



CENTER FOR TRANSPORTATION RESEARCH
THE UNIVERSITY OF TEXAS AT AUSTIN

Use of Existing Highway ROW for High-Speed Passenger Rail and Freight Transportation Systems

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WHAT STARTS HERE CHANGES THE WORLD

Technologies

- High-Speed Intercity Passenger Rail



- Freight Transportation Systems



Presentation Purpose

- Initial thoughts regarding use of existing highway ROW for HSIPR or dedicated freight transportation systems
- Procedures, plans, and policies affected or that need to be in place at MPO level
- Opportunities to modify bridges or interchanges to improve structures and accommodate new HSIPR or freight systems
- Data sources at MPO to help with evaluating potential use of existing highway ROW
- Possible approaches for engaging the community and technical staff

IH-35 Case Study

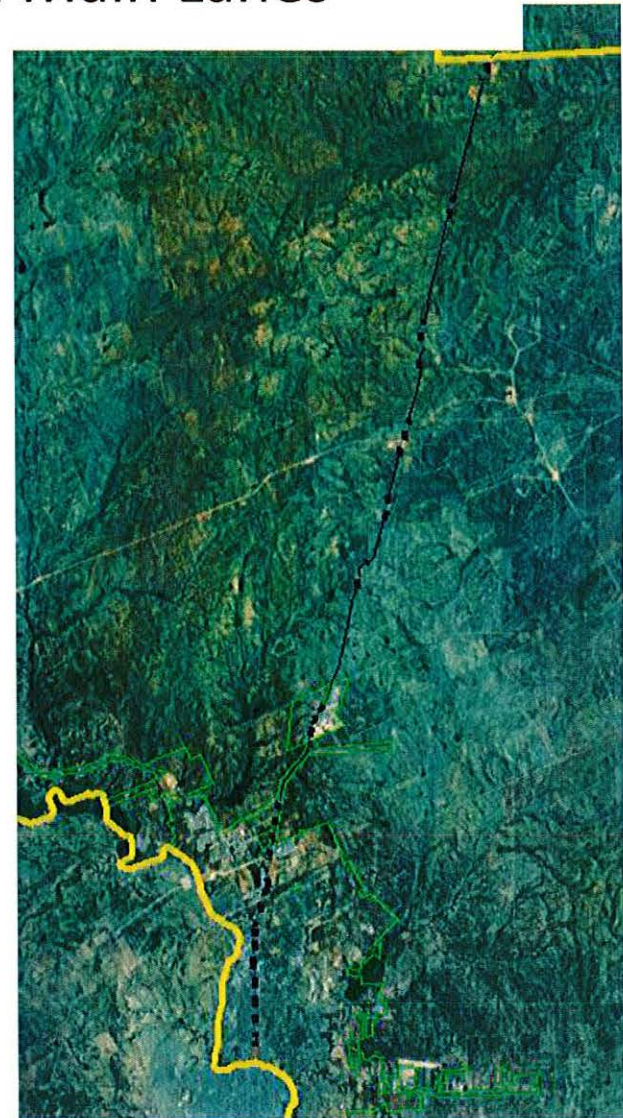
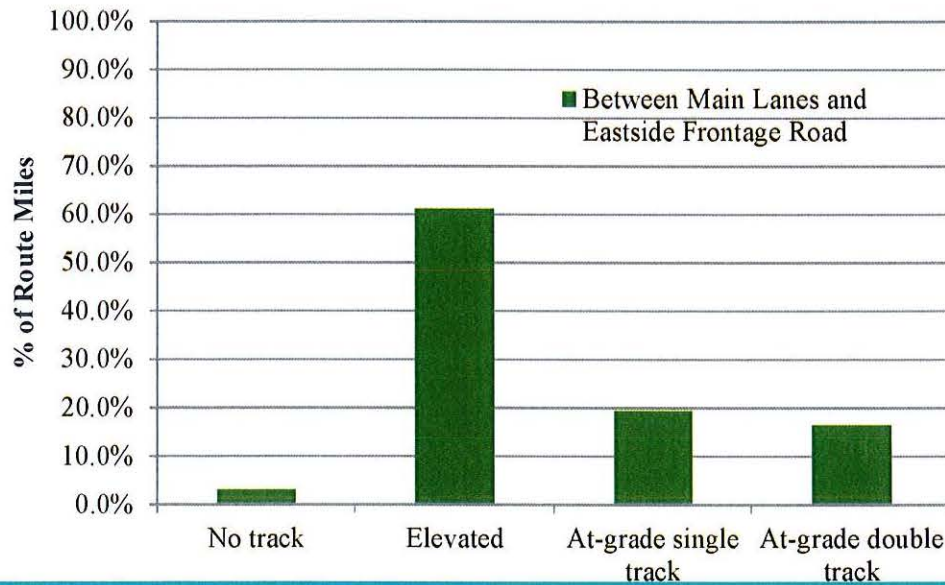
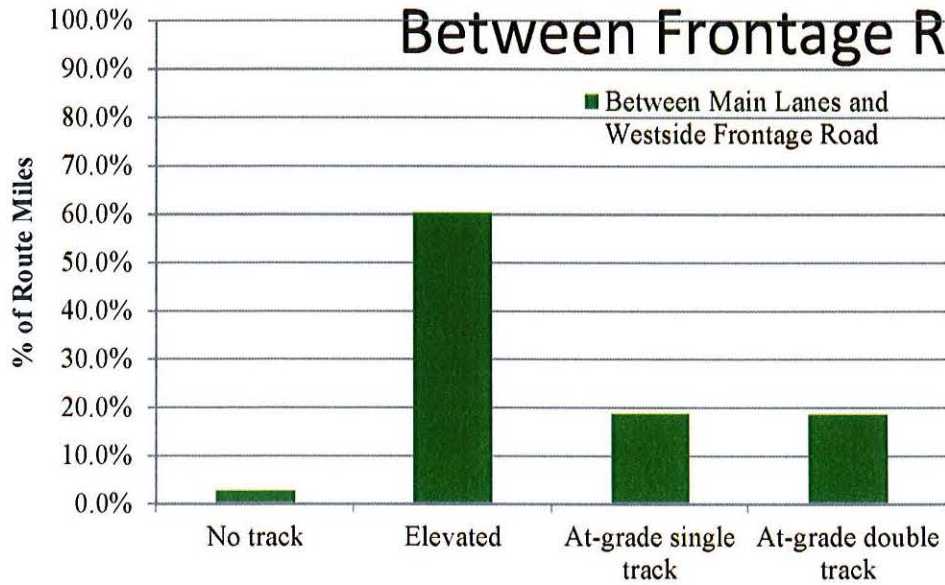


- Cross Section Lateral Clearance
- Horizontal Curvature
- Bridges
- Interchanges
- Rail Lines
- Utilities

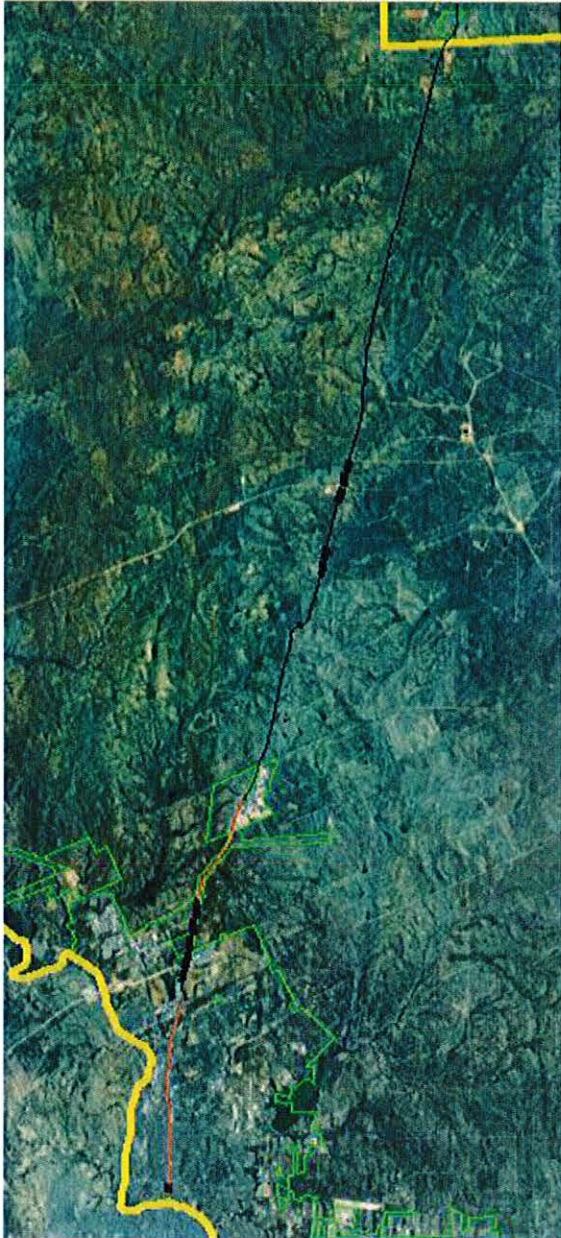
| Type of Track | Lateral Clearance (feet) |
|-----------------------|--------------------------|
| No track | <8 |
| Elevated | >=8 AND <23 |
| At-grade single track | >=23 AND <44 |
| At-grade dual track | >=44 |

PHYSICAL FEASIBILITY

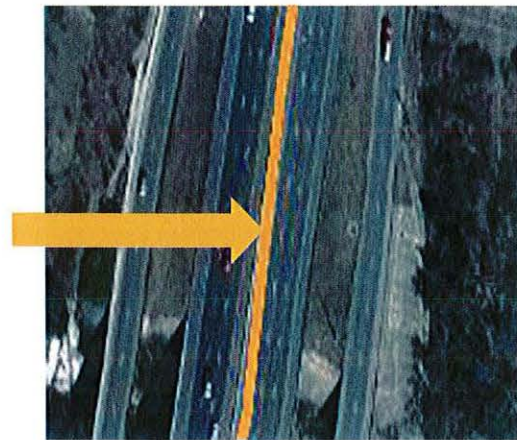
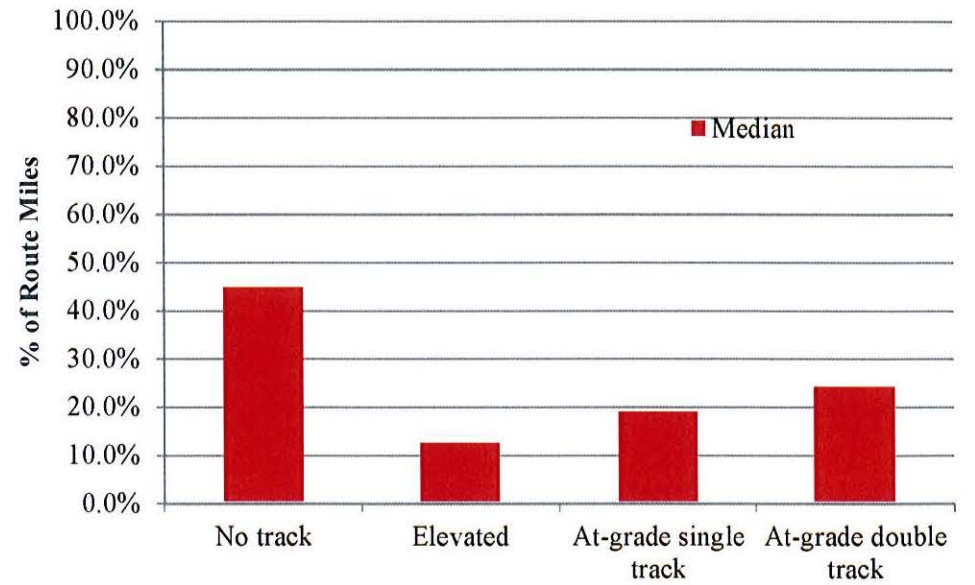
IH-35 Potential Location of Guideway: Between Frontage Road and Main Lanes



IH-35 Potential Location of Guideway: Median

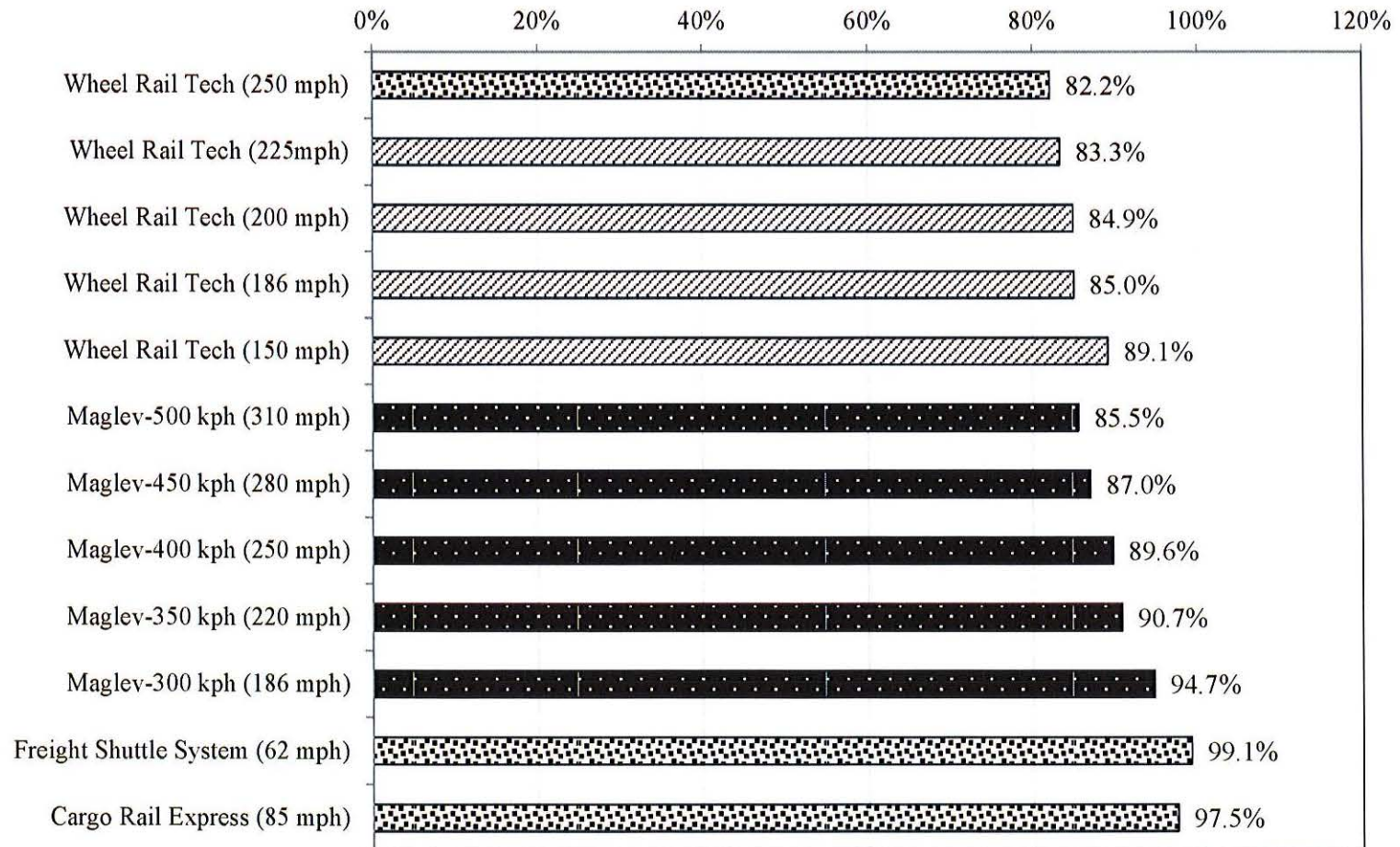


Median



IH-35 Suitable Horizontal Curvature

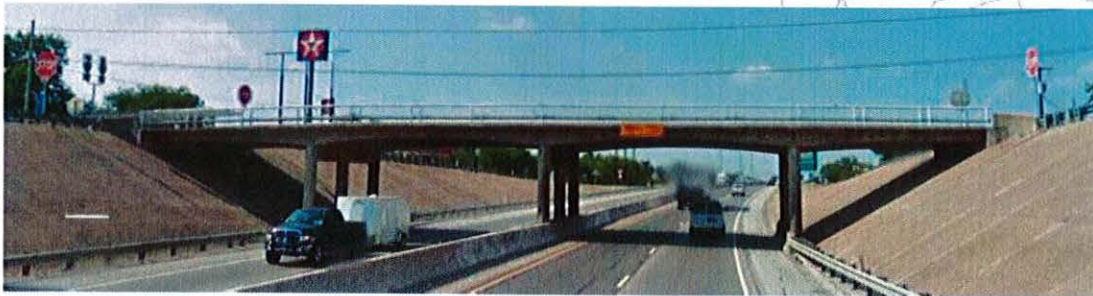
% Route Suitable



Bridges



Atypical Bridge Structure: No Column in Median



Typical Urban Bridge Structure: Support Column in Median



Typical Rural Bridge Structure: Support Column in Median

IH0035-KG

IH0035-KG



ID_142460001508219.JPG

| | |
|------------|--------------------|
| RID | IH0035-KG |
| MEAS | 276.152183 |
| Distance | 33.215701 |
| BRDGID | 142460001508219 |
| ITEM_1 | 0 |
| ITEM_2 | 14 |
| ITEM_3 | 246 |
| ITEM_8_4 | 0015 |
| ITEM_8_5 | 08 |
| ITEM_11_0 | 26616 |
| ITEM_8_6 | 219 |
| ITEM_8_3 | 0 |
| ITEM_5_1 | 2 |
| ITEM_5_3 | 1 |
| ITEM_5_6 | 0 |
| ITEM_5_2 | 11 |
| ITEM_5_4 | 0035 |
| ITEM_5_5 | 0 |
| ITEM_11_1B | 0277 |
| ITEM_11_2B | |
| ITEM_11_3B | + |
| ITEM_11_4B | 00062 |
| ITEM_4 | 00000 |
| ITEM_6_1 | IH 35 |
| ITEM_6_2 | |
| ITEM_11_1 | 197405 |
| ITEM_11_1A | 197405 |
| ITEM_7 | CR 305 (YANKEE RD) |
| ITEM_9 | 1.50 MIN OF FM 487 |
| ITEM_10 | 1701 |
| ITEM_19 | 00 |
| ITEM_20 | 3 |
| ITEM_21 | 01 |
| ITEM_22 | 01 |
| ITEM_22_1 | 12 |



More Bridges and Importance



Typical Bridge for Segments with Narrow Width and Elevated Deck Bridges



Typical Bridge for Segments with Narrow Width and Elevated Deck Bridges

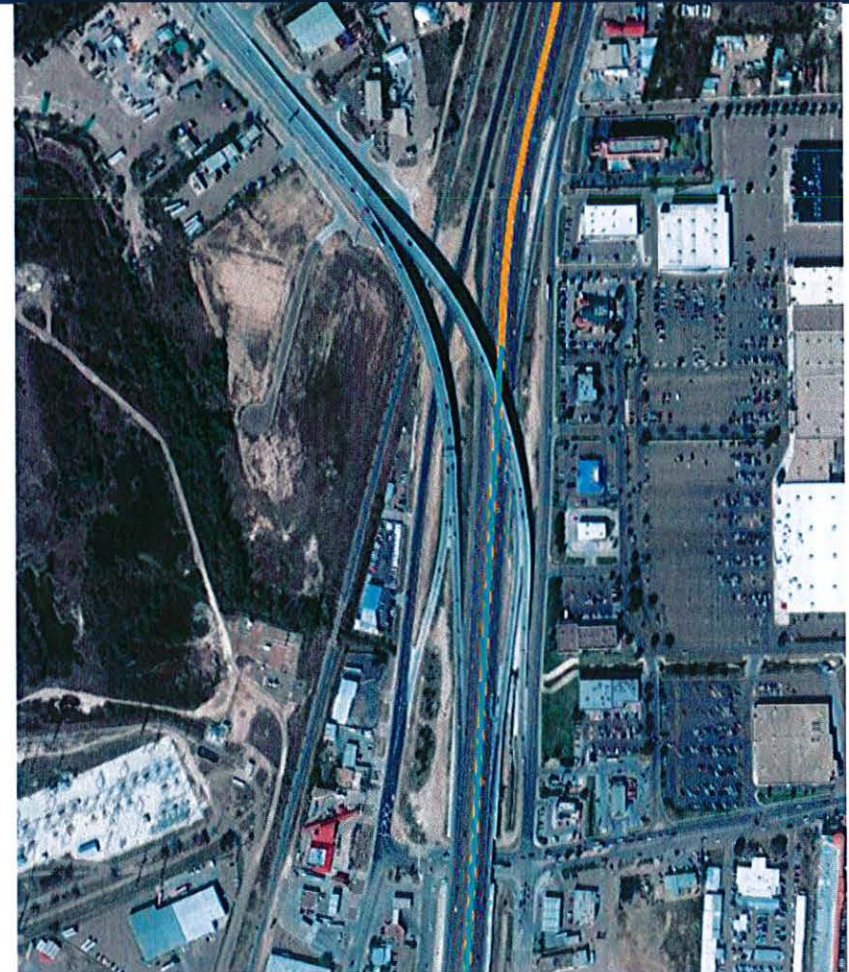


The ICE 884, the Wilhelm Conrad Rontgen, derailed near Eschede, Germany while en route to Hamburg, Germany.

Highway Bridge Collapsed and Compressed Passenger Rail

IH-35 Interchanges

| Inter-change | Distance from Origin (DFO), miles | Intersecting Street | Location |
|--------------|-----------------------------------|-------------------------------------|-------------|
| A | 4.145 | Mines Road | Laredo |
| B | 6.839 | State Highway 20 (Bob Bullock Loop) | Laredo |
| C | 152.891 | IH-10 | San Antonio |
| D | 155.555 | IH-10 | San Antonio |
| E | 157.082 | US-281 and IH-37 | San Antonio |
| F | 161.122 | IH-410 | San Antonio |
| G | 165.869 | IH-410 | San Antonio |
| H | 221.535 | State Highway 45 (south) | Austin |
| I | 229.387 | Highway 71 | Austin |
| J | 238.055 | State Highway 290 | Austin |
| K | 239.085 | US Highway 183 | Austin |
| L | 249.585 | State Highway 45 (north) | Austin |
| M | 264.443 | SH-130 | Georgetown |
| N | 291.576 | West Highway 190 | Belton |
| O | 299.467 | West Adams Avenue | Temple |
| P | 329.271 | West Loop 340 | Waco |
| Q | 332.069 | 396 | Waco |
| R | 335.748 | US-77 | Waco |

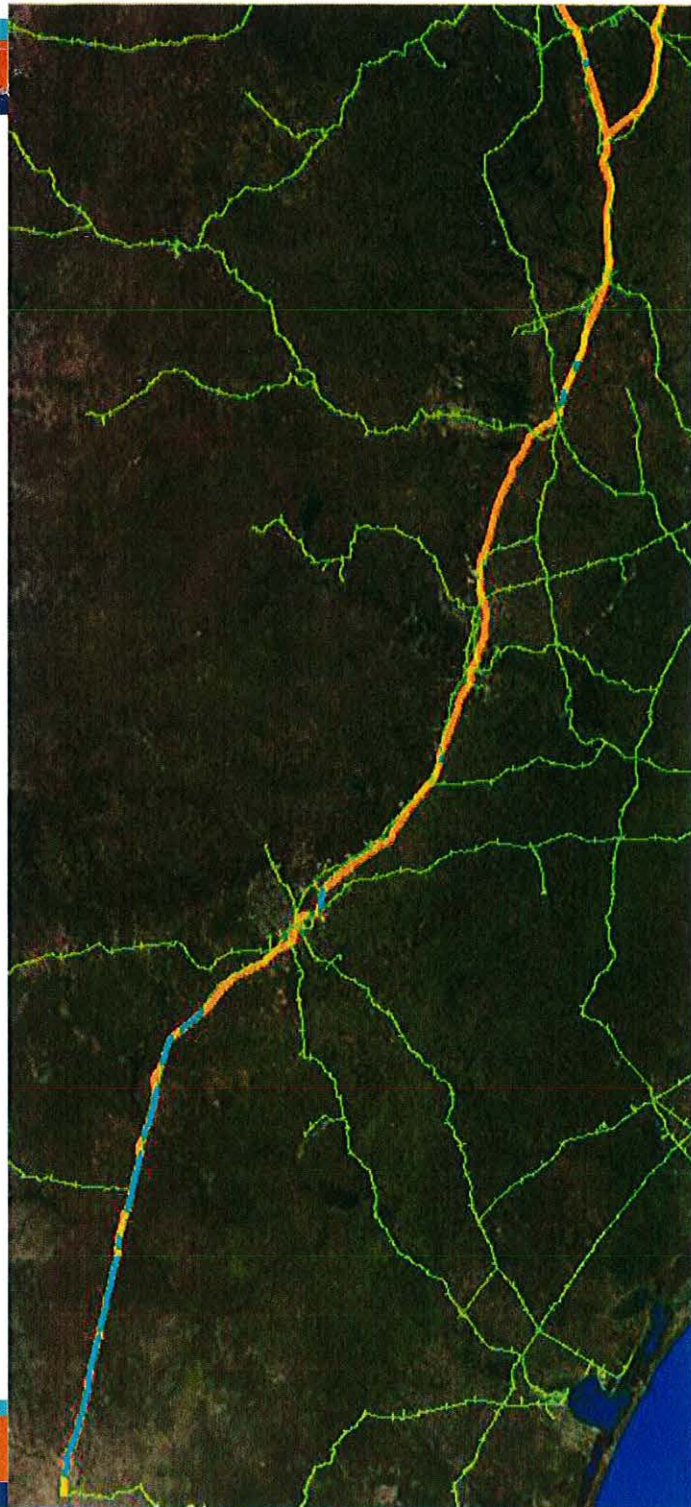


Interchange A

Interchange B



Rail Lines



| Rail Alignment | Distance from Origin (DFO), miles | Length of Segment, miles | Location (Closest City) | Location (County) | Type |
|----------------|-----------------------------------|--------------------------|-------------------------|-------------------|--------------------------|
| A | 5.986 | 1.4 | Laredo | Webb | west parallel |
| B | 6.167 | 0.7 | Laredo | Webb | deviation |
| C | 7.25 | 12.6 | Laredo | Webb | east parallel |
| D | 18.273 | 1.1 | | Webb | deviation |
| E | 19.362 | 18.6 | | Webb | west parallel |
| F | 20.668 | 1.0 | | Webb | west parallel |
| G | 25.327 | 1.0 | | Webb | west parallel |
| H | 31.068 | 0.9 | | Webb | west parallel |
| I | 37.953 | 1.7 | Encinal | La Salle | deviation |
| J | 39.69 | 17.4 | | La Salle | west parallel |
| K | 57.098 | 2.3 | | La Salle | deviation |
| L | 59.431 | 2.2 | | La Salle | east parallel |
| M | 68.329 | 13.8 | Cotulla | La Salle | east parallel |
| N | 82.115 | 4.4 | Dillely | La Salle | deviation |
| O | 97.937 | 6.5 | Pearsall | Frio | deviation |
| P | 104.419 | 0.5 | | Frio | no parallel or deviation |
| Q | 114.683 | 6.1 | South of Devine | Frio | east parallel |
| R | 162.43 | 3.9 | San Antonio | Bexar | west parallel |
| S | 210.891 | 0.4 | Kyle | Hays | west parallel |
| T | 304.465 | 2.7 | Temple/Troy | Bell | east parallel |
| U | 313.587 | 1.4 | Bruceville-Eddy | Falls | east parallel |

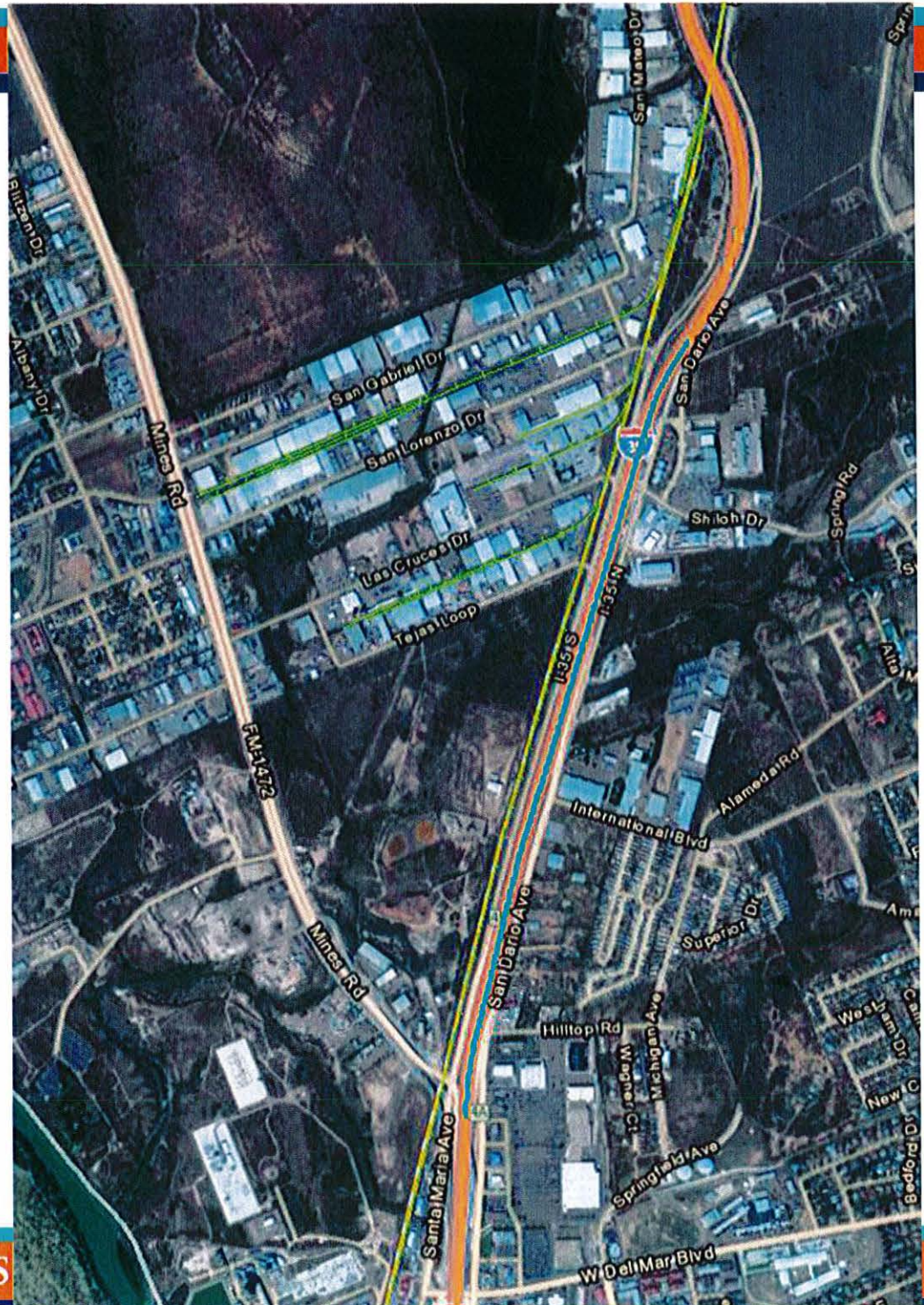
NIV

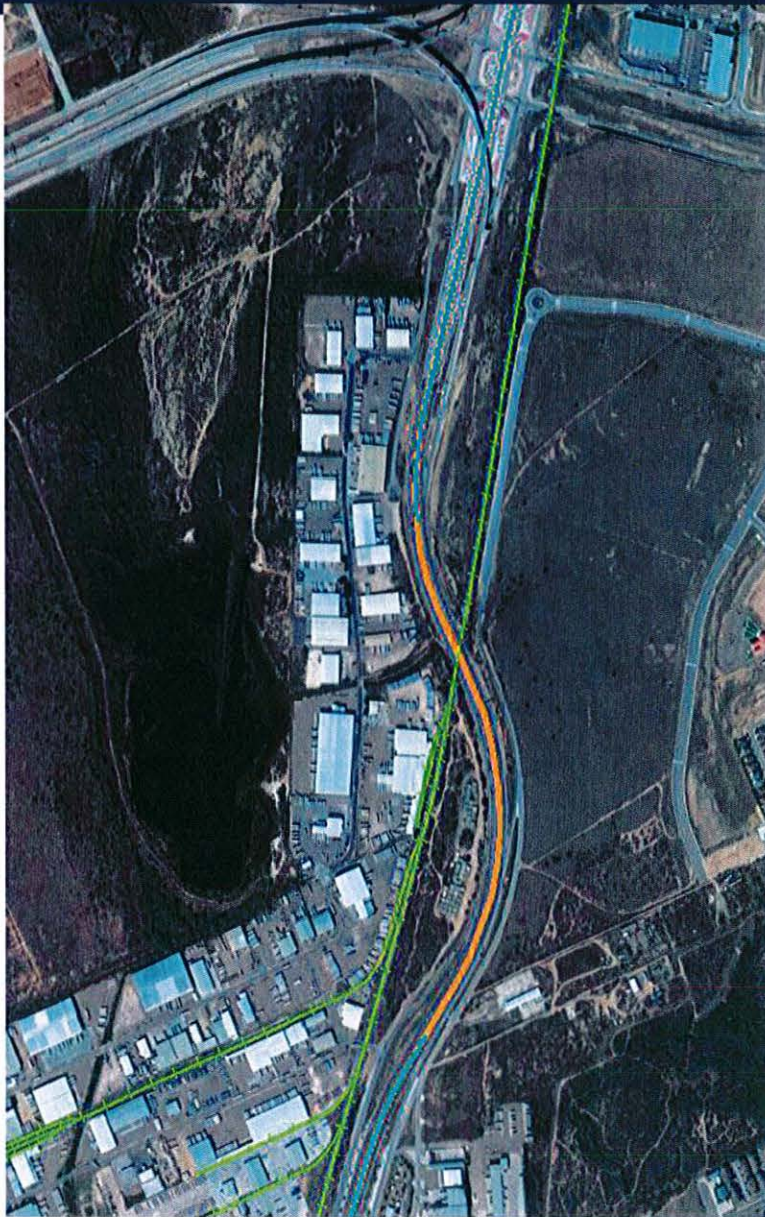
WHAT STARTS HERE CHANGES THE WORLD

Rail Lines

- Parallel Lines
 - Percentage of IH-35 length with parallel rail lines:
 - Westside 11.3%
 - Eastside 12.7%

Rail Alignment A





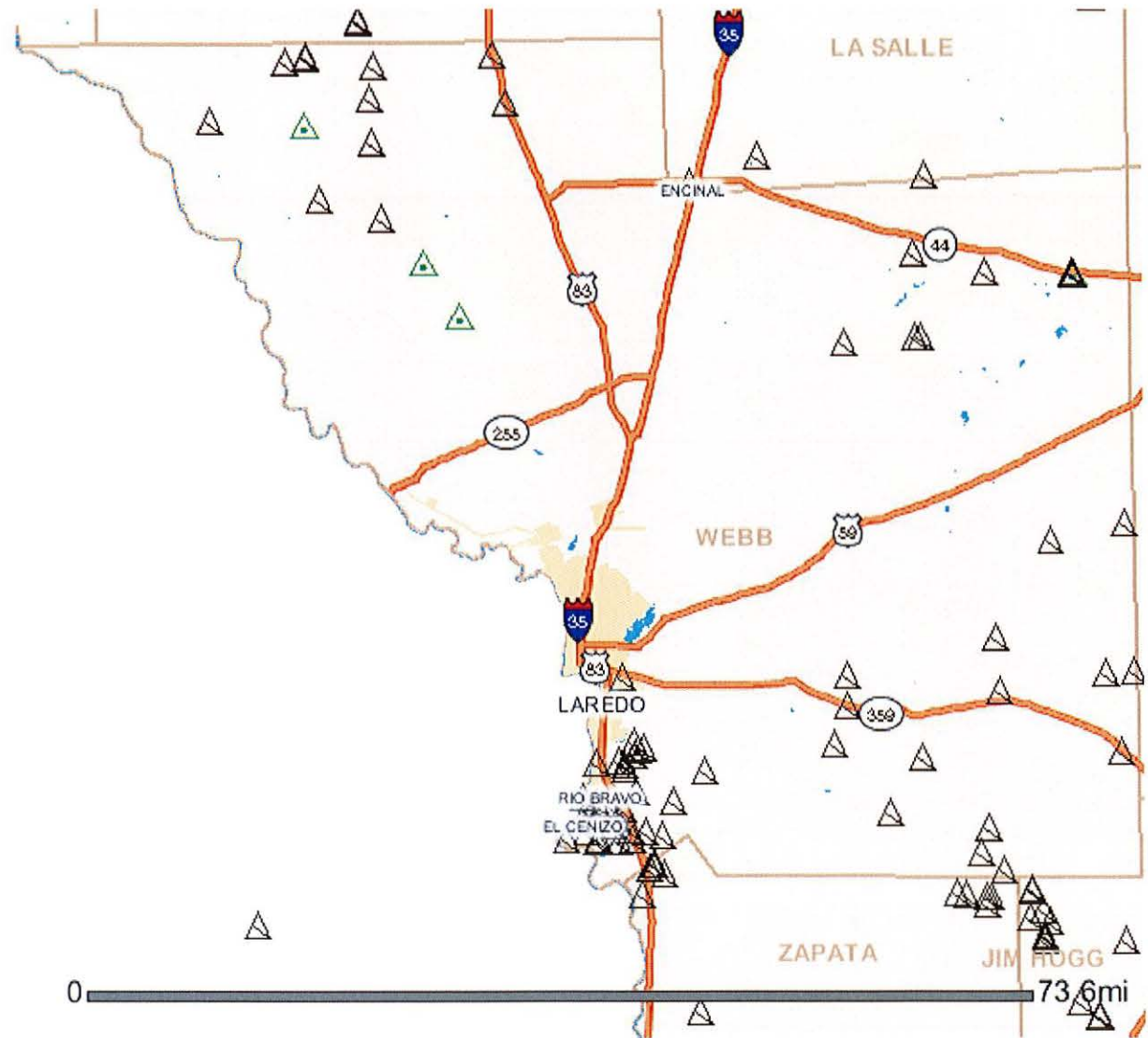
Rail Alignment B



Rail Alignment C

Pipelines

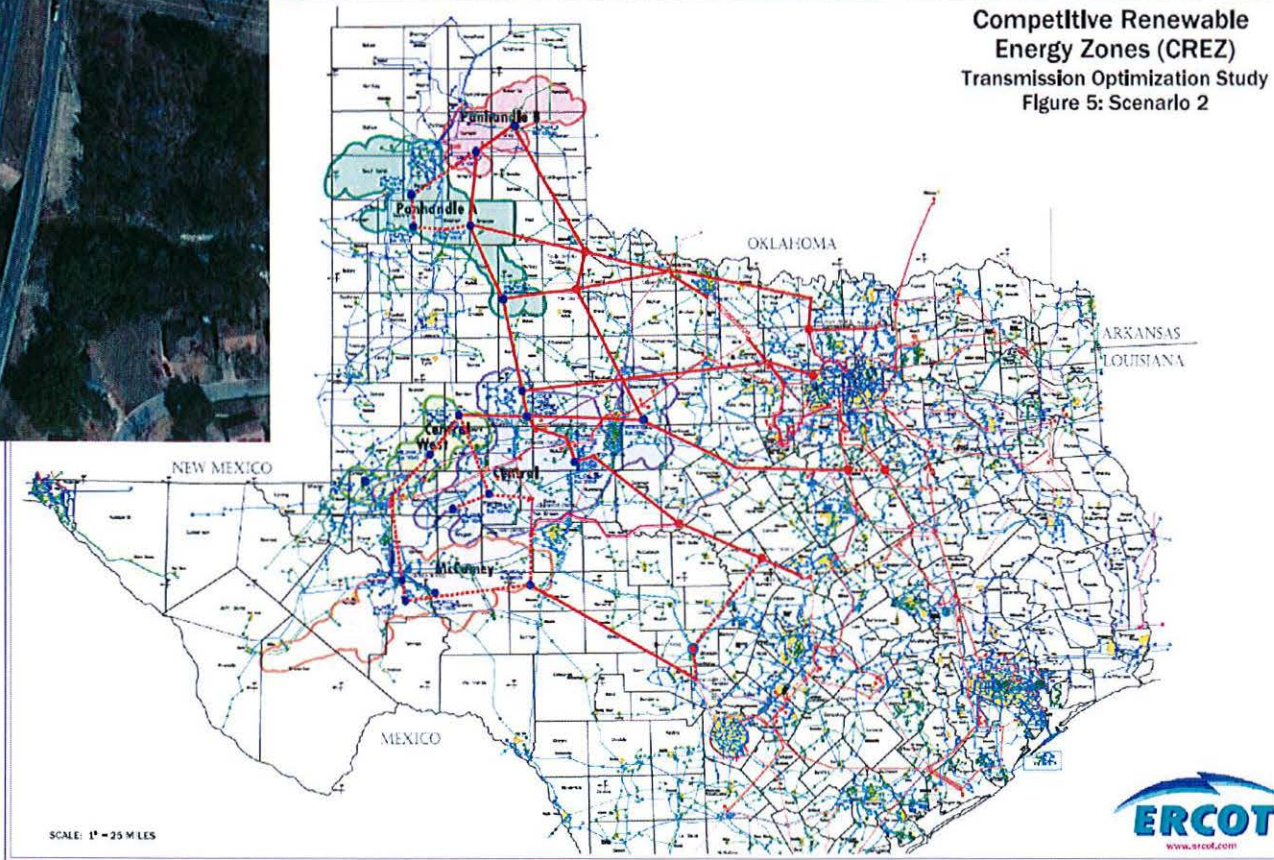
- Webb County



Electric Overhead Lines



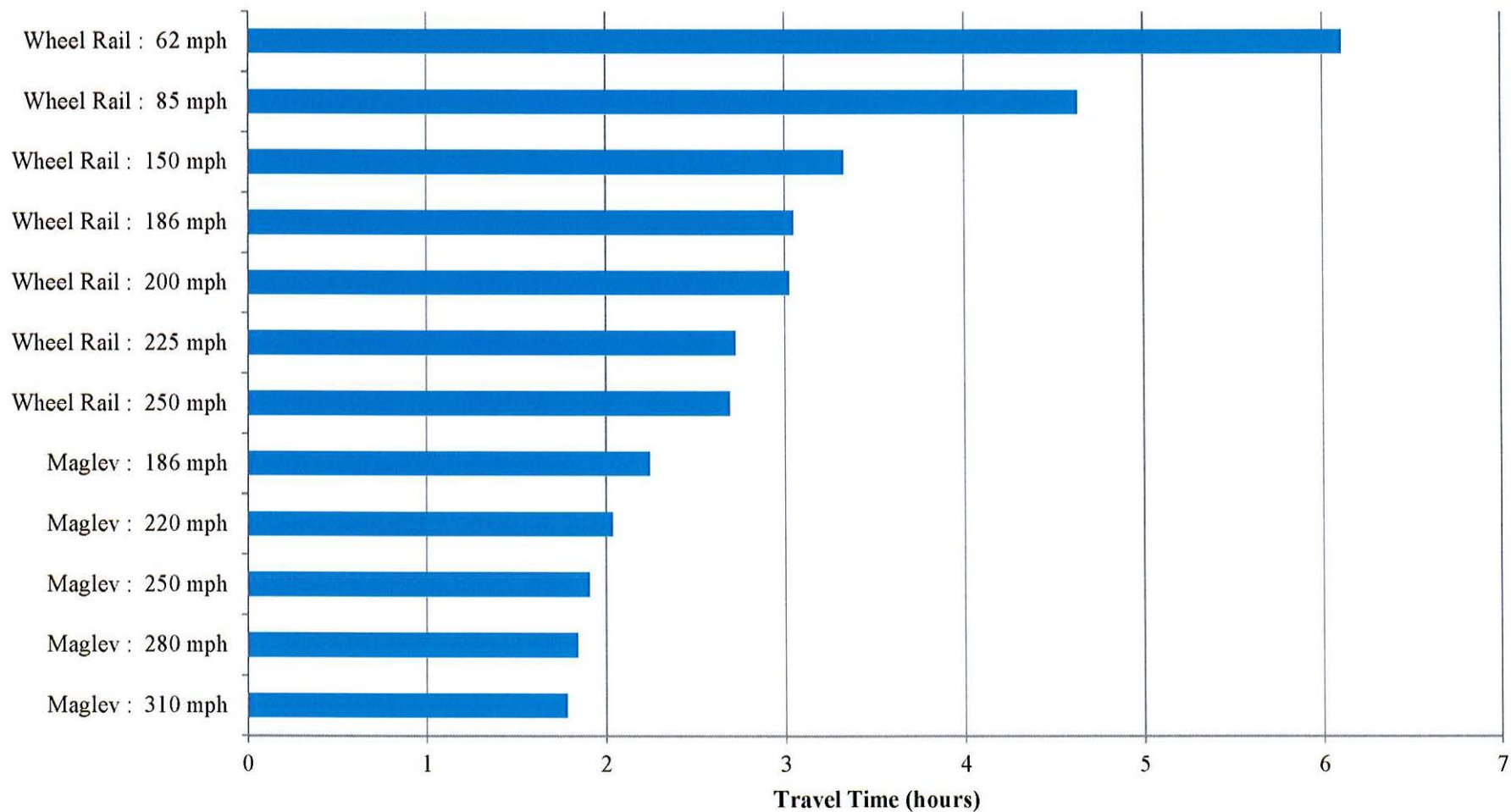
Competitive Renewable
Energy Zones (CREZ)
Transmission Optimization Study
Figure 5: Scenario 2



TRAVEL TIMES AND SPEEDS

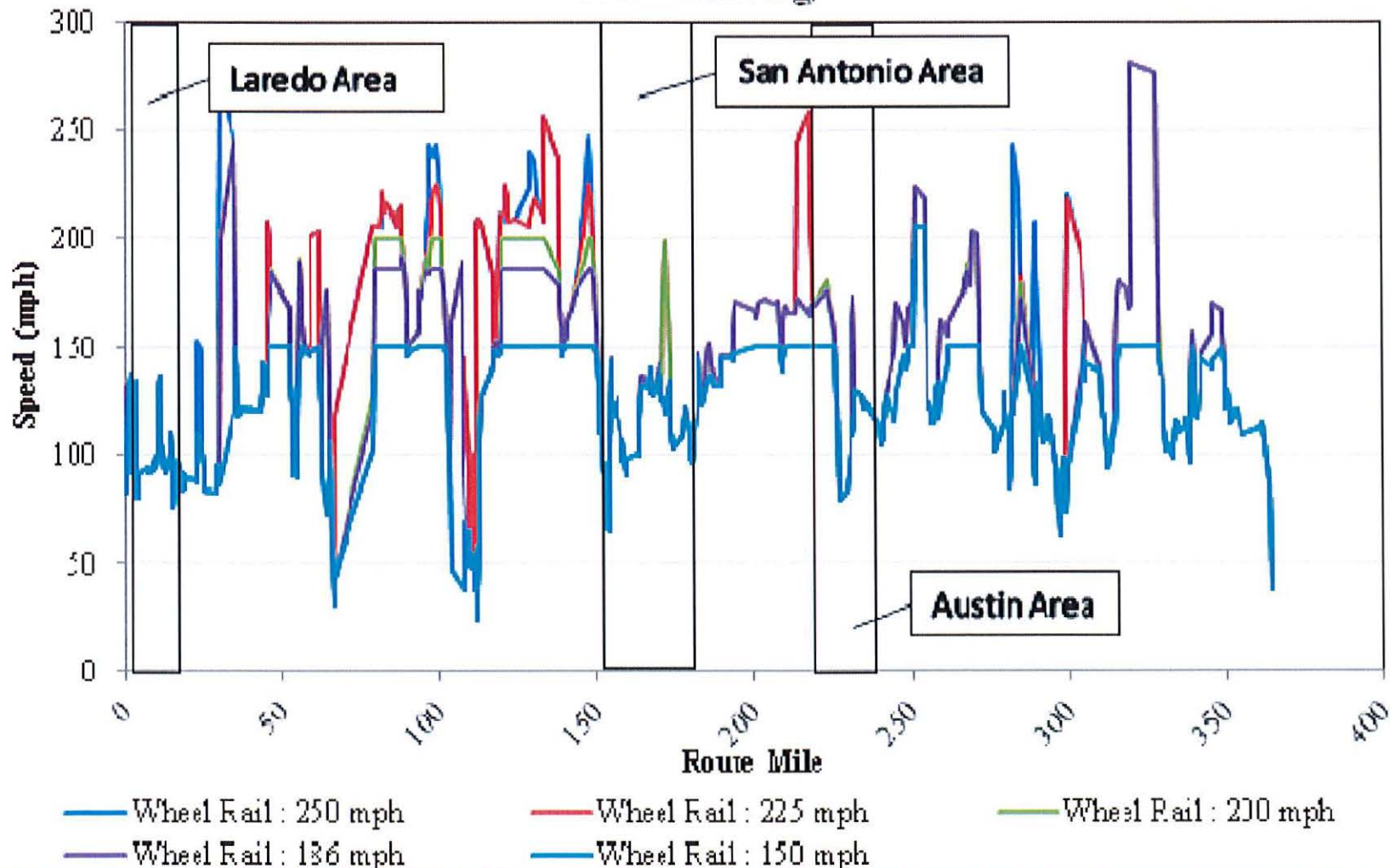


IH-35 Travel Times



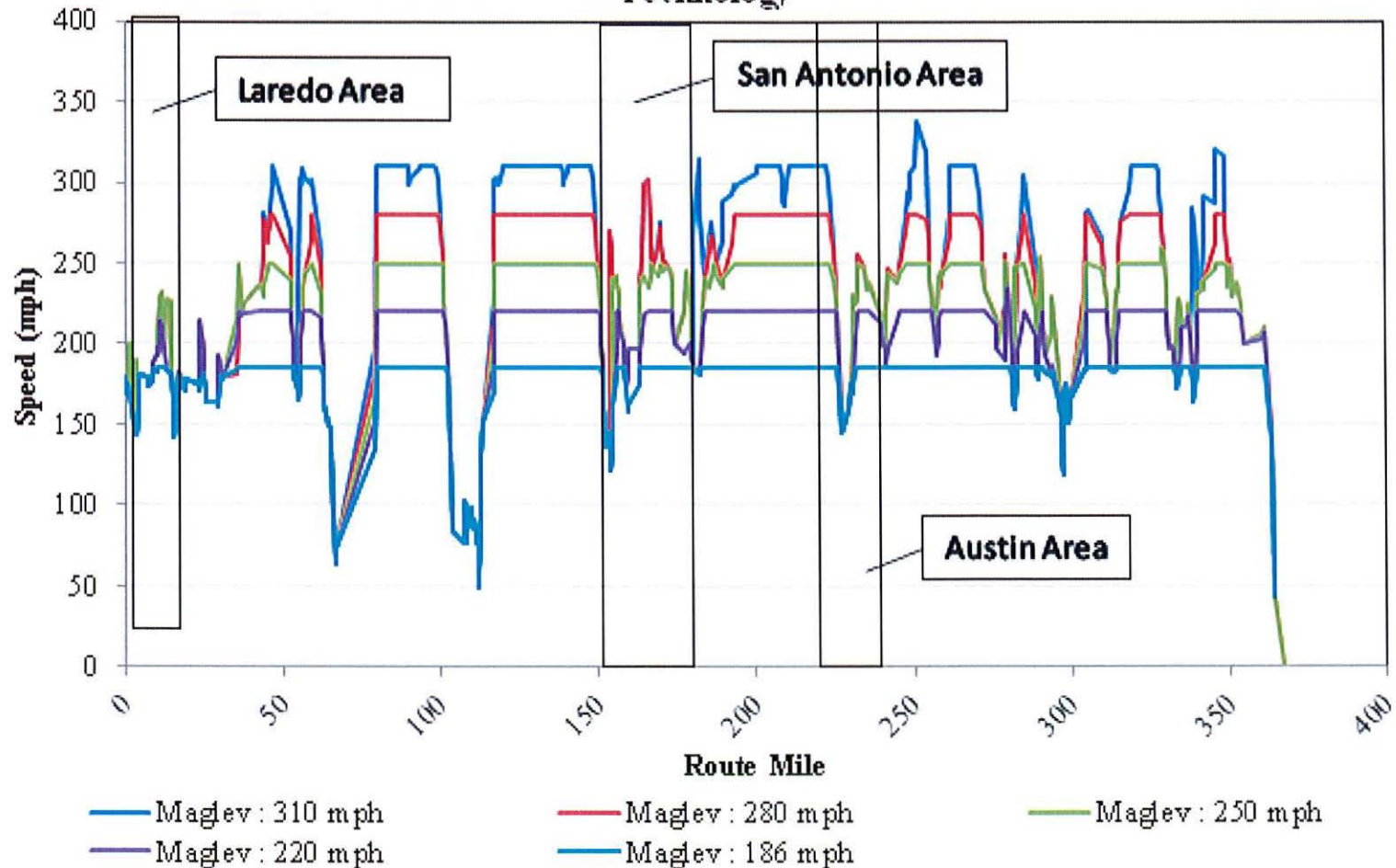
IH-35 Operating Speeds: Wheel Rail

Operating Speeds on the Laredo- Hillsboro (IH-35 split) Corridor : Wheel Rail Technology



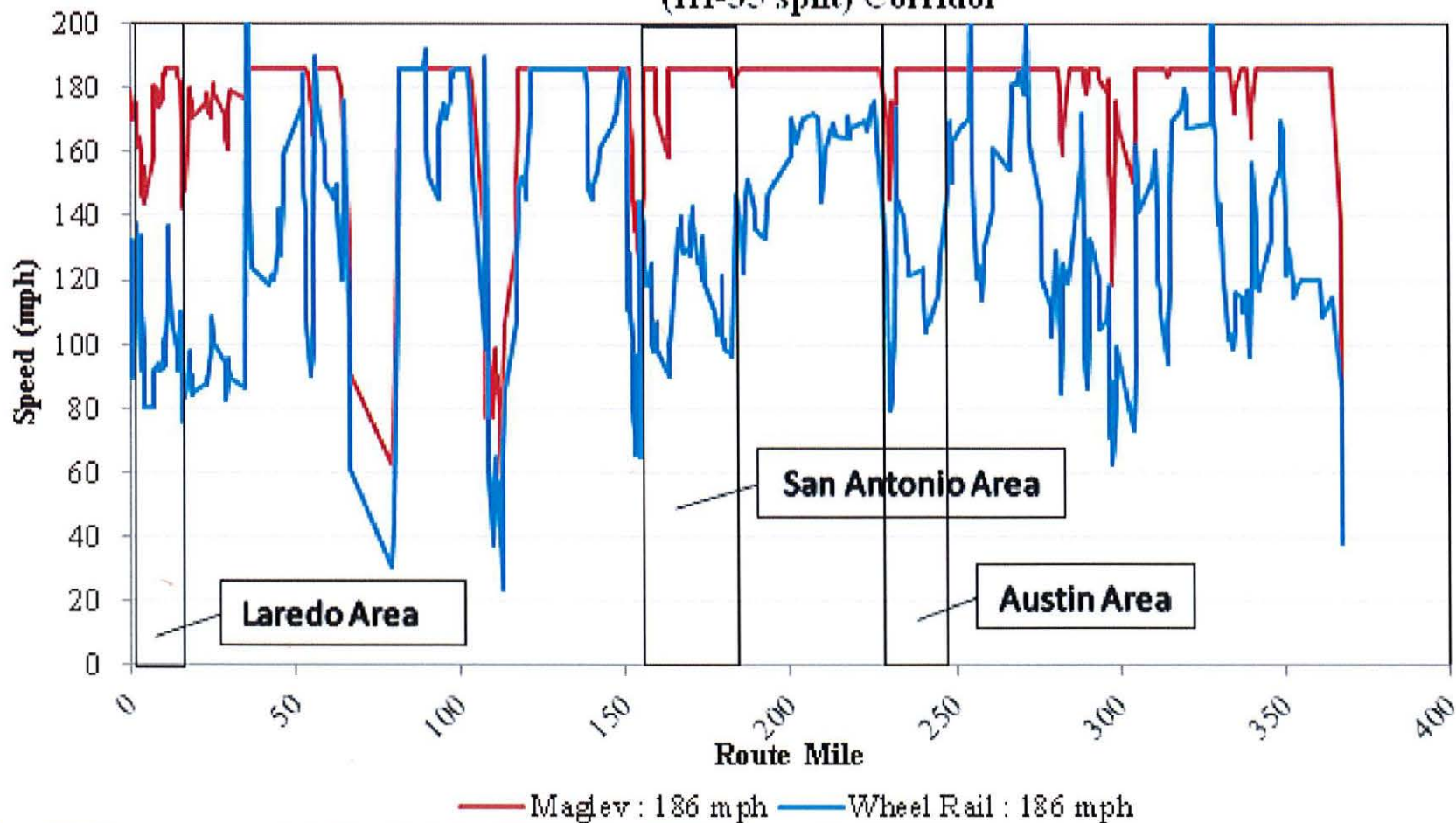
IH-35 Operating Speeds: Maglev

Operating Speeds on the Laredo- Hillsboro (IH-35 split) Corridor : Maglev Technology



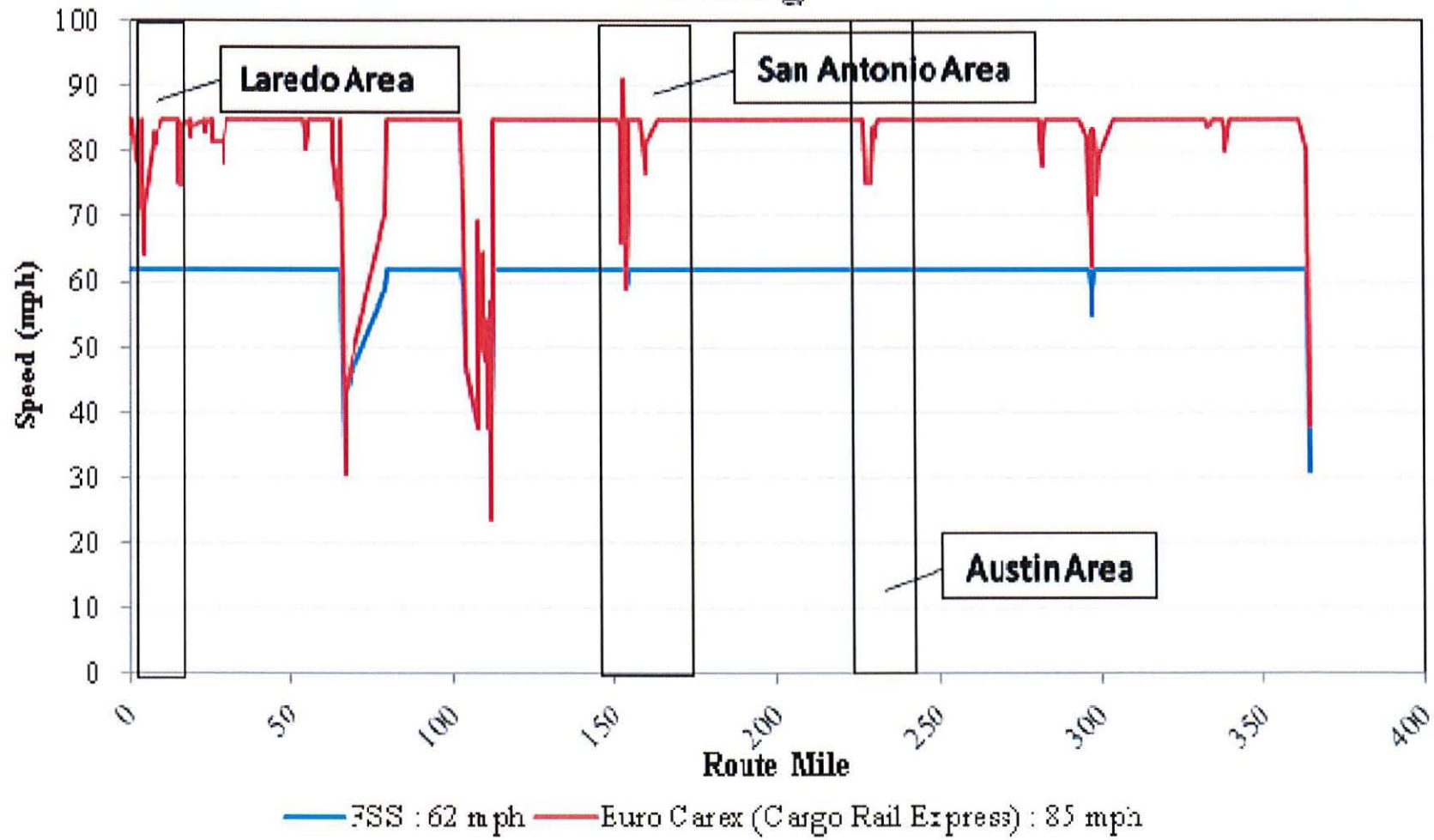
IH-35 Operating Speeds: Wheel Rail vs. Maglev

Maglev vs Wheel Rail Technology Operating Speeds on the Laredo- Hillsboro
(IH-35 split) Corridor



IH-35 Operating Speeds: Freight

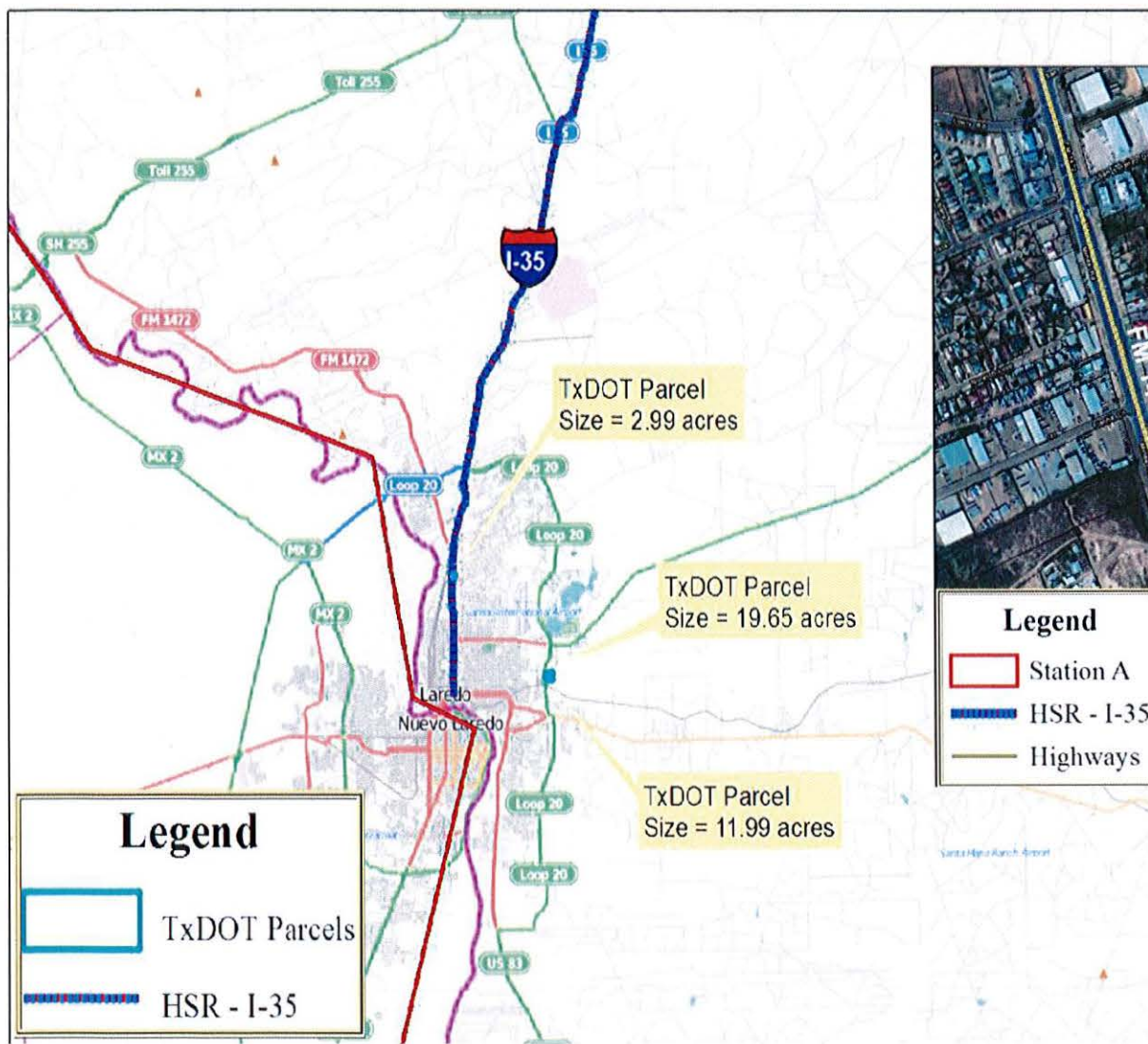
Operating Speeds on the Laredo- Hillsboro (IH-35 split) Corridor : Freight
Technology



4/1/20

CORRIDOR ASSESSMENT

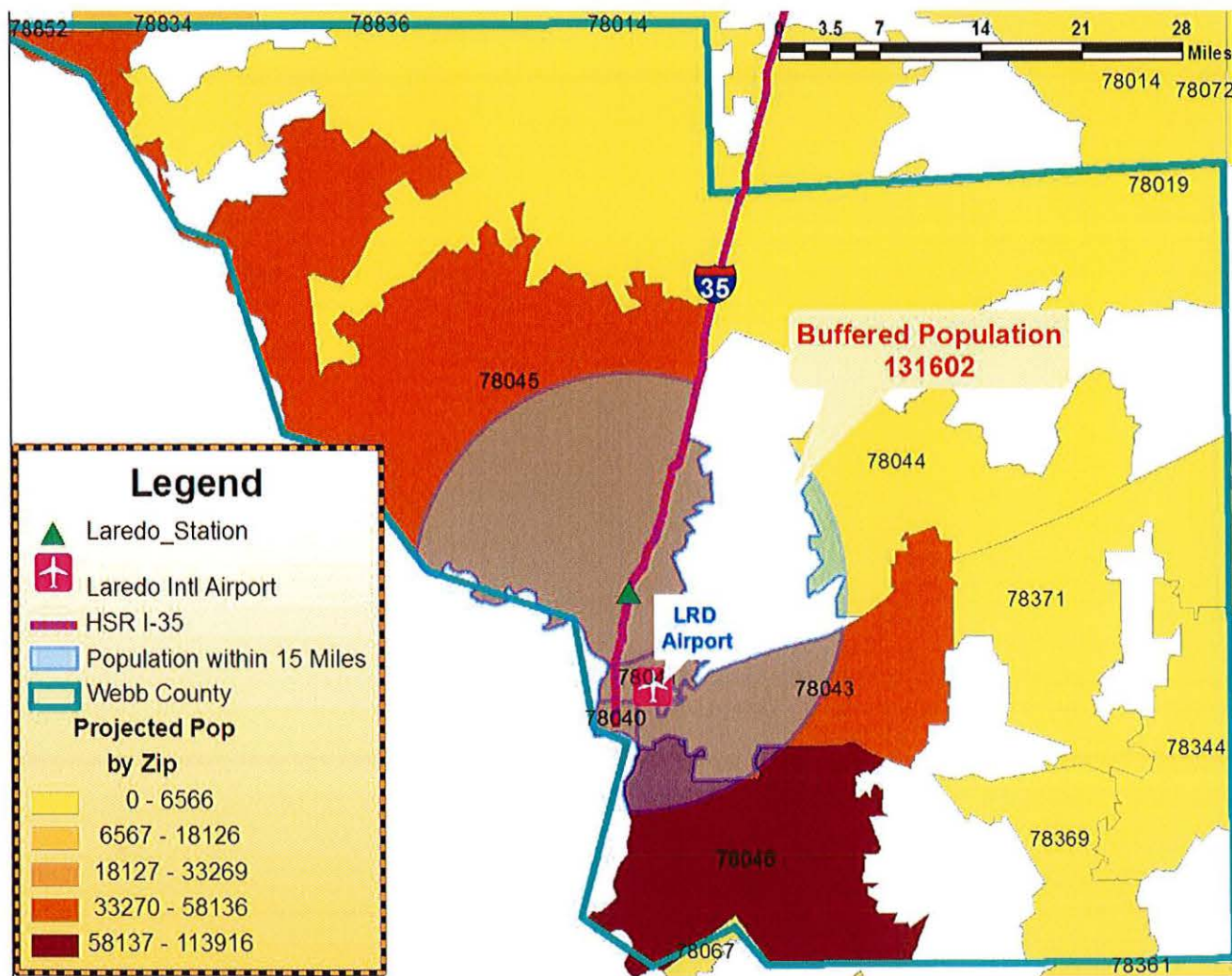
Station Location by Land Availability



- Webb County

Station Location by Population

- Webb County



Summary

- Physically feasible
- Requires elevated guideway along majority of corridor
- Travel time competitive with other modes
- Few station opportunities using TxDOT parcels

Presentation Purpose

- Initial thoughts regarding use of existing highway ROW for HSIPR or dedicated freight transportation systems
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- Data sources at MPO to help with evaluating potential use of existing highway ROW
- Possible approaches for engaging the community, property owners, and technical staff