General Reference Information

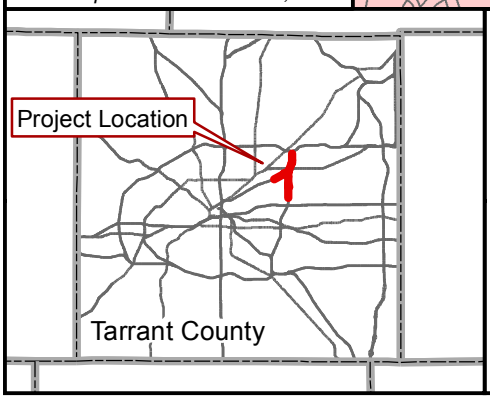
I-820/SH 121 Northeast Interchange

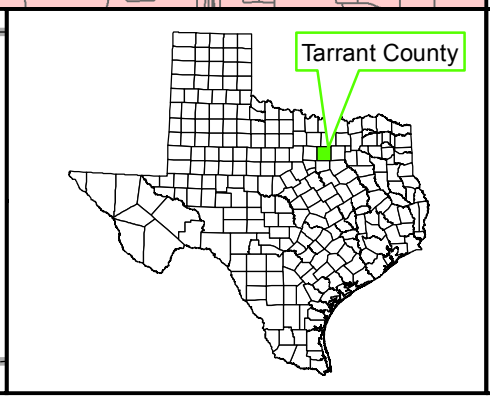
Tarrant County
Fort Worth District

Main CSJ: 0008-13-124

Associated CSJs: 0008-13- 179, 202, 210, 221, 235, 236 & 237 and 0363-03-051 & 054

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT





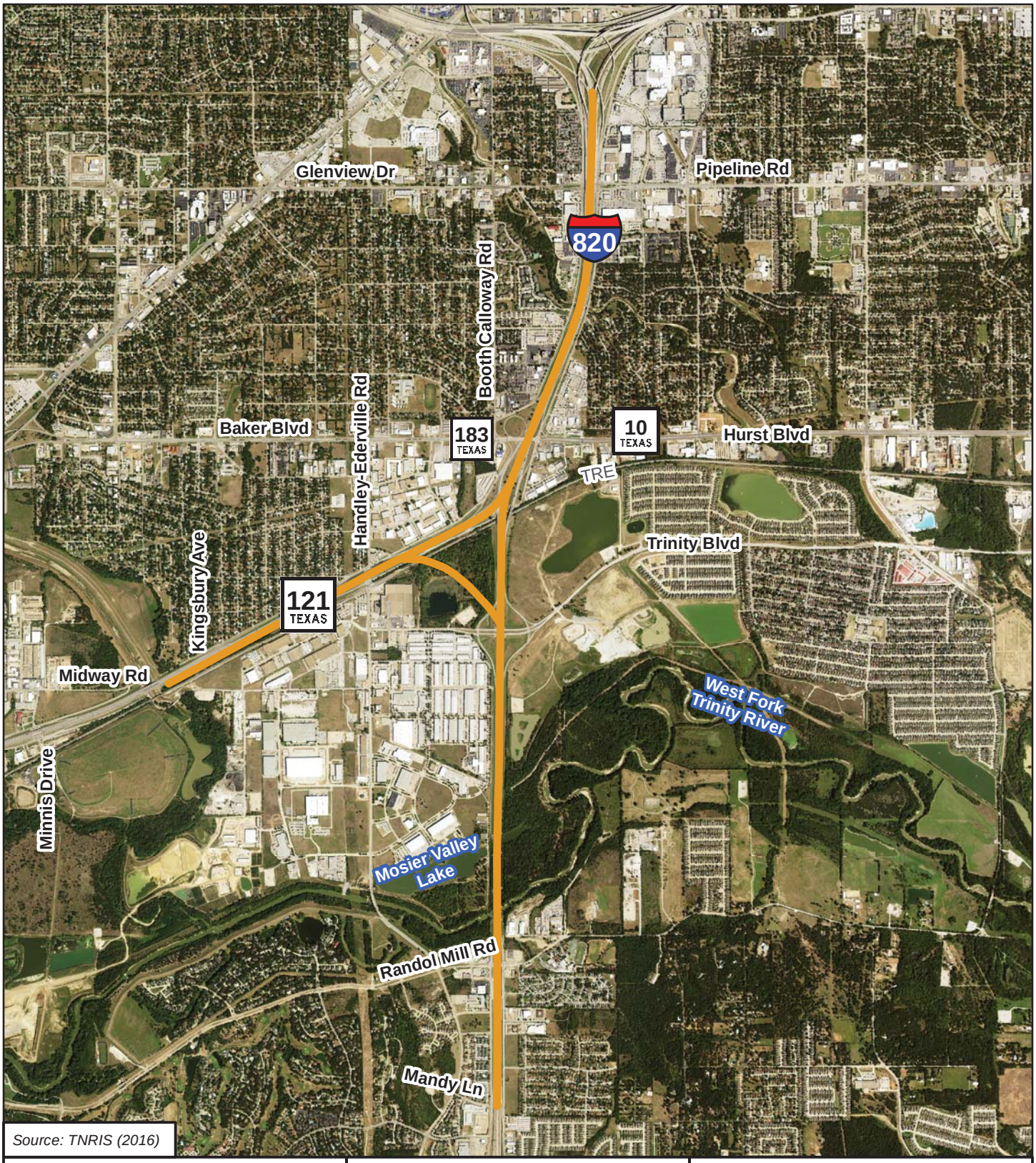
PROJECT LOCATION MAP

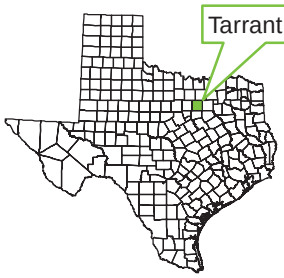
I-820 (EAST)

I-820 from approximately 2,000 feet north of Pipeline Road/Glenview Drive to 3,200 feet south of Randol Mill Road

SH 121 from I-820 to approximately 5,000 feet west of Handley-Ederville Road

CSJ: 0008-13-124, etc.





N
W E
S

0 3,000
Feet

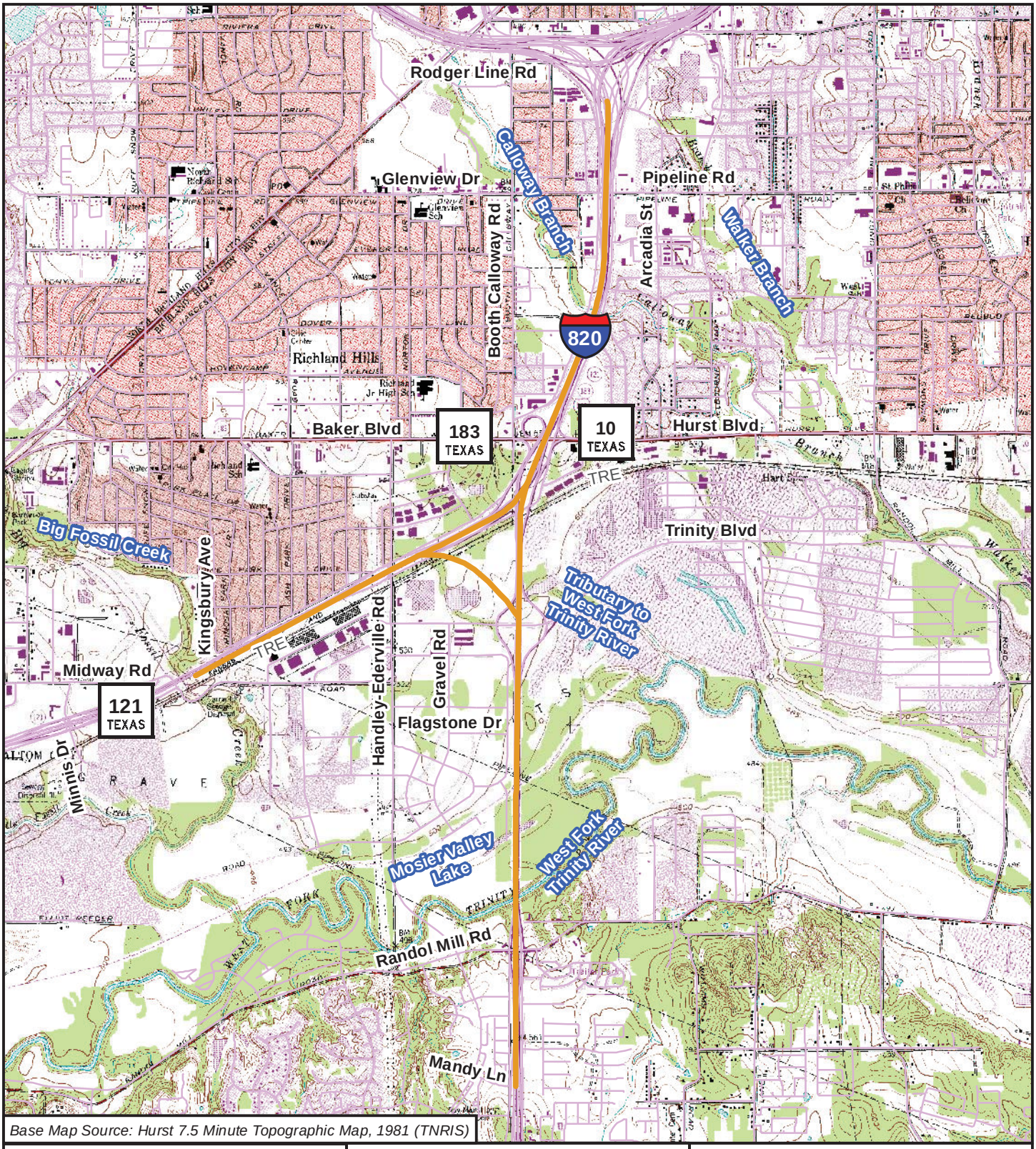
AERIAL PROJECT LOCATION MAP

I-820 (EAST)

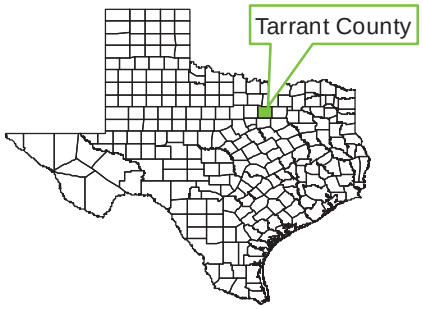
I-820 from approximately 2,000 feet north of Pipeline Road/Glenview Drive to 3,200 feet south of Randol Mill Road

SH 121 from I-820 to approximately 5,000 feet west of Handley-Ederville Road

CSJ: 0008-13-124, etc.



Base Map Source: Hurst 7.5 Minute Topographic Map, 1981 (TNRIS)



0 3,000 Feet

USGS TOPOGRAPHIC MAP

I-820 (EAST)

I-820 from approximately 2,000 feet north of Pipeline Road/Glenview Drive to 3,200 feet south of Randol Mill Road

SH 121 from I-820 to approximately 4,900 feet west of Handley-Ederville Road

CSJ: 0008-13-124, etc.

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

July 17, 2013

Description of Location	Average Daily Traffic 2015	Average Daily Traffic 2035	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2015 to 2035) Flexible Pavement	S N	Rigid Pavement	SLAB
I-820 Build With Direct Connectors Section 1 From North I-820/SH 121 Interchange To South I-820/SH 121 Interchange Tarrant County	246,700	338,000	55 - 45	11.1	4.6	2.1	13,200	30	42,360,000	3	57,059,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	95.4	97.9
Medium Duty	1.7	0.8
Heavy Duty	2.9	1.3

NOT INTENDED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES
William Erick Knowles, P.E
Serial Number 84704

Description of Location	Average Daily Traffic 2015	Average Daily Traffic 2045	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2015 to 2045) Flexible Pavement	S N	Rigid Pavement	SLAB
I-820 Build With Direct Connectors Section 1 From North I-820/SH 121 Interchange To South I-820/SH 121 Interchange Tarrant County	246,700	376,900	55 - 45	11.1	4.6	2.1	13,200	20	67,768,000	3	91,284,000	8"

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

July 17, 2013

Description of Location	Average Daily Traffic 2015	Average Daily Traffic 2035	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2015 to 2035) Flexible Pavement	S N	Rigid Pavement	SLAB
I-820 Build With Direct Connectors Section 2 From South I-820/SH 121 Interchange To Randol Mill Rd Tarrant County	142,700	194,000	55 - 45	11.1	5.4	2.4	13,000	30	28,568,000	3	38,527,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	94.6	97.6
Medium Duty	2.0	0.9
Heavy Duty	3.4	1.5

NOT INTENDED FOR CONSTRUCTION
BIDDING OR PERMIT PURPOSES
William Erik Kaufman
Serial Number 34700

Description of Location	Average Daily Traffic 2015	Average Daily Traffic 2045	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2015 to 2045) Flexible Pavement	S N	Rigid Pavement	SLAB
I-820 Build With Direct Connectors Section 2 From South I-820/SH 121 Interchange To Randol Mill Rd Tarrant County	142,700	217,000	55 - 45	11.1	5.4	2.4	13,000	30	45,784,000	3	61,744,000	8"

TRAFFIC ANALYSIS FOR HIGHWAY DESIGN

Fort Worth District

July 17, 2013

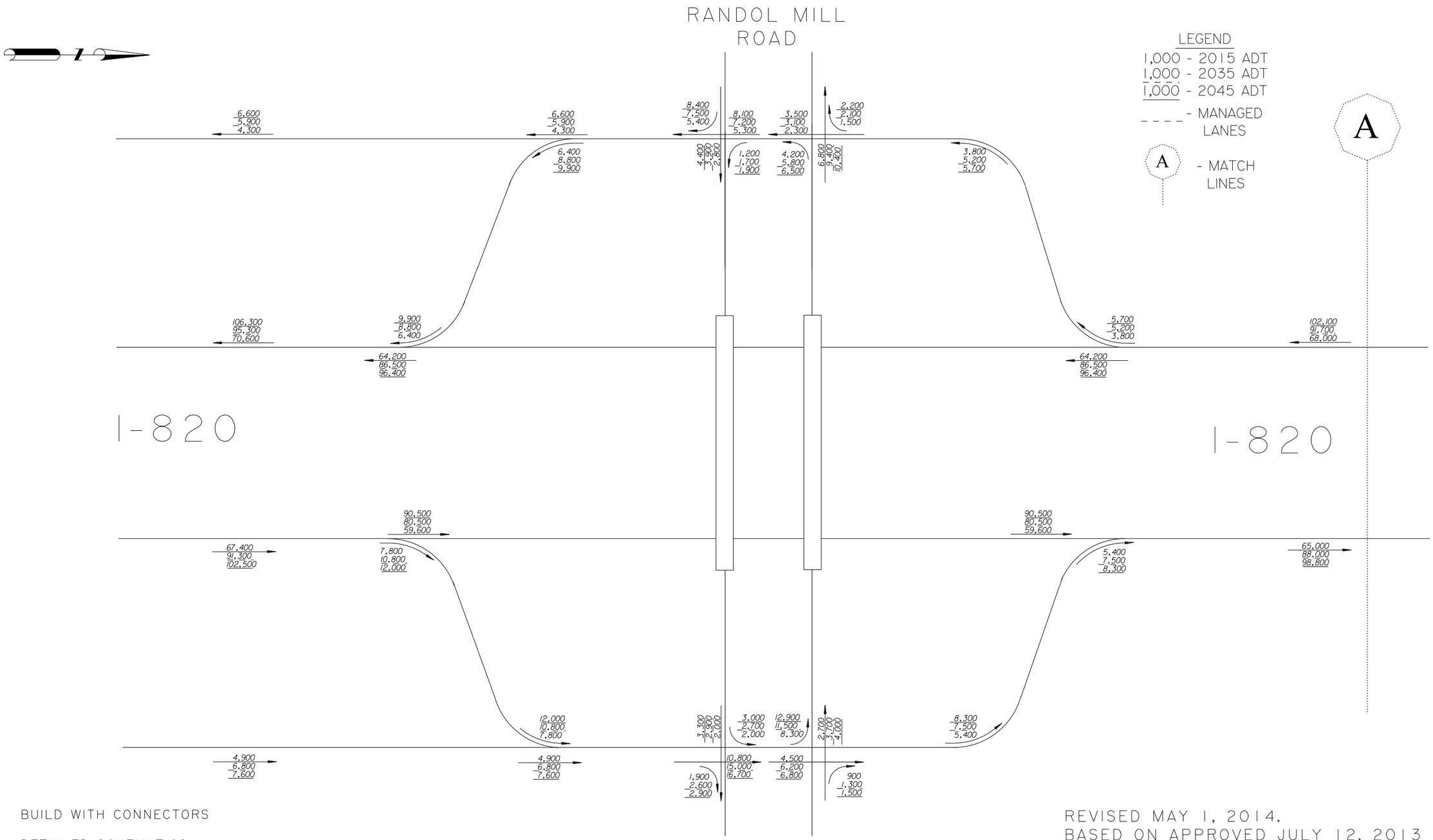
Description of Location	Average Daily Traffic 2015	Average Daily Traffic 2035	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 20 Year Period (2015 to 2035) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 121 Build With Direct Connectors From I-820 To Handley-Ederville Rd (Including Minnis Dr) Tarrant County	132,200	183,400	54 - 46	7.9	6.3	4.2	13,000	20	30,200,000	3	39,666,000	8"

Data for Use in Air & Noise Analysis

Vehicle Class	Base Year % of ADT	Base Year % of DHV
Light Duty	93.7	95.8
Medium Duty	2.6	1.7
Heavy Duty	3.7	2.5

NOT INTENDED FOR
BIDDING OR PERM
William Erick Knowles
Serial Number 9470

Description of Location	Average Daily Traffic 2015	Average Daily Traffic 2045	Base Year Dir Dist %	Base Year K Factor	Base Year Percent Trucks ADT	Base Year Percent Trucks DHV	ATHWLD	Percent Tandem Axles in ATHWLD	Total Number of Equivalent 18k Single Axle Load Applications One Direction Expected for a 30 Year Period (2015 to 2045) Flexible Pavement	S N	Rigid Pavement	SLAB
SH 121 Build With Direct Connectors From I-820 To Handley-Ederville Rd (Including Minnis Dr) Tarrant County	132,200	204,900	54 - 46	7.9	6.3	4.2	13,100	20	48,387,000	3	63,554,000	8"



BUILD WITH CONNECTORS

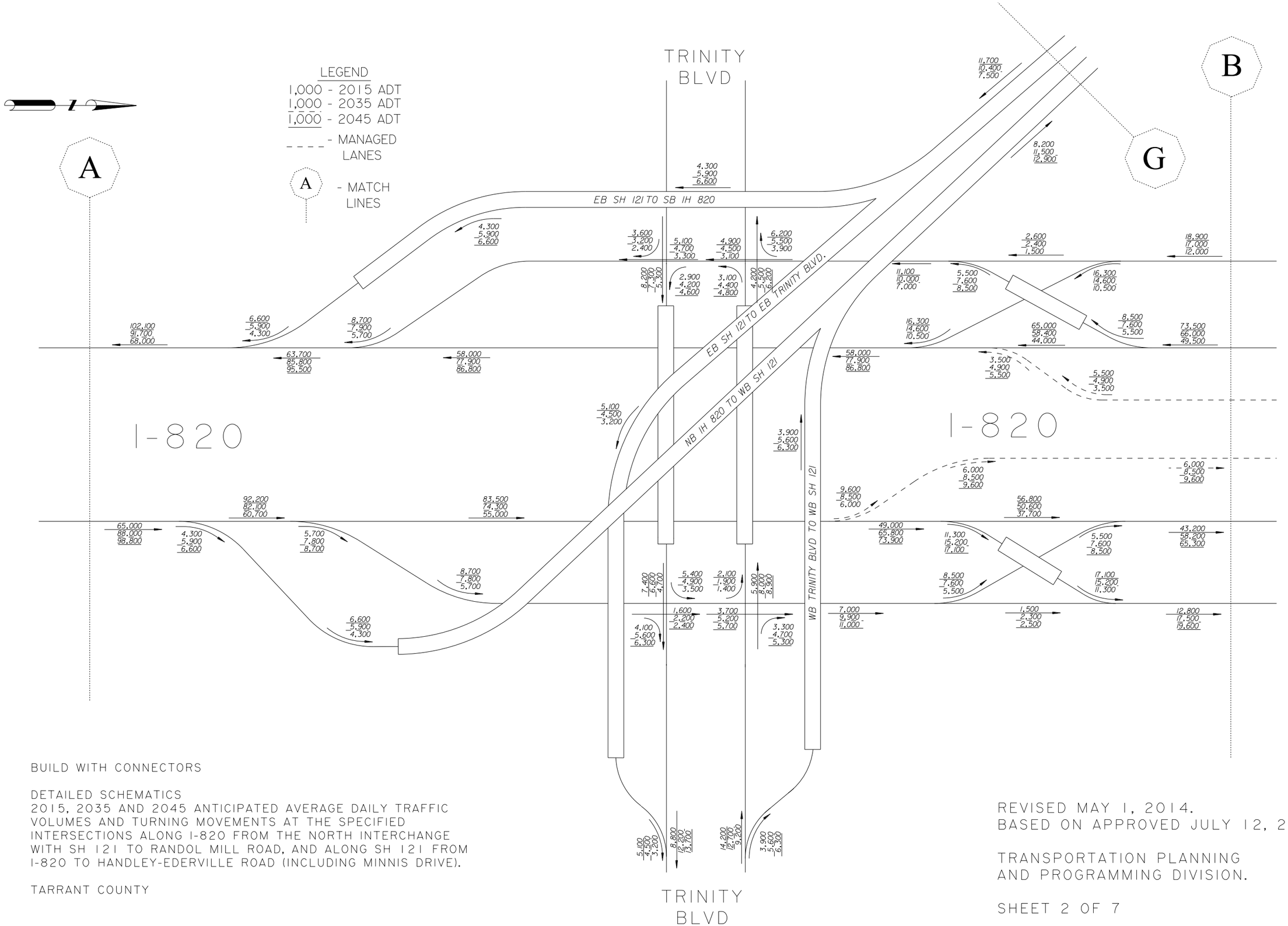
DETAILED SCHEMATICS
2015, 2035 AND 2045 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT THE SPECIFIED INTERSECTIONS ALONG I-820 FROM THE NORTH INTERCHANGE WITH SH 121 TO RANDOL MILL ROAD, AND ALONG SH 121 FROM I-820 TO HANDLEY-EDERVILLE ROAD (INCLUDING MINNIS DRIVE).

TARRANT COUNTY

REVISED MAY 1, 2014.
BASED ON APPROVED JULY 12, 2013 VOLUMES.

TRANSPORTATION PLANNING
AND PROGRAMMING DIVISION.

SHEET 1 OF 7



BUILD WITH CONNECTORS

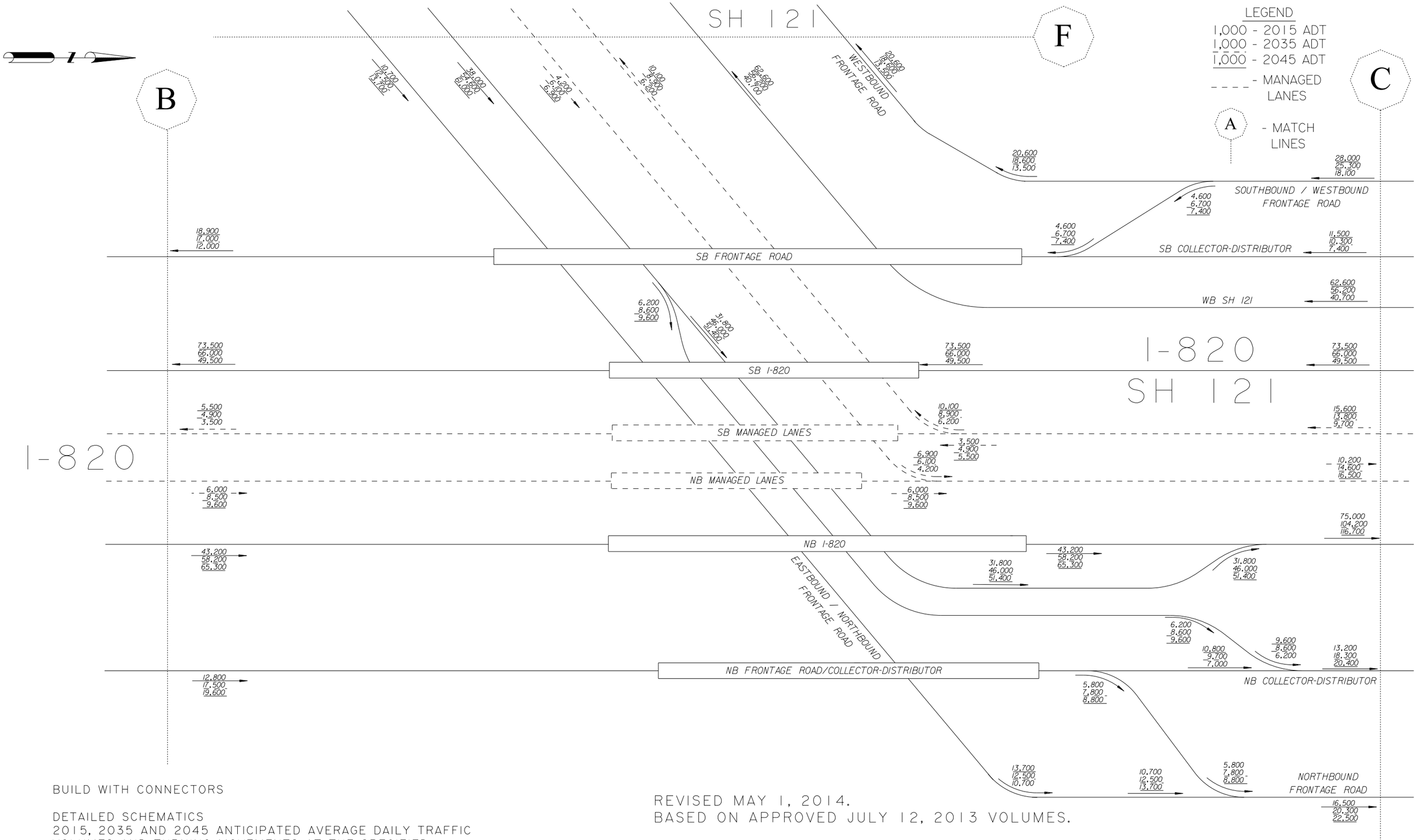
DETAILED SCHEMATICS
2015, 2035 AND 2045 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT THE SPECIFIED INTERSECTIONS ALONG I-820 FROM THE NORTH INTERCHANGE WITH SH 121 TO RANDOL MILL ROAD, AND ALONG SH 121 FROM I-820 TO HANDLEY-EDERVILLE ROAD (INCLUDING MINNIS DRIVE).

TARRANT COUNTY

REVISED MAY 1, 2014.
BASED ON APPROVED JULY 12, 2013 VOLUMES.

TRANSPORTATION PLANNING
AND PROGRAMMING DIVISION.

SHEET 2 OF 7



BUILD WITH CONNECTORS

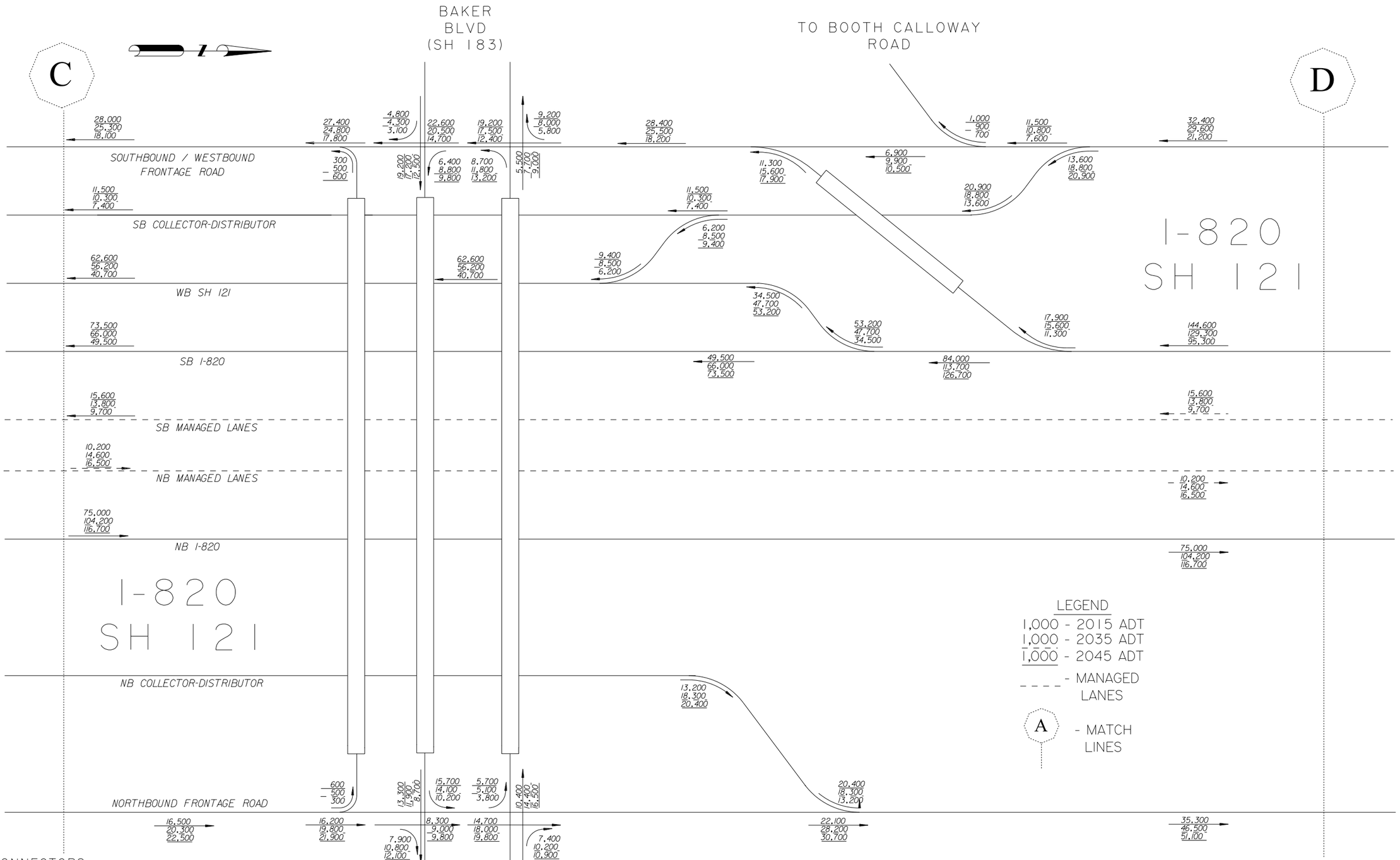
DETAILED SCHEMATICS
2015, 2035 AND 2045 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT THE SPECIFIED INTERSECTIONS ALONG I-820 FROM THE NORTH INTERCHANGE WITH SH 121 TO RANDOL MILL ROAD, AND ALONG SH 121 FROM I-820 TO HANDLEY-EDERVILLE ROAD (INCLUDING MINNIS DRIVE).

TARRANT COUNTY

REVISED MAY 1, 2014.
BASED ON APPROVED JULY 12, 2013 VOLUMES.

TRANSPORTATION PLANNING
AND PROGRAMMING DIVISION.

SHEET 3 OF 7



BUILD WITH CONNECTORS

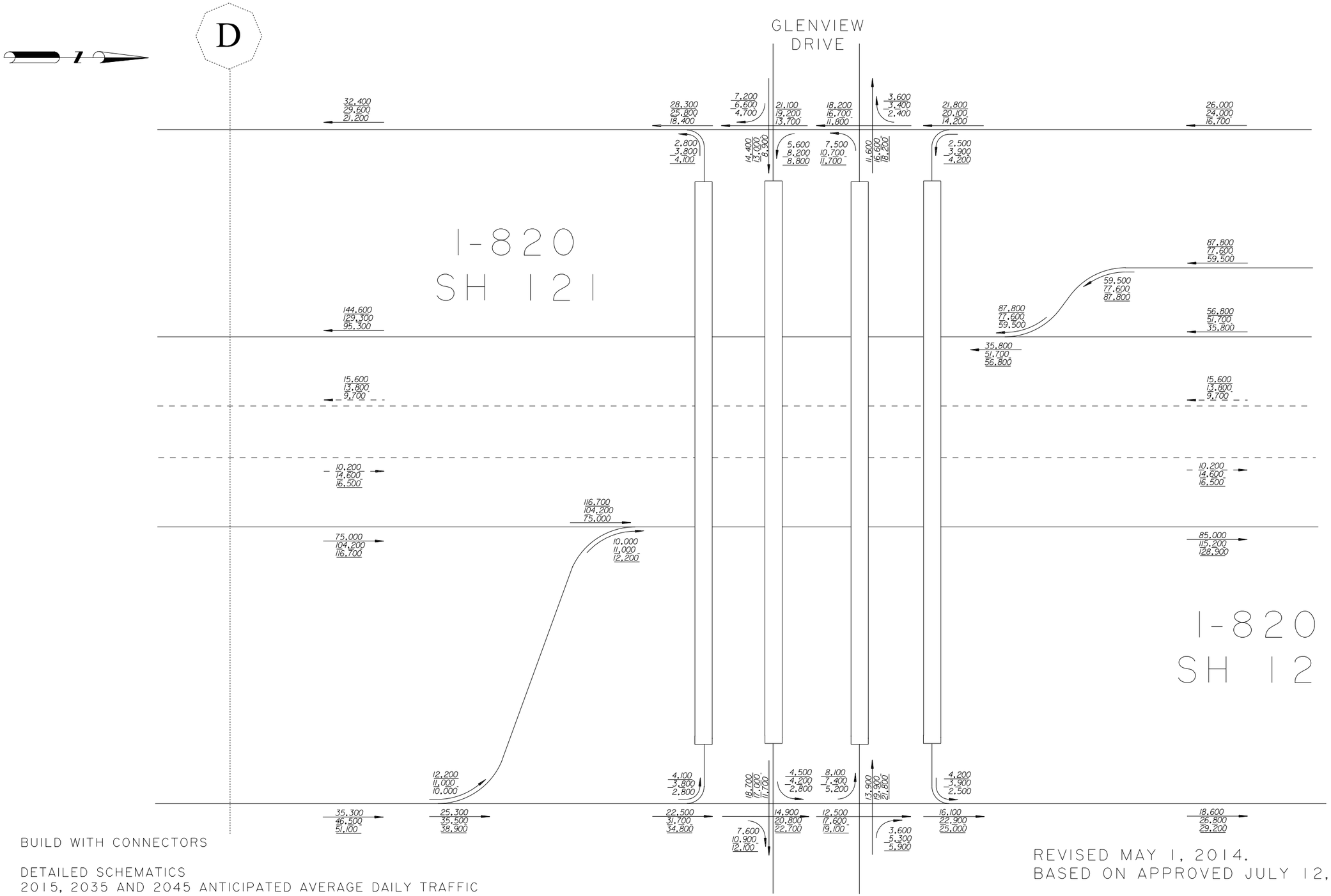
DETAILED SCHEMATICS
2015, 2035 AND 2045 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT THE SPECIFIED INTERSECTIONS ALONG I-820 FROM THE NORTH INTERCHANGE WITH SH 121 TO RANDOL MILL ROAD, AND ALONG SH 121 FROM I-820 TO HANDLEY-EDERVILLE ROAD (INCLUDING MINNIS DRIVE).

TARRANT COUNTY

REVISED MAY 1, 2014.
BASED ON APPROVED JULY 12, 2013 VOLUMES.

TRANSPORTATION PLANNING
AND PROGRAMMING DIVISION.

SHEET 4 OF 7



LEGEND

1,000 - 2015 ADT
1,000 - 2035 ADT
1,000 - 2045 ADT
- MANAGED LANES
A - MATCH LINES

BUILD WITH CONNECTORS

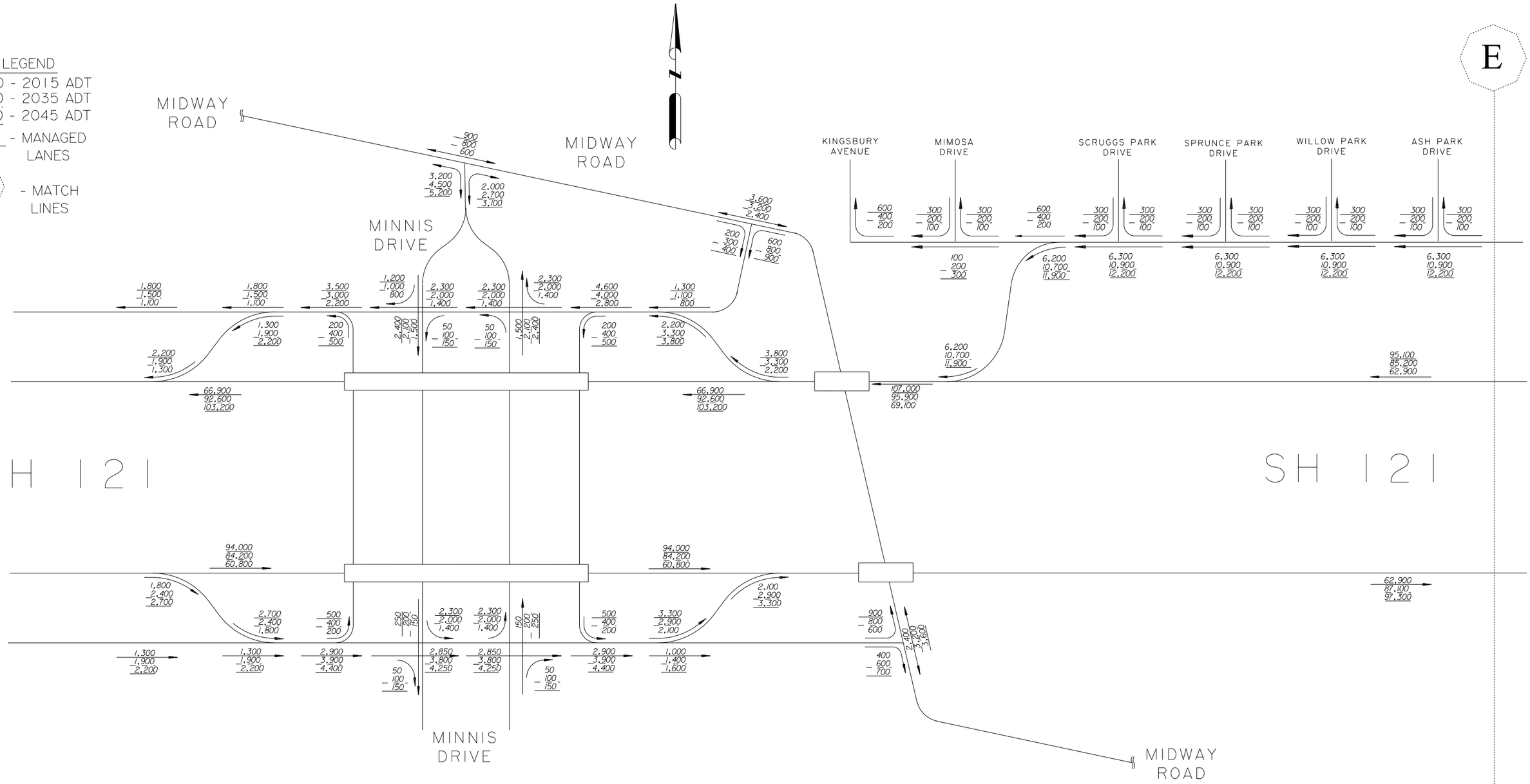
DETAILED SCHEMATICS
2015, 2035 AND 2045 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT THE SPECIFIED INTERSECTIONS ALONG I-820 FROM THE NORTH INTERCHANGE WITH SH 121 TO RANDOL MILL ROAD, AND ALONG SH 121 FROM I-820 TO HANDLEY-EDERVILLE ROAD (INCLUDING MINNIS DRIVE).

TARRANT COUNTY

REVISED MAY 1, 2014.
BASED ON APPROVED JULY 12, 2013 VOLUMES.

TRANSPORTATION PLANNING
AND PROGRAMMING DIVISION.

SHEET 5 OF 7



BUILD WITH CONNECTORS

DETAILED SCHEMATICS
2015, 2035 AND 2045 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT THE SPECIFIED INTERSECTIONS ALONG I-820 FROM THE NORTH INTERCHANGE WITH SH 121 TO RANDOL MILL ROAD, AND ALONG SH 121 FROM I-820 TO HANDLEY-EDERVILLE ROAD (INCLUDING MINNIS DRIVE).

TARRANT COUNTY

REVISED MAY 1, 2014
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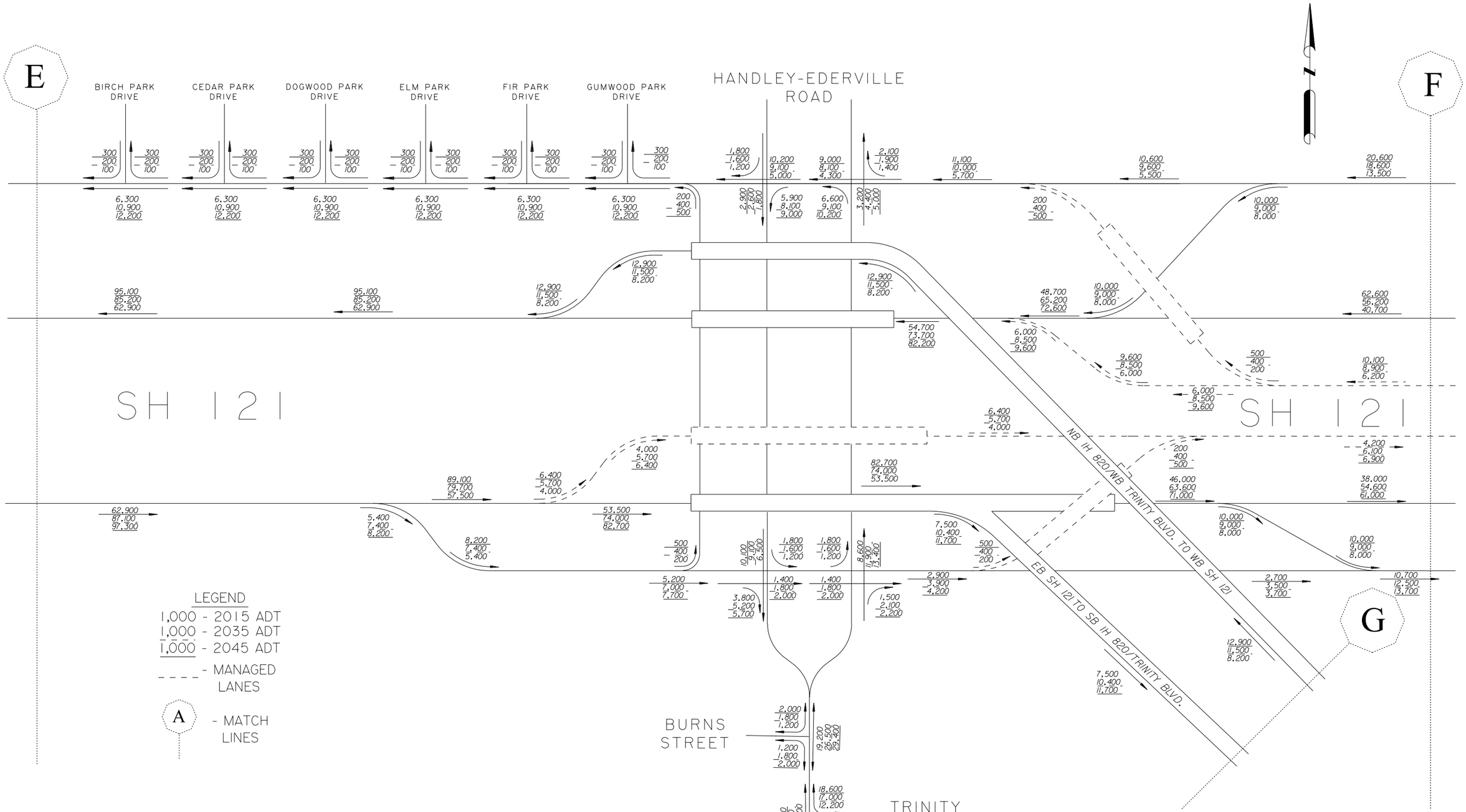
TRANSPORTATION PLANNING
AND PROGRAMMING DIVISION



BUILD WITH CONNECTORS

DETAILED SCHEMATICS
2015, 2035 AND 2045 ANTICIPATED AVERAGE DAILY TRAFFIC VOLUMES AND TURNING MOVEMENTS AT THE SPECIFIED INTERSECTIONS ALONG I-820 FROM THE NORTH INTERCHANGE WITH SH 121 TO RANDOL MILL ROAD, AND ALONG SH 121 FROM I-820 TO HANDLEY-EDERVILLE ROAD (INCLUDING MINNIS DRIVE).

TARRANT COUNTY

REVISED MAY 1, 2014.
BASED ON APPROVED JULY 12, 2013 VOLUMES.

TRANSPORTATION PLANNING
AND PROGRAMMING DIVISION.

SHEET 7 OF 7

I-820 (East)

Project Area Photographs

I-820 from approximately 2,000 feet north of Pipeline Road/Glenview Drive to approximately 3,200 feet south of Randol Mill Road

SH 121 from I-820 to approximately 5,000 feet west of Handley Ederville Road

CSJ: 0008-13-124, etc.

Fort Worth District
June 2017

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT

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Document Revision History

This document contains photographs of the proposed project and surrounding area and is referenced by the various technical reports and forms associated with the environmental review of the project. This document is intended to be a living document and additional photographs may be added throughout the environmental process. The table below serves to document the subsequent revisions that are made to the document.

Document Version	Revisions Made	Reason for Revision
June 2017	Original Document	N/A

Photo W1:
View looking south-southwest at Crossing 1 – Calloway Branch.

Date Taken: 9/5/14

Photo W2:
View looking east-northeast at Crossing 2 – WF-9.

Date Taken: 9/10/14

Photo W3:
View looking east at Crossing 2 – WF-9 (east side of I-820).

Date Taken: 6/1/17

Photo W4:
Aerial View of Crossing 3 – Pond.

Source. Google Earth (2016).

Photo W5:
View looking east-southeast at Crossing 4 – Mosier Valley Lake.

Date Taken: 9/5/14

Photo W6:
View looking east at Crossing 5 – tributary to Mosier Valley Lake

Date Taken: 9/5/14

Photo W7:
View looking south-southeast at Crossing 6 – tributary to Mosier Valley Lake.

Date Taken: 9/5/14

Photo W8:
View looking south-southeast at Crossing 6 – abutting wetlands.

Date Taken: 9/5/14

Photo W9:
View looking east-southeast at a data point at Crossing 6 – abutting wetlands.

Date Taken: 9/5/14

Photo W10:
View looking south-southeast at Crossing 7 – West Fork Trinity River.

Date Taken: 9/5/14

Photo W11:
Aerial view of Crossing 8 – tributary to West Fork Trinity River.

Source: Google Earth, 2016.

Photo H1:
View looking west at Site 1/database Map ID #5. The database report listed this as a Saturn of Hurst facility. Currently, the site is the location of a Fiat car dealership.

Date Taken: 8/12/14.

Photo H2:
View looking southeast at Site 1/database Map ID #3. The database report listed the site as the North Hills Lincoln Mercury facility. Currently, the site is the location of a Toyota used car dealership.

Date Taken: 6/1/17.

Photo H3:
View looking west at Site 3/database Map ID #20, EZ Auto Rental and Sales. The existing automotive dealership was a former gas station facility.

Date Taken: 6/1/17.

Photo H4:
View looking southwest at Site 4/database Map ID #8, Shell station.

Date Taken: 6/1/17.

Photo H5:
View looking southeast at Site 5, River Trails Addition.

Date Taken: 6/1/17.

Photo H6:
View looking northwest at Site 6/database Map ID #2, Fleming Food Company. Currently, the site is a food supplier provider called McLane.

Date Taken: 6/1/17.

Photo B1:
View looking south from Glenview Drive at I-820 southbound frontage road at the maintained herbaceous ground cover and landscape trees and shrubs. The area is classified as Urban. The TESCP/EMST mapper also classified this area as Urban.

Date Taken: 6/1/17.

Photo B2:
View looking south from Redbud Drive at I-820 northbound frontage road at the maintained herbaceous groundcover. The area is classified as Urban. The TESCP/EMST mapper also classified this area as Urban.

Date Taken: 6/1/17.

Photo B3:
View looking north from just south of Valencia Drive at the I-820 southbound frontage road and general purpose lanes at the maintained herbaceous groundcover and landscape trees. The area is classified as Urban. The TESCP/EMST mapper also classified this area as Urban.

Date Taken: 6/1/17.

Photo B4:
View looking northeast from Handley-Ederville Road at the SH 121 eastbound frontage road. The TESCP/EMST mapper classified this area as Urban. However, the vegetation to the right consists of a motte of American elm, cedar elm, and sugarberry. This portion is better classified as Edwards Plateau Savannah, Woodland, and Shrubland.

Date Taken: 6/1/17.

Photo B5:
View looking north at Kingsbury Avenue from SH 121 (east from Handley-Ederville Road at the SH 121 eastbound frontage road). The vegetation consists of maintained herbaceous groundcover and landscape trees and is classified as Urban. The TESCP/EMST mapper also classified this area as Urban.

Date Taken: 6/1/17.

Photo B6:
View looking north at the I-820 southbound general purpose lanes near the Trinity Boulevard exit ramp. The TESCP/EMST mapper classified the wooded area as Edwards Plateau Savannah, Woodland, and Shrubland and to its left as Urban. The wooded area is better classified as Floodplain and Riparian area. Stream WF-9 traverses through these woods and the area is located within the floodplain.

Date Taken: 6/1/17.

Photo B7:
View looking southeast at stream WF-9. The vegetation adjacent to the stream should be classified as Riparian. The TESCP/EMST mapper classifies this area as Edwards Plateau Savannah, Woodland, and Shrubland.

Date Taken: 9/5/14.

Photo B8:
View looking southeast at an area in the Chesapeake property located south of SH 121 and north of Trinity Boulevard. TESCP/EMST mapper classified this area as Edwards Plateau Savanah, Woodland, and Shrubland. Site visit confirmed the same vegetation classification.

Date Taken: 9/5/14.

Photo B9:
View looking west-southwest at the Trinity Boulevard eastbound exit ramp from I-820. The maintained herbaceous area is within the River Trails Addition property. TESCP/EMST mapper classified this area as Urban.

Site visit confirmed the same vegetation classification.

Date Taken: 6/1/17.

Photo B10:
View looking east at the I-820 Bridge over Crossing 4 – Mosier Valley Lake. The TESCP/EMST mapper classified this area as Urban and partial Floodplain. The area is better classified as Open Water with the adjacent vegetation as Riparian and Floodplain.

Date Taken: 9/5/14.

Photo B11:
View looking south-southeast at Crossing 7 – West Fork Trinity River. The TESCP/EMST mapper classified this area as Urban and partial Floodplain. The area is better classified as Open Water with the adjacent vegetation as Riparian.

Date Taken: 9/5/14.

Photo B12:
View looking south at the I-820 southbound frontage road from Randol Mill Road. The TESCP/EMST mapper classified this area as Urban. Site visit confirmed the same vegetation classification.

Date Taken: 6/1/17.

Photo B13:
View looking north at the I-820 southbound frontage road and general purpose lane from Mandy Lane. The TESCP/EMST mapper classified this area as Urban. Site visit confirmed the same vegetation classification.

Date Taken: 6/1/17.

Photo C1:
Example of a community facility located in the CIA study area – Fort Worth Fire Dept. Station No. 20.

Date Taken: 6/1/17.

Photo C2:
Example of a community facility located in the CIA study area – John T. White Elementary School.

Date Taken: 6/1/17.

Photo C3:
Example of a community facility located in the CIA study area – Rosebud Park in Richland Hills.

Date Taken: 6/1/17.

Photo C4:
Example of a community facility located in the CIA study area – Richland Hills Public Library.

Date Taken: 6/1/17.

Photo C5:
Example of a community facility located in the CIA study area – Temple Baptist Church, School, and Daycare.

Date Taken: 6/1/17.

Photo C6:
Example of signage in Spanish located in the CIA study area.

This sign was located on the northeast corner of John T. White Road and Sandy Lane.

Date Taken: 6/1/17.

Photo C7:
Example of signage in Chinese located in the CIA study area.

This sign was at the A Chinese Wellness Center, 3917 Booth Calloway Road, Richland Hills, Texas 76118.

Date Taken: 6/1/17.

Photo C8:
Example of signage in Korean and Spanish located in the CIA study area.

This sign was at the DFW Korean Adventist Church located at 1000 W. Pipeline Road, Hurst, Texas 76053.

Date Taken: 6/1/17.

Photo C9:
Example of a place of worship that serves a specific minority group – Mercy Seat Church. Mercy Seat Church serves Hispanic/Latino minority groups by providing service in Spanish.

This place of worship is located at 7101 Airport Freeway., Richland Hills, Texas 76118.

Date Taken: 6/1/17.

Photo C10:
Example of a place of business that serves a specific minority group – Hurst African Market. Hurst African Market serves African/Caribbean minority groups by providing food and merchandise specific those regions.

This place of business is located at 819 W. Pipeline Road, Hurst, Texas 76053.

Date Taken: 6/1/17.

Photo C11:
TRE Richland Hills Station located in the CIA study area. The TRE caters to disabled people, as well as the general population.

This station is located at 7225 Burns Street, Richland Hills, Texas 76118.

Date Taken: 6/1/17.

Photo C12: *Example of other vulnerable populations (children) located in the CIA study area –Little Tyke Learning Center of Richland Hills.*

This daycare is located at 6923 Baker Boulevard, Richland Hills, Texas 76118.

Date Taken: 6/1/17.

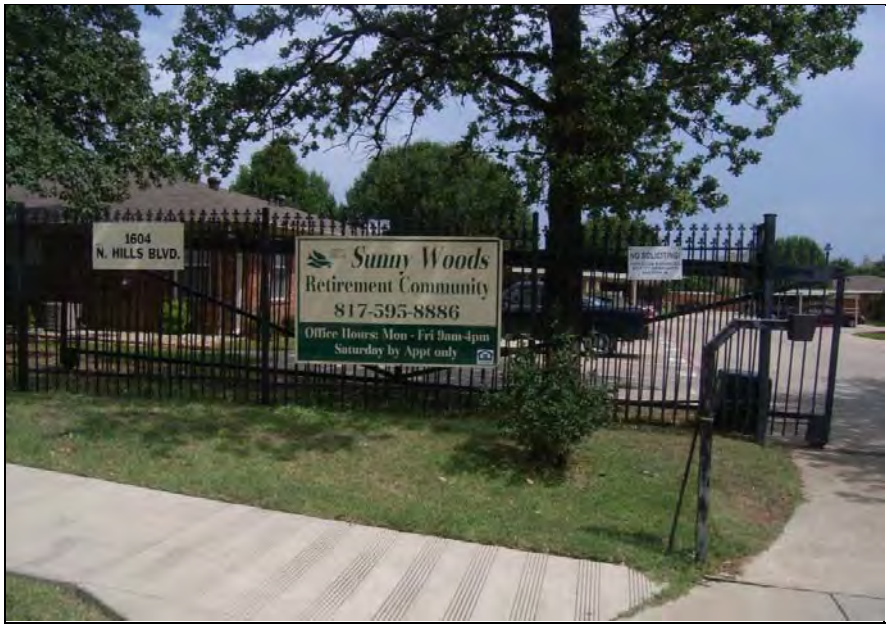

Photo C13:
Example of other vulnerable populations (elderly) located in the CIA study area – Sunny Woods Retirement Community. This community is also a HUD Fair Housing Opportunity

Residence. This retirement community is located at 1604 N. Hills Boulevard, Hurst, Texas 76053.

Date Taken: 6/1/17.

Photo C14:
Example of low-income housing located in the CIA study area – Mill Stone Apartments. This community is supported by the HUD's Low-Income Housing Tax Credit.

This apartment community is located at 8472 Randol Mill Road, Fort Worth, Texas 76120.

Date Taken: 6/1/17.

Photo C15:
Example of a used goods store located in the CIA study area – Goodwill Super Store.

This store is located at 825 W. Pipeline Road, Hurst, Texas 76053.

Date Taken: 6/1/17.

Photo C16:
Example of a low-cost healthcare facility located in the CIA study area – The Muslim Community Center for Human Services.

This facility is located at 7600 Glenview Drive # B, Richland Hills, Texas 76180.

Date Taken: 6/1/17.

Photo C17:
Example of a marked bike lane located in the CIA study area.

This photograph was taken along northbound Woodhaven Boulevard, north of Boca Raton Boulevard.

Date Taken: 6/1/17.

Photo C18:
Photograph of a cyclist observed in the CIA study area.

This photograph was taken along westbound Boca Raton Boulevard, west of Oakland Hills Drive.

Date Taken: 6/1/17.

Photo C19:
Photograph of a goat path/dirt pathway observed in the CIA study area.

This photograph was taken along the east side of Woodhaven Boulevard. north of the

Fort Worth Fire Dept. Station No. 20.

Date Taken: 6/1/17.

Photo C20:
Photograph of Property No. 1 – commercial property located at 227 NE Loop 820, Hurst, Texas 76053.

This structure is a potential displacement.

Date Taken: 6/1/17.

Photo C20:
Photograph of Property No. 2 – office building located at 223 NE Loop 820, Hurst, Texas 76053.

This structure is a potential displacement.

Date Taken: 6/1/17.

Photo C21:
Photograph of Property No. 3 – office building located at 121 NE Loop 820, Hurst, Texas 76053.

This structure is a potential displacement.

Date Taken: 6/1/17.

Photo P1:
Former location of the Ray-Manship Cemetery.

Photograph was taken from the north side of Boca Raton Boulevard, west of I-820.

Date Taken: 6/1/17.

Photo P2:
Former location of the Ray-Manship Cemetery.

Photograph was taken from the north side of Boca Raton Boulevard, west of I-820.

Date Taken: 6/1/17.

Photo P3:
Strip centers located on the northeast corner of I-820 and W. Pipeline Road.

Date Taken: 6/1/17.

Photo P4:
I-820 bridge over Pipeline Road/Glenview Drive.

Date Taken: 6/1/17.

Photo P5:
Commercial establishment located on the southwest corner of I-820 and Glenview Drive.

Date Taken: 6/1/17.

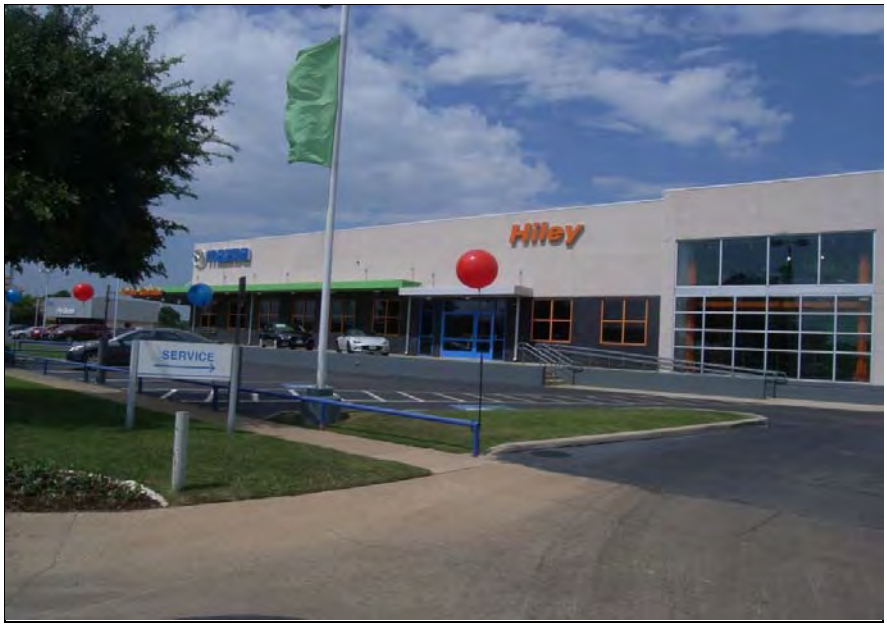

Photo P6:
Automotive dealership located at 625 NE Loop 820, Hurst, Texas 76053.

Date Taken: 6/1/17.

Photo P7:
Office building located at 700 NE Loop 820, Hurst, Texas 76053.

Date Taken: 6/1/17.

Photo P8:
Entertainment establishment located 609 NE Loop 820, Hurst, Texas 76053.

Date Taken: 6/1/17.

Photo P9:
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Date Taken: 6/1/17.

Photo P10:
Office building located at 305 NE Loop 820, Hurst, Texas 76053.

Date Taken: 6/1/17.

Photo P11:
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Date Taken: 6/1/17.

Photo P12:
Commercial property located at 227 NE Loop 820, Hurst, Texas 76053.

This structure is a potential displacement.

Date Taken: 6/1/17.

Photo P13:
Office building located at 223 NE Loop 820, Hurst, Texas 76053.

This structure is a potential displacement.

Date Taken: 6/1/17.

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This structure is a potential displacement.

Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 6/1/17.

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Date Taken: 8/12/14.

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Date Taken: 9/5/14.

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Date Taken: 9/10/14.

FEDERAL HIGHWAY ADMINISTRATION

FINDING OF NO SIGNIFICANT IMPACT

FOR

NH ( )IM
Environmental Assessment
Tarrant County
CSJ 0008-13-123, 124, 138

IH 820: From Pipeline Road (South of 121 North Interchange), South to Randol Mill Road

The FHWA has determined that this project will not have any significant impact on the human environment. This finding of no significant impact is based on the attached environmental assessment which has been independently evaluated by the FHWA and determined to adequately and accurately discuss the environmental issues and impacts of the proposed project. It provides sufficient evidence and analysis for determining that an environmental impact statement is not required.

3/18/04
DATE

Salvah Deoray
FEDERAL HIGHWAY ADMINISTRATION

File
FI

Environmental Assessment

Project Nos. CSJ: 0008-13-123,124,138

IH 820

from North Interchange at SH 121
to Randol Mill Road in Tarrant County

Prepared by:
U.S. Department of Transportation
Federal Highway Administration
and

Texas Department of Transportation
FORT WORTH DISTRICT

September 2003

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1.0 PROJECT NEED AND DESCRIPTION OF PROPOSED ACTION

1.1 Regional Setting

East Loop IH 820 serves traffic in the cities of Fort Worth, Hurst, Richland Hills and North Richland Hills in Tarrant County, Texas. The proposed action is the expansion of East Loop Interstate Highway 820 (IH 820) in Tarrant County, Texas from the North Interchange at SH 121 to Randol Mill Road within the cities of North Richland Hills, Richland Hills, Hurst, and Fort Worth. Proposed improvements include the reconstruction of IH 820/SH 121 south interchange, reconfiguration of the IH 820/Trinity Boulevard interchange, widening portions of the existing roadway from eight lanes to ten lanes with auxiliary lanes, widening other portions from four lanes to eight lanes, and addition of HOV lanes. The designs of the proposed improvements do not inhibit the connection of the future Trinity Freeway at the east terminus of this project. The purpose of this proposed project is to improve the transportation system to carry existing and future traffic in comfort and safety, while maintaining access to various land use activities. Exhibit 1 illustrates the project study limits. The future Trinity Freeway project is not included in the project study limits. All exhibits referenced in this document are included in Appendix B.

Principal land use within the study area is a combination of commercial/industrial, mining and reclamation (industrial), conservation and residential. Land adjacent to the proposed roadway is predominantly developed. North of the IH 820/SH 121 south interchange, land use is a mixture of commercial and industrial, residential, undeveloped land and government owned land. South of the interchange, land uses are a mixture of mining and reclamation, commercial and industrial, conservation, and limited park land. All residential land use is confined to the area north of the interchange; south of Randol Mill Road; and west of the interchange adjacent to Handley Ederville Road. The limited areas of undeveloped land are presently zoned commercial/industrial, residential and agriculture. Limited active development is taking place along the proposed right-of-way. Existing land uses are illustrated on Exhibit 2.

The terrain is gently rolling and is not of major concern. Principal terrain features of concern within the project limits are the crossings of the Calloway Branch, WF-9, Jack Mosier Lake, and the West Fork Trinity River. These features are identified in Exhibit 3. Sensitive environmental features that may affect alternative selection for this project include wetlands, floodplains, noise and hazardous material sites.

1.2 Project History

When the Clean Air Act Amendments (CAAA) of 1990 were signed into law, the Dallas/Fort Worth area was designated moderate nonattainment for exceeding the National Ambient Air Quality Standard for the pollutant ozone (the Dallas/Fort Worth area is currently designated serious nonattainment). The CAAA required the state to submit a State Implementation Plan (SIP) to the Environmental Protection Agency (EPA). The SIP is a document that describes how air emissions would be reduced and the ozone standard would be obtained through transportation control measures. The SIP ties in transportation planning through the conformity provisions required under the

CAAA. The provisions verify that federal actions on transportation projects are consistent with the air quality objectives in the SIP.

In 1992, the IH 820 project was initiated. A preliminary engineering design for 3 build alternatives (Alternatives 1, 2, and 3) was prepared based on Year 2010 traffic estimates. The preliminary plans were presented at a public meeting on May 11, 1993. The public meeting was held to discuss the three alternative alignments under study for improvements to IH 820 from the North Interchange at SH 121 to Randol Mill Road, including the SH 121 interchange. Approximately 60 people were in attendance at this meeting. Several speakers expressed concerns that none of the alternatives would provide direct access on or off to Handley/Ederville Road. Citizens felt this lack of access would cause traffic problems once the RAILTRANS station for Richland Hills was put in place.

In response to these concerns, it was explained that Handley/Ederville was only a possible location for the RAILTRANS station and that nothing definite had been decided about its location. Other concerns, questions, and suggestions included: having to travel through a signalized intersection to access Pipeline/Glenview, the safety of some of the proposed left hand exits and right hand entrances, keeping the public more informed, making Trinity Freeway larger instead of widening 183, widening old 183 in Richland Hills, and exploring the possibility of state or federal funding for the widening of Handley/Ederville. The next step in the public involvement phase would be to hold a public hearing for this project.

Additional meetings were held in 2000 with the adjacent cities and the Fort Worth Transportation Authority to update them on project status and accept any additional comments they had.

The improvements and suggestions made at the public meeting and city and agency meetings in 2000 were incorporated into Alternative 3, which then became the Preferred Alternative. The build alternatives have been designated Alternatives 1, 2, and 3 for reference purposes. Several features from Alternatives 1 and 2 were incorporated into Alternative 3. Features that were incorporated from Alternative 1 include lower overall grades. Features that were incorporated from Alternative 2 include providing access from southbound IH 820 to Hurst/Baker Boulevard and from Pipeline Road/Glenview Drive to southbound IH 820, and also providing direct access from northbound IH 820 to Pipeline Road/Glenview Drive. Other features that were incorporated include providing fewer potential hazardous materials sites and least amount of additional right-of-way. The right-of-way limits for the three most reasonable and feasible alternatives are shown on Exhibit 4.

In October 1993, the final regulations for Intermodal Surface TEA were published in the Federal Register. Under ISTEA, the responsibility for planning transportation projects is shared between the state and the metropolitan planning organizations. In North Texas, these agencies are the Texas Department of Transportation (TxDOT) and the North Central Texas Council of Governments (NCTCOG). The NCTCOG is required to write a metropolitan transportation plan for the region (such as Mobility 2010, Mobility 2010

Update, Mobility 2020, Mobility 2025 and Mobility 2025 updated) as well as a Transportation Improvement Plan (TIP). The transportation plan and the TIP must provide for the implementation of the transportation control measures that are discussed in the SIP.

ISTEA also required that a Major Investment Study (MIS) be conducted when a city or government entity seeks federal funds for a highway improvement of substantial cost that is expected to have a significant effect on capacity, traffic flow, level of service, or mode share in a metropolitan corridor.

In November 1993, the EPA published final rules regarding procedures for determining conformity of the TIP and metropolitan transportation plan to the SIP. Under these rules, metropolitan planning organizations such as the NCTCOG were required to make conformity determinations on metropolitan transportation plans and TIPs before they are adopted, approved, or accepted in air quality nonattainment areas.

In 1994 TxDOT contracted with the Texas Transportation Institute (TTI) to study Tarrant County and regional roadways to determine which roadways could benefit from the addition of High Occupancy Vehicle (HOV) lanes. In late 1994, TxDOT determined in conjunction with NCTCOG and TTI that IH 820 should include a single, reversible HOV lane from IH 35W to SH 26 to connect with proposed HOV lanes on Airport Freeway (SH121/SH 183) to the east.

All projects in the Dallas-Fort Worth Metropolitan Area 2002-2004 Transportation Improvement Program (TIP) that are proposed for federal or state funds were initiated in a manner consistent with the federal guidelines in Section 450 of Title 23 CFR and Section 613.200, Subpart B of Title 49 CFR. The proposed action is consistent with the area's financially constrained metropolitan transportation plan known as Mobility 2025 (January 27, 2003) Update and the 2002-2004 Transportation Improvement Program found to conform to the Clean Air Act Amendments of 1990, by the US DOT on October 19, 2001.

1.3 Purpose and Need for the Project

The Cities of Hurst, Richland Hills, North Richland Hills, and Fort Worth have experienced steady growth and expansion. This growth is accompanied by increased population density in Tarrant County, as well as substantial increases in motor vehicle numbers utilizing present transportation facilities.

As discussed in Section 3.2.1 of this document, Tarrant County population has grown steadily over the past several decades. The project area is located in Tarrant County, which has an estimated 2000 population of 1,410,740 and has demonstrated an annual growth rate of approximately two and a half percent (2.5%) since 1990 (NCTCOG 2000). Tarrant County had an estimated growth rate of 2.6 percent over the last year and the county's population is projected to be 2,008,000 in 2025. Existing regional and community growth trends in the project vicinity are expected to continue.

Traffic volumes continue to increase as a result of area growth. Traffic is particularly congested because the capacity of the existing IH 820 facility is being exceeded by the current travel demand and because of the proximity of the existing interchanges.

Existing demand on IH 820 for 2000 ranges from 88,100 to 115,500 vehicles per day (vpd) and modeled projections predict an estimated traffic loads ranging from 126,000 to 171,400 vpd by the year 2010. The twenty-year traffic projection (2020) was not utilized Because this freeway corridor is physically and financially constrained to 2010 traffic volumes. Therefore figures for the year 2010 have been used for the preliminary project design. Capacity analyses shows that most of the IH 820 study area would operate at a Level of Service (LOS) F in the design year if no capacity improvements are made. LOS F is defined as having forced or breakdown flow of traffic (Transportation Research Board, 1985). It characterizes arterial flow at extremely low speeds below one-third of the free-flow speed. In addition, intersection congestion is likely at critical signalized locations with high delays and extensive queuing. The existing and design year (2010) average daily traffic volumes for various segments of the IH 820 project are shown on Exhibit 5.

It is anticipated that the proposed project would provide infrastructure to alleviate traffic congestion on existing roadways; to provide a safer, more convenient route for traveling through the area; and to increase mobility and provide access (including improved emergency service access) to area. As with all transportation projects, a side benefit would be the potential for economic growth. It would also provide a multitude of functions, which are consistent with adopted area-wide goals, policies, and objectives relating to a comprehensive development plan.

As population and land use changes have occurred, the access needs of drivers to enter and exit IH 820/SH121 have also changed. A significant improvement in access would be accomplished by providing frontage roads along areas that currently do not have them. In addition to adding frontage roads to the existing facility, ramps would be added or removed, and braided ramps would be used in some locations to provide improved access to IH 820 and SH 121.

1.4 Current Condition of Facility

The existing IH 820 between Pipeline Road/Glenview Drive and SH 121 (south interchange) provides four lanes in each direction with 10-foot shoulders on each side and one and two-lane, one-way frontage roads. The median is typically 40 feet wide between shoulders, but varies in the interchange area. The northbound and southbound asphalt surfaces are 68 feet wide including the shoulders. South of the SH 121 (south) interchange, two lanes are provided in each direction south to Randol Mill Road. Ten-foot outside shoulders and 4-foot inside shoulders are provided. The median is 40 feet wide and the northbound and southbound asphalt surfaces are 38 feet wide including the shoulders.

One and two-lane, one-way frontage roads are in place on the west side of the highway from Pipeline Road/Glenview Drive to Handley Ederville Road at SH 121. On the east

side of the highway, one and two-lane, one-way frontage roads are in place from Pipeline Road south to Handley Ederville Road at SH 121.

IH 820 from the north SH 121 interchange to Randol Mill Road is 3.21 miles of divided urban freeway and contains a complex series of interchanges. The interchanges include: Pipeline Road/Glenview Road, Hurst/Baker Boulevards, South SH 121, Trinity Boulevard, Randol Mill Road, and Handley-Ederville Road.

Traffic making the eastbound to southbound movement from SH 121 to IH 820 must currently travel up a ramp to a low capacity stop sign controlled tee intersection with a collector road providing limited capacity and speeds for this movement. No direct connection currently exists for the northbound IH 820 to westbound SH 121 movement. Traffic for this movement must exit at Hurst/Baker Boulevards, travel through a signal and loop ramp to gain access to SH 121.

Frontage roads are provided on IH 820 north of the Trinity Railway Express track and south of Randol Mill Road. Frontage roads are also included on SH 121 within the area from Handley-Ederville Road through the south SH 121 interchange.

Of the existing roadways (freeway, frontage road, ramps, etc.) within the study area, portions fall below horizontal or vertical grade standards contained in the TxDOT Highway Design Manual used for the current geometric design. Most of the substandard locations are connected to the Trinity Boulevard interchange. Currently, the IH 820 operates at a LOS of D. LOS D borders on a range in which small increases in flow may cause substantial increases in delay and hence decreases in average vehicle speed.

Other areas of concern within the study area include the short separations between decision points in the northwest quadrant of the south SH 121 interchange, short separation between ramp and cross streets, and access from southbound IH 820 to Baker Boulevard via Booth Calloway Road.

From the south SH 121 interchange to Randol Mill Road, IH 820 currently provides two lanes in each direction. Based on the projected 2010 traffic volumes, four lanes in each direction would be required. The completed project (1992) south of Randol Mill Road also provides four lanes in each direction. Four lanes in each direction exist north of the south SH 121 interchange. Projected 2010 traffic volumes would require six lanes in each direction for this section. The western leg of SH 121 currently provides three lanes in each direction with two lane connections to the northern section of IH 820. The SH 121 laneage is not expected to change based on the projected 2010 traffic volumes.

1.5 High Occupancy Vehicle System Justification

In July 1992, the Texas Transportation Institute (TTI) began a feasibility study of high-occupancy vehicles (HOV) needs in the Fort Worth area. This study was sponsored by the Fort Worth District of the Texas Department of Transportation (TXDOT). The intent of the study was to use sketch planning methods to evaluate the HOV needs in selected

Fort Worth freeway corridors and to determine if and when HOV alternatives could be considered feasible in providing increased capacity for those corridors.

HOV improvements have been recognized as one alternative for increasing freeway capacity without spending large sums of money on right-of-way and construction. HOV facilities increase the people carrying capacity of a freeway corridor by offering travel timesaving to higher occupancy vehicles. These improvements are sometimes readily implementable within existing right-of-way at relatively minimal construction costs. HOV improvements include exclusive HOV lanes, contraflow lanes, concurrent flow/reserved lanes and freeway control with priority entry.

As a general guideline, for HOV lanes to have the potential to be effective, at least three conditions must exist:

- Extreme congestion must be present on the freeway so that the HOV lane offers a potential travel time advantage.
- Geometric conditions must allow the cost-effective construction of an HOV alternative.
- Travel patterns must be conducive to being served by transit and ridesharing.

The existing and projected traffic congestion for each freeway corridor were individually evaluated in this study to determine whether HOV improvements merited consideration. The results of the individual evaluations were then used to develop overall recommendations for an HOV system for the Fort Worth area.

The assessment indicated that, for short-term traffic congestion, HOV implementation appears to be cost effective with the proposed action in the expansion of East Loop Interstate Highway 820 (IH 820) in Tarrant County, Texas from the North Interchange with State Highway 121 (SH 121) south to Randol Mill Road. This assessment was based on 1990 congestion levels. In other words, this corridor exhibited enough congestion over an adequate distance to consider implementation of HOV improvements as feasible on the basis of travel speeds – less than 35 miles per hour (mph) and congestion (ADT/lane over 20,000). Additionally, the assessment indicated that HOV feasibility was justified based on projected 2010 congestion levels.

1.6 Transportation Plan Conformity

The Mobility 2025 Updated Plan (approved May 2001) provides documentation for the Regional Transportation Plan for North Central. The Plan was prepared in response to the planning requirements of the Transportation Efficiency Act for the 21st Century of 1998 bill known as "TEA-21" and provides a guide for the implementation of regional transportation improvements in the Dallas-Fort Worth Metropolitan Area. The TEA-21 modifies and appends sections of ISTEA. A major emphasis of the Plan Update is on management of the regional transportation system. The Plan Update is constrained to available financial resources and has been determined to be in conformity with the State Implementation Plan (SIP) for Air Quality based on requirements in the Clean Air Act Amendments of 1990. The Plan Update has been approved by the Regional Transportation Council and endorsed by the North Central Texas Council of

Governments (NCTCOG) Executive Board acting together as the Metropolitan Planning Organization for the Dallas-Fort Worth Metropolitan Area (Mobility 2025 Plan, the Regional Transportation Plan for North Central Texas).

Major Investment Study

A Major Investment Study (MIS) was a transportation planning process established by the federal ISTEA of 1991, which was required for all corridors where a major transportation investment was anticipated to have a regional impact, and where federal funds were potentially involved, such as IH 820. The TEA-21, no longer mandated a formal MIS, but continued the requirement for multi-modal advanced planning involvement. The goal of this study is to establish the range of alternatives to be studied (i.e. alternative modes and technologies, general alignments, number of lanes, degree of demand management and operating characteristics).

In compliance with federal regulations 23 CFR 450.318, representatives from NCTCOG, FHWA, local city officials, and TxDOT determined that a complete range of alternatives had been studied through previous agency coordination, public involvement, the current environmental assessment and Mobility 2025 Update.

Congestion Reduction Strategies

Several regional and specific strategies to reduce congestion have been considered: operational improvements, traffic flow improvements, HOV lanes, improved transit service facilities, light/commuter rail service, congestion pricing, bicycle and pedestrian improvements, travel demand management such as employer trip reduction programs, area wide ridesharing (carpooling and van pooling), and voluntary no-drive days. These measures are briefly discussed below. Estimates of each measure's potential effectiveness were based on experience, regional travel demand management (TDM)/transportation system management (TSM) commitments/congestion management systems and Transportation Control Measures: State Implementation Plan (SIP) Guidance (Source: Systems Applications, Inc, 1990 for the EPA).

- Operational Improvements: Operational improvements can range from implementation of incident detection and management programs to adding capacity. The Congestion Management System (CMS) for the Dallas-Fort Worth region recommends that electronic surveillance and response technology (including intelligent transportation systems [ITS] and motorists' information systems) be installed and operated on freeways to alleviate congestion. In addition, the CMS recommends that motorists' assistance teams (i.e., TxDOT Courtesy Patrol) patrol congested freeway corridors during normal peak hours.

  Currently, under the TEA-21 program for Congestion Mitigation and Air Quality (CMAQ), numerous incident detection and response systems/ITS and motorists' assistance programs are being implemented with several more scheduled for implementation in the regional TIP. Additionally, the design of IH 820 includes frontage roads. Once the main lanes are constructed, the frontage roads would continue to provide local access and can be used for freeway incident management by providing an alternate route. Operational improvements for IH 820 would include the

implementation of ITS and the construction of frontage roads. ITS would only be included as part of main lane construction. Both would be included appropriately in the construction plans.

- Traffic Flow Improvements: The objective of traffic flow improvements or TSM improvements is to: maximize the carrying capacity of the roadways; reduce the number of vehicles in queues; increase speed; increase roadway capacity; and reduce stops and delays. The IH 820 frontage road signals would be timed appropriately with other existing traffic signals on cross streets to optimize progression. Turning lanes at existing cross streets and frontage road intersections would be included where appropriate.
- HOV lanes: Mobility 2025 Update recommends (64 miles) of HOV lanes based on current and projected traffic congestion in the Dallas/Fort Worth Metropolitan Area. IH 820 was included in this evaluation, and only the section of IH 820 from IH 35W to SH 26 met the warrants for inclusion in the HOV system. TxDOT and NCTCOG would continue to assess the HOV demand in this corridor through the regional planning process.
- Improved Transit Service And Facilities: At this time, Haltom City and North Richland Hills are not members of Dallas Area Rapid Transit (DART) or the Fort Worth Transportation Authority (FWTA). Neither DART nor FWTA anticipates expanding their service to the area without local support. Fort Worth does provide transit service for the general population; however, Haltom City and North Richland Hills do not.
- Light/Commuter Rail Service: Mobility 2025 update recommends 106 kilometers (66 miles) of light rail as part of the DART light rail system and 60 kilometers (37 miles) of commuter rail on the RAILTRAN line. RAILTRAN, a regional commuter rail service, has a planned east-west line through the study area. The majority of this commuter line would use the former Chicago Rock Island & Pacific Railroad. Primarily, the line would serve east-west commuters with stations at various locations in the cities of Dallas, Irving, Arlington, Richland Hills, and Fort Worth. The year 2010 traffic projections were completed with both of these options included in the regional model.
- Bicycle And Pedestrian Improvements: Mobility 2025 Update recommends 711 miles of bicycle pedestrian facilities for the Dallas/Fort Worth Metropolitan Area. This project would be consistent with the bicycle transportation district. In addition, a Veloweb route is planned in an east-west line through the study area. The Veloweb route begins southwest of the SH 121/IH 820 interchange on the south side of SH 121 and proceeds east along SH 121 through the interchange and continues east to connect with the River Legacy Trail. The design of the interchange will accommodate the Veloweb route by providing for a grade-separated alignment through the ground level of the interchange that will be independent of the proposed roadway improvements. Shoulders of the frontage roads will be graded to provide for future sidewalks. Sidewalks will be provided north of SH 10 along the west side of IH 820/SH 121 in areas where they do not already exist to provide connectivity for the existing network.
- Travel Demand Management (TDM): TDM describes a wide range of actions aimed at improving mobility by lessening the travel demand on the transportation system

during peak periods to reduce air pollution and help solve transportation-related problems at individual work sites. The following describes various TDM strategies being promoted in the Dallas-Fort Worth area.

- Employee Trip Reduction (ETR) programs: An ETR program is a concept based on either voluntary or mandatory ETR ordinances to reduce employee commute vehicle trips.
- Telecommuting: Telecommuting is working at a location other than the conventional office.
- Parking Management: Parking management is a set of strategies used to balance the supply and demand for parking while addressing related issues such as traffic congestion, air pollution and commuter mobility.
- Park-and-Ride Lots: At least two park-and-ride lots have been constructed in the region since 1990 with additional opportunities being investigated. Mobility 2025 update includes several recommendations for the IH 820 corridor including a Park and Ride facility on IH 20/820 at IH 35W located southwest of the study area and IH 30 at IH 820 east located just south of the study area. This facility is being analyzed by the IH 30 MIS.
- Area-Wide Ridesharing: The Dallas-Fort Worth CMS cites ridesharing programs as key elements of the region's TDM efforts. Carpooling and vanpooling are likely to be of primary interest to people who live a long way from work.
    - Voluntary No-Drive Days: The voluntary ozone alert program encourages people to carpool/vanpool, ride transit, limit driving, bicycle, walk, delay vehicle refueling, etc to reduce the frequency and severity of ozone exceeding criteria.

The proposed action is consistent with the area's financially constrained metropolitan transportation plan known as Mobility 2025 updated as adopted by the NCTCOG, the metropolitan planning organization for the Dallas/Fort Worth region, in May 2001. Mobility 2025 update was determined to meet all requirements for conformity under the CAAA of 1990.

Congestion Management System Justification

A congestion management system (CMS) is a systematic process for managing traffic congestion. The CMS process provides information on transportation system performance and alternative strategies to alleviate congestion and enhance the mobility of persons and goods to levels that meet State and local needs. A CMS includes methods to monitor and evaluate performance, identify alternative actions, and evaluate the effectiveness of implemented actions. The IH 820 project was developed from the NCTCOG operational CMS, which meets all requirements of CFR 500.109. The CMS was adopted by NCTCOG in October 1993 (Mobility 2010 - Plan Update), in December 1996 (Mobility 2020), in July 2000 (Mobility 2025), and in May 2001 (Mobility 2025 updated).

Operational improvements and travel demand reduction strategies are commitments made by the region at two levels: program level and project implementation level. Program level commitments are inventoried by the regional CMS, which was adopted by the NCTCOG Regional Transportation Council. They would be included in the financially

constrained Metropolitan Transportation Plan, and future resources would be reserved for their implementation. The CMS element of the plan would carry an inventory of all project commitments (including those resulting from major investment studies) detailing type of strategy, implementing responsibilities, schedules, and expected costs. At the project implementation level, travel demand reduction strategies and commitments would be added to the regional Transportation Improvement Plan (TIP) or included in project construction plans. The regional TIP would provide for programming of these projects at the appropriate time with respect to the Single Occupancy Vehicle (SOV) facility implementation and project specific elements.

Committed congestion reduction strategies and operational improvements within the IH 820 project study boundary would consist of signalization and intersection improvements. These projects, which are included in the regional CMS, would be managed by the City of Fort Worth under the CMAQ program. A list of individual projects are available for review at the Fort Worth TxDOT District.

2.0 DESCRIPTION OF THE ALTERNATIVES

As previously discussed, a public meeting was held on May 11, 1993 and involved property owners along with other concerned citizens and officials discussing social, economic, environmental, and engineering considerations for this project. The alternatives summarized below were presented at this meeting. Alternative No. 3 was selected as the Preferred Alternative based on a comparison of the advantages and disadvantages of the various feasible alternatives and comments and concerns expressed at the public meeting.

Because the public meeting Alternative No. 3 was further revised to include reversible barrier-separated High Occupancy Vehicle (HOV) lanes. The HOV segments are part of the Mobility 2025 regional HOV system connecting IH 820/SH 121, the northeast loop of IH 820 to IH 35W and SH 183 to the Tarrant County Line. This HOV system was included in the TTI study referenced in Section 1.5 High Occupancy Vehicle System Justification. The terminus of the regional HOV system are located in this project for both IH 820 and SH 121 segments. The terminus is located approximately 200 feet south of Trinity Freeway for the IH 820 segment. The terminus is located at Handley-Ederville Road for the SH 121 HOV segment.

2.1 No Build Alternative

This alternative proposes to leave the existing IH 820 from the North Interchange at Randol Mill Road in Tarrant County as is but would not address the congestion concerns that are the most problematic issue. Normal routine maintenance would continue. Typical maintenance that would occur includes the following:

- Bridge Replacements
- Milling and overlaying of the roadway
- Minor rehabilitation
- Other activities such as signing, striping and patchwork

If the No-Build Alternative were implemented, no new right-of-way would be acquired. Therefore, the congestion along the corridor of the project would continue to increase.

2.2 Preferred Alternative

The proposed IH 820 roadway would continue to function as a system providing high vehicular mobility connecting service to SH 121. IH 820 is a controlled-access freeway. Private driveways and public streets (not including major crossroads) would have access to the one-way frontage road system with movements limited to right-turns in and right-turns out only. Access would not be permitted in close proximity to major crossroad intersections and ramp areas. Major crossroads intersecting with the one-way frontage road system with full access are: Handley Ederville Road, Hurst Boulevard/Baker Boulevard and Pipeline Road/Glenview Drive. Other major crossroads with IH 820 located south of the frontage road system are Randol Mill Road and Trinity Boulevard.

The proposed lane line diagram for Alternative 3 is shown on Exhibit 6 and the design schematic is shown on Exhibit 7.

There would only be minor changes in the alignment of IH 820 from the existing paved road to the proposed improvements, because the new alignment holds the same centerline as the existing alignment for most of the project limits. The project would combine the existing right-of-way with new acquisitions varying from side to side of SH 121 and IH 820. The new right-of-way would adjoin the existing right-of-way which varies from 350 feet to 400 feet and wider at interchange locations, and 375 feet for the transition segment of SH 121.

Frontage roads would be completed on both sides of IH 820 from Trinity Boulevard to Pipeline Road/Glenview Drive and on both sides of SH 121 from Hurst Boulevard/Baker Boulevard to Handley Ederville Road. All of the frontage roads proposed for the alternatives would provide two lanes for segments bordering SH 121. Frontage road segments on IH 820 vary from two to three lanes, depending on ramping configurations associated with the alternatives.

For all build alternatives, the north portion of the project from Pipeline Road/Glenview Drive to Hurst Boulevard/Baker Boulevard (approximately one mile) and the south portion of the project from Randol Mill Road to Trinity Boulevard (approximately 1.25 miles) is predominately contained within the existing right-of-way. The alignment of the middle portion of the project is controlled by interchange ramping movements and the existing SH 121 south interchange.

Alternative 3 provides an HOV lane in the center median for the IH 820 segment and an HOV lane located south of SH 121 westbound frontage road, north of the Trinity Railway Express track for the SH 121 segment. The median width was widened to include the HOV lanes and varies from 52.50 feet to 85 feet, including inside main lane shoulders of 10 feet and two concrete traffic barriers of 2.25 feet separating the HOV lanes from the main lanes. HOV ingress and egress is provided by main lane left exit and entrance at-grade slip ramps on both the IH 820 and SH 121 segments. The SH 121 HOV segment traverses through the interchange at ground level with the railroad. The IH 820 HOV segment remains at-grade with the IH 820 northbound main lanes and in the median. The two HOV segments combine to two lanes for approximately 500 feet and then are reduced over a 600 feet taper to one lane just north of the SH 10/SH 183 overpass. The one-lane HOV system remains at-grade in the median to approximately 2,000 feet south of the end of the project at Pipeline Rd./Glenview Dr. Due to restricted median width at Pipeline/Glenview Dr. an aerial structure over the median is required at this location. Existing and proposed typical sections are shown on Exhibit 8.

The alignment of the HOV study was set such that additional right-of-way is needed in locations where acquisitions were required before the HOV segments were added. Alternative 3 requires 59 acres of additional right-of-way.

The principal transportation, environmental, and other advantages and disadvantages of Alternative 3 are as follows:

Advantages:

* Provides direct ramp access from southbound IH 820 to Hurst/Baker Boulevard and from Pipeline/Glenview Drive to southbound IH 820.
* Provides direct access from northbound IH 820 to Pipeline/Glenview Drive.
* Provides direct ramp access from Northbound SH 121 to Hurst/Baker Boulevard.
* A singe-lane reversible HOV lane is provided to help meet vehicle reduction standards, thus improving air quality. HOV lanes encourage car pooling and car pooling reduces congestion.
* Improvement of air quality by reducing traffic congestion. Congestion causes vehicles to operate at irregular operating speeds and worsens air quality.
* Additional main lanes would exist in each direction resulting in an increase in traffic capacity to accommodate design year traffic. This would reduce congestion.
* Requires least number of relocations (3 businesses).
* The project encroaches on the parking lots of eight businesses.

Disadvantages:

* The frontage roads south of the Trinity Railway Express corridor are high in relation to the existing ground.
* The proposed ROW bisects improvements on 13 properties. Three of the bisected buildings would require relocation.

As previously discussed, the IH 820 project was initiated in 1992 and a preliminary engineering design for three build alternatives (Alternatives 1, 2, and 3) was prepared based on Year 2010 traffic estimates.

Alternative selection requires that the proposed roadway be compatible with the existing road network. The existing network is of concern at the termini of the northern project limit at SH 121 (north interchange), at the southern project limit at Randol Mill Road, at the western project limit at SH 121 (south interchange). All project termini for all of the alternatives are controlled by the need to intersect or interchange with existing facilities.

Drainage and temporary construction easements may be required; the location of which cannot be determined at this stage of project development.

2.3 Alternatives 1 and 2

Alternative 1: The project is being planned for a minimum right-of-way width of 350 feet with greater widths at IH 820 interchanges with Hurst Boulevard/Baker Boulevard, Trinity Boulevard, and SH 121 (south interchange) and places where cuts or fills result in increased width of side slopes. Frontage roads would be completed along both sides of IH 820 and SH 121 (south interchange) from Handley Ederville Road on the SH 121 corridor to Pipeline Road/Glenview Drive on the IH 820 corridor. The principal

transportation, environmental, and other advantages and disadvantages of Alternative 1 are as follows:

Advantages:

* Lower overall grades.
* Fewest potential noise impacts.
* Requires second lowest amount of additional right-of-way (46 acres).
* Frontage roads would improve access to adjacent properties along both sides of IH 820 and SH 121 (south interchange) from Handley Ederville Road on the SH 121 corridor to Pipeline Road/Glenview Drive on the IH 820 corridor.

Disadvantages:

* Additional traffic on the ramps north of Pipeline Road/Glenview Drive causes an estimated mid-Level of Service (LOS) E.
* Requires most relocation (2 residences and 27 businesses).
* Impacts most potential hazardous materials sites.
* Movements between the northern segments of IH 820 and proposed Trinity Freeway are not provided.

Alternative 2: For Alternatives 2, frontage roads would be completed along both sides of IH 820 and SH 121 (south interchange) from Handley Ederville Road on the SH 121 corridor to Pipeline Road/Glenview Drive on the IH 820 corridor. The principal transportation, environmental, and other advantages and disadvantages of Alternative 2 are as follows:

Advantages:

* Requires least amount of additional right-of-way (37 acres).
* Provides access from southbound IH 820 to Hurst/Baker Boulevard and from Pipeline Road/Glenview Drive to southbound IH 820. Also provides direct access from northbound IH 820 to Pipeline Road/Glenview Drive.
* Impacts fewest potential hazardous materials sites.
* Frontage roads would improve access to adjacent properties along both sides of IH 820 and SH 121 (south interchange) from Handley Ederville Road on the SH 121 corridor to Pipeline Road/Glenview Drive on the IH 820 corridor.

Disadvantages:

* Traffic from northbound IH 820 to Hurst/Baker Boulevard must travel through the intersection at Trinity Boulevard.
* Movements between the northern segment of IH 820 are not provided.
* Requires second highest number of relocations (21 businesses).
* Highest potential noise impacts.

An evaluation matrix prepared to summarize the results of a comparison of Alternatives 1, 2, and 3 is presented in Table 2.3-1

Table 2.3-1
Comparative Evaluation of Alternatives

	Alternative 1	Alternative 2	Alternative 3
Right-of-Way Acquisition (acres)	46	37	59
Wetland Impacts (acres)	5.7	8.1	1.8
Hazardous Materials Sites Impacted	10	8	9
Noise Receivers Impacted	42	49	44
Business Relocations (Buildings)	27	21	3
Residential Relocations	2	0	0

Note: Alternative 3 includes HOV lanes.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Land Use

As indicated in Table 3.1-1, the majority of the land in Tarrant County is urban uses. The largest land use category in Tarrant County is urban, which comprises 56% of the county. Agricultural uses (cropland and rangeland) comprise approximately 34% of the county's acreage. As in all urban areas, the amount of land devoted to agriculture is constantly decreasing. Forest land accounts for approximately 10% of the land use in Tarrant County.

Table 3.1-1
Tarrant County Land Cover

Type of Land Cover	Acres
Crop and Rangeland	195,405
Forest Land	57,472
Urban	321,843
Total	574,720

Source: U.S. Department of Agriculture, Natural Resource Conservation Service

Principal land use within the study area is commercial/industrial, mining and reclamation (industrial), conservation and residential. Land uses for the project study area are shown on Exhibits 2 and 7. Property ownership is primarily in large size blocks, with the exception of residential and commercial, which are smaller sized blocks. The density of cultural development is low and of minor concern in the project area. Critical community resources include Riverbend Park, Temple Baptist Church, Calvary Lutheran Church, Assembly of God Church, and the Quanah Parker Cemetery.

Platted subdivisions in the area include Hurst Hills, Howard Hills Estates, Walker Oaks, Green Wood, Payton Subdivision, River Trails, Richland Park, Stone Gate Mobile Home Park, and Billy Creek Estates.

The new frontage roads of a freeway are favorable for commercial development. The frontage roads allow for commercial uses to have direct exposure to the high speed transportation corridor with the speeds and access characteristics of an urban street. Commercial enterprises that depend on drive-by traffic are enhanced by locations which have high visibility and ease of access, both of which are provided by frontage roads. Residential development along roadways with frontage roads usually occurs behind the strip of commercial development. The commercial development acts as a buffer to the presence of the freeway and also limits access into the residential areas.

3.2 Social and Economic Impacts

The purpose of the evaluation of existing socioeconomic conditions is to identify areas and characteristics which may be affected by the proposed project. The evaluation emphasizes the area and neighborhoods in or adjacent to the proposed project study area.

However, to better understand the project study area in a regional context, both regional and project study areas are defined.

The regional study area is defined as Tarrant County, with emphasis on the cities of Hurst, Richland Hills, North Richland Hills, and Fort Worth. The project study area consists of populations and communities in close proximity to the proposed project, which have the potential to have either direct or indirect effects evaluated The demographic evaluation of the project study area is based upon nine different Tarrant County census tracts.

3.2.1 Population and Demographics

3.2.1.1 Population Trends

Tarrant County had a 2000 population of 1,446,740 of which approximately one third (534,694) live in the City of Fort Worth. In addition to Fort Worth, there are several other small cities in Tarrant County: Hurst (population 36,273), Richland Hills (population 8,132), and North Richland Hills (population 55,635).

Table 3.2-1 shows population trends for Texas, Tarrant County, Fort Worth, Hurst, Richland Hills, and North Richland Hills. During the period 1990 to 2000, Texas, Tarrant County, Fort Worth, Hurst, Richland Hills and North Richland Hills experienced slow rates of growth. From 1990 to 2000, population growth rates for Tarrant County (23.6 percent) exceeded State growth rates (18 percent) by slightly more than 5.0 percent. Growth rates for Fort Worth (19.5 percent) were 1.5 percent higher than those for the State. Growth rates for Hurst (8 percent) were 10 percent less than those for the State. Growth rates for Richland Hills (1.9 percent) were 16.1 percent less than those for the State. Growth Rates for North Richland Hills (21.2 percent) were 3.2 percent higher than those for the State.

As indicated by trend data for study area census tracts, growth rates in the study area have been substantially consistent over the past ten years with the State, County, and City. With the exception of census tract area 1065.10 (located within City of Fort Worth) which had a population growth of 216.7% over the past ten years, all were less than the state and county growth rates.

Table 3.2-1
State, County and City Population Trends

Year	Texas	Tarrant County	Fort Worth	Hurst	Richland Hills	North Richland Hills	Census Study Area Tracts
1990	16,986,335	1,170,103	447,619	33,574	7,978	45,895	29,495
2000	20,044,141	1,446,219	534,694	36,273	8,132	55,635	34,574
Percent Change 1990-2000	18	23.6	19.5	8.0	1.9	21.2	17.2

3.2.1.2 Population Characteristics

Race and Ethnicity

Racially and ethnically, whites make up the majority of the population in Tarrant County, City of Fort Worth, Richland Hills, Hurst, and North Richland Hills (See Table 3.2-2). Approximately 71.2 percent of the population in Tarrant County, 59.7 percent in the City of Fort Worth, 90.4 percent in the City of Richland Hills, 86.0 percent in the City of Hurst, and 88.5 percent in North Richland Hills are classified by the census as white. Blacks make up approximately 13 percent of the population in Tarrant County and 20.3 percent, 4.1 percent, 1.4 percent, 2.7 percent in the Cities of Fort Worth, Hurst, Richland Hills, and North Richland Hills, respectively. Tarrant County and the other cities within the project limits have little representation by persons of American Indian or Asian descent. Hispanics also make up a small percentage of the population, when compared to the Statewide rate of 24.9 percent. Only 19.7 percent in Tarrant County is Hispanic, while 29.8 percent in Fort Worth, 10.1 percent in Richland Hills, 11.0 percent in Hurst, and 9.5 percent of the population in North Richland Hills is Hispanic.

As Table 3.2-2 indicates, 73.8 percent of the population within the study area is white, a slightly higher proportions than the County and significantly higher than the City of Fort Worth.

Table 3.2-2
Racial and Ethnic Composition for Tarrant County, Fort Worth, Hurst, Richland Hills, North Richland Hills, and the Project Study Area

Race and Ethnicity	Tarrant County		Fort Worth		Hurst		Richland Hills		North Richland Hills		Project Study Area	
	Population	%	Population	%	Population	%	Population	%	Population	%	Population	%
Total Persons	1,446,219		534,694		36,273		8,132		55,635		34,574	
White	1,030,208	71.2	319,159	59.7	31,189	86.0	7,352	90.4	49,224	88.5	25,527	73.8
Black	185,143	12.8	108,310	20.3	1,499	4.1	117	1.4	1,501	2.7	5,245	15.2
American Indian	8,300	0.6	3,144	0.6	231	0.6	50	0.6	303	0.5	193	0.5
Asian or	54,846	3.8	14,446	2.7	769	2.1	104	1.3	1,568	2.8	1,077	3.1
Other	131,393	9.1	75,100	14.0	1,886	5.2	330	4.1	1,885	3.4	1,791	5.1
2 or More	36,329	2.5	14,535	2.7	699	1.9	179	2.2	1,154	2.1	741	2.1
Hispanic Origin (Any Race)	285,290	19.7	159,368	29.8	3,999	11.0	825	10.1	5,276	9.5	4,259	12.3

Source: U.S. Bureau of Census, 2000.
Note: The sum of percentages may not equal 100 due to rounding.
The 2000 Census provides a new category for persons who are of more than one race.

Income

As indicated in Table 3.2-3 the median household income for Tarrant County is $42,480, which is $8,002 more than the State's ($34,478). In addition, Tarrant County has a lower percentage of persons in poverty (166,332 or 11.5 percent) than the State of Texas, indicating a smaller gap in the number of high versus low-income families. The Department of Health and Human Services determined a low-income of $18,400 for a family of four. Median household incomes in the project study area are mostly higher than the State ($24,000) and Tarrant County's median household income ($28,000). Median incomes for the nine tract groups range from $22,339 to $48,684. The median income in seven of these tract groups falls between $28,000 to $40,875, with two tracts less than this range (U. S. Bureau of the Census, 1990).

Table 3.2-3
Median Household Income and Persons Below Poverty Level

Area[1]	Median Household Income (1989 $)	% Persons Below Poverty Level
Texas	27,016[d]	16.7[d]
Tarrant County	32,335[d]	11.5[d]
Census Tracts Within Study Area		
1065.10[a]	48,684	3.0
1065.11	48,684	6.2
1065.15[b]	22,339	15.5
1133.01	33,770	4.8
1133.02	30,479	7.0
1134.03	40,875	2.8
1134.05	32,922	9.4
1132.13[c]	40,373	3.5
1021.01	48,684	3.0

Notes.
Census 2000 data on median income and % poverty levels is unavailable therefore 1989 data was used for the census tracts data.
[1]Area is based on Census 2000 tract configuration, which has different boundaries and numbering system than 1990 Census Data.
[a]1990 Census shows this tract as a combination of tracts 1012.01 and 1065.10 (Census 2000 data).
[b]1990 Census lists this tract as 1065.06.
[c] 1990 Census lists this tract as 1132.05.
[d] 1992 S&M Buying Power
Source: U.S. Bureau of Census, 1990

3.2.1.3 Presidential Executive Order 12898-Environmental Justice

"Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," signed on February 11, 1994, requires each Federal agency to "make achieving environmental justice as part of its mission by identifying and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low income populations." A presidential memorandum accompanying Executive Order 12898 stated that Federal agencies should collect and analyze information

concerning a project's effects on minorities or low-income populations as identified in the NEPA of 1969.

Table 3.2-4 shows the racial and ethnic composition of the study area and indicates that no census tract has a larger representation of minorities than found in Tarrant County, as a whole. There are, however, two census tracts with a larger representation of Blacks than for the entire study. Also, five census tracts have a slightly larger representation of American Indians and one census tract has a larger representation of Asian or Pacific Islander than in the study area and Tarrant County. Income data (Table 3.2-3) indicates that all census tract areas in the study area have a median income, which is comparable to the Median household income for Tarrant County.

Table 3.2-4
Racial and Ethnic Composition of Census Tracts in IH 820 Study Area

Census Tract	White	Black	American Indian	Asian or Pacific Islander	Other Race	Two or More Races	Hispanic Origin
1065.10	71.6	11.5	0.4	10.3	3.5	2.5	11.3
1065.11	55.2	35.4	0.5	3.5	3.3	2.2	9.8
1065.15	36.7	54.8	0.1	1.9	4.5	2.0	11.3
1012.01	78.4	4.9	0.9	3.0	10.8	2.0	32.2
1133.02	85.2	2.1	0.4	2.3	7.1	2.8	14.3
1133.01	93.7	0.7	0.8	0.9	2.2	1.7	6.9
1134.05	80.3	5.3	0.8	2.2	9.2	2.2	17.3
1134.03	90.4	1.9	0.7	2.4	2.8	1.9	6.8
1132.13	89.9	2.1	0.7	1.6	4.0	1.7	8.5
Study Area	73.8	15.2	0.5	3.1	5.1	2.1	12.3
Tarrant County	71.2	12.8	0.6	3.8	9.1	2.5	19.7

Population Projections

Comparative population forecasts for Tarrant County are indicated in Table 3.2-5. The Texas State Comptroller forecasts an increase of only 6.9 percent from 1990 to 2020, while the Texas Water Development Board and the Texas Department of Commerce forecast growth at 28.1 percent and 20.7 percent respectively for the same time period. Based upon past trends, projected population rates are anticipated to be in the higher forecast ranges.

Table 3.2-5
Comparative Population Projections for Tarrant County

Year	Texas Water Development Board[1]	Texas State Comptroller
1980	NA	NA
1990	1,170,103	1,170,103
2000	1,415,759	1,346,678
2010	1,594,218	1,542,873
2020	1,798,894	1,681,177

Sources: Texas Water Development Board, (2000); Texas State Comptroller (2000), Texas Department of Commerce (2000)

Population growth is expected to continue at current or higher levels, exceeding growth rates in the City of North Richland Hills (Table 3.2-6). North Richland Hills, which lies on the northern western edge of the project area, is projected to have substantial population growth, which is consistent with past growth trends. One may also reasonably expect that most of the growth in Tarrant County would follow past trends and continue to concentrate in the southwestern portion of the county.

Table 3.2-6
Texas Water Development Board Population Projections for Areas in Tarrant County

City	1990	2000	2010	2020
Fort Worth	447,619	496,622	532,717	580,375
Hurst	33,574	36,985	38,799	40,939
North Richland Hills	45,895	55,884	67,363	81,200
Richland Hills	7,978	8,886	10,379	12,109
County-Other	635,037	817,302	944,960	1,084,271

Development near project limits is expected to continue and the community would be better served by the improved facility. The proposed action is not expected to impact any of the areas in terms of population growth.

3.2.2 Community/Public Resources

Housing

As indicated in Table 3.2-7, the median value for owner occupied housing units in the study area ranges from $57,500 to $150,000. Of the 439,335 housing units within the project area in 1990, the majority are owner-occupied. As shown in Table 3.2-7, housing values exceeded the median values in all but one census tract for the State and in all but two census tracts in Tarrant County.

Table 3.2-7
Median Owner Occupied Housing Unit Value and Total Housing Units, 1990

Area[1]	Median Owner Occupied Housing Value ($)	Total Housing Units
Texas	59,600	6,079,341
Tarrant County	72,900	439,335
Census Tracts Within Study Area		
1065.10[a]	87,000	435
1065.11	67,500	1767
1065.15[b]	150,000	5460
1133.01	87,000	1894
1133.02	57,500	1638
1134.03	87,000	1157
1134.05	87,000	2055
1132.13[c]	87,000	2965
1021.01	87,500	435

Notes. Census 2000 data on median income and % poverty levels is unavailable therefore 1989 data was used for the census tracts data.
[1]Area is based on Census 2000 tract configuration, which has different boundaries and numbering system than 1990 Census Data.
[a]1990 Census shows this tract as a combination of tracts 1021.01 and 1065.10 (Census 2000 data).
[b]1990 Census lists this tract as 1065.06.
[c] 1990 Census lists this tract as 1132.05.
[d] 1997 model-based estimate
Source: U.S. Bureau of Census, 1990

No major effect on adjacent property values or any change to the local tax base is anticipated.

Schools

Nine school districts are located within Tarrant County. Within the study area there are three school districts: Hurst-Euless-Bedford Independent School District (ISD), Fort Worth ISD, and Birdville ISD. The schools include St. John the Apostle School, Richland Middle School, West Hurst Elementary School, Donna Park Elementary School, Hurst Jr. High and Hurst Hills Elementary School.

Churches/Other Facilities

There are thirty-one churches and one cemetery in the study area, but none fall directly in the right-of-way for the proposed alternative. The cemetery located in the study area is the Quanah Parker Cemetery.

No public facilities would be displaced; however, Texas State Department of Public Safety Narcotics Division, Jaycee Baker Park, River Bend Park, Friendship Baptist Church, Calvary Lutheran Church, Kingdom Hall-Jehovah's Witness, Hope Mennonite Church-Ft. Worth, North Texas Central Council, Victory Assembly of God, Jimmy Morgan Evangelistic Churches are located near the project. Accessibility to these public facilities would be improved.

3.2.3 Neighborhoods/Community Cohesion

General Characteristics

The project study area does not form a cohesive neighborhood or community as a whole, but rather has been developed over the past 20 years as a collection of scattered subdivisions and individual residences. Within the more developed subdivisions, there are generally cohesive neighborhoods, with similar housing types, school attendance, and identity of residents. Other, less dense residential groupings follow roadways and are interspersed with business operations.

The residents of the project study area typically are linked economically and socially to the Cities of Fort Worth, Hurst, Richland Hills, and North Richland Hills. The majority of resident's work, shop and attend churches in the cities.

Neighborhood Characteristics.

Field surveys were conducted of the project study area. Table 3.2-8 indicates subdivisions in the vicinity of the proposed alternatives. The survey suggests that the majority of the subdivisions form cohesive neighborhoods.

The majority of the subdivisions proximate to the proposed alternative are relatively homogenous with respect to building style and materials. Typically, those subdivisions with larger homes and lot sizes are of brick construction, have curbed streets, landscaping, and large trees. Other subdivisions within the project area also evidence brick construction, although homes are somewhat smaller in size (e.g. Hurst Hills).

Table 3.2-8
Selected Subdivisions by Census Tract

Census Tract	Subdivision
1065.10	Lakes of River Trails, River Trails,
1065.11	Stonegate Mobil Home Park, Sandybrook
1065.15	Woodhaven Country Club Estates, Woodhaven East, Woodbridge, Sunset Oaks,
1133.01	Richland Hills, McCoy, Jennifer Heights, Willman, Edgley, Mayfield
1133.02	Richland Park
1134.03	Reaves Park, Woodland Park, Richland Oaks, Continental, Glenview, Edgewood, Forest Oaks West, Donna Park
1134.05	Hurst Hills, Green Wood, Howard Hills Estates, Walker Oaks, Billy Creek Estates, Redbud Estates, Walker Branch Estates, Oak Timber, Oak Point, Cedar Ridge Townhomes, Blanton Park, Jordan, Raintree, Plantation West, Hayworth
1132.13	Richland Heights, Lynncrest, North Richland Hills, Kelly Estates, North Edgley
1021.01	Industrial

There would be no major change in community cohesion. Neighborhood character would be unchanged. Accessibility and community circulation would generally improve. No adverse impact on minority or other specific groups is anticipated.

The preferred Alternative would require three business relocations. The businesses include portions of a public storage facility, an auto repair shop, and one office facility (housing medical offices and an adoption agency). These businesses are dependent on vehicular traffic and can be relocated in the area. In addition, a slight right-of-way take of driveway/parking areas for a motorcycle sales business, a service station, an office building, and an industrial park would also occur, however, the businesses would not have to relocate. Because there would be few business displacements, the economy of the community should not be adversely affected. A list of businesses to be relocated and encroached upon is provided in Table 3.2-9.

Table 3.2-9
Potential Business Relocations and Encroachments

Business	Type of Business	Portion of Facility Affected
Public Storage Facility 7601 Airport Freeway Richland Hills, Tx.	Self Storage Facility	Removal of driveway, office building and one storage building
Mid-Cities Frame & Body 104 Booth Calloway Rd. South Hurst, Tx 76053	Frame, Paint and Body Repair Shop, salvage, and wrecker service	Removal of Building and outside auto storage area
Office Building 305 N.E. Loop 820 Hurst, Tx. 76053	Office building contains medical offices and adoption agency	Removal of the building and parking area
Office Building 223 N.E. Loop 820 Hurst, Tx. 76053	Vacant	Encroachment of parking area
Texaco 7301 Airport Freeway Richland Hills, Tx	Service Station	Encroachment of driveway
Yamaha Suzuki of Texas 1505 W. Hurst Blvd. Hurst, Tx 76053	Sales, parts, service for motorcycles, four wheelers, and wave runners	Encroachment of parking area
Freeman Toyota/Mazda 701 NE Loop 820 Hurst, Tx 76053	Car dealership	Encroachment of parking area
Putt-Putt Golf & Games 609 NE Loop 820 Hurst, Tx 76053	Entertainment	Encroachment of parking area

Table 3.2-9
Potential Business Relocations and Encroachments
(Continued)

Business	Type of Business	Portion of Facility Affected
Saturn of Hurst 555 NE Loop 820 Hurst, Tx 76053	Car dealership	Encroachment of parking area
Office Building 235 NE Loop 820 Hurst, Tx 76053	Office building containing ATI Career Center and several other businesses	Encroachment of parking area
Office Building 231 NE Loop 820 Hurst, Tx 76053	820 Northeast complex contains several businesses	Encroachment of parking area
Office Building 227 NE Loop 820 Hurst, Texas 76053	US Alarm Systems, Inc.	Encroachment of parking area
Best Western Hotel 125 NE Loop 820 Hurst, Texas 76053	Hotel	Encroachment of parking area

During construction, there would be a short-term economic gain to the area due to new job opportunities and a temporary boost to the local economy. Road users, including occupants of abutting property, would receive long-term economic benefits, resulting from lower vehicle operating costs and improved safety.

Under the preferred Alternative, no residential relocations would occur. Relocation assistance is available to all businesses, and non-profit organizations displaced by public transportation projects, in accordance with Title VIII of the Civil Rights Act of 1968 and the HUD Amendment Act of 1974.

In general, public utility adjustments along the project corridor would be minor except in the vicinity of the IH 820/SH 121 south interchange where more complex utility relocations may be required. Emergency vehicle routing would be possible at all times during construction. Restricting conditions that may occur would be coordinated with the proper local agencies. Fire protection and other emergency services response times would be improved due to the ease of travel afforded by completion of the project.

The expanded roadway would provide improved travel for bus or special transportation services should they use this roadway and improved access to a future Trinity Railway Express passenger station nearby. The Fort Worth "T" mass transit system utilizes IH 820 from the SH 121 south interchange to the SH 121 north interchange several times daily as part of its "Airporter Run" route from downtown Fort Worth to the Dallas-Fort Worth International Airport. A Trinity Railway Express passenger station has been built in the southwest quadrant of SH 121 and Handley Ederville Road.

No navigation, airway clearance problems or other special permits are anticipated. The nearest airport, Meacham Field, is located approximately 8.2 miles northwest of the

project, the Dallas-Fort Worth International Airport is approximately 11 miles northeast of the project. Runway approaches do not cross the project.

The proposed IH 820 project would maintain the existing interchanges at Glenview/Pipeline Road, Randol Mill Road and the grade separation for the Dallas-Fort Worth Trinity Railway Express corridor. In addition, the project would involve upgrading the interchanges at Baker/Hurst Boulevard and Trinity Boulevard and would involve major redesign and modification of the SH 121 south interchange to bring it to modern design and safety standards and to accommodate full connection with the proposed Trinity Freeway.

3.3 Section 4(f) Properties

Section 4(f) lands, such as parks, recreation areas or wildlife and waterfowl refuges located near this project are River Bend Park (approximately 200 feet from the proposed project), located along the West Fork Trinity River, Jaycee Baker Park (approximately 400 feet from the proposed project) located along Calloway Branch and a conservation easement located adjacent to the proposed project on the east side of IH 820 from south of Trinity Boulevard to West Fork Trinity River. No land would be required from any of these sites. There are no other 4(f) lands impacted by the project.

3.4 Cultural Resources

Standing Structures

No buildings, bridges, structures or objects appearing to be 50 years of age or older are located within 150 feet of the project area.

Archeology

The TARL records search revealed no previously recorded archeological sites within or adjacent to the project area. A copy of the Texas Archeological Research Laboratory (TARL) report can be reviewed at the TxDOT District offices.

The project is located in an area that is predominantly commercially developed and the Soil Survey of Tarrant County indicates that the majority of the proposed ROW has been previously affected by mining activities. TxDOT anticipates SHPO concurrence that the project area does not contain settings with reasonable potential to contain intact archeological materials eligible for listing on the National Register of Historic Places or designation as State Archeological Landmarks.

Existing bridges over the West Fork of the Trinity River and Calloway Branch are proposed to be widened to accommodate two additional lanes each direction. One to two additional bridge support columns would be needed in alignment with the existing columns along with bridge abutment and approach embankment widening.

If evidence of archaeological deposits is encountered during construction, work in the immediate area would cease and TxDOT archaeological staff would be contacted to initiate accidental discovery procedures under the provisions of the Programmatic Agreement between TxDOT, the Texas Historical Commission, the Federal Highway Administration and the Advisory Council on Historic Preservation.

3.5 Aesthetic Considerations

Aesthetic values would be emphasized. It is a TxDOT policy to build visually pleasing travel ways, coupling beauty with functional capacity. The aesthetic effect of this project is anticipated to be equal to or better than that of the existing roadway.

3.6 Water Impacts

Water bodies within the project area include the West Fork Trinity River, Mosier Valley Lake, Calloway Branch and Stream WF-9 (an unnamed tributary of the West Fork Trinity River). Stream WF-9 is located along the west side of IH 820, flowing south beneath SH 121 to north of Trinity Boulevard, then east beneath IH 820, then southeast to the river. There would be no major change in water quality, and the project would not adversely affect public water supplies. The project would not cause an impoundment of waters.

The West Fork Trinity River, Stream WF-9, and Calloway Branch have been designated as Federal Emergency Management Agency (FEMA) regulatory floodplains within Tarrant County, which is a participant in the FEMA program. Floodplains and floodways are shown on Exhibit 3. The proposed project would not increase the base flood elevations to a level which would violate the applicable floodplain regulations and ordinances.

Existing bridges over the West Fork of the Trinity River, Mosier Valley Lake, and Calloway Branch are proposed to be replaced to accommodate two additional lanes each direction. One to two additional bridge support columns would be needed in alignment with the existing columns. A USACE Nationwide Permit #25 for Structural Discharges would be assumed for the proposed bridges. The proposed work within the WF-9 Stream would include grading, excavation and construction of a box culvert within the stream area. Immediately downstream of the box culvert the stream would contain concrete and rock riprap for water velocity control. The stream area permanently affected by discharges of fill is estimated to be 0.2 acres. A Nationwide Permit #14 Linear Transportation Crossings without a Pre-Construction Notification (PCN) is currently assumed for the proposed work. However, if during the permitting process it is determined that a PCN is required one will be submitted to the U.S Army Corps of Engineers (USACE).

A Texas Commission on Environmental Quality (TCEQ) 401 Water Quality Certification Conditions for USACE Nationwide Permits would be assumed. This certification describes best management practices (BMP) to be in place for on-site water quality management until the project area has been stabilized.

As a result of impacts to jurisdictional waters associated with the construction of this project, Tier I Erosion Control, Post-Construction Total Suspended Solids (TSS) Control and Sedimentation Control devices would be required under the TCEQ Section 401. At least one Erosion Control device would be implemented and maintained until construction is complete. Erosion Control devices to be used include temporary vegetation, blankets/matting, mulch and sod. Also at least one Post-Construction TSS Control device would be implemented upon completion of the project. Post-Construction TSS Control devices to be used include retention irrigation, extended detention basins

and vegetative filter strips. In addition, at least one Sedimentation Control device would be maintained and remain in place until completion of the project. Sedimentation Control devices to be used include sand bag berms, sit fences, triangular filter dikes, rock berms and hay bale dikes.

Because the project would disturb more than one acre, TxDOT would be required to comply with the TCEQ Texas Pollutant Discharge Elimination System (TPDES) General Permit for Construction Activity. This would be accomplished by filing a Notice of Intent (NOI) to comply with TCEQ stating that TxDOT would have a Storm Water Pollution Prevention Plan (SW3P) in place during construction of the proposed project. No long term water quality impacts are expected as a result of the proposed project.

Existing bridges over the West Fork of the Trinity River are proposed to be replaced to accommodate two additional lanes each direction. The USACE has identified this area of the West Fork of the Trinity River as navigable waters up to Riverside Drive in Fort Worth, Tarrant County. Since the area of impact is within navigable waters a Section 10, USACE, and a Section 9, U.S. Coast Guard Permit would be required.

3.7 Wetland Impacts

Wetland and open water systems identified within the study area are illustrated on inventory maps available for review at the TxDOT Fort Worth District. Wetland areas have been estimated using aerial photography, and other available sources. Groundtruthing of the right-of-way area supported the assumption that the soils were generally supporting wetlands and were located on hydric soil and supported hydrophytic rooted vegetation. Photographs of the wetlands and open water systems observed are included in Appendix A. Photograph locations are indicated on Exhibit 9.

Field delineation and surveying of wetland boundaries were not performed. A complete wetlands delineation using accepted Corps of Engineers methods would be conducted for the preferred alternative, along with detailed mitigation plans suitable for inclusion in a Section 404 permit for the proposed project.

Alternative 3 may have potential wetland impact areas. The potential impacts to the wetlands would consist of the placement of roadway and/or bridge structures in the resource. Impacts to wetlands would be direct, indirect, and temporary. Direct impacts would include the alteration of the vegetation, soils and hydrology within the wetland areas. The vegetation would be mowed or removed in preparation for construction. The soils would be graded and filled, in the form of additional soil, concrete and roadway. Heavy equipment would compact the soils which often alters their drainage capability. The hydrology would be altered with changes in topography and vegetation, as runoff and drainage flow is diverted directly or indirectly during construction.

It is expected that after construction have ceased and the wetland areas have returned to approximately normal conditions, wildlife species would return to their prior utilization of the remaining wetland areas. Disturbed areas would re-vegetate except where the soils have been severely or permanently affected (sterile fill or paving), provided that

sufficient light and water are available after construction is completed. A native seed source for natural re-vegetation is readily available in this area.

The acreage's listed in Table 3.7-1 are the maximum acreage's that would be impacted by the preferred alternative and are based on the width of the hydric soil times the width of the construction limits of the roadway fill area.

As summarized in Table 3.7-1, the approximate amount of potentially affected "wetland" areas in acreage and the type of permit assumed are provided. Where water impacts are estimated to be greater than 0.10 acre, all efforts to minimize the impacts would be made during the final design stage, or PCNs would be processed, as required. All wetland areas are single and complete because this is a linear project crossing separate individual waterbodies.

Table 3.7-1
Potential Wetland Impacts

Wetland No.	Alternative 3 (affected acres)	Impact	Type of Permit
1	0.0	No Impact	N/A
2	0.4	P, I, T	NW #14-PCN
3	0.2	P, I, T	NW #14-PCN
4	0.3	P, I, T	NW#14-PCN
5	0.0	No Impact	N/A
6	0.0	No Impact	N/A
7	0.0	No Impact	N/A
8	0.2	P, I, T	NW#14-PCN
9	0.0	No Impact	N/A
10	0.3	P, I, T	NW#14-PCN
11	0.0	No Impact	N/A
TOTALS	**1.4 ac.**		

Notes: All the data listed above for Alternative 3.
P = Permanent Impact (i.e. foot print of dredge or fill material)
I = Indirect Impact (i.e. impact caused by the direct impact; working area for the construction)
T = Temporary Impact (i.e. stockpile fill material, construction pad)

NW # –PCN = Nationwide Permit #- Single Pre-Construction Notice
N/A Not Applicable

3.8 Prime and Unique Farmland Impacts

As the additional right of way is zoned for urban or conservation land uses, the proposed project is exempt from the requirements of the Farmland Protection Policy Act (FPPA) and requires no coordination with the National Resource Conservation Service (NRCS).

3.9 Plant and Wildlife Impacts

Types of vegetation along this project consists primarily of maintained highway right-of-way (grasses), upland forest, bottomland hardwood forest, mid-successional forest community, disturbed lands with sparse vegetation, natural and man-made ponds, and riverine areas.

Densely vegetated areas are located on the west side of IH 820 between the Trinity Railway Express Corridor and Trinity Boulevard and south of the Mosier Valley Lake, in association with the West Fork Trinity River. Dominant species within these forested systems include: Eastern cottonwood (Populus deltoides) and hawthorn (Crataegus sp.), Black willow (Salix nigra) is common along the West Fork Trinity River.

On the east side of the highway, forested areas exist from the Trinity Railway Express corridor south to immediately south of the West Fork Trinity River. The forested communities located between the Trinity Railway Express corridor and Trinity Boulevard are comprised of upland and wetland habitats significantly disturbed by mining reclamation activities. In addition, numerous trails observed in this area indicate frequent use by recreational off-road vehicles. Open water borrow pits excavated as a result of mining activities are also present. These communities would be disturbed by all alternatives at the proposed IH 820/Trinity Freeway interchange.

The land adjacent to the existing right-of-way contains designated conservation easements as part of an active USACE permit for mining activities occurring north of the river. The preferred alternative does not require additional right-of-way at this location. As a result, impacts to this conservation area are not proposed. The USACE has also indicated similar active permit applications on property located west of IH 820; however, further coordination revealed that these lands are not in close proximity to the proposed project and would not be impacted.

Most of the land located east of IH 820 between Trinity Boulevard and the West Fork Trinity River is forested. Impacts to wooded areas within the proposed right-of- way were estimated by groundtruthing the area and performing an individual count of all the trees within the proposed right-of-way. It is estimated that a total of 25 trees with a diameter at breast height (DBH) of 6 inches or greater may be impacted. The approximate tree canopy is twenty feet high with low density vegetation below, over a four acre area. Cottonwood (Populus deltoides), Black Willow (Salix nigra), Hackberry (Celtis laevigata), Black Hickory (Carya texana) and American Elm (Ulmus americana) were the most common trees encountered within the right-of-way. A summary of the tree

count is shown in Table 3.9-1. Every effort would be made to preserve trees in interchange areas, medians, and other areas where they neither compromise safety nor substantially interfere with the project's construction.

Dominant understory vegetation within the right-of-way consists of poison ivy (Toxicodendron radicans), mustang grape (Vitis mustangensis), green-brier (Smilax bona-nox), johnsongrass (Sorghum halepense), cat-tail (Typha latifolia), rush (Juncus sp.), Virginia creeper (Parthenocissus quinquefolia) acacia (Acacia sp.), and sumac (Rhus copallinum)

Table 3.9-1
Tree Count

Species	(# of Trees Found) – Diameter at Breast Height (Inches)
Cottonwood	10-12", 4-14", 2-17"
Black Willow	1-6", 3-7"
Hackberry	3-8"
Black Hickory	1-7"
American Elm	1-16"

The proposed project would remove various amounts of wildlife habitat. Alternative 3 could affect approximately 25 trees as summarized in Table 3.9-1. Impacts to fish and wildlife species would be minimized through avoidance of habitat, prevention and /or minimization of soil erosion and potentially compensatory mitigation for impacts to wetlands.

There would be no major impacts on fish and wildlife species. Tarrant County is within the distribution pattern of one federally listed endangered species. This endangered species is the whooping crane (Gnus americana); however, correspondence with the U.S. Fish and Wildlife Service reveals that this project is not anticipated to impact this species. This correspondence is available for review at the Fort Worth TxDOT District. Federally listed threatened and endangered species whose migratory corridor includes Texas or part of Texas are the interior least tern (Sterna antillarum), piping plover (Charadrius melodus) and Aplomado falcon (Falco femoralis septentrionalis). Suitable habitat for these species does not exist within the proposed right-of-way. However, the Federal and State listed endangered interior least tern (Sterna antillarum), though not known to occur in the immediate project area, has been found associated with mining operations and gravel pits. Since the project is located along a major waterway (the Trinity River) and could potentially have habitat remaining from gravel pits this project may have the potential to impact this species, if habitat is present. There was no habitat was observed for this species.

3.10 Air Quality Impacts

The project is located within Tarrant County and is within the boundary of the NCTCOG Transportation Management Area (TMA). This area is designated a serious non-attainment area for ozone. An area is designated as non-attainment when one or more of the National

Ambient Air Quality Standards (NAAQS) are not met. Because the project is located in a region that is in non-attainment of the NAAQS, the transportation conformity rule applies. Other air quality levels should continue to meet federal standards. Under the provisions of the Clean Air Act, states are required to develop and submit to the EPA a State Implementation Plan (SIP) for each non-attainment area.

All projects in the Dallas-Fort Worth Metropolitan Area 2002-2004 Transportation Improvement Program (TIP) that are proposed for federal or state funds were initiated in a manner consistent with the federal guidelines in Section 450 of Title 23 CFR and Section 613.200, Subpart B of Title 49 CFR. The proposed action is consistent with the area's financially constrained metropolitan transportation plan known as Mobility 2025 (January 27, 2003) Update and the 2002-2004 Transportation Improvement Program found to conform to the Clean Air Act Amendments of 1990, by the US DOT on October 19, 2001.

The primary pollutants from motor vehicles are carbon monoxide, unburned hydrocarbons, and oxides of nitrogen (NO_x). Hydrocarbons and NO_x can combine in a series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone (O_3) and nitrogen dioxide (NO_2). Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources. These pollutants are regional problems.

The modeling procedures of O_3 and NO_2 require long-term meteorological data and detailed area-wide emission rates for all potential sources (industry, business, and transportation) and are normally too complex to be performed within the scope of an environmental document for a highway project. Modeling concentrations of these pollutants for the purpose of comparing the results with the NAAQS is conducted by the regional air quality planning agency for the SIP.

Using the CALINE3/MOBILE5A computer program and the following traffic data, carbon monoxide (CO) concentrations were determined in accordance with the TxDOT requirements in the Air Quality Guidelines.

Carbon monoxide concentrations for the proposed action were modeled using design year levels for the most traveled section of IH 820 that occurs within the project area.

Overall, air quality would improve from the construction of this project. A microscale CO analysis was conducted for three scenarios: the existing condition, the no-build condition, and the build condition. Table 3.10-1 lists the existing and design year traffic volumes, emission factors, carbon monoxide concentrations, and percent of the NAAQA for the existing and proposed facilities for the one-hour and eight-hour CO concentration levels.

Table 3.10-1
Air Quality Analysis
Predicted One-Hour And Eight-Hour Worst-Case
Carbon Monoxide Concentration In The Vicinity Of IH 820
IH 820 from the North Interchange at SH 121 to Randol Mill Road

	Traffic Volume	CO Concentration [1]		%NAAQS [2]	
Year	ADT (vpd)	One-Hour (ppm)	8-Hour (ppm)	One-Hour (ppm)	8-Hour (ppm)
2000 Existing	115,500	4.9	2.4	14	26.7
2010 No Build	171,400	17.5 [3]	7.5 [3]	50 [3]	83.3 [3]
2010 Build	171,400	4.9 [4]	2.4 [4]	14 [4]	26.7 [4]

[1] Includes an ambient concentration of 1.8 ppm for the one-hour averaging time and Includes an ambient concentration of 1.2 ppm for the 8-hour averaging time.

[2] One-hour NAAQS of 35 ppm and an 8-hour NAAQS of 9 ppm -Ambient Air Quality Standards for carbon monoxide – levels considered not to pose any significant health risks.

[3] Assumed speed of 30 mph.

[4] Assumed speed of 60 mph.

Carbon monoxide background (ambient) concentrations of 1.8 parts per million (ppm) by volume for a one-hour average and 1.2 ppm for an 8-hour average were used in the above analysis. The National Ambient Air Quality Standard (NAAQS) for CO is 35 ppm for one-hour and 9 ppm for 8-hours. Carbon monoxide concentrations were modeled under the worst meteorological conditions (wind speed of 1 m/s; wind bearing of 90 degrees; stability class of 5; surface roughness of 100 cm; mixing height of 1000 meters). As shown in Table 3.10-1, the design year 2010 CO concentrations are 4.9 ppm, including a background concentration of 1.8 ppm or 14% of NAAQS for one-hour and 2.4 ppm or 26.7% of NAAQS for 8-hour. This occurs along IH 820 between the Randol Mill Road on-ramp and Trinity Boulevard off-ramp.

The existing CO concentration was calculated along the project for the year 2000. The resulting one-hour concentration of 4.9 ppm or 14% of NAAQS for one-hour and 2.4 ppm or 26.7% of NAAQS for 8-hour.

The no-build condition for the year 2010 was modeled similarly. The calculated one-hour CO concentration of 17.5 ppm is 50 % of NAAQS for one-hour and 7.5 ppm or 83.3% of NAAQS for 8-hour. This results in a 257 percent increase over the existing CO concentration level. The no-build CO concentration level for the year 2010 is 257 percent higher than the 4.9 ppm calculated for the build alternative.

The control of particulate matter emanating from various construction activities would be in accordance with Texas Commission on Environmental Quality (TCEQ) regulation. To minimize exhaust emissions, contractors would be required to use emission control devices and limit unnecessary idling of construction vehicles.

Included in this project's contract would be the TxDOT standard specification for construction that requires the contractor to be familiar and comply with all federal, state, and local laws, ordinances, and regulations that affect the conduct of work. The construction, maintenance, and operation of this facility would be consistent with the SIP as prepared by the TCEQ.

Topography and meteorology would not seriously restrict dispersion of air pollutants. Local concentrations of CO under the worst meteorological conditions are not expected to exceed national standards at any time.

3.11 Noise Impacts

This analysis addresses the preferred alternative and conforms to Federal Highway Administration (FHWA) Regulation 23 CFR 772, *"Procedures for Abatement of Highway Traffic Noise and Construction Noise"* and *TxDOTs 1996 Guidelines for Analysis and Abatement of Highway Traffic Noise.*

Sound from highway traffic is generated primarily from a vehicle's tires, engine and exhaust. It is commonly measured in decibels and is expressed as "dB." Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sounds. This adjustment is called A-weighting and is expressed as "dBA." Also, because traffic sound levels are never constant due to the changing number, type and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "Leq." Common sound/noise levels are presented in Table 3.11-1.

Table 3.11-1
Common Sound/Noise Levels

Outdoor	DBA	Indoor
Pneumatic hammer	100	Subway Train
Gas lawn mower at 1 meter	90	Food blender at 1 meter
Downtown (large city)	80	Garbage disposal at 1 meter
Lawn mower at 30 meters	70	Vacuum cleaner at 3 meters
Air conditioning unit	60	Clothes dryer at 1 meter
Quiet urban (daytime)	50	Dishwasher (next room)
Quiet urban (nighttime)	40	Library

The traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise.
- Determination of existing noise levels.
- Prediction of future noise levels.
- Identification of possible noise impacts.
- Consideration and evaluation of measures to reduce noise impacts.

The FHWA has established the following Noise Abatement Criteria (NAC) for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur (Table 3.11-2).

Table 3.11-2
FHWA Noise Abatement CriteriaIH 820/SH 121

Activity Category	DBA Leq	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, park, residences, motels, hotels, schools, churches, libraries and hospitals.
C	72 (exterior)	Developed lands, properties or activities not included in categories A or B above.
D	--	Undeveloped lands.
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

NOTE: primary consideration is given to exterior areas (Category A, B, or C) frequently used by humans. However, interior areas (Category E) are used if exterior areas are physically shielded from the roadway, or if there is little or no human activity in exterior areas adjacent to the roadway.

A noise impact occurs when either the absolute or relative criterion is met:

Absolute criterion: The predicted noise level at receiver approaches, equals or exceeds the NAC. "Approach" is defined as one dBA below the NAC. For example: a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dBA or above.

Relative criterion: The predicted noise level substantially exceeds the existing noise level at a receiver even though the predicted noise level does not approach, equal or exceed the NAC. "Substantially exceeds" is defined as more than 10 dBA. For example: a noise impact would occur at a Category B residence if the existing level is 54 dBA and the predicted level is 65 dBA (11-dBA increase).

When a traffic noise impact occurs noise abatement measures must be considered. A noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area.

The FHWA traffic noise modeling software was used to calculate existing and predicted traffic noise levels. The model primarily considers the number, type and speed of vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

Existing and predicted traffic noise levels (Table 3.11-3) for 2000 and 2020 were modeled at five Category B and one Category E representative, worse-case receiver locations (Exhibit 10) in land use activity areas (residences, school, churches, recreation areas and apartments) that might be impacted by traffic noise and that may potentially benefit from reduced noise levels.

Table 3.11-3
Traffic Noise Levels (dBA Leq)

Representative Receivers	Receiver Description	NAC Category	NAC Level	Existing (2000)	Predicted 2020 Alt 3	Noise Impact
A	Temple Days Pre-school, Temple Baptist Church, and residential sites	B	67	62	63	No
B	Recreation	B	67	69	69	Yes
C	Single-family residences and the Assembly of God Church	B	67	66	70	Yes
D	Single-family residences and the Calvary Lutheran Church	B	67	70	71	Yes
E	Apartment complex	E	52	45	46	No
F	Single-family residences	B	67	72	73	Yes

Note: The 2010 traffic volumes were utilized in the predicted 2020 noise model, because this freeway corridor is physically and financially constrained to 2010 traffic volumes.

TxDOT confirmed that Representative Receiver E falls under Activity Category E (refer to Table 3.11-2). Interior noise levels for Representative Receiver E were derived by subtracting a building attenuation of 20 dBA from the modeled exterior noise levels for both "Existing" and "Predicted 2020".

As indicated in Table 3.11-3, the project would result in a traffic noise impacts and the following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone and the construction of noise barriers.

Before any abatement measure can be incorporated into the project it must be both

feasible and reasonable. In order to be feasible, the measure should reduce noise levels by at least five dBA at impacted receivers; and to be reasonable it should not exceed $25,000 for each benefited receiver.

Traffic management: Control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dBA per five mph reduction in speed does not outweigh the associated increase in congestion and air pollution. Other measures such as time or use restrictions for certain vehicles are prohibited on state highways.

Alteration of horizontal and/or vertical alignments: Any alteration of the existing alignment would displace existing businesses and residences, require additional right of way and be neither cost effective nor reasonable.

Buffer zone: The acquisition of sufficient undeveloped or unimproved land adjacent to the highway project acquired to preclude future development could be impacted by highway traffic noise would not be cost effective/reasonable.

Noise walls: This is the most commonly used noise abatement measure. The results of noise barrier evaluations for the impacted areas for preferred alternative are contained in Table 3.11-4.

Table 3.11-4
Noise Barrier Summary For Alternative 3

Impacted Receivers	Barrier Length (feet)	Barrier Height (feet)	Number of Benefited Receptors [b]	Total Cost [a]	Cost Per Benefited Receptor
B	1,400	12	6	$285,600	$47,600
C	1,500	22	5	$561,000	$112,200
D	400	18	1	$122,400	$122,400
F	3,100	22	12	$1,159,400	$96,617

[a] Based on a cost of $17.00/sq. ft.

[b] Benefited receptors receive at least a 5 dBA reduction.

None of the above noise abatement measures are both feasible and reasonable; therefore, no abatement measures are proposed for this project.

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize

construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

A copy of this traffic noise analysis would be provided to local officials to ensure, to the maximum extent possible, future developments are planned, designed and programmed in a manner that would avoid traffic noise impacts. On the date of approval of this document (Date of Public Knowledge), Federal Highway Administration (FHWA) and TxDOT are no longer responsible for providing noise abatement for new development adjacent to the project

3.12 Hazardous Material Impacts

A visual survey of the project limits and surrounding area was conducted as well as a physical survey of selected areas along the right-of-way to identify potential hazardous materials. No surface evidence of contamination was observed. Additionally, the following regulatory databases were reviewed: EPA's Envirofacts Query (internet), TCEQ's leaking petroleum storage tanks (internet and databases), the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) sites, Municipal Solid Waste sites, the National Priorities List (NPL) sites and Texas Superfund sites.

Twenty potential hazardous materials sites have been identified along the IH 820 adjacent to the ROW or within the vicinity of the project corridor. Exhibit 11 illustrates the approximate location of each site. The project has been located and designed as to avoid or minimize potential involvement with hazardous materials. Coordination with the U.S. Environmental Protection Agency would be required for hazardous materials.

The twenty sites consist of existing and former gasoline stations, businesses which maintain fueling facilities for their own vehicles and equipment, a body shop/automobile salvage yard, a lawn fertilizer/pesticide application company, three light and heavy industrial parks and an aggregate company. General information about each site including the name, address, site characteristics and potential right-of-way impacts associated with each alternative is available for review at the TxDOT Fort Worth District.

Ten locations along the ROW and within 500 feet of the proposed project have had or currently have underground petroleum storage tanks. Seven sites no longer have any underground petroleum storage tanks and have received a site clearance from TCEQ. The other three locations are convenience/gas stations. Site 6 is on the TCEQ's database and would be acquired by all alternatives.

Each industrial park contains numerous individual businesses, some of which may involve hazardous materials. The industrial parks are typically set back some distance from the project corridor and are not likely to impact the project. Hazardous materials found on the parcels of land to be acquired for this project would be removed in compliance with applicable federal, state and local laws.

As per TxDOT's Standard Specifications, should any unanticipated hazardous materials or petroleum contamination be encountered during construction as a result of the

implementation of this project, they would be removed. The removal and disposal process would comply with applicable federal, state and local laws.

3.13 Construction Impacts

There would be a short-term adverse impact during the construction period due to grading operations and the massive use of heavy equipment required by such activities. Every effort would be made to minimize possible adverse effects.

4.0 BASIS FOR DETERMINATION OF SOCIAL, ECONOMIC, AND ENVIRONMENTAL CONSEQUENCES

The engineering, social, economic and environmental investigations conducted thus far on this proposed project indicate that it would result in no significant impacts on the quality of the human environment. The proposed Preferred Alternative 3 meets the Purpose and Need for the project, which is to:

- To provide infrastructure to alleviate traffic congestion on existing roadways.
- To provide a safer and more convenient route for traffic traveling through the area.
- To provide mobility and access to the area.

A Finding of No Significant Impact (FONSI) is anticipated.

APPENDIX A

WETLAND PHOTOGRAPHS

PHOTO 1
Wetland No. 2 – Facing east towards wetland no. 2 vegetated area is shown in the background. willow trees and cattails are evident in the photo.

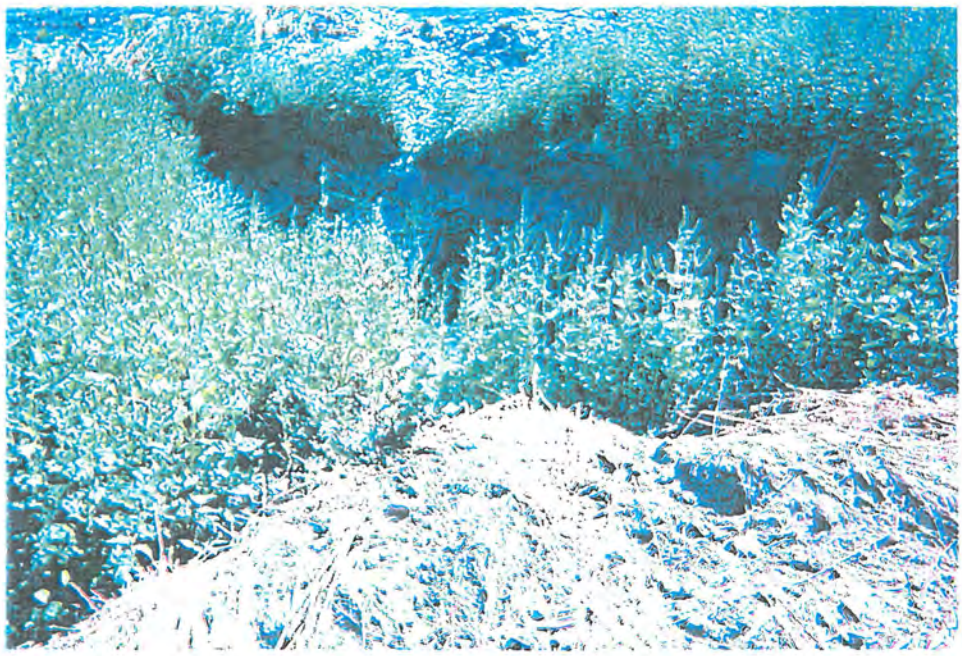

PHOTO 2
Wetland No. 2 – Facing north towards wetland no. 2. Water is present inside this manmade depressed area.

PHOTO 3

Wetland No. 2 – Facing east towards wetland no. 2, which is in the background. At the time of the site visit the area was swampy. Characteristic vegetation within the wetland included, birch, sweet gum and black willow.

PHOTO 4

Drainage channel at northwest corner of IH 820 and Trinity Boulevard, facing south towards Trinity Boulevard.

PHOTO 5
Wetland No. 6 – Facing southwest across wetland no. 6 towards IH 820. Water is present.

PHOTO 6
Wetland No. 6 – Facing west towards wetland no. 6.

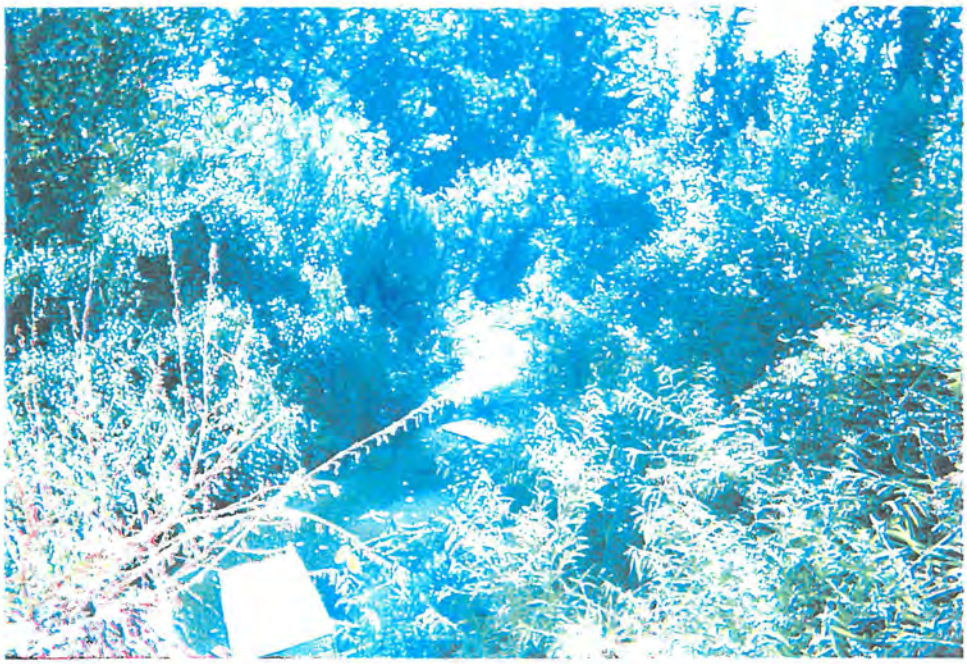

PHOTO 7

Facing south towards unlined stream channel, which flows towards Trinity Boulevard. stream is located on the west side of wetland no. 2.

PHOTO 8

Facing south towards stream area, which flows towards Trinity Boulevard. Located along the west side of wetland no. 2. Aquatic habitat did not appear to be present in the stream.

LIST OF EXHIBITS
IN APPENDIX B

Exhibit No.	Title
1	**Project Study Limits**
2	**Existing Land Uses**
3	**Floodplains and Floodways**
4	**Limits of Proposed Right-of-Way for Reasonable and Feasible Alternatives**
5	**Average Daily Traffic, Existing Year (2000) & Design Year (2010)**
6	**Alternative 3 Lane Line Diagram**
7	**Alternative 3 Design Schematic**
8	**Existing and Proposed Typical Sections**
9	**Wetland and Open Water System**
10	**Representative Receiver Location**
11	**Potential Hazardous Material Sites**

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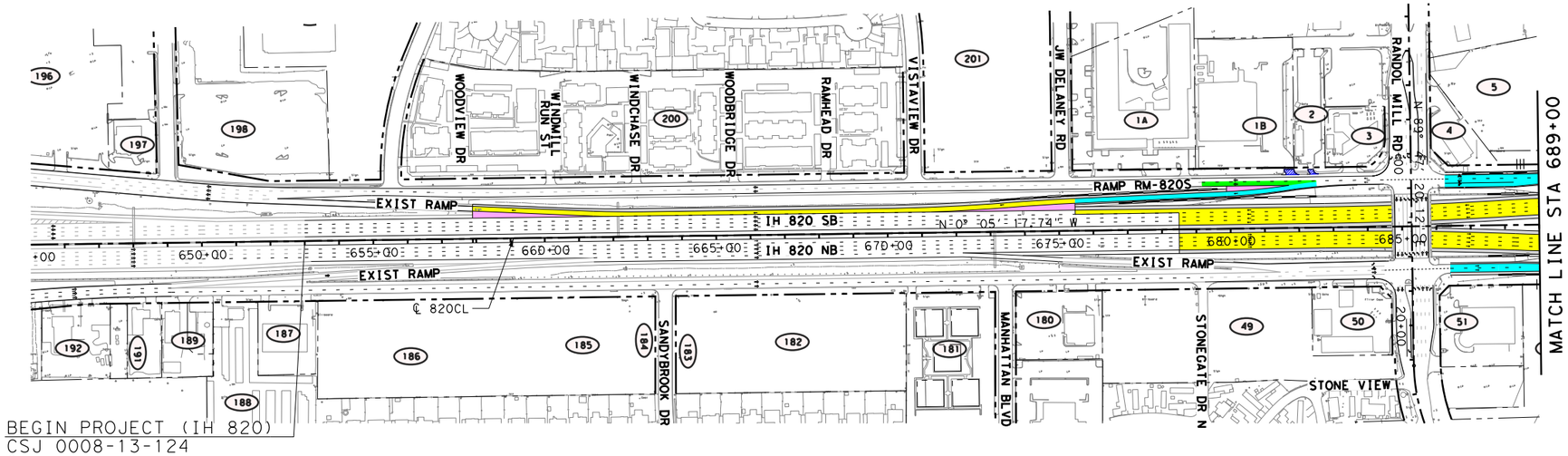

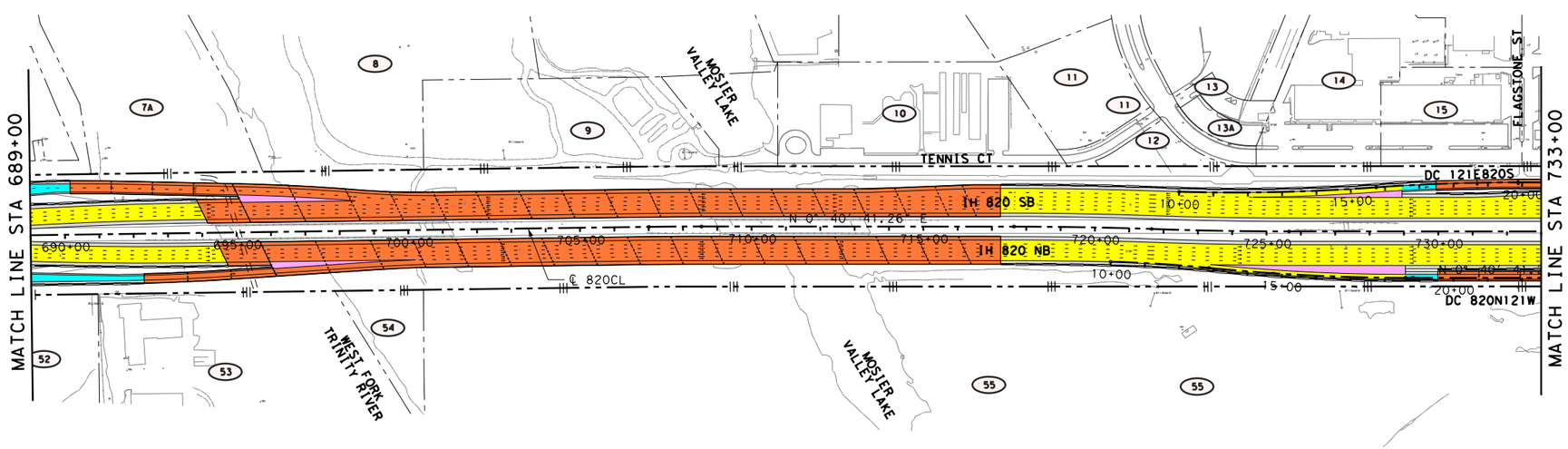

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- PROPOSED BYPASS FRONTAGE ROADS
- PROPOSED BRIDGE
- PROPOSED SIDEWALK
- PROPOSED GORE
- EXISTING DRIVEWAY REMOVAL
- RIGHT IN ONLY DRIVEWAY
- RIGHT OUT ONLY DRIVEWAY
- PROPOSED PAVEMENT EDGE
- EXISTING R.O.W.
- PROPOSED R.O.W.
- EXISTING DRAINAGE EASEMENT
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- PROPOSED CONTROL-OF-ACCESS
- PROPOSED RETAINING WALLS
- 25A PROPERTY OWNER PARCEL NUMBER
- PROPERTY LINE

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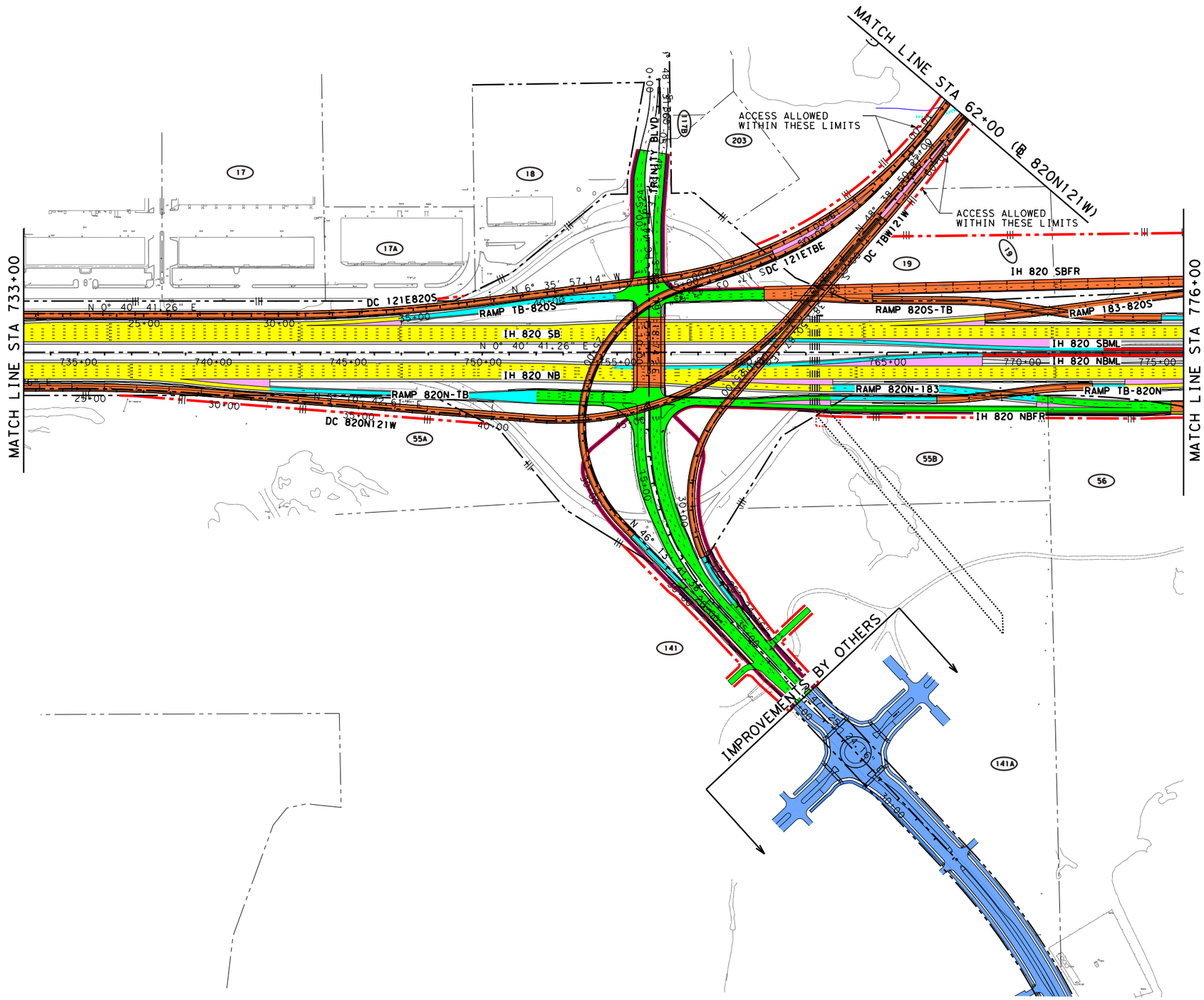

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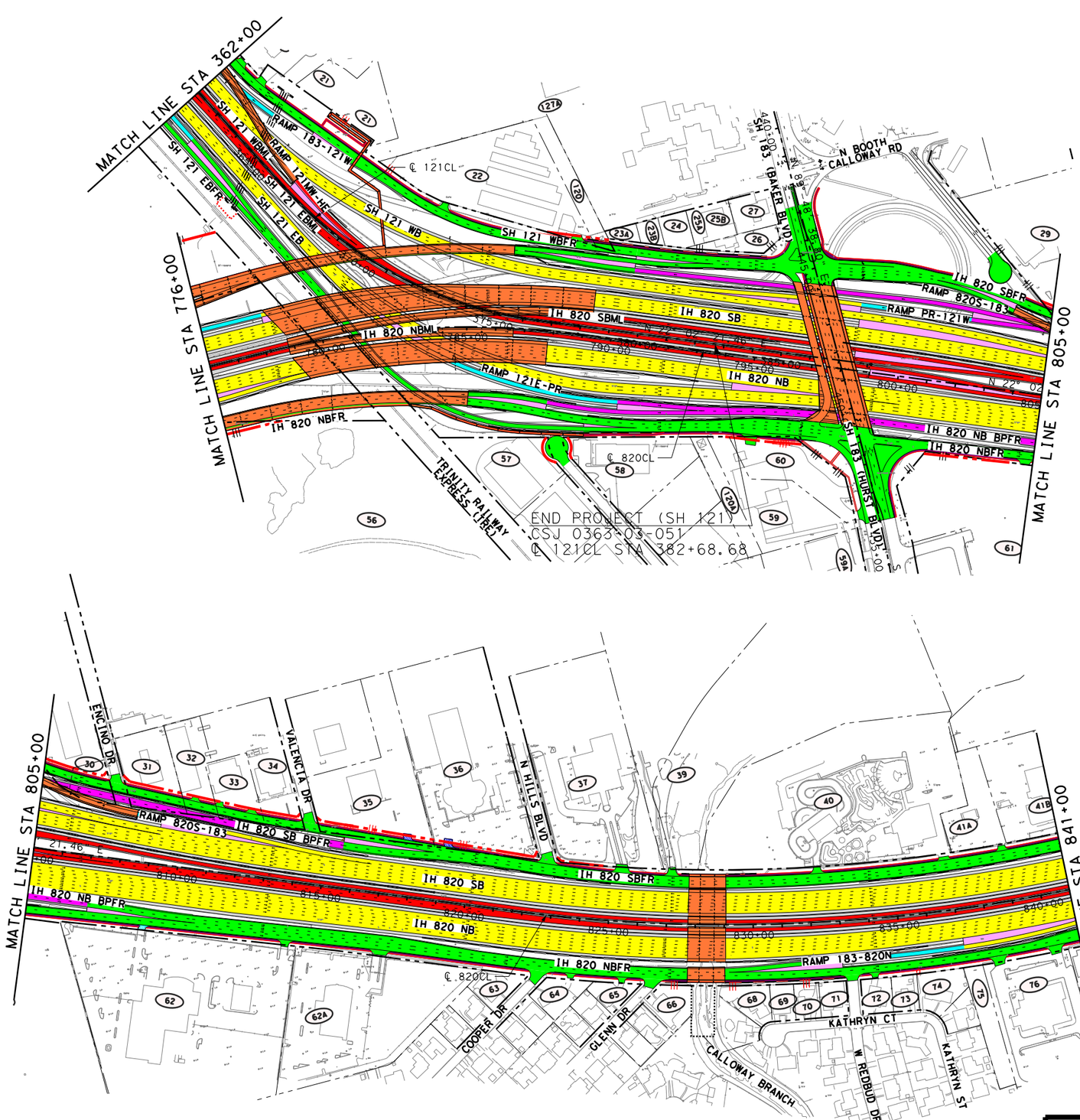

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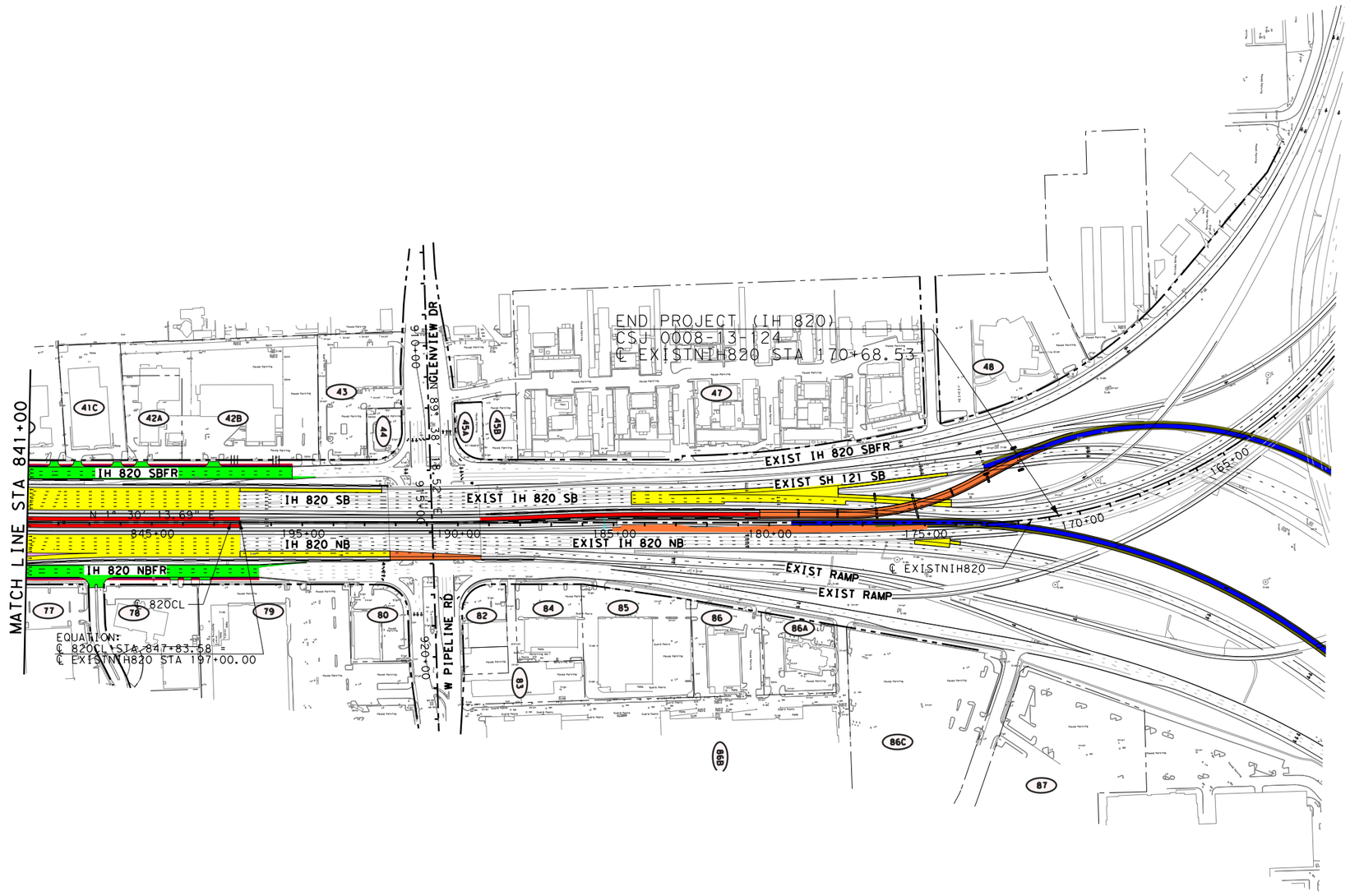

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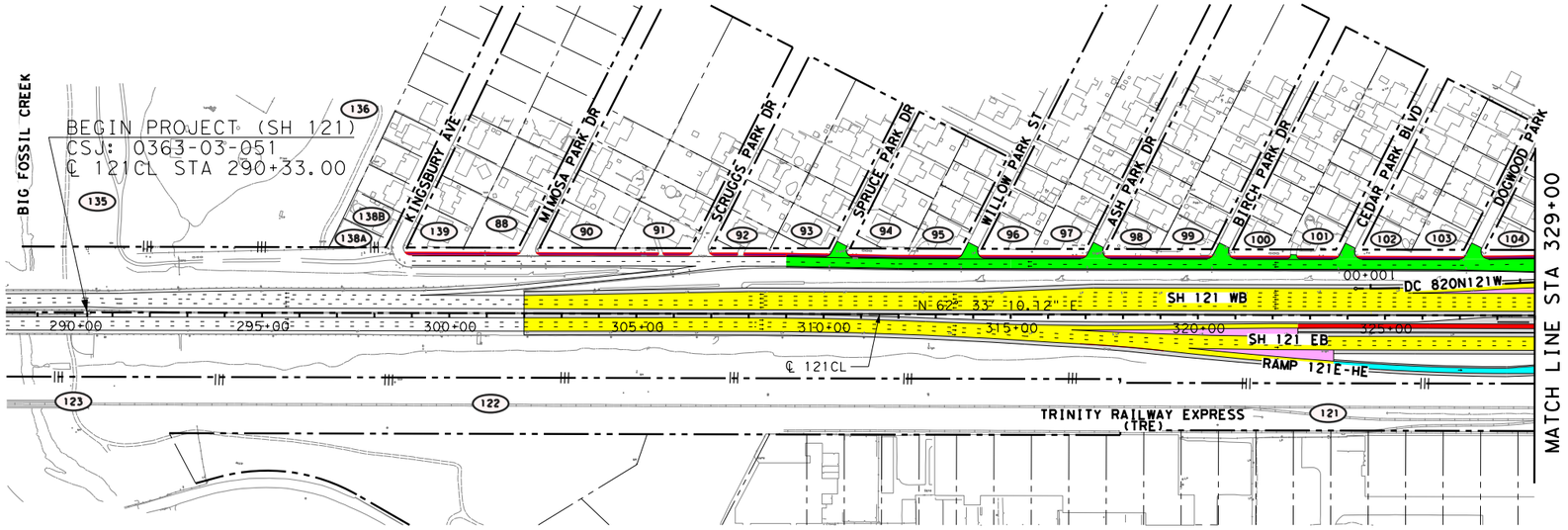

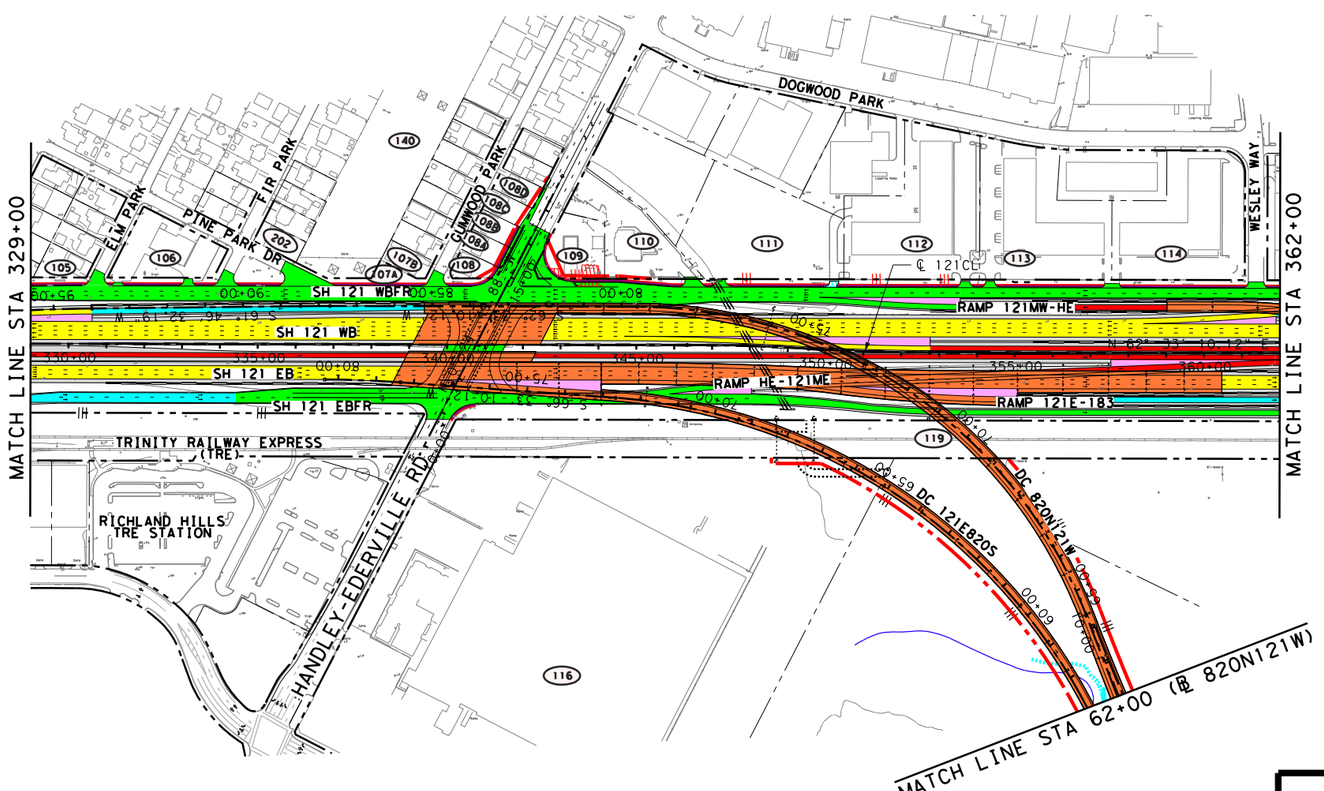

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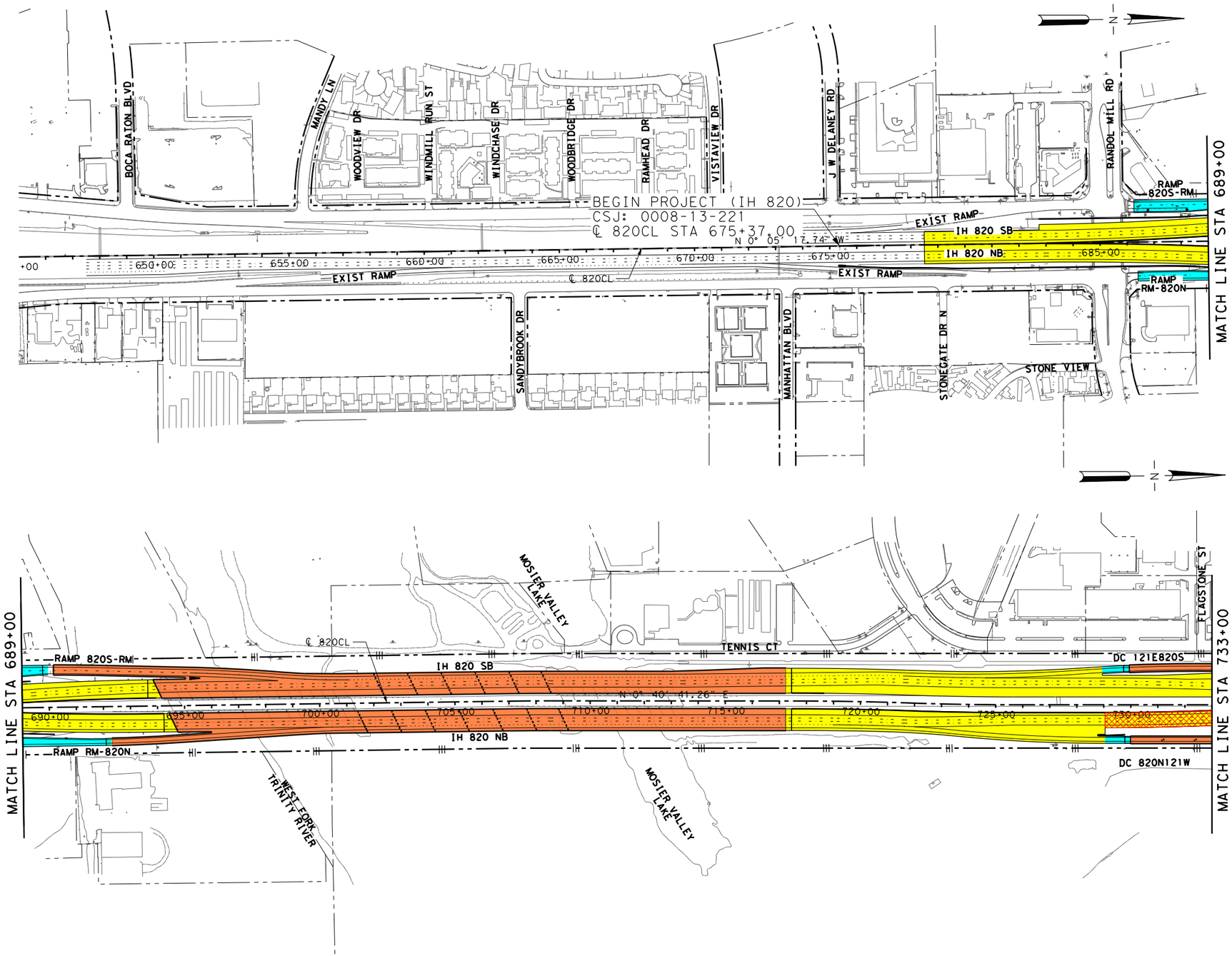

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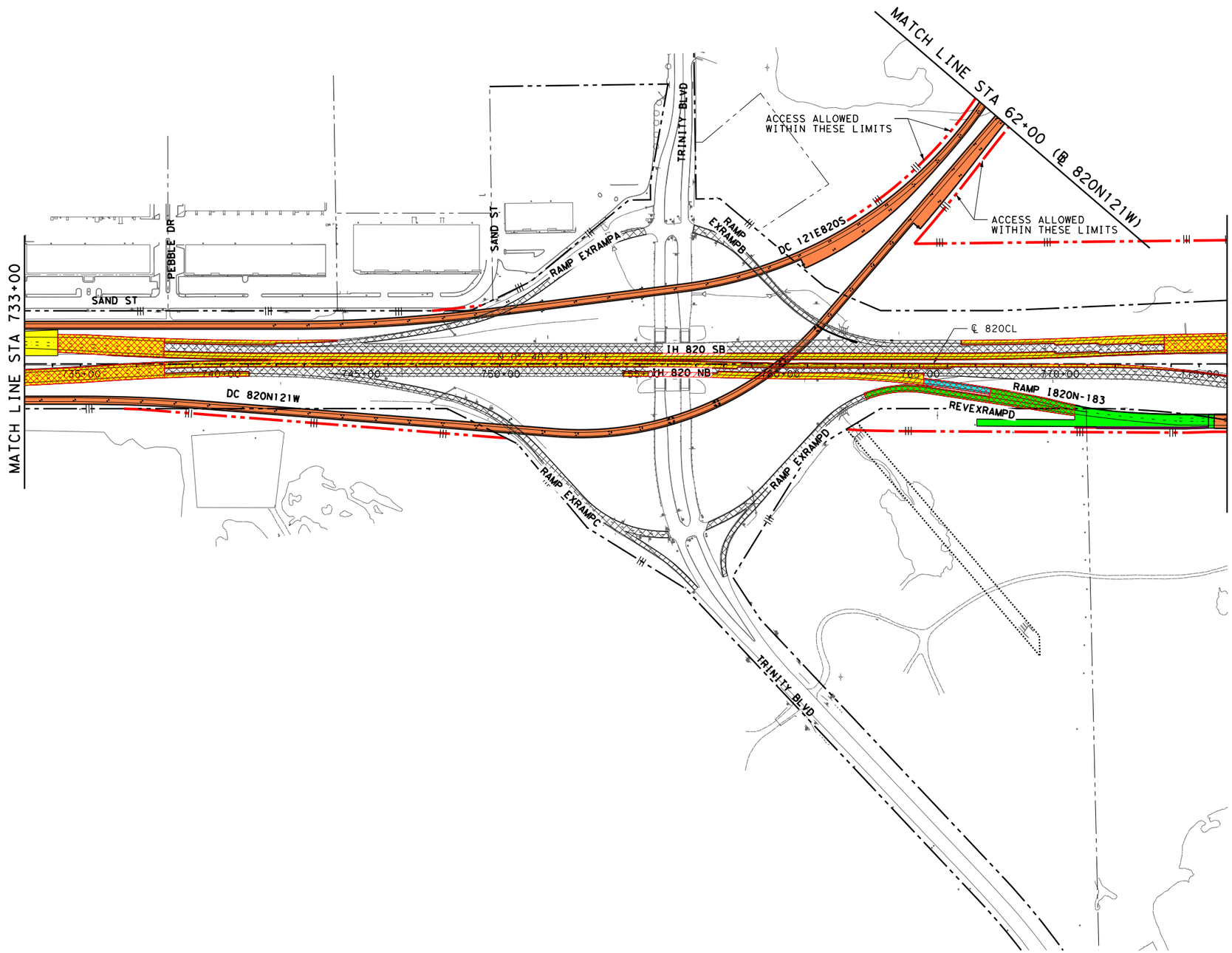

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- PROPOSED RETAINING WALLS
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- PROPOSED RETAINING WALLS
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INTERIM PROJECT LAYOUT

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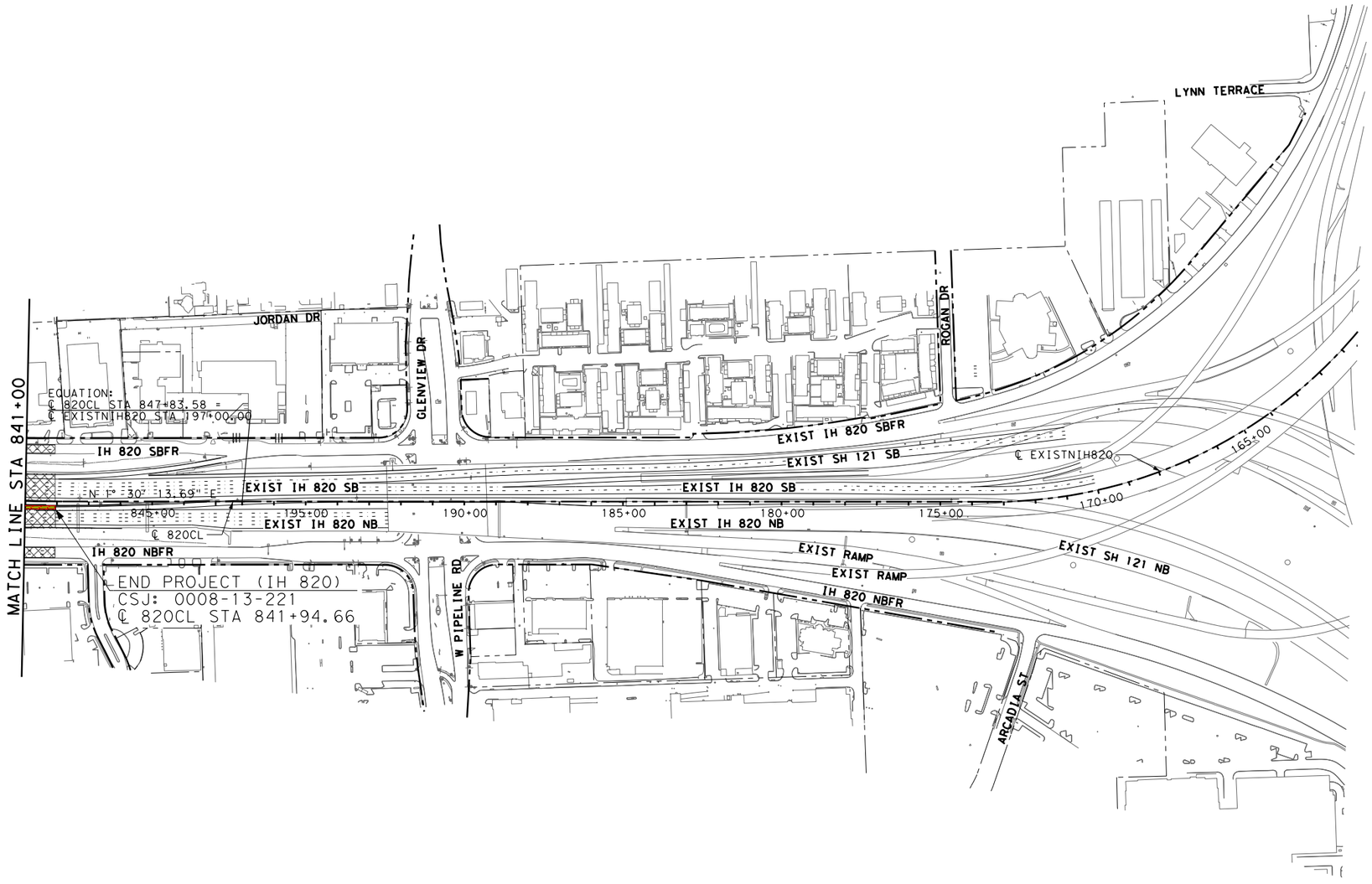

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SCALE IN FEET

N

Legend:

- PROPOSED GENERAL PURPOSE LANES
- PROPOSED RAMPS/DIRECT CONNECTORS
- PROPOSED FRONTAGE ROADS
- PROPOSED BRIDGE
- PROPOSED SIDEWALK
- INTERIM PAVEMENT
- INTERIM WIDENING PAVEMENT
- OVERLAY PAVEMENT
- PROPOSED PAVEMENT EDGE
- EXISTING R.O.W.
- PROPOSED R.O.W.
- EXISTING DRAINAGE EASEMENT
- PROPOSED DRAINAGE EASEMENT
- EXISTING CONTROL-OF-ACCESS
- PROPOSED CONTROL-OF-ACCESS
- PROPOSED RETAINING WALLS
- PROPERTY LINE

DESIGN SCHEMATIC

NOT INTENDED FOR CONSTRUCTION, BIDDING, AND OR PERMIT PURPOSES

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DALLAS, TX 75201-3136
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Firm Registration F-2966

Texas Department of Transportation
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IH 820

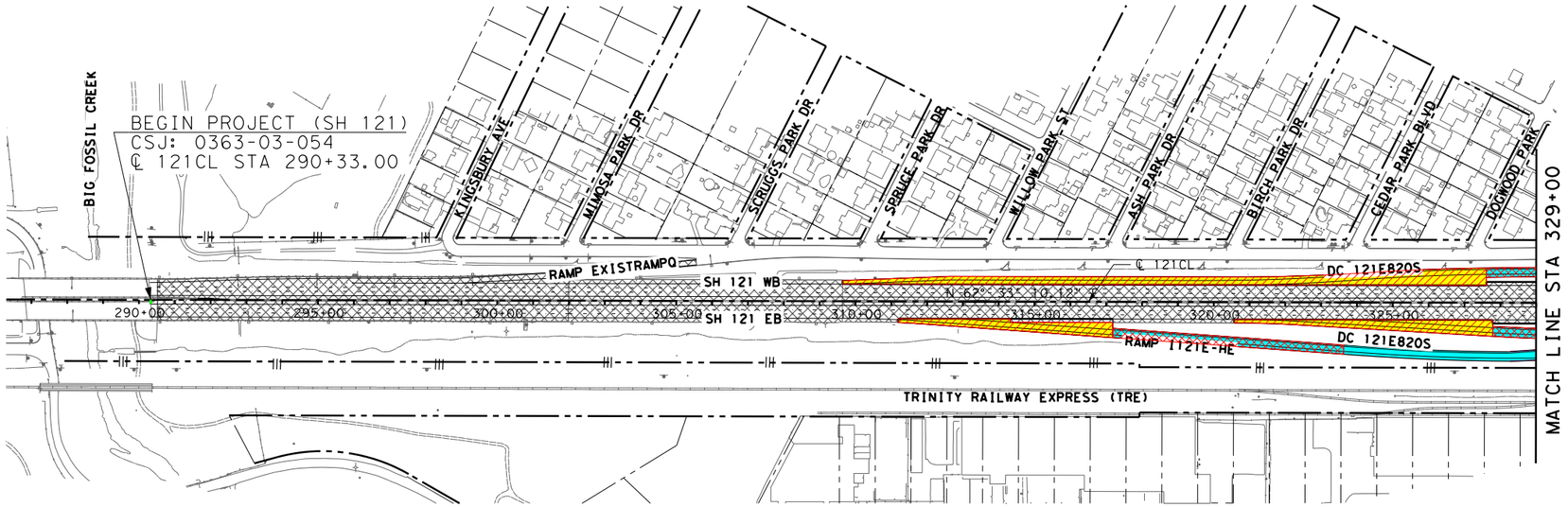
INTERIM PROJECT LAYOUT

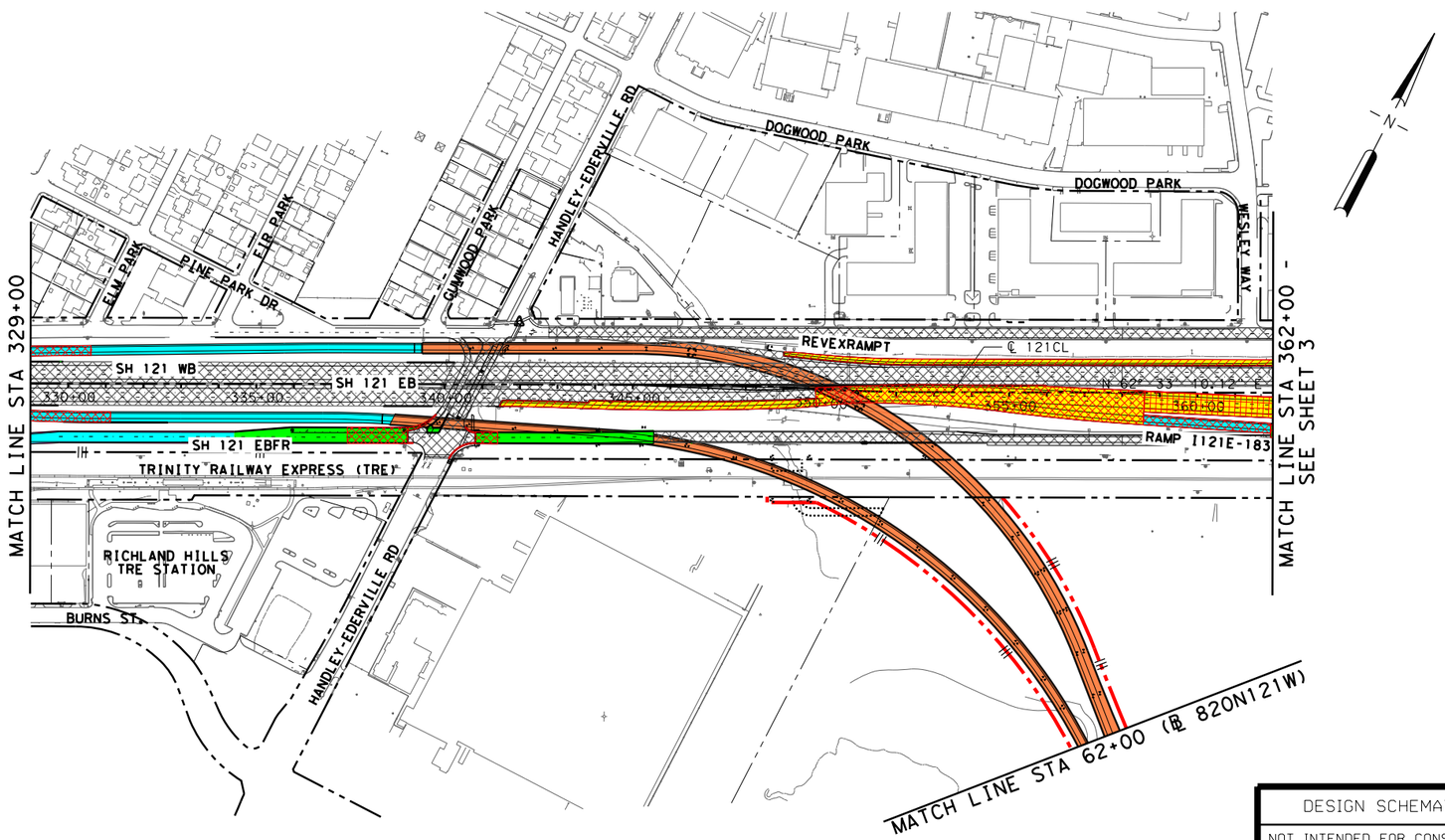
STA 841+00 TO END PROJECT

SCALE: 1"=400'(H)

SHEET 4 OF 5

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JPP	6			IH820
CHECK	STATE	DISTRICT	COUNTY	SHEET NO.
MWG	TEXAS	FTW	TARRANT	
GRAPHICS	CONTROL	SECTION	JOB	
KMT	0008	13	221,ETC.	4
CHECK				
SFI				





0 200 400
SCALE IN FEET

Legend:

- PROPOSED GENERAL PURPOSE LANES
- PROPOSED RAMPS/DIRECT CONNECTORS
- PROPOSED FRONTAGE ROADS
- PROPOSED BRIDGE
- PROPOSED SIDEWALK
- INTERIM PAVEMENT
- INTERIM WIDENING PAVEMENT
- OVERLAY PAVEMENT
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- EXISTING R.O.W.
- PROPOSED R.O.W.
- EXISTING DRAINAGE EASEMENT
- PROPOSED DRAINAGE EASEMENT
- EXISTING CONTROL-OF-ACCESS
- PROPOSED CONTROL-OF-ACCESS
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IH 820
INTERIM PROJECT LAYOUT
BEGIN SH 121 TO STA 362+00

SCALE: 1"=400'(H) SHEET 5 OF 5

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JPP	6			IH820
CHECK	STATE	DISTRICT	COUNTY	SHEET NO.
MWG	TEXAS	FTW	TARRANT	5
GRAPHICS	CONTROL	SECTION	JOB	
KMT	0008	13	221,ETC.	
CHECK				
SFI				

TIME: 7:27:57 AM
DATE: 7/28/2017
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