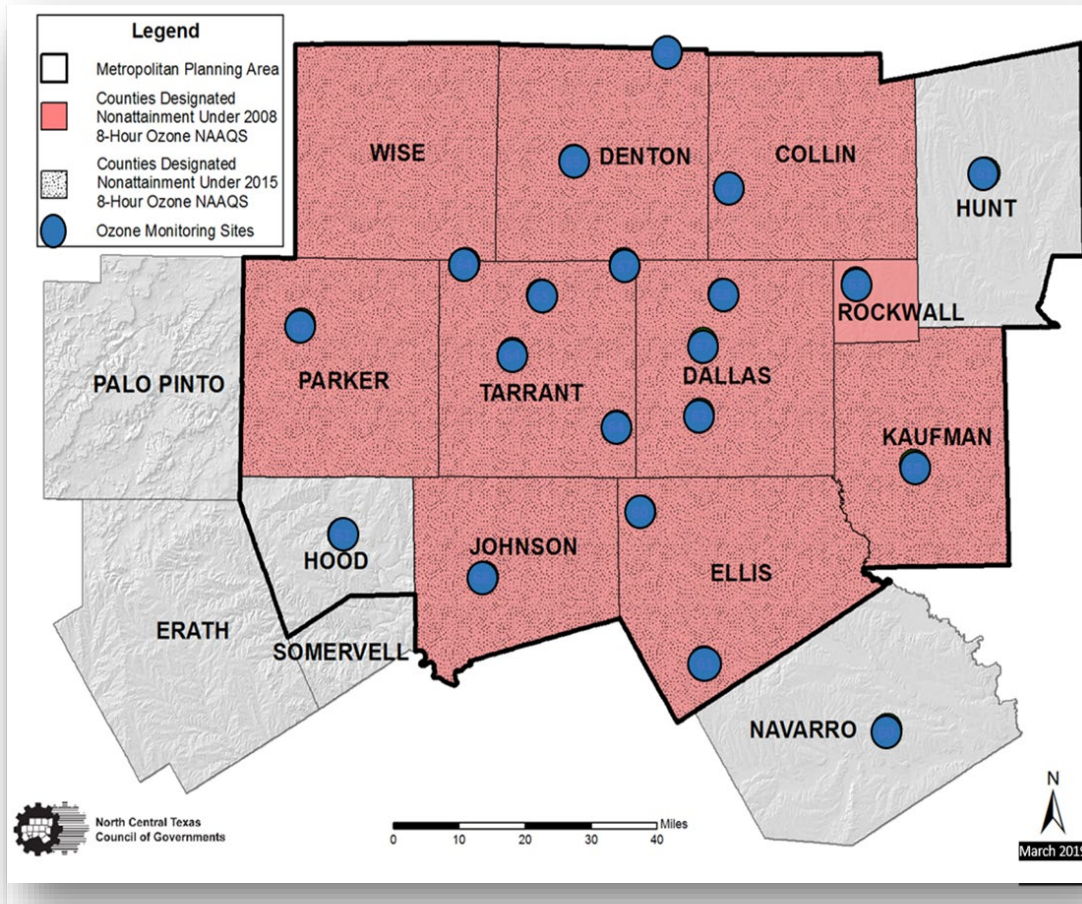
Soria Adibi

NCTCOG/DFW Clean Cities

August Public Meeting

08.08.2022

Who We Are



Regional Planning Agency



Metropolitan Planning Organization (MPO)



Local Clean Cities Coalition

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:

Air Quality Policy AQ2-005:

Efforts to improve air quality are enhanced by policies which provide guidance on best practices to minimize fleet emissions impacts through acquisition, operation, and/or maintenance behaviors.

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

[Appendix C – Environmental Considerations](#)

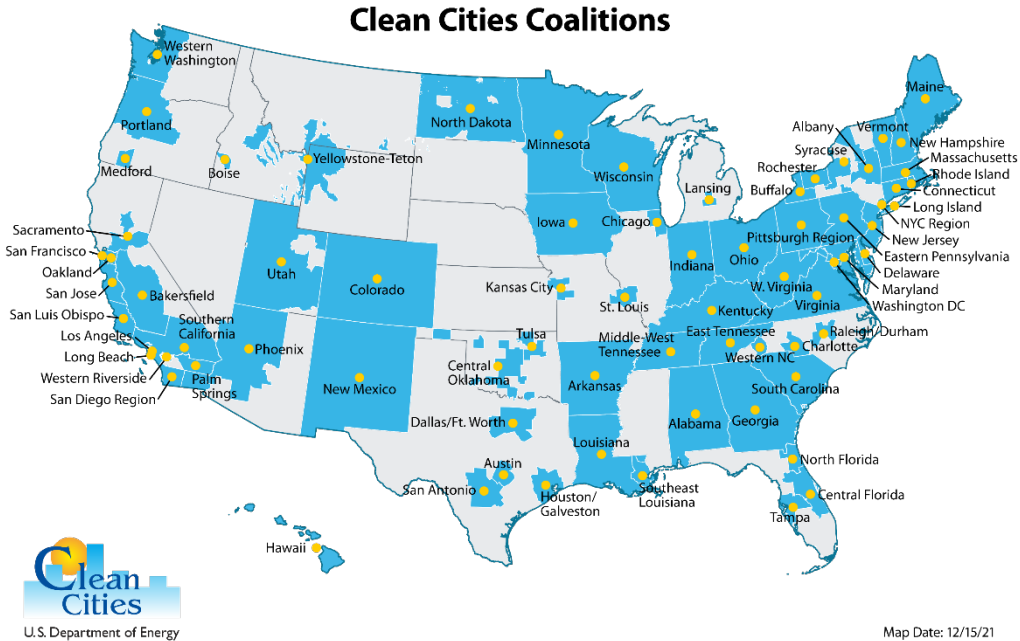
Dallas-Fort Worth Clean Cities (DFWCC)

Advance Economic, Environmental, and Energy Security

- Increase Efficiency and Reduce Emissions from Transportation
- Support Public and Private Fleets
- Provide Technical Assistance Through National Programs

National Laboratories
National Network of Clean Cities Coalitions

Check us out at
[https://www.dfwcleancities.org/!](https://www.dfwcleancities.org/)



DFWCC Portfolio



Light-, Medium-, and Heavy-Duty Vehicles



Alternative and Renewable Fuels and Infrastructure

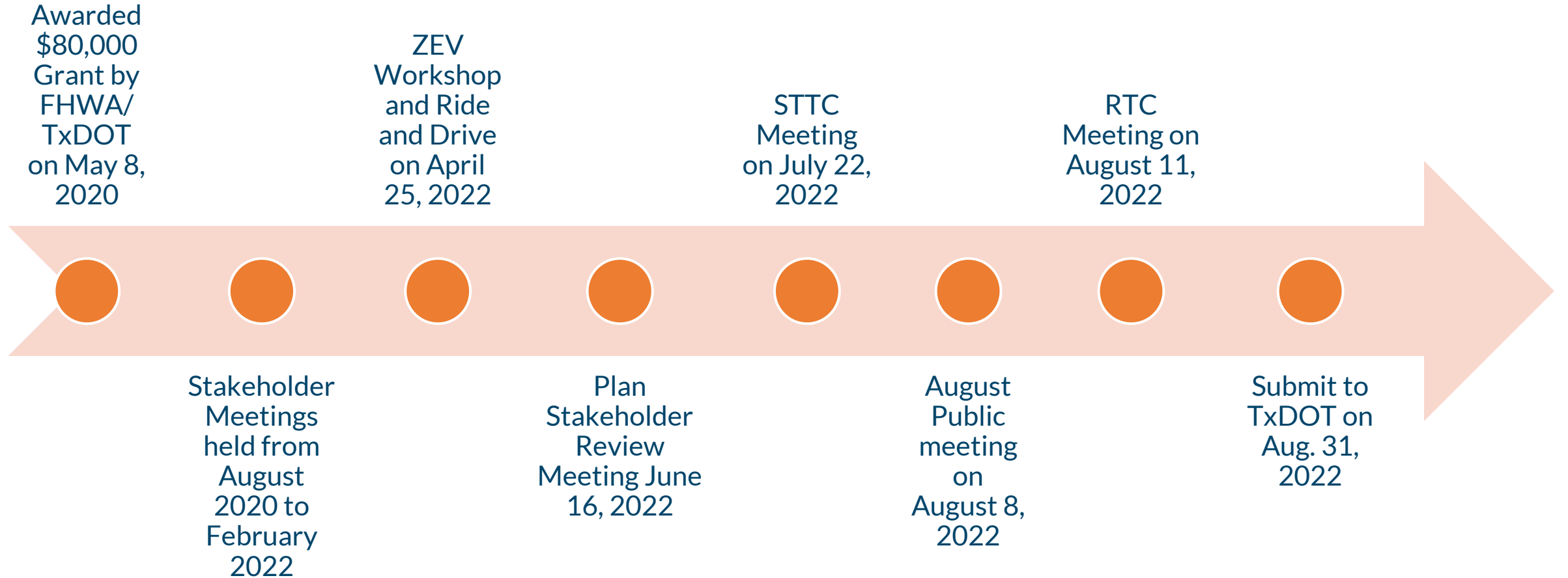


New Mobility Choices and Emerging Transportation Technologies



Idle Reduction Measures and Fuel Economy Improvements

IH 45 Grant Project Timeline and Remaining Schedule



Plan Goals

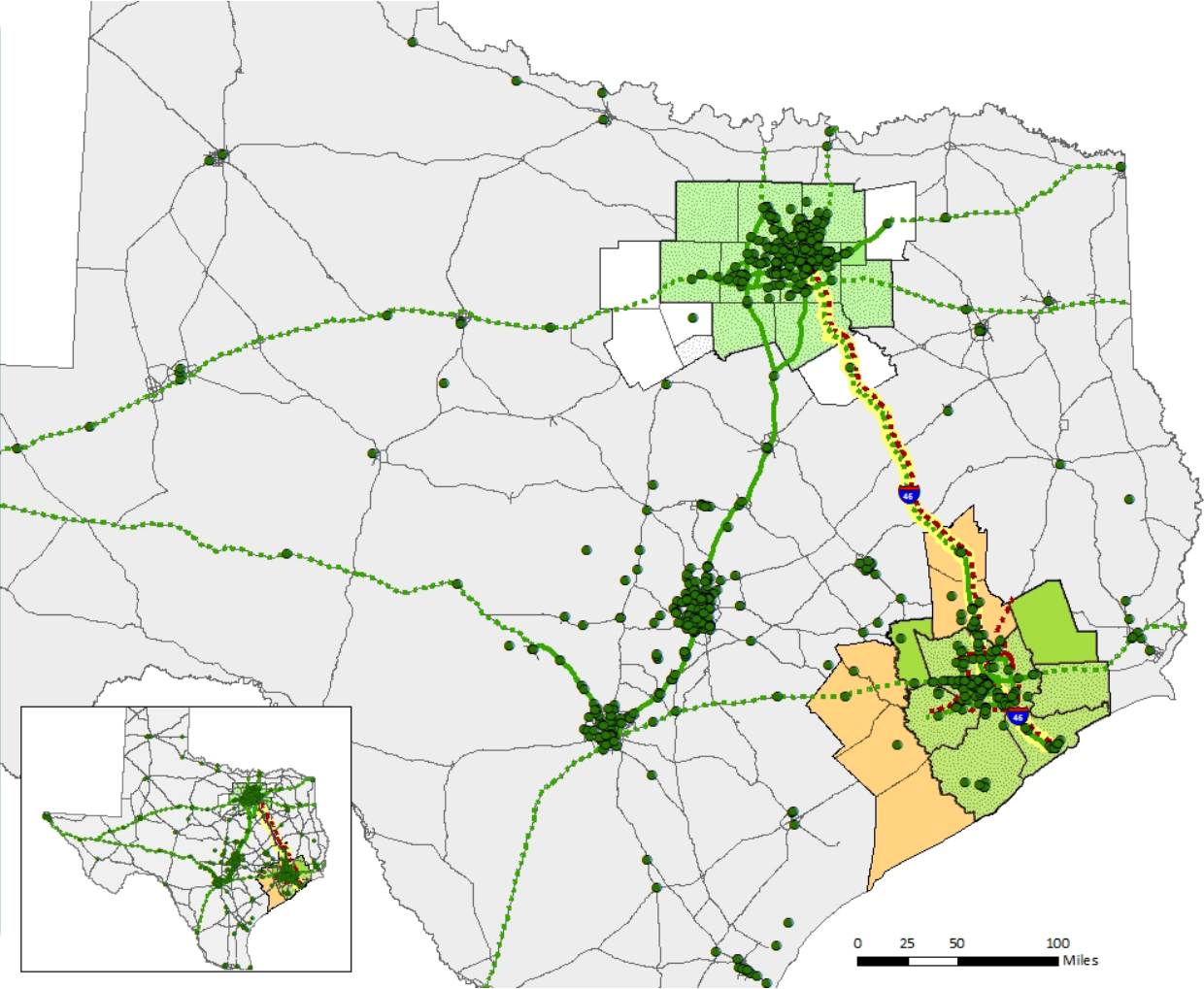
IH 45 Corridor Profile:

290 Miles

10 Counties
(5 Designated
Nonattainment for
Ozone)

Carries Nearly Half
of Texas' Truck
Freight

2017 Cargo Totaled
Over 62.6 Billion,
Over 10,000 Ton-
Miles



**Provide Actionable
Recommendations to Facilitate
Battery Electric and Hydrogen
Fuel Cell Electric Deployments**

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

**Engage Wide Range of
Stakeholders**

**Acknowledge Need to Revisit in
3-5 Years**

Plan Deliverables



Stakeholder Lists



Corridor Workshop



Infrastructure Deployment Plan



Stakeholder Meetings



ZEV Ride and Drives & Display



Stakeholder Letters of Support

Light-Duty Battery EV Charging

Current Status

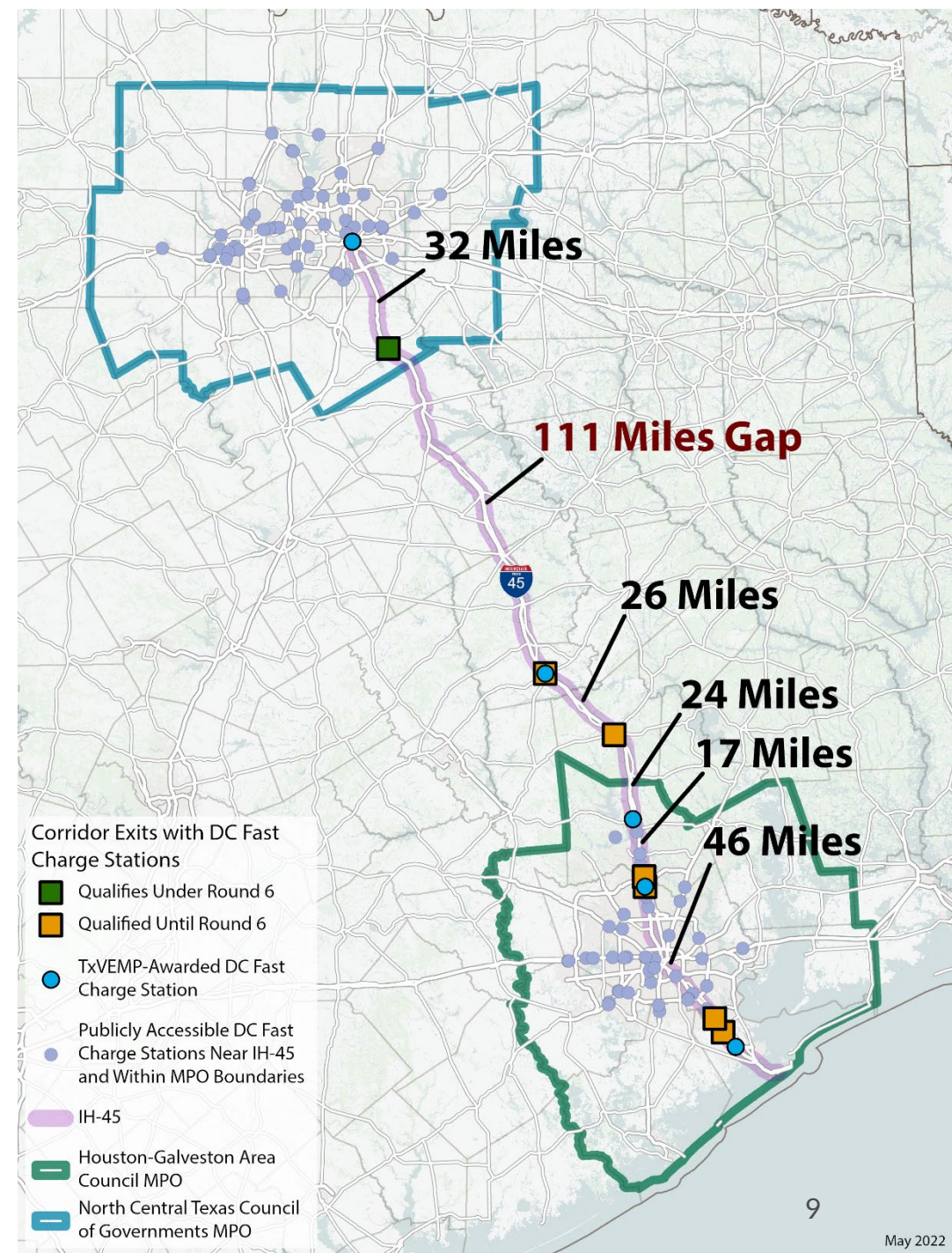
111 Mile Gap from Ennis to Madisonville

Goal to Meet FHWA Criteria

1 Qualifying DC Fast Charge Station Every 50 Miles

As of February 2022, Qualifying Stations Must:

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



Light-Duty Battery EV Charging

Approach to Recommendations

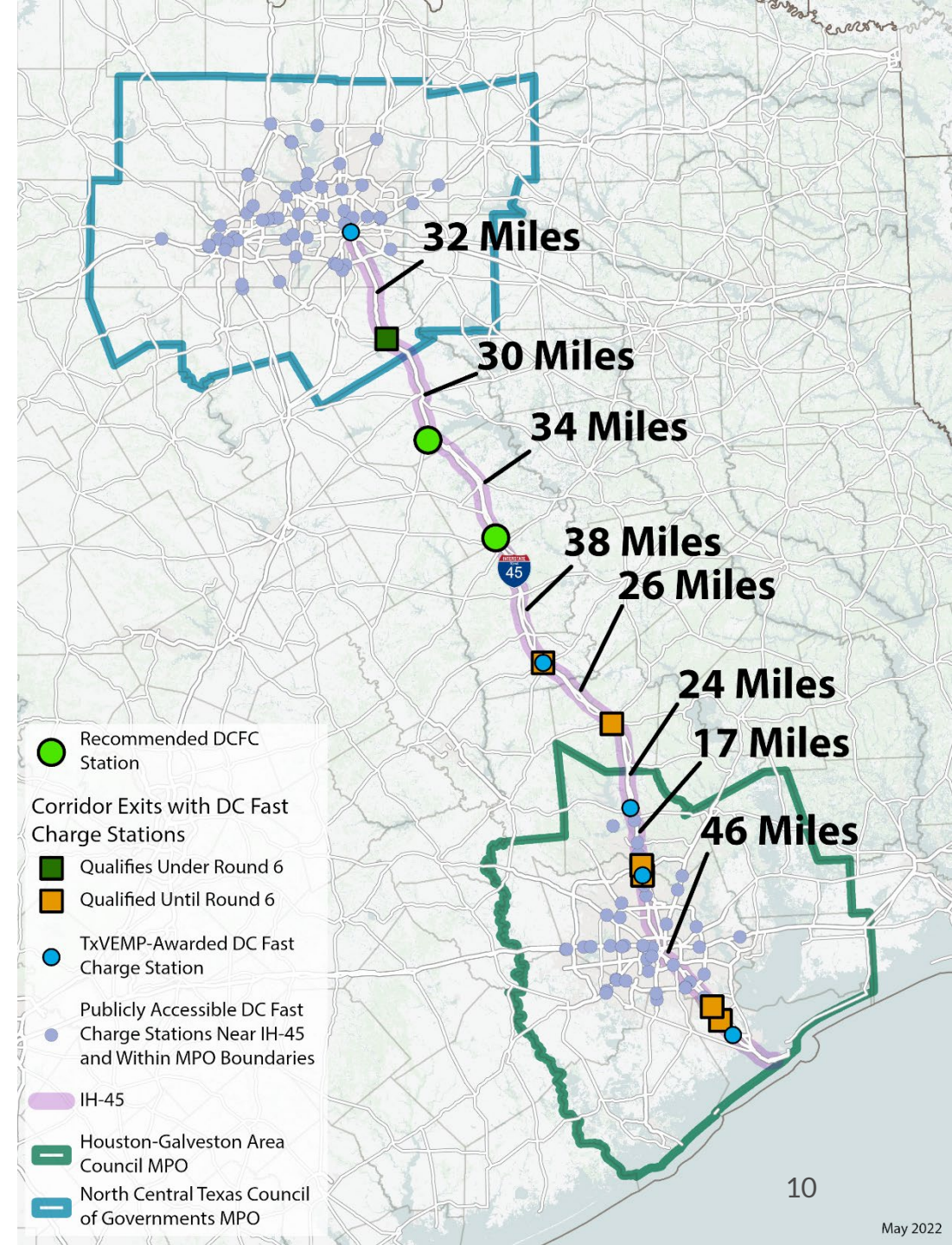
1. Located in the “Pending” Gap
2. Intersects Another National Highway System Corridor
3. Number of Amenity Types (e.g., food, shopping, etc.)
4. No Direct-Connect Ramps

Recommendations

Add Charging Stations At/Near:

1. Exit 178: US 79 in Buffalo
2. Exit 229 (US 287) or Exit 231 (TX 31) in Corsicana

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



Infrastructure for Heavy-Duty Vehicles

Current Status

No EV Charging Designed for Heavy-Duty Vehicles

No Hydrogen Fueling

Goal to Meet FHWA Criteria

1 Qualifying DC Fast Charge Station Every 50 Miles

1 Hydrogen Fueling Station Every 150 Miles

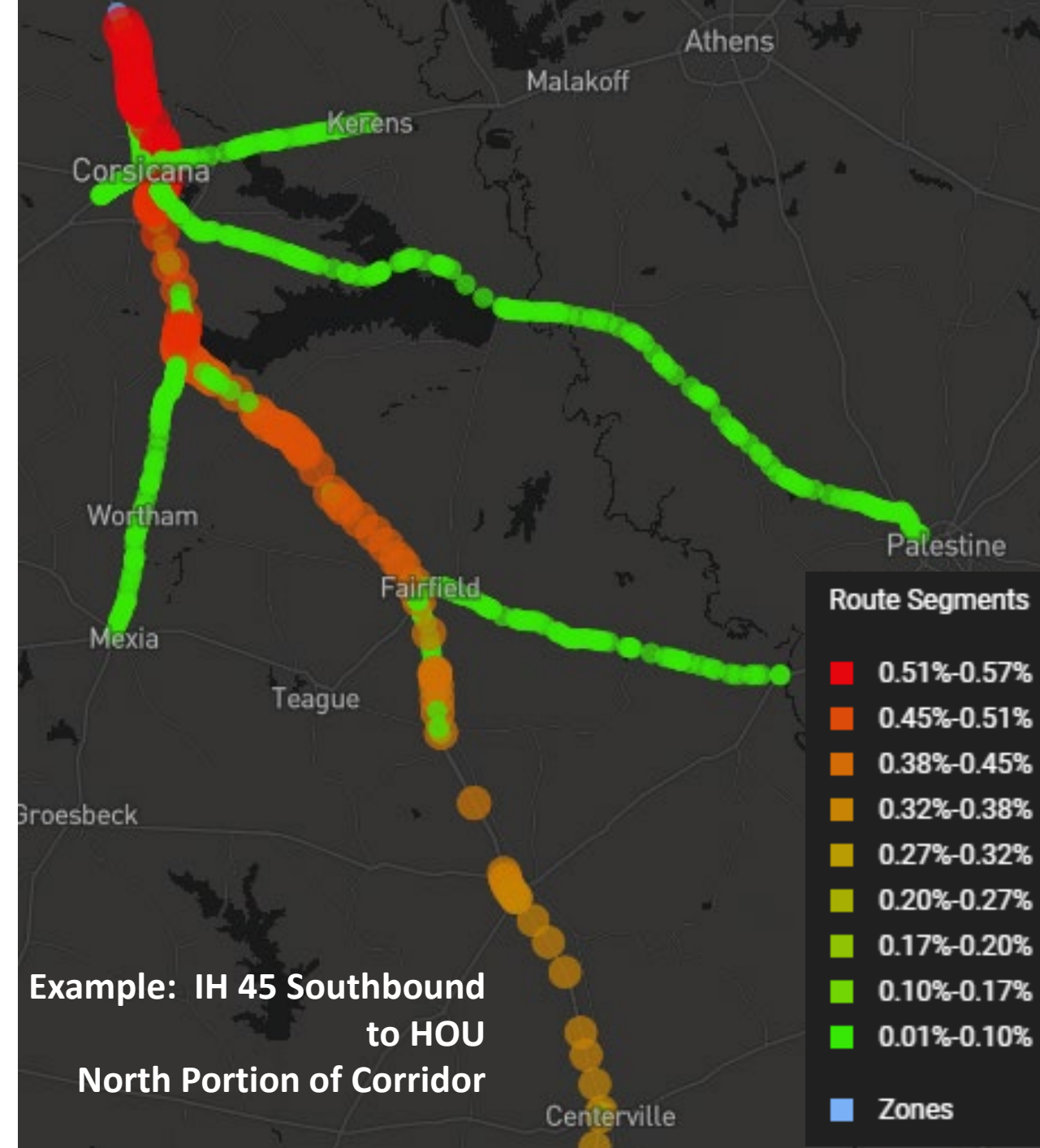
Street Light Analysis

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

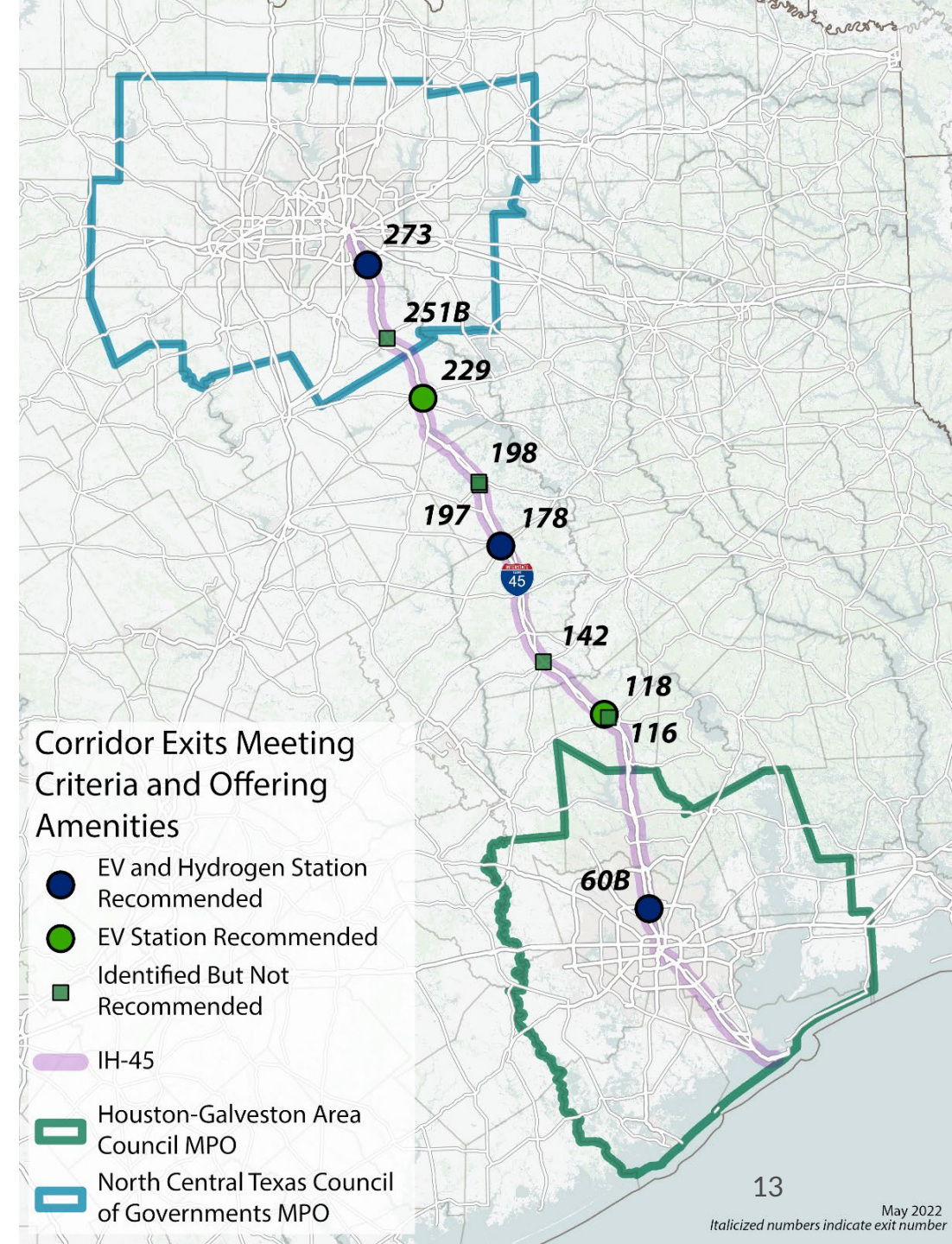


Infrastructure for Heavy-Duty Vehicles

Approach to Recommendations

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

Identify End-Points, then Fill to Meet Required Distance Intervals

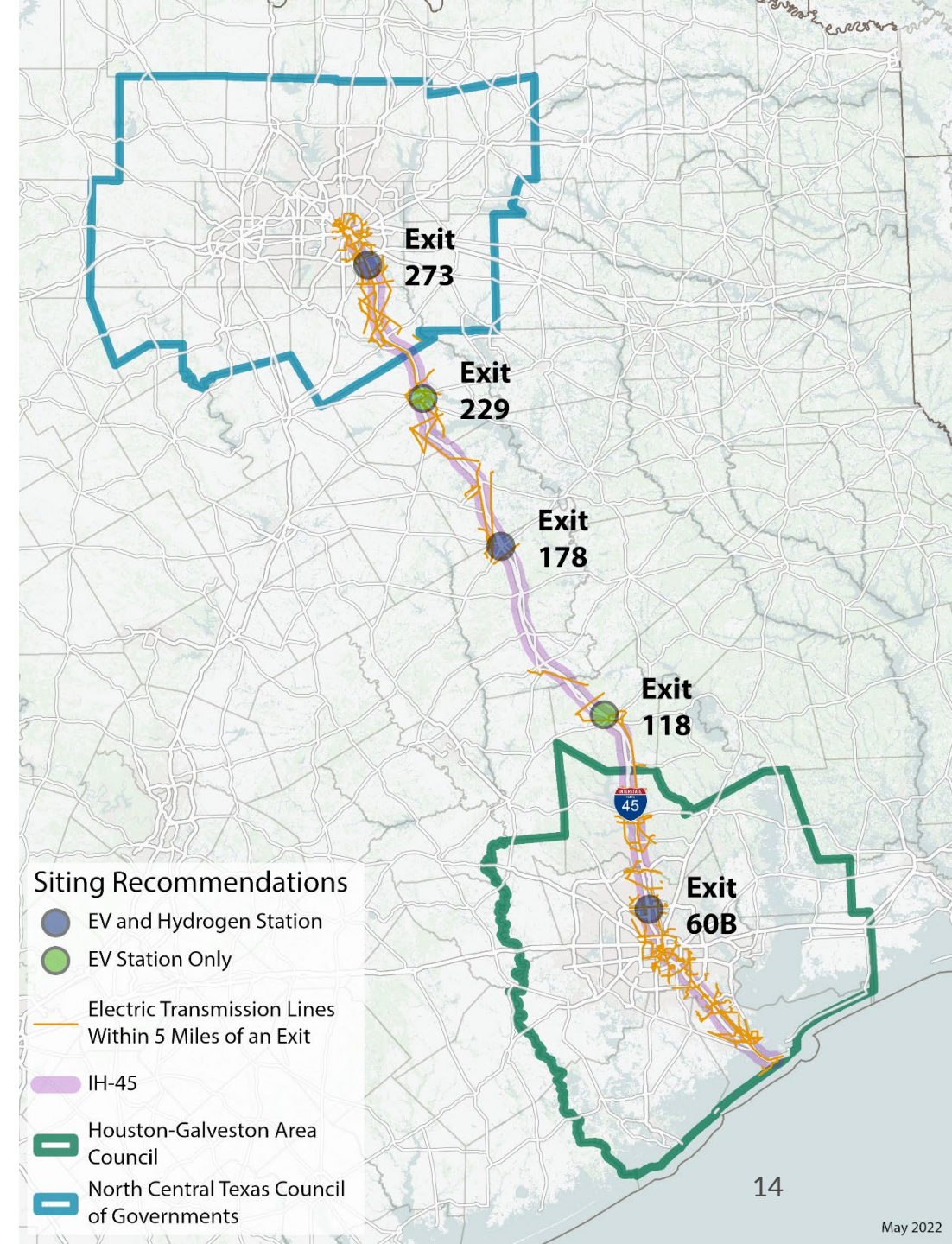


Infrastructure for Heavy-Duty Vehicles

Recommendations for Both EV and Hydrogen

Add Charging Stations At/Near:

- EV and H2: Exit 60B (Beltway 8 South), Houston
- EV Only: Exit 118 (TX 75/FM 1791), Huntsville
- EV and H2: Exit 178 (US 79), Buffalo
- EV Only: Exit 229 (US 287), Corsicana
- EV and H2: Exit 273 (Wintergreen Road, at Union Pacific Intermodal Facility)



ZEV Heavy-Duty Vehicles

Future and Current BEV Heavy-Duty Truck Options

| OEM | Model | Weight Class/Size | (Estimated) Payload (lbs) | Battery Size (kW) | (Estimated) Range (miles) | (Estimated) Availability |
|---------------|-----------------------|-------------------|---------------------------|-------------------|---------------------------|--------------------------|
| BYD | 8TT | Class 8 | 78,765 | 409 | 125 | Available |
| Freightliner | eCascadia | Class 8 | not available | 550 | 250 | 2022 |
| Freightliner | eM2 106 - Class 7 | Class 7 | not available | 550 | 250 | Available |
| Kenworth | T680E | Class 8 | 57,500 | 396 | 150 | Available |
| Lion | Lion8 | Class 8 | 30,000 | 480 | 180 | Available |
| Mercedes-Benz | eActros | Class 8 | 40,000 | 240 | 124 | Available |
| Nikola | Tre EV | Class 8 | 40,000 | 753 | 350 | Available |
| Peterbilt | 520EV | Class 6 | not available | 420 | 90 | Available |
| Peterbilt | 520EV | Class 7 | not available | 420 | 90 | Available |
| Peterbilt | 579EV | Class 8 | not available | 420 | 200 | Available |
| Roush | Ford F-750 | Class 7 | not available | not available | not available | Available |
| SEA Electric | Autocar ACMD Class 7 | Class 7 | depends | 160 | 150 | Available |
| SEA Electric | Autocar ACMD Class 8 | Class 8 | depends | 160 | 150 | Available |
| SEA Electric | Freightliner Cascadia | Class 8 | depends | 216 | 150 | Available |
| SEA Electric | Freightliner M2 105 | Class 8 | depends | 160 | 150 | Available |
| SEA Electric | Freightliner M2 106 | Class 8 | depends | 160 | 150 | Available |
| SEA Electric | Hino GH EV | Class 8 | depends | 220 | 125 | Available |
| SEA Electric | Kenworth T370 | Class 8 | depends | 160 | 150 | Available |
| Tesla | Semi | Class 8 | not available | not available | 500 | 2022 |
| Volvo | VNR Electric | Class 8 | 66,000 | 565 | 275 | Available |

Future and Current FCEV Heavy-Duty Truck Options

| OEM | Model | Weight Class/Size | Estimated Payload (lbs) | Battery Size (kW)* | Estimated range (miles) | Estimated Availability |
|----------|---------------|-------------------|-------------------------|--------------------|-------------------------|------------------------|
| Hyundai | HDC-6 Neptune | Class 8 | not available | not available | 800 | 2023 |
| Hyundai | Xcient | Class 8 | not available | not available | 249 | 2023 |
| Hyzon | FCET 6 | Class 6 | not available | 55 | 350 | Available |
| Hyzon | FCET 8 | Class 8 | not available | 110 | 500 | Available |
| Kenworth | T680 | Class 8 | not available | not available | 150 | 2023 |
| Nikola | Tre FCEV | Class 8 | 40,000 | not available | 500 | 2023 |
| Nikola | Two FC | Class 8 | 40,000 | not available | 900 | 2024 |
| Toyota | Beta | Class 8 | 40 tons | 12 | 300 | 2023 |

*Refers to the on-board battery that drives propulsion; the battery receives power from the fuel cell

Source: Global Commercial Vehicle Drive to Zero: Zero-Emission Technology Inventory website: <https://globaldrivetozero.org/tools/zero-emission-technology-inventory/>

Additional Plan Content

Market Outlook

Potential Emissions and Economic Benefits

Autonomous Truck Considerations

Inventory of Incentives, with Key Barriers & Recommendations

Policy and Regulatory Environment – Benefits and Barriers

Accomplishments and Next Steps

For More Information



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www.nctcog.org/IH45-ZEV