



PHASE I - LUBBOCK OUTER ROUTE FEASIBILITY STUDY



PUBLIC MEETING
April 27, 2010



Phase I - Lubbock Outer Route Feasibility Study

Project Schedule

Begin Feasibility Study	May 2009
Outline of Feasibility Study	Jul 2009
First Public Meeting	Sep 2009
Second Public Meeting	Jan 2010
Draft Feasibility Study	Mar 2010
Third Public Meeting	Apr 2010
Final Feasibility Study	May 2010
Complete Feasibility Study	May 2010

Begin Route Study	Jun 2010

Phase I - Lubbock Outer Route Feasibility Study

Purpose of the Study

- Determine a preferred alternative for an Outer Route around the western and southern area of the City of Lubbock from US 84 northwest of Lubbock to US 84 southeast of Lubbock
- Investigate, through a “fatal flaw” analysis, improvements and continued development of a preferred route
- Support Local Transportation Goals:
 - “Create an integrated multi-modal transportation network to better serve the citizens in the Lubbock Metropolitan Area.” (Lubbock MPO 2032 Plan)
- Ensure consistency with TXDOT statewide goals:
 - Reduce congestion
 - Enhance safety
 - Expand economic opportunity
 - Improve air quality
 - Increase the value of transportation assets

Phase I - Lubbock Outer Route Feasibility Study

The successful results of this project will provide:

- ✓ A National Environmental Policy Act (NEPA) Compliant Process
- ✓ A defensible Need and Purpose Statement
- ✓ A viable alternative which has logical termini and independent utility
- ✓ Informed consent from stakeholders
- ✓ Better defined corridor location and facility type
- ✓ ROW corridor for preservation
- ✓ A defensible phasing concept / implementation plan for the project
- ✓ A workable funding scheme

Phase I - Lubbock Outer Route Feasibility Study

Phase I Lubbock Outer Route

Feasibility Study

- Need and Purpose
- Social, Economic, Environmental Studies and Public Involvement
- Evaluation of Existing Systems
- Establish Technical Methodology
- Alternative Analysis
- Refine Alternatives
- Funding

Route Study

- Route and Design Studies
- Continued Environmental Investigation
- Continued Public Involvement
- Route Location Study Report

Phase I - Lubbock Outer Route Feasibility Study

Feasibility Study

- Determine preferred alternative for an Outer Loop Route around western and southern sides of the City of Lubbock from US 84 northwest of Lubbock to US 84 southeast of Lubbock
- Investigate, through a fatal flaw analysis, improvements and continued development of a preferred route

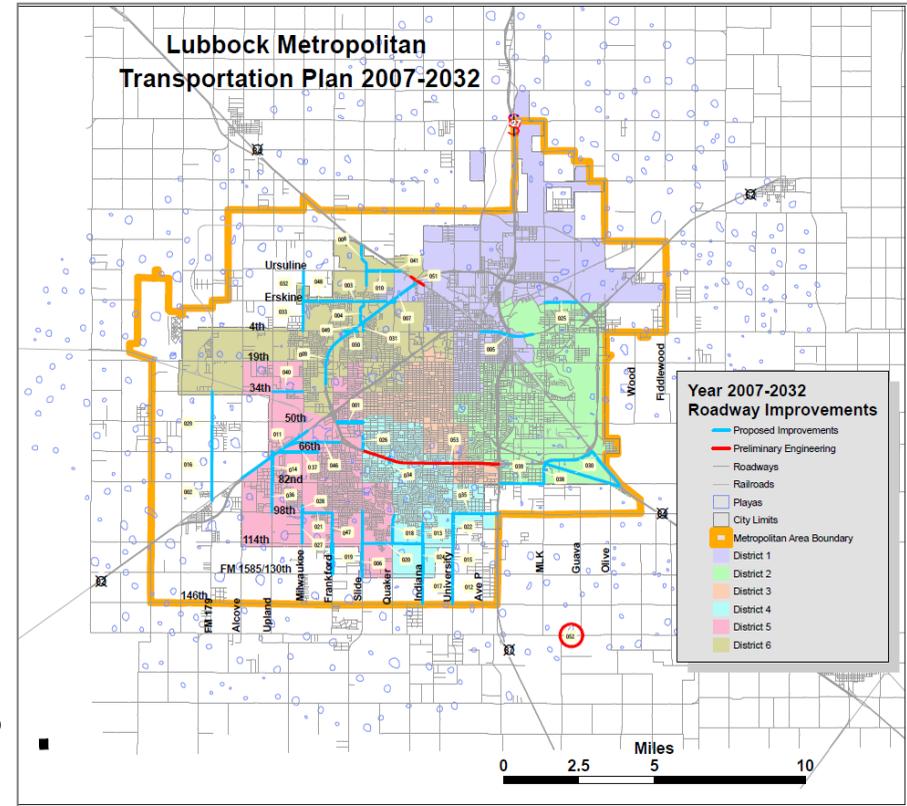
Steps Include:

1. Following the NEPA process, including public involvement process
2. Holding three (3) stakeholder meetings and three (3) public meetings
3. Recommending findings, which will then be used in the Route Study, which follows the Feasibility Study

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Need and Purpose

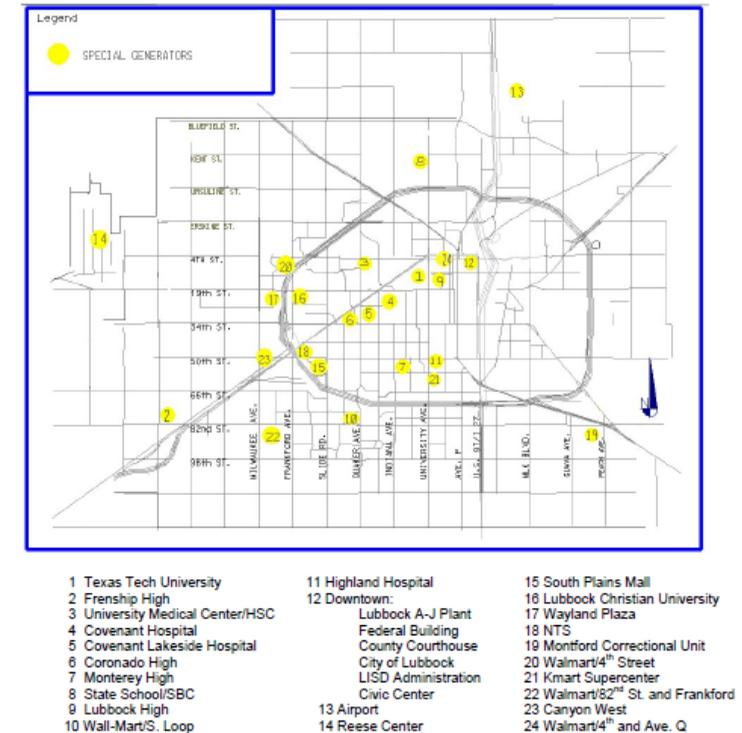
- Investigation of need and purpose
- Creation of uncontrolled aerial mosaic
- Research previous studies
 - Lubbock 2032 MTP
 - Cities land use plans
 - Ports to Plains
 - ITS Plans



Phase I - Lubbock Outer Route Feasibility Study

Need and Purpose (continued)

- Development of Geographic Information System (GIS) map
 - Land Use
 - Political boundaries
 - Cultural resources
 - Utilities
 - Constraints data:
 - Location of schools, churches, cemeteries, large employers, parks, historical architecture, culturally significant sites, water features/wetlands, wildlife habitat, hazardous waste sites, geological formations, FEMA mapping, playa lakes, census areas, major roads, railroads, center pivots.



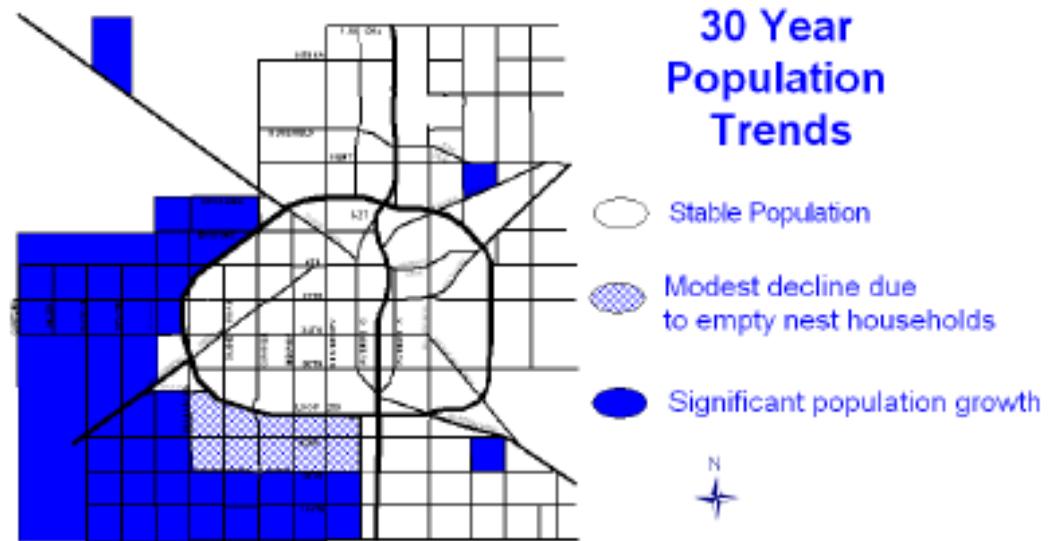
Source: Lubbock Metropolitan Planning Organization

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Need and Purpose (continued)

- Data Collection
 - Population growth
 - Employment characterization
- Draft Need and Purpose Report
 - Record updated field inventories and reviews
 - Summaries of data developed
 - Catalog all information collected

Figure 3-2: 30-Year Population Trends



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Social, Economic, Environmental Studies and Public Involvement

- Public Involvement Plan
 - Public awareness and coordination of public meetings to identify alternatives and facilitate the NEPA process
 - SAFETEA-LU mandates the involvement of agencies and the public in development of need and purpose and study alternates.



Phase I - Lubbock Outer Route Feasibility Study

Social, Economic, Environmental Studies and Public Involvement (continued)

- Three Stakeholder Meetings
 - Benchmark Assessments:
 - Development of need and purpose
 - Development of study alternatives
 - Refinement of study alternative
 - Preferred alternative
 - Results of Feasibility Study
 - Stakeholders include representatives from:
 - Lubbock
 - Wolfforth
 - Slaton
 - Shallowater
 - Lubbock County
 - Lubbock Metropolitan Planning Organization

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Social, Economic, Environmental Studies and Public Involvement (continued)

- Public meetings
 - Plan, coordinate, participate and execute three public meetings
 - Identify the location of and the logistics of the meeting
 - Western Segment
 - Eastern Segment
 - Central Segment
 - Produce documentation from meetings
 - Bound report
 - Follow 43 Texas Administrative Code (TAC) 2.40-2.50, Code of Federal Regulations Title 23, Part 771, and the Environmental Manual

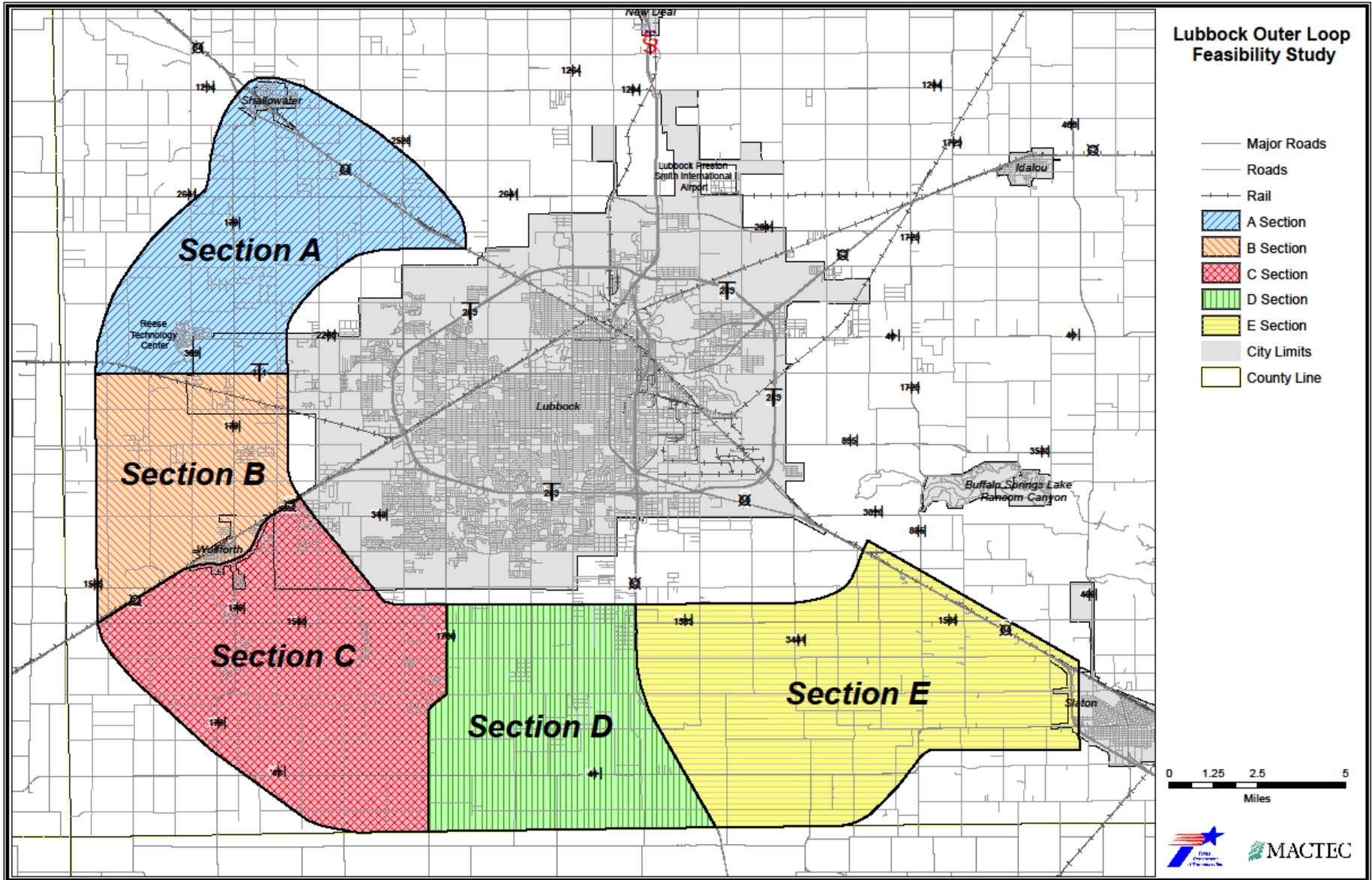


Phase I - Lubbock Outer Route Feasibility Study

Social, Economic, Environmental Studies and Public Involvement (continued)

- Comprehensive Mailing List
- Informational Tools
 - Flyers
 - Newsletters
 - Handouts
 - TxDOT Website
 - Media relations
 - Bilingual materials, as necessary

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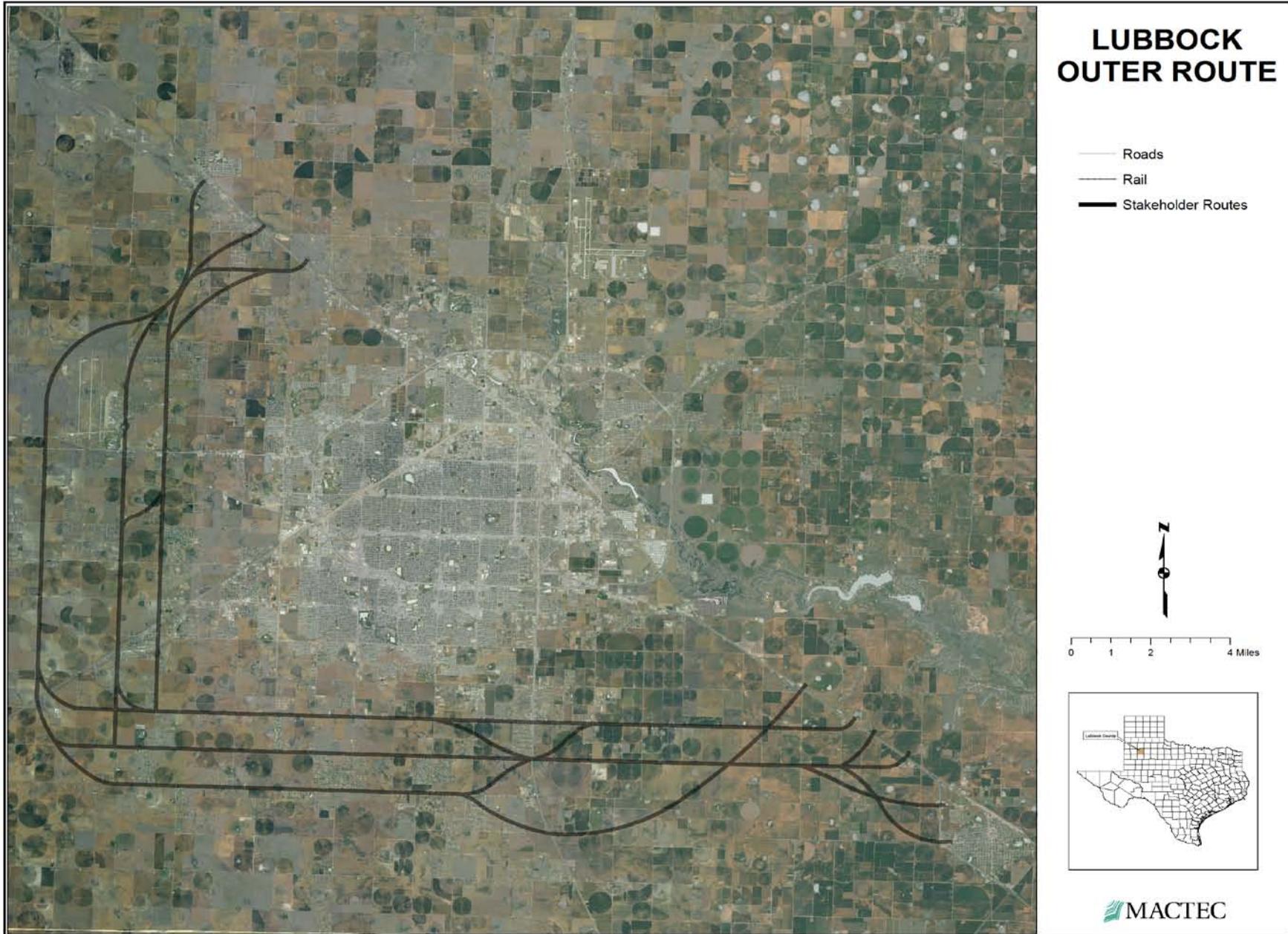
Study Area

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Alternative Analysis

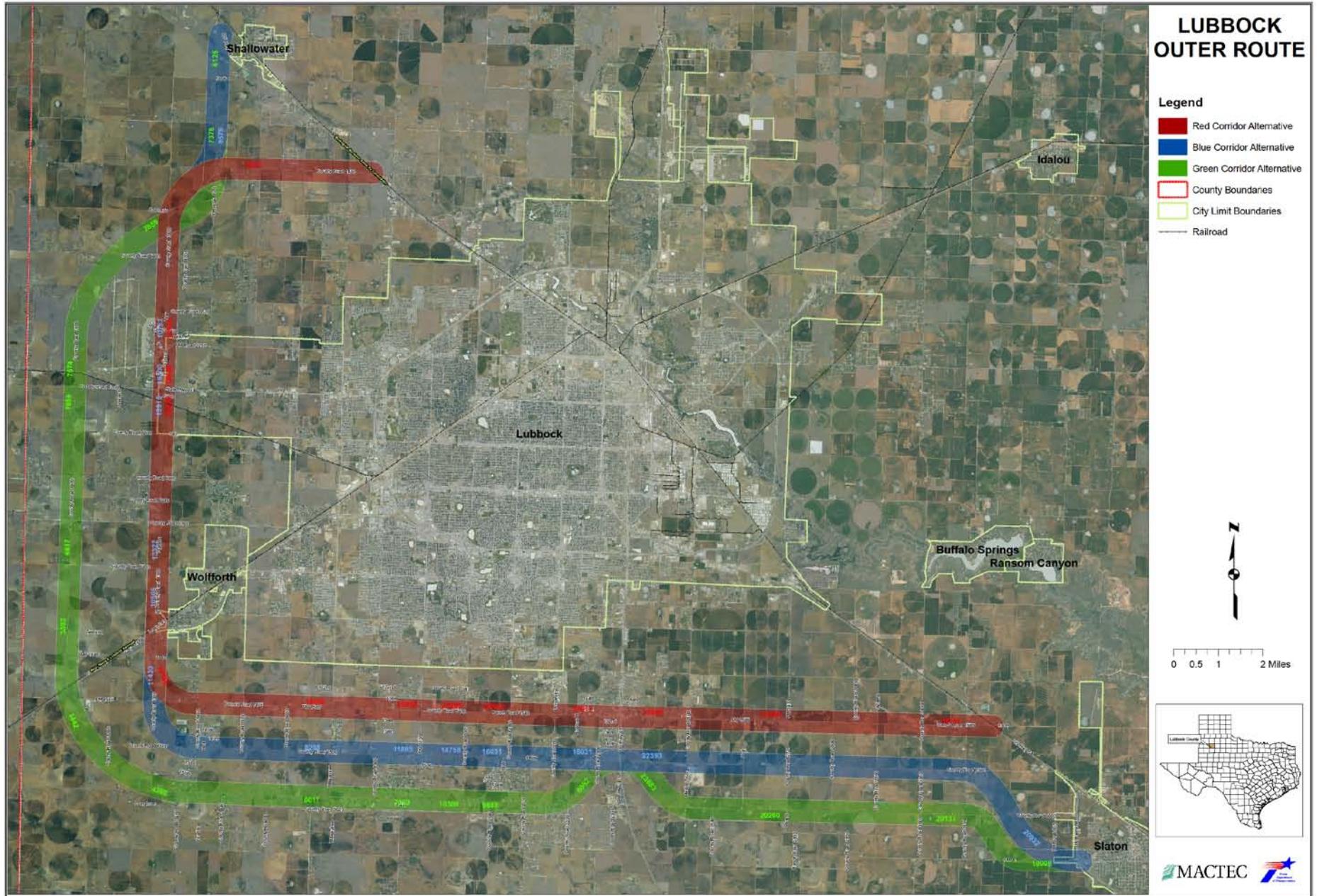
- Alternative Alignments
 - No-Build
 - Three Corridors
- Alternative Facility Types
 - Ultimate Freeway
 - Interim Freeway
 - Four-Lane Divided
 - Arterial Section

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Alternative Corridors From Working Meeting

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Alternative Corridors

Phase I - Lubbock Outer Route Study

Social, Economic, Environmental Studies and Public Involvement (continued)

Environmental Considerations:

- Elements of the existing human and natural environment have been identified
- Constraints have been mapped in GIS for the alternative corridors and will be considered in all stages of alternatives analysis
- Environmental considerations will be documented and reported for use in future NEPA compliance studies (EA, EIS)



Phase I - Lubbock Outer Route Study

Social, Economic, Environmental Studies and Public Involvement (continued)

Regulations and Policies guide study. Potential regulatory issues identified:

- Endangered Species Act
- Clean Water Act (Sec 401, 404)
- National Historic Preservation Act (Sec 106)
- Farmland Protection Policy Act
- Section 4(f)/6(f)
- E.O. 12898 on Environmental Justice
- Indirect and Cumulative Impacts



Phase I - Lubbock Outer Route Study

Social, Economic, Environmental Studies and Public Involvement (continued)

Selected Known Constraints:

- Floodplains (1,025 ac, 1,242 ac, 1,775 ac), Playa lakes (292 ac, 284 ac, 386 ac) (usually not jurisdictional), Yellow House Draw (crossed by all three corridors) and tributaries may be USACE jurisdictional
- Threatened and Endangered species:
 - Federal: incidental migrant birds
 - State: Texas horned lizard
- Several monitored species:
 - Plains spotted skunk
 - Black-tailed prairie dog (one town identified in red corridor)
 - Western burrowing owl
- Properties eligible for the National Register of Historical Places (NRHP) (e.g., old farmsteads) should be avoided.



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Social, Economic, Environmental Studies and Public Involvement (continued)

Selected Known Constraints (continued):

- Land use considerations:
 - residences
 - businesses
 - community facilities, schools, parks
 - agricultural lands
 - hazardous materials (68 sites, 73 sites, 6 sites)



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Social, Economic, Environmental Studies and Public Involvement (continued)

Selected Known Constraints (continued):

- Approximate Land Use Acreages within the Alternative Corridors

Land Uses Within the Alternative Corridors			
	Red Alternative	Blue Alternative	Green Alternative
Agriculture (acres)	7,228	8,198	9,149
Grassland (acres)	1,275	1,847	2,020
Transportation (acres)	140	116	96
Cemetery (acres)	2	2	0
Church (acres)	16	4	0
Commercial (acres)	594	442	158
Park (acres)	49	26	0
School (acres)	9	16	7
Residential (acres)	1,820	1,508	1,876
Utility (acres)	1	8	4
Total (acres)	11,134	12,167	13,310

Phase I - Lubbock Outer Route Study

Social, Economic, Environmental Studies and Public Involvement (continued)

Selected Known Constraints (continued):

- Property types within the Alternative Corridors

Properties Within the Alternative Corridors			
	Red Alternative	Blue Alternative	Green Alternative
Residences	704	683	465
Commercial/Industrial Properties	103	67	21
Churches	3	1	0
Schools	1	1	0

Phase I - Lubbock Outer Route Study

Social, Economic, Environmental Studies and Public Involvement (continued)

Selected Known Constraints (continued):

- Railroad crossings (4, 2, 2), oil and gas wells
- Socioeconomic considerations:
 - Census analysis to determine potential for disproportionate, adverse effects on minority or low-income communities
 - Consideration of equitable service provision to various parts of town
- SAFETEA-LU (Safe, Accountable, Flexible, Efficient, Transportation Equity Act-A Legacy for Users) serves as backdrop

Lubbock Alternative Analysis

Review

- Population – Growth & Geographic Shift
- Employment – Growth & Geographic Shift
- Accidents

Outer Loop Alternatives & Traffic Measures

- Miles Driven
- Time Behind the Wheel
- Speed
- Congestion Measures
 - Delay
 - Cost
 - Volume-to-Capacity

Population Growth by Analysis Area

2000 – 14,800
2030 – 23,300
+ 8,500 (58%)

Lubbock Region
2000 – 206,700
2030 – 273,500
+ 66,800 (32%)

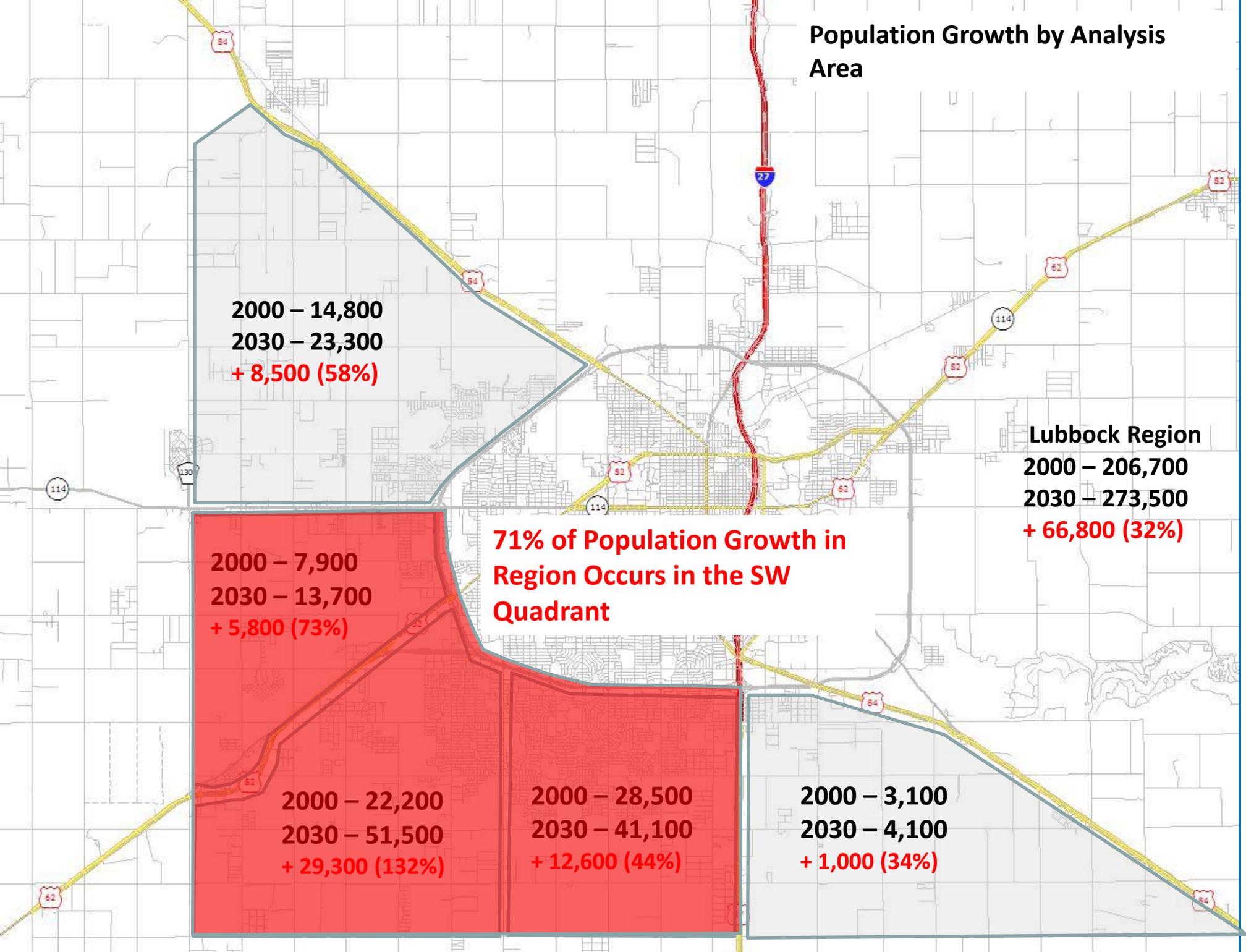
71% of Population Growth in Region Occurs in the SW Quadrant

2000 – 7,900
2030 – 13,700
+ 5,800 (73%)

2000 – 22,200
2030 – 51,500
+ 29,300 (132%)

2000 – 28,500
2030 – 41,100
+ 12,600 (44%)

2000 – 3,100
2030 – 4,100
+ 1,000 (34%)



Employment Growth by Analysis Area

2000 – 1,600
2030 – 4,400
+ 2,800 (171%)

Lubbock Region
2000 – 80,000
2030 – 104,000
+ 24,000 (30%)

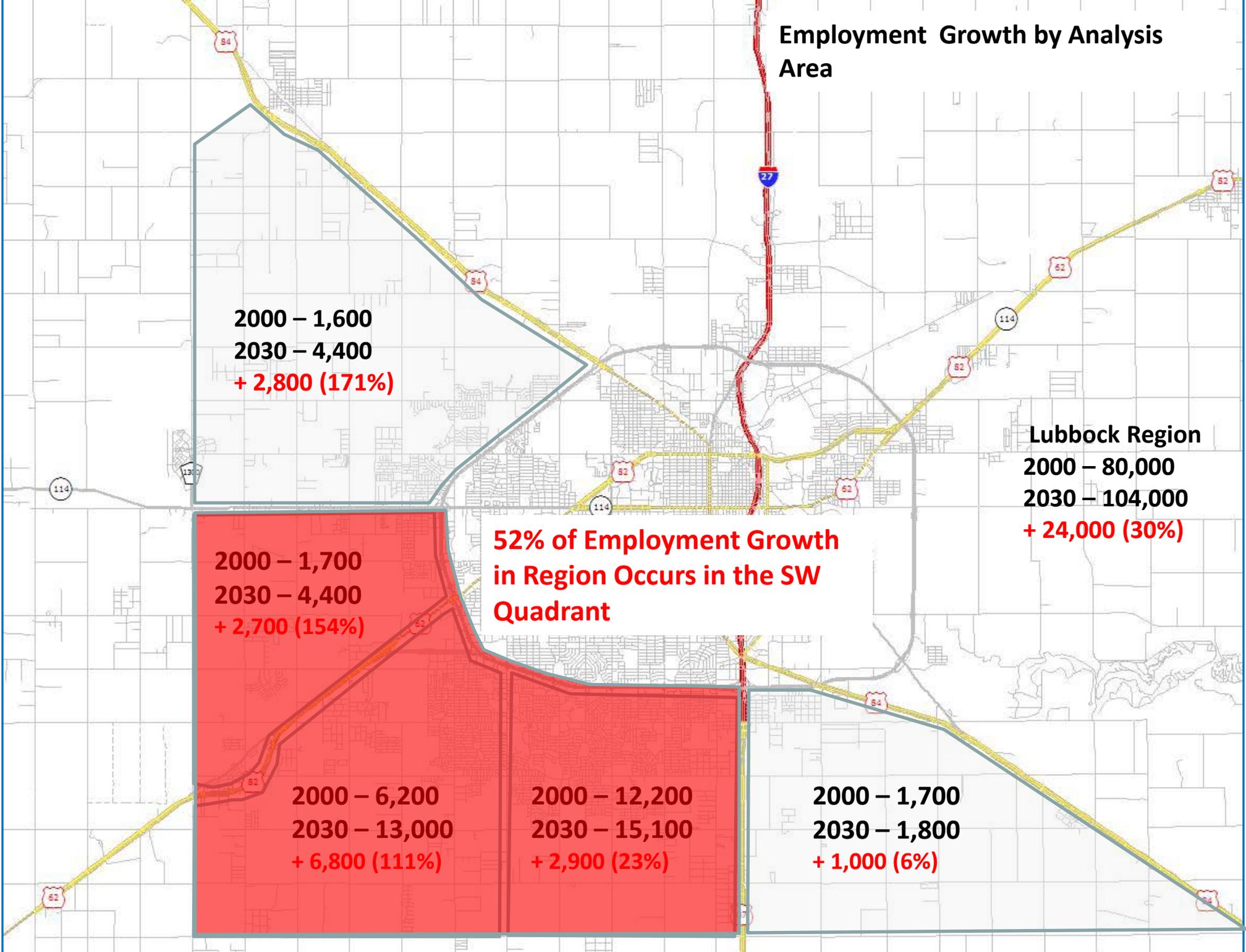
**52% of Employment Growth
in Region Occurs in the SW
Quadrant**

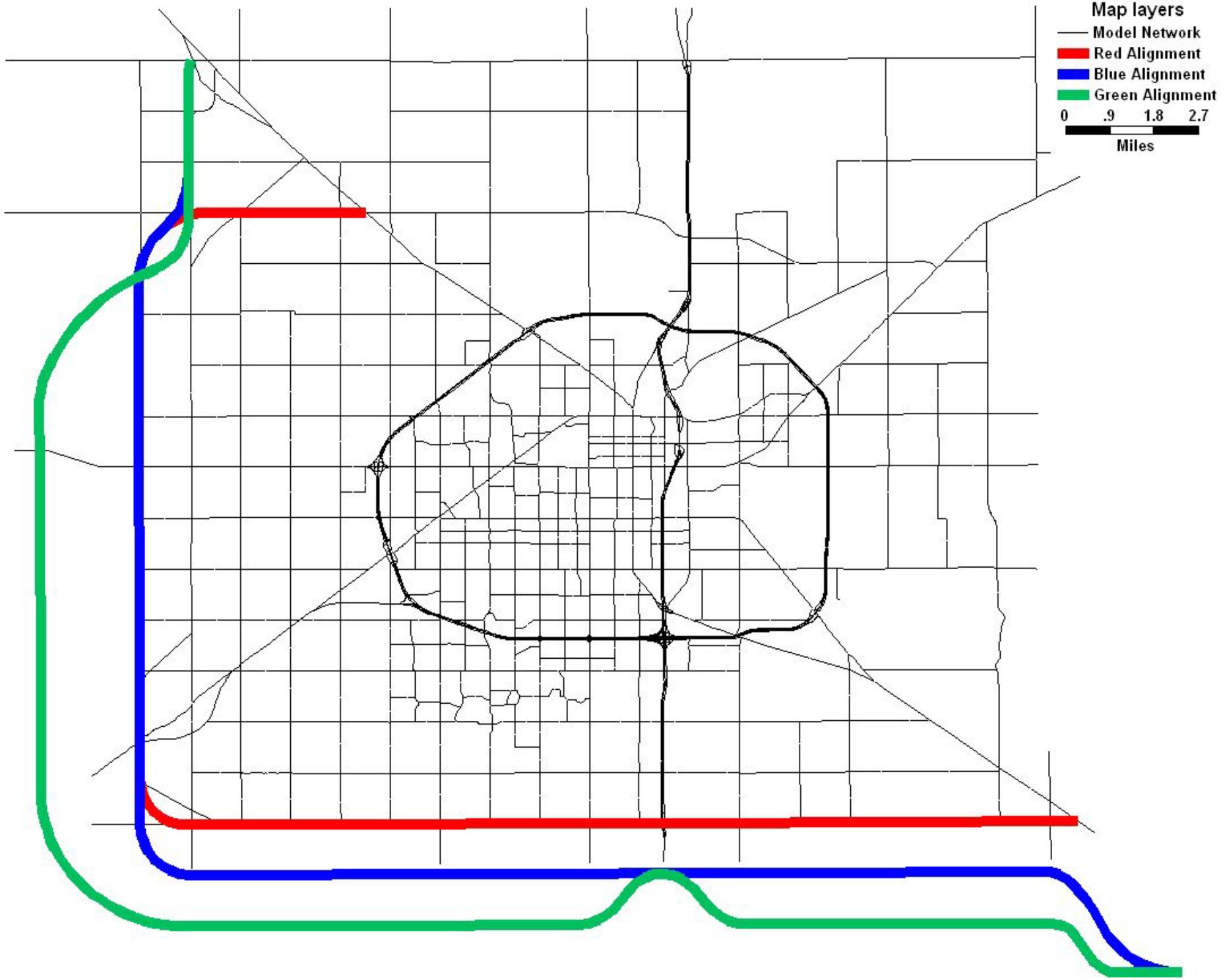
2000 – 1,700
2030 – 4,400
+ 2,700 (154%)

2000 – 6,200
2030 – 13,000
+ 6,800 (111%)

2000 – 12,200
2030 – 15,100
+ 2,900 (23%)

2000 – 1,700
2030 – 1,800
+ 1,000 (6%)





Map layers

- Model Network
 - Red Alignment
 - Blue Alignment
 - Green Alignment
- 0 .9 1.8 2.7
Miles

2030 No-Build Daily Volumes

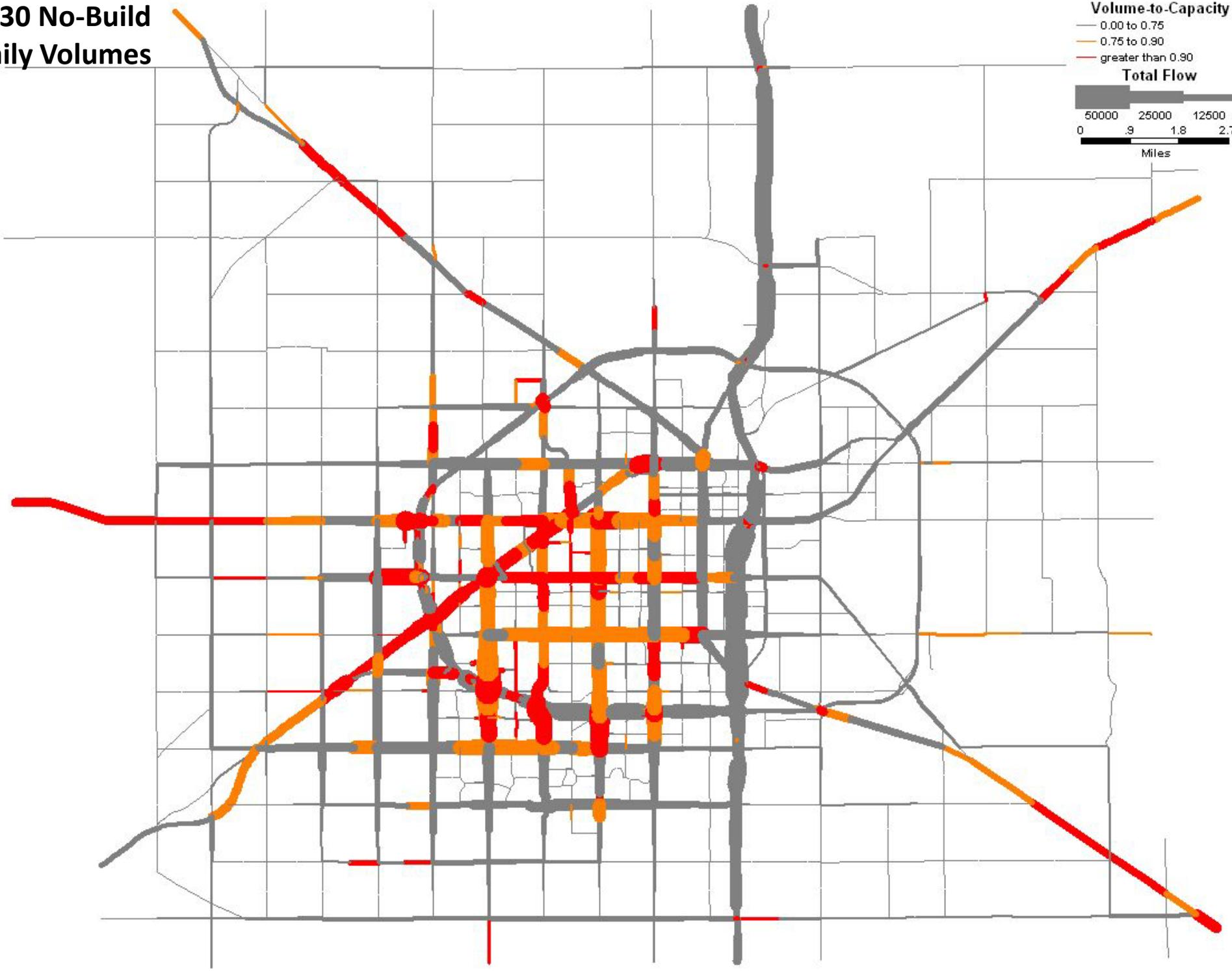
Volume-to-Capacity

- 0.00 to 0.75
- 0.75 to 0.90
- greater than 0.90

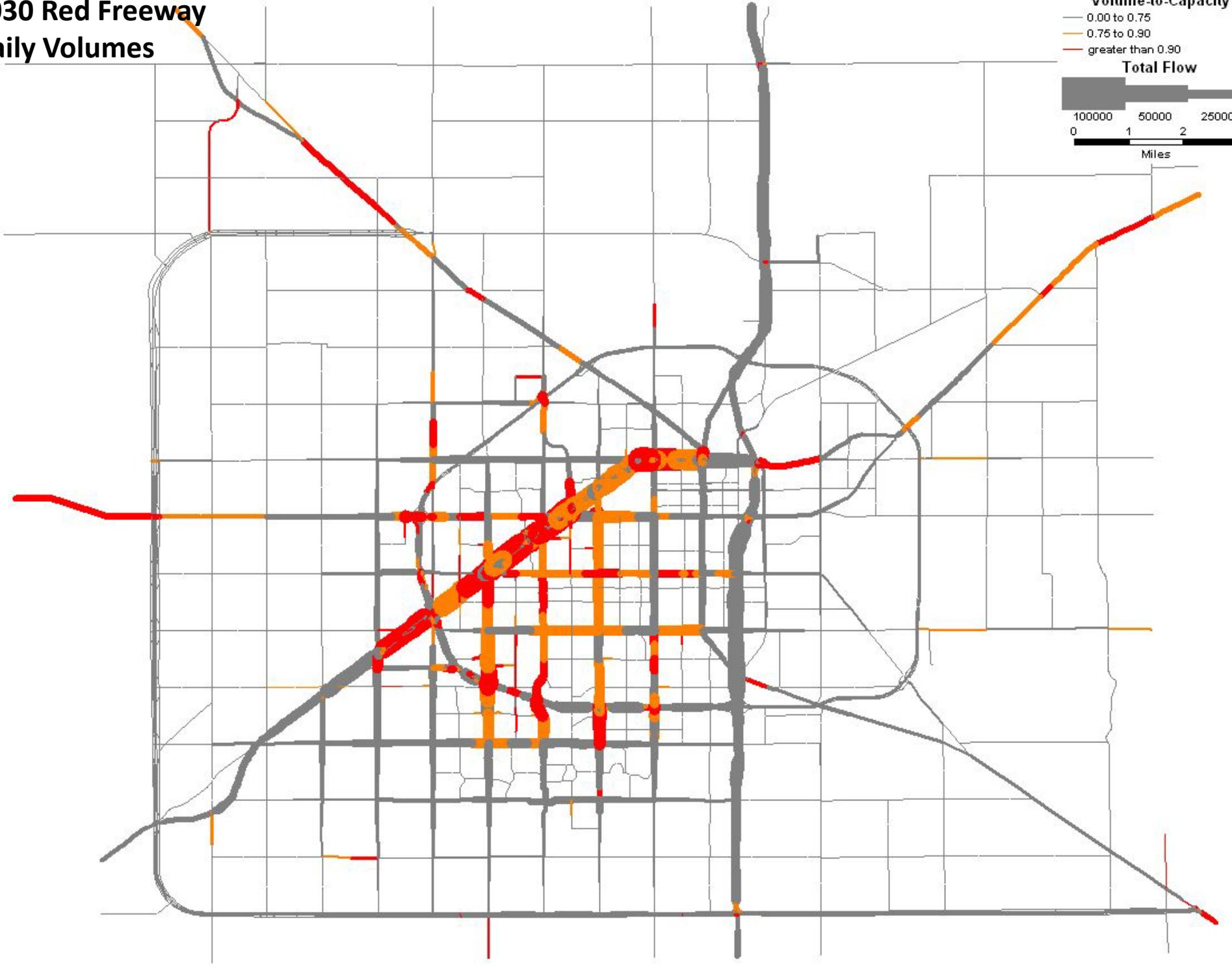
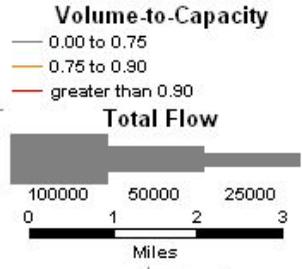
Total Flow

50000	25000	12500	
0	.9	1.8	2.7

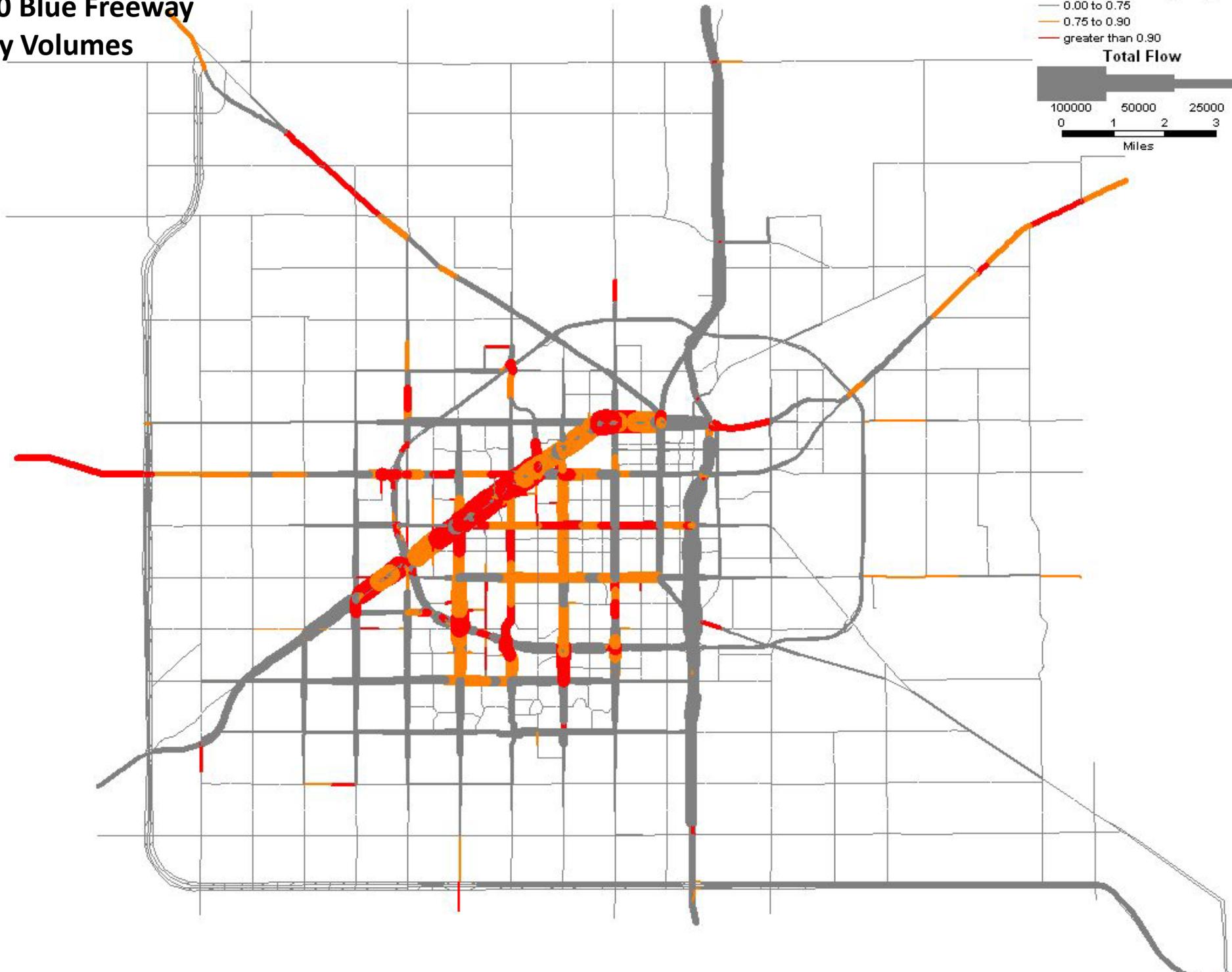
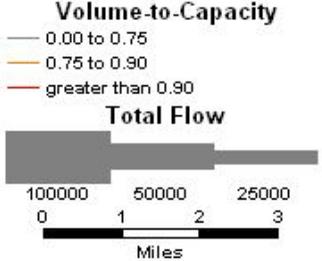
Miles



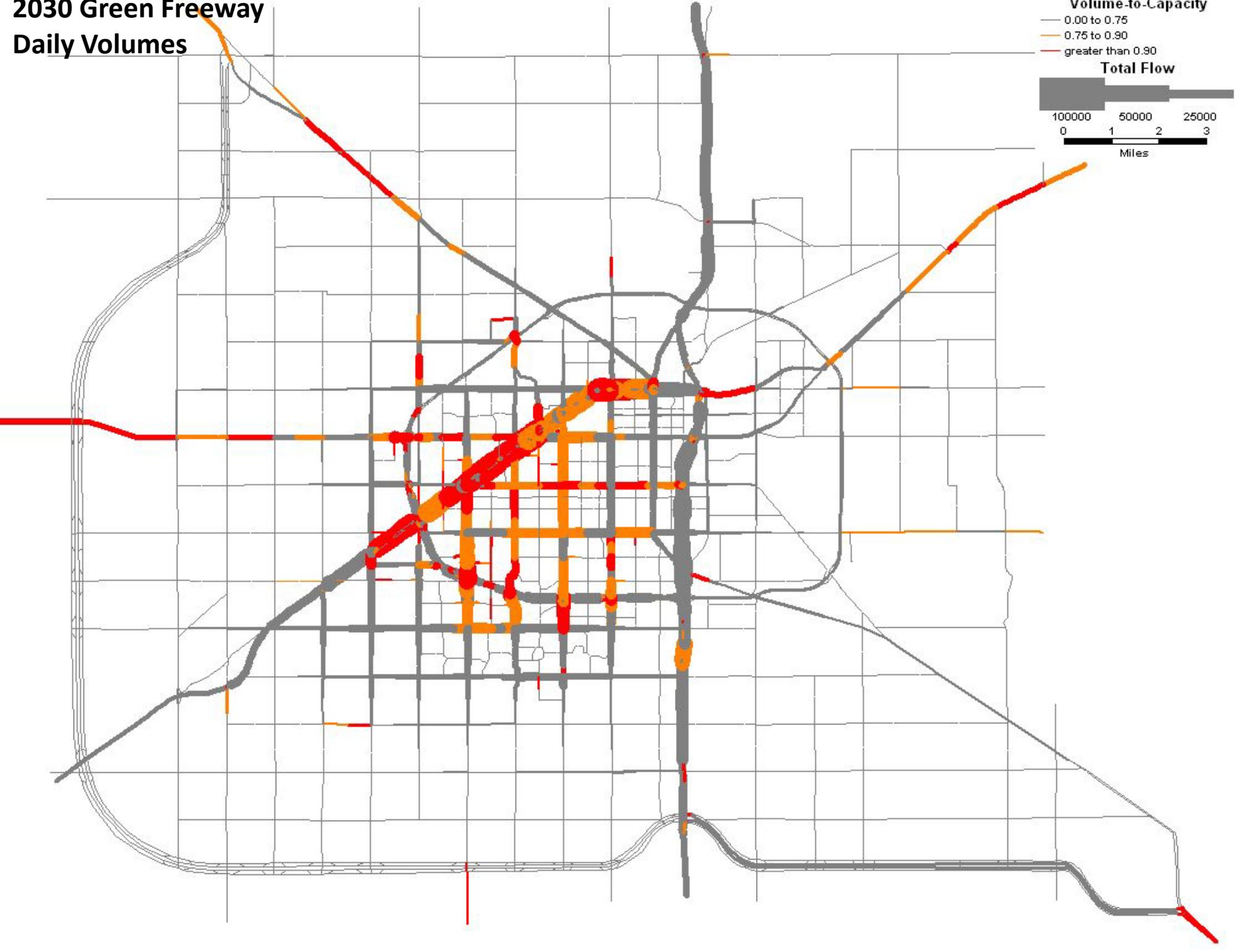
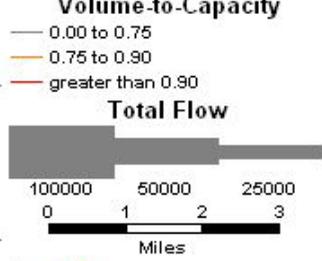
2030 Red Freeway Daily Volumes



2030 Blue Freeway Daily Volumes

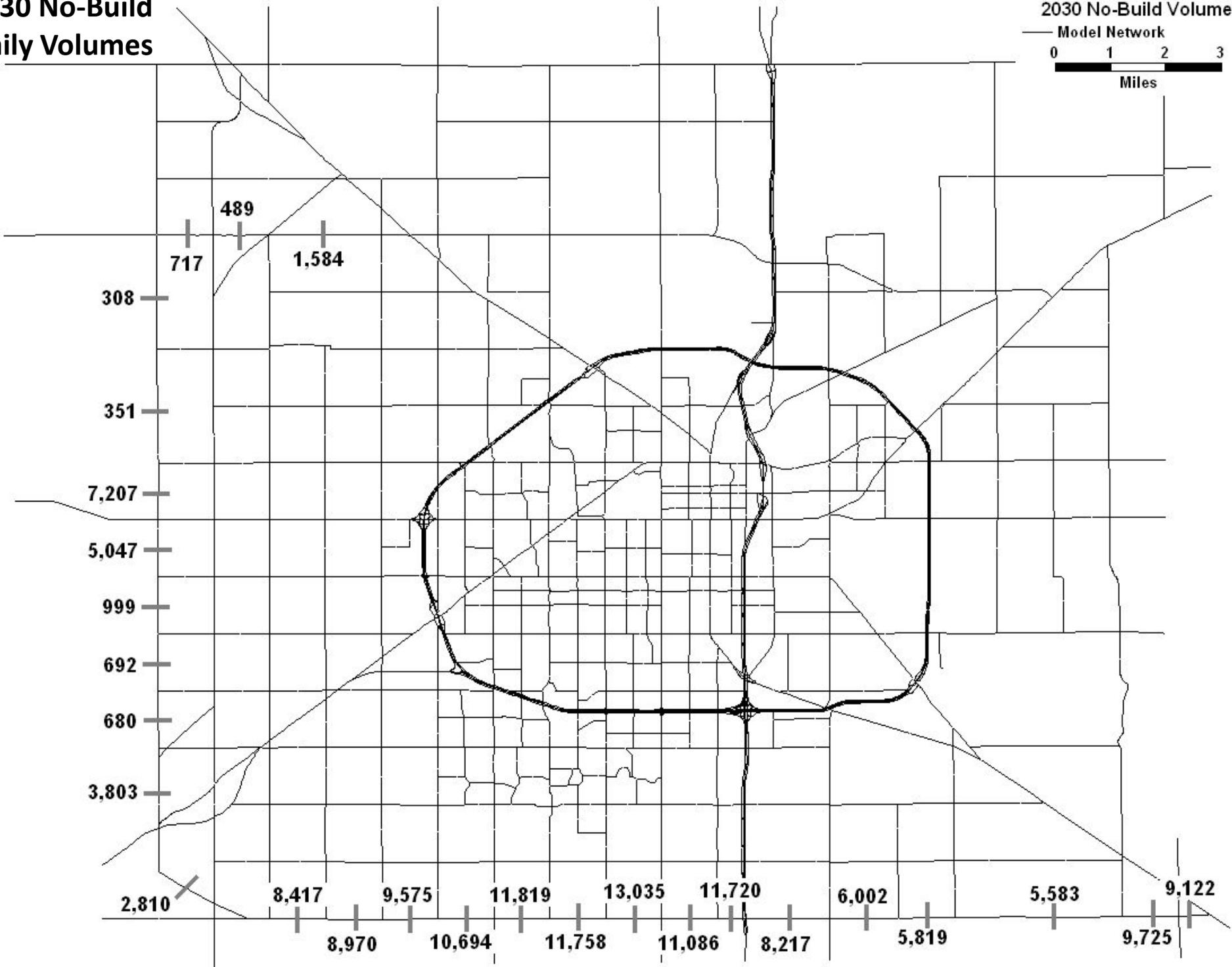


2030 Green Freeway Daily Volumes



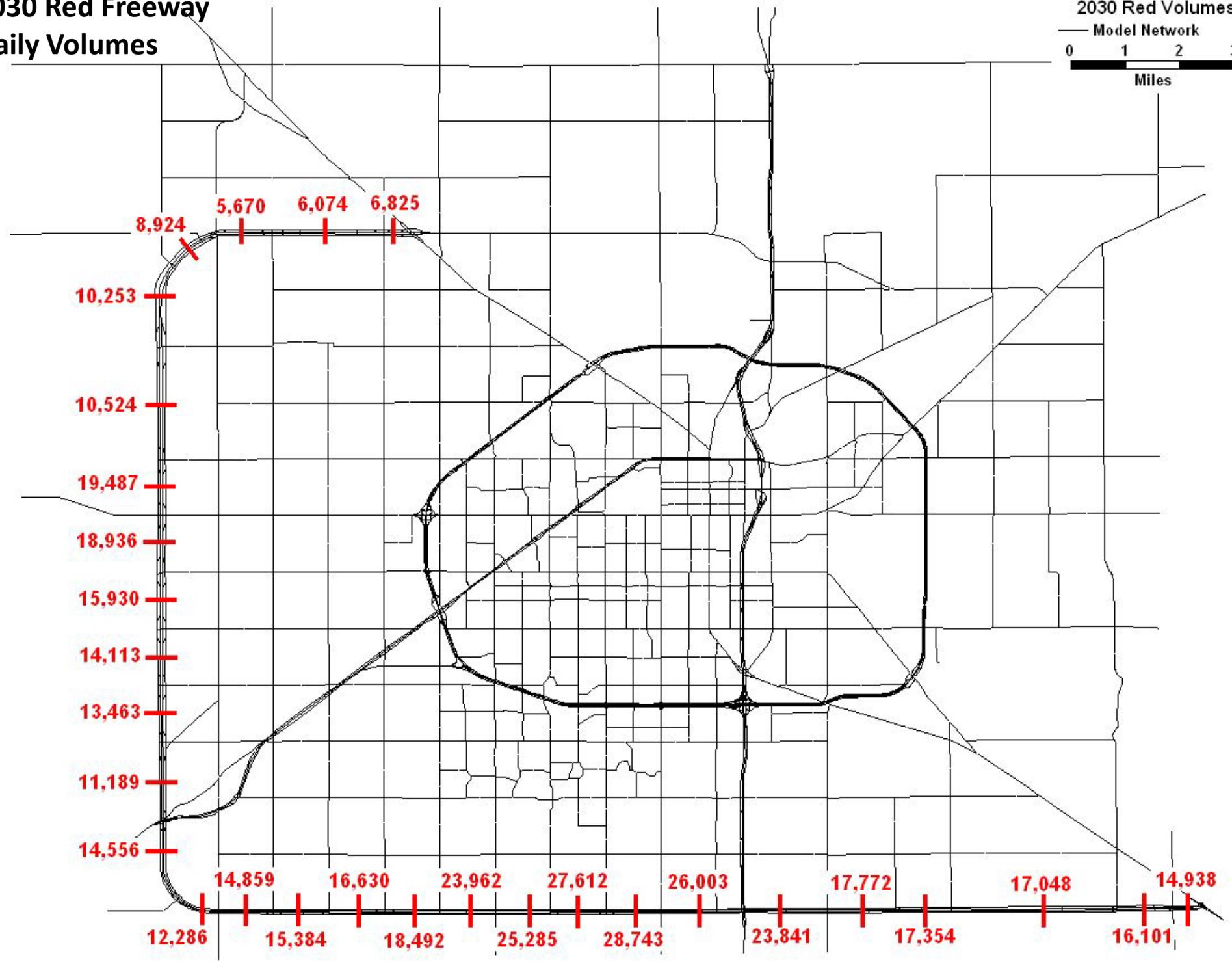
2030 No-Build Daily Volumes

2030 No-Build Volumes
— Model Network
0 1 2 3
Miles



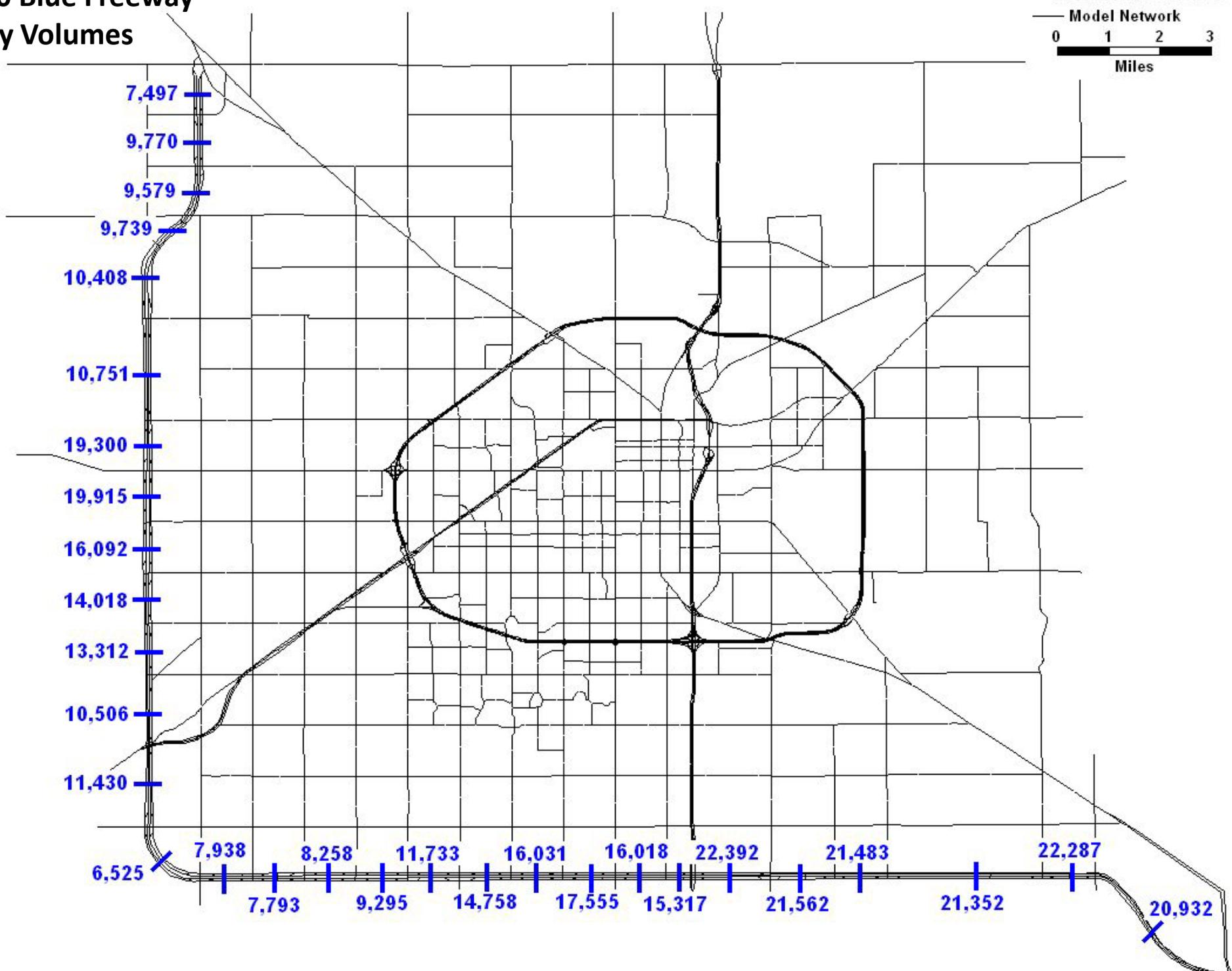
2030 Red Freeway Daily Volumes

2030 Red Volumes
— Model Network
0 1 2 3
Miles



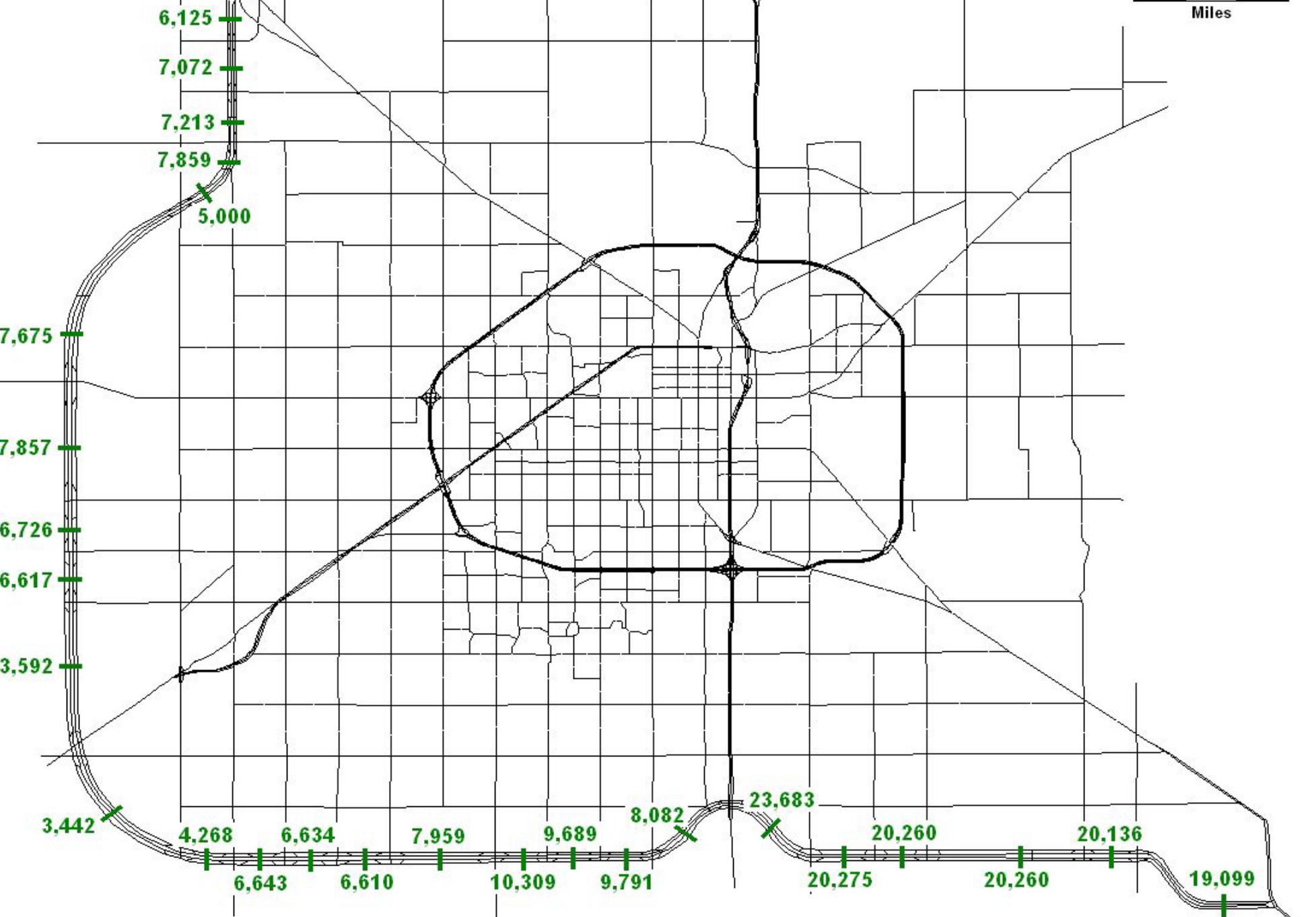
2030 Blue Freeway Daily Volumes

2030 Blue Volumes
— Model Network
0 1 2 3
Miles



2030 Green Freeway Daily Volumes

2030 Green Volumes
 — Model Network
 0 1 2 3
 Miles



Lubbock Alternative Analysis



Outer Loop Alternatives & Traffic Measures

Regional 24 Hour

Miles Driven – Vehicle Miles Traveled (VMT)

Time Behind the Wheel – Vehicle Hours Traveled (VHT)

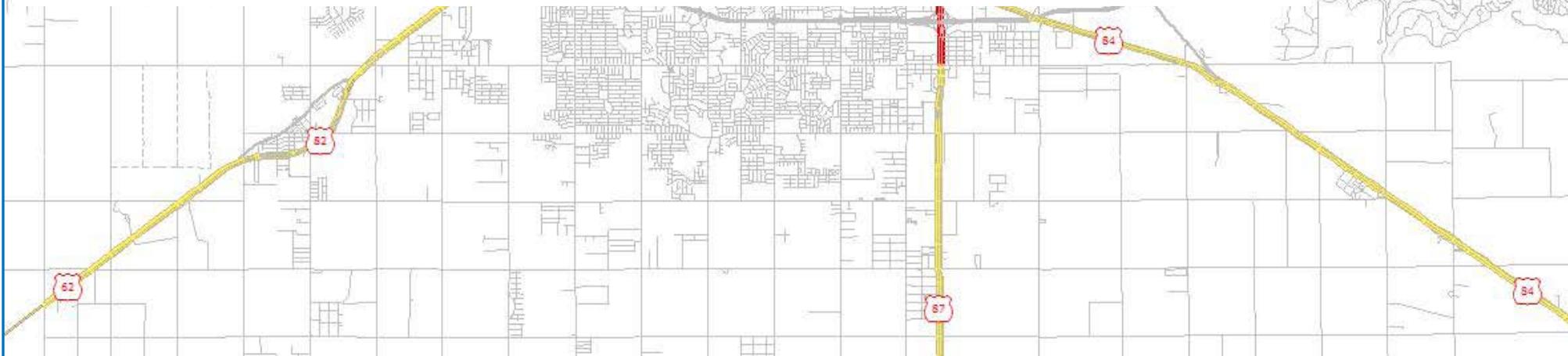
Speed – Average Regional Speed

Congestion Measures

Delay – Time Spent Sitting in Traffic

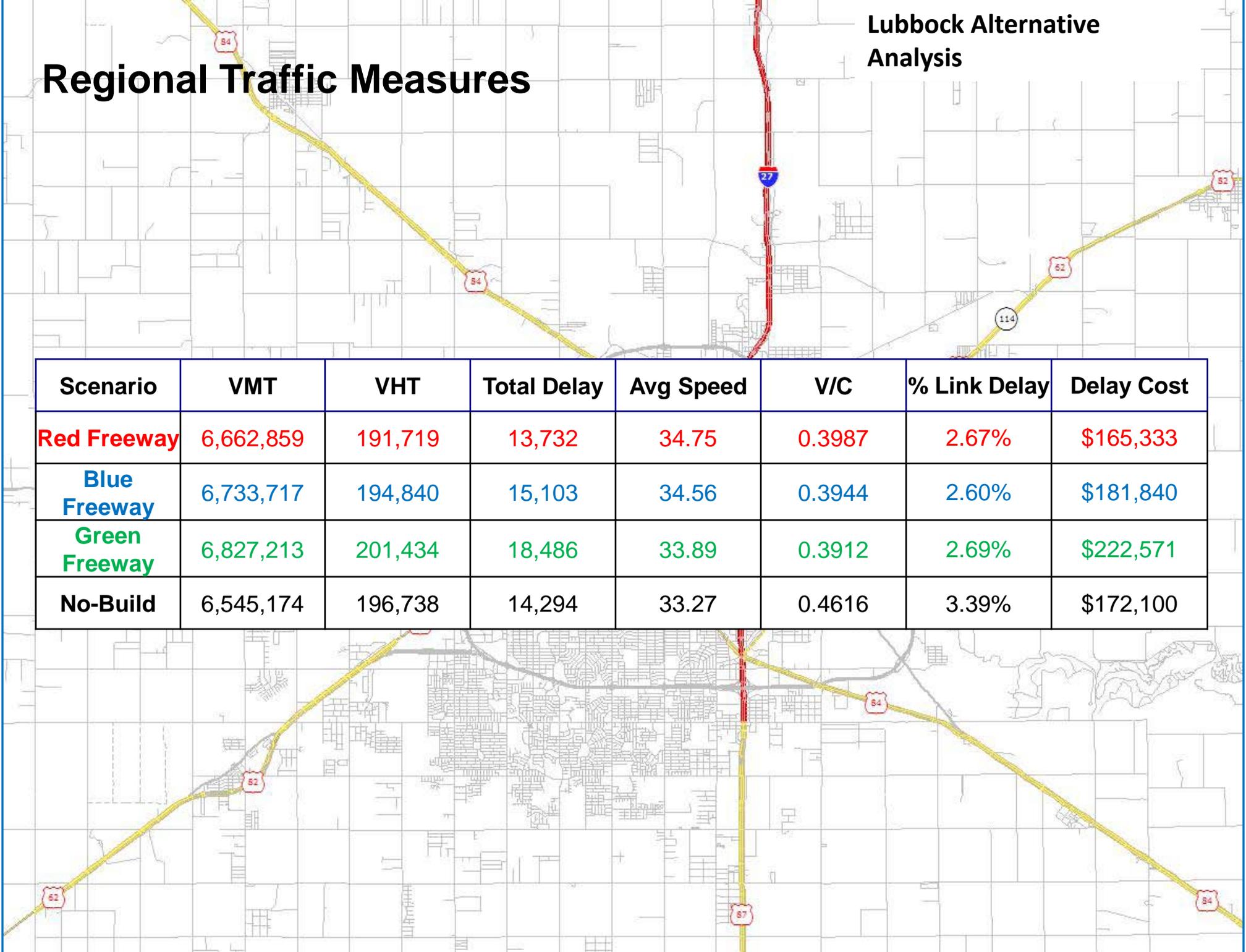
Cost – Dollar Cost Sitting in Traffic

Volume-to-Capacity – Are the roadways adequate for the amount of traffic using them?

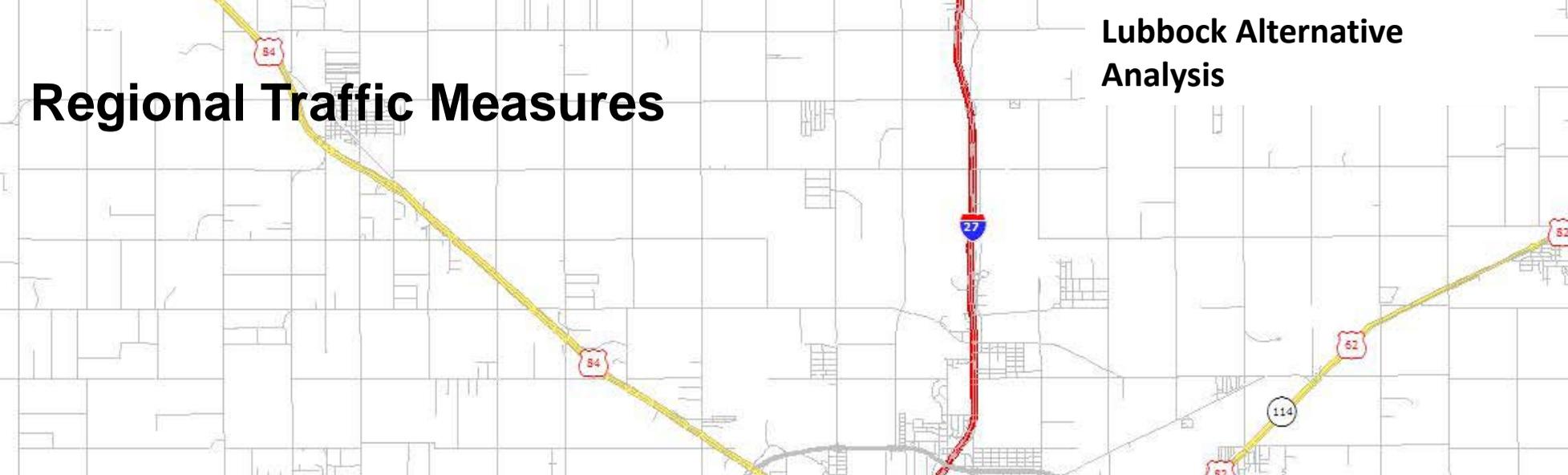


Regional Traffic Measures

Scenario	VMT	VHT	Total Delay	Avg Speed	V/C	% Link Delay	Delay Cost
Red Freeway	6,662,859	191,719	13,732	34.75	0.3987	2.67%	\$165,333
Blue Freeway	6,733,717	194,840	15,103	34.56	0.3944	2.60%	\$181,840
Green Freeway	6,827,213	201,434	18,486	33.89	0.3912	2.69%	\$222,571
No-Build	6,545,174	196,738	14,294	33.27	0.4616	3.39%	\$172,100



Regional Traffic Measures



Scenario	VMT Rank	VHT Rank	Total Delay Rank	Speed Rank	VC Rank	Link Delay Rank	Cost Rank	Total	Final Rank
Red Freeway	2	1	1	1	3	2	1	11	1
Blue Freeway	3	2	3	2	2	1	3	14	2
No-Build	1	3	2	4	4	4	2	20	3
Green Freeway	4	4	4	3	1	3	4	23	4

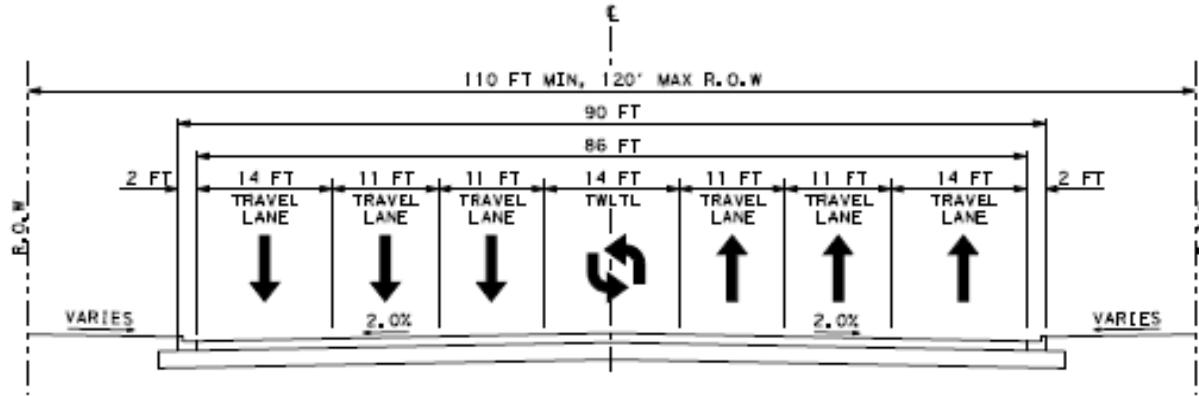


Phase I - Lubbock Outer Route Feasibility Study

Alternative Analysis

- Alternative Alignments
 - No-Build
 - Three Corridors
- Alternative Facility Types
 - Ultimate Freeway
 - Interim Freeway
 - Four-Lane Divided
 - Arterial Section

Phase I - Lubbock Outer Route Feasibility Study

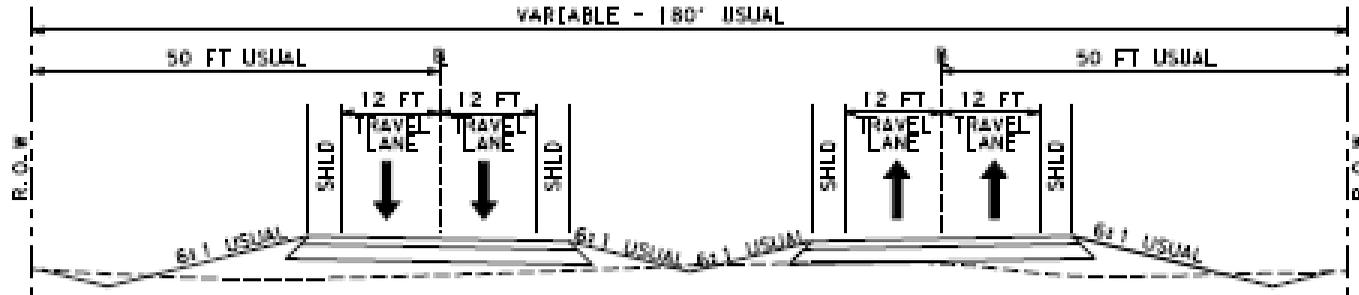


PROPOSED ARTERIAL SECTION



Alternative	ROW
1	120 ft
2	180 ft
3	400 ft
4	400 ft

Phase I - Lubbock Outer Route Feasibility Study

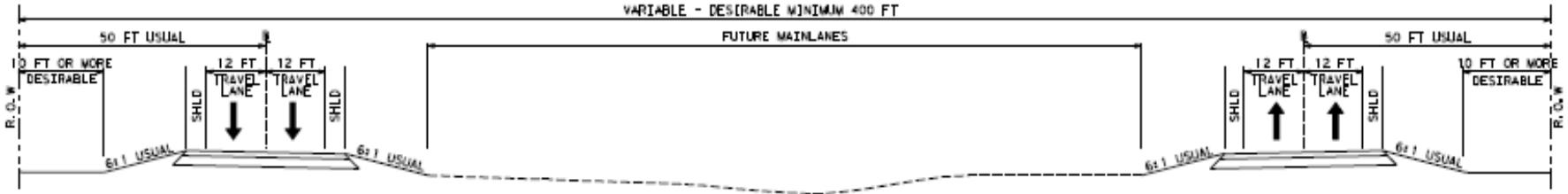


TYPICAL FOUR-LANE DIVIDED SECTION

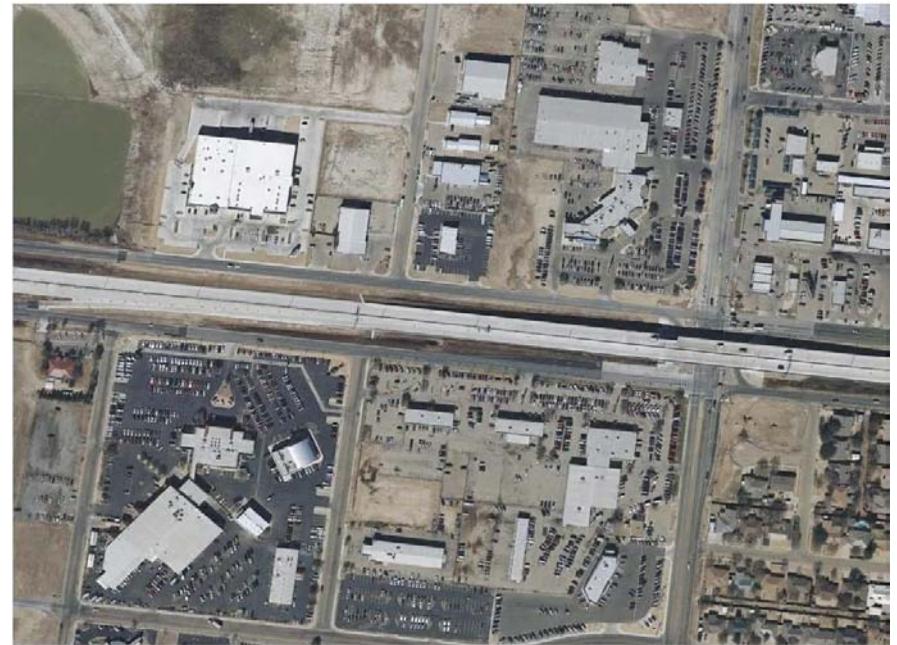


Alternative	ROW
1	120 ft
2	180 ft
3	400 ft
4	400 ft

Phase I - Lubbock Outer Route Feasibility Study



PROPOSED INTERIM FREEWAY SECTION



Alternative	ROW
1	120 ft
2	180 ft
3	400 ft
4	400 ft

Phase I - Lubbock Outer Route Study

FACILITY TYPE COMPARISON				
	6-LANE ARTERIAL THOROUGHFARE	4-LANE DIVIDED RURAL HIGHWAY	4- LANE DIVIDED INTERIM FREEWAY	4-LANE DIVIDED FREEWAY
AVERAGE ROW WIDTH	120	180	400	400
ESTIMATED CONSTRUCTION COST *	\$4.4	\$4.3	\$4.3	\$20.5
ACCESS CONTROL	NO	NO	NO	YES
EXPANDABILITY	NO	NO	YES	YES

* MILLION DOLLARS PER MILE

2030 Red 4 Lane Divided Daily Volumes

Volume-to-Capacity

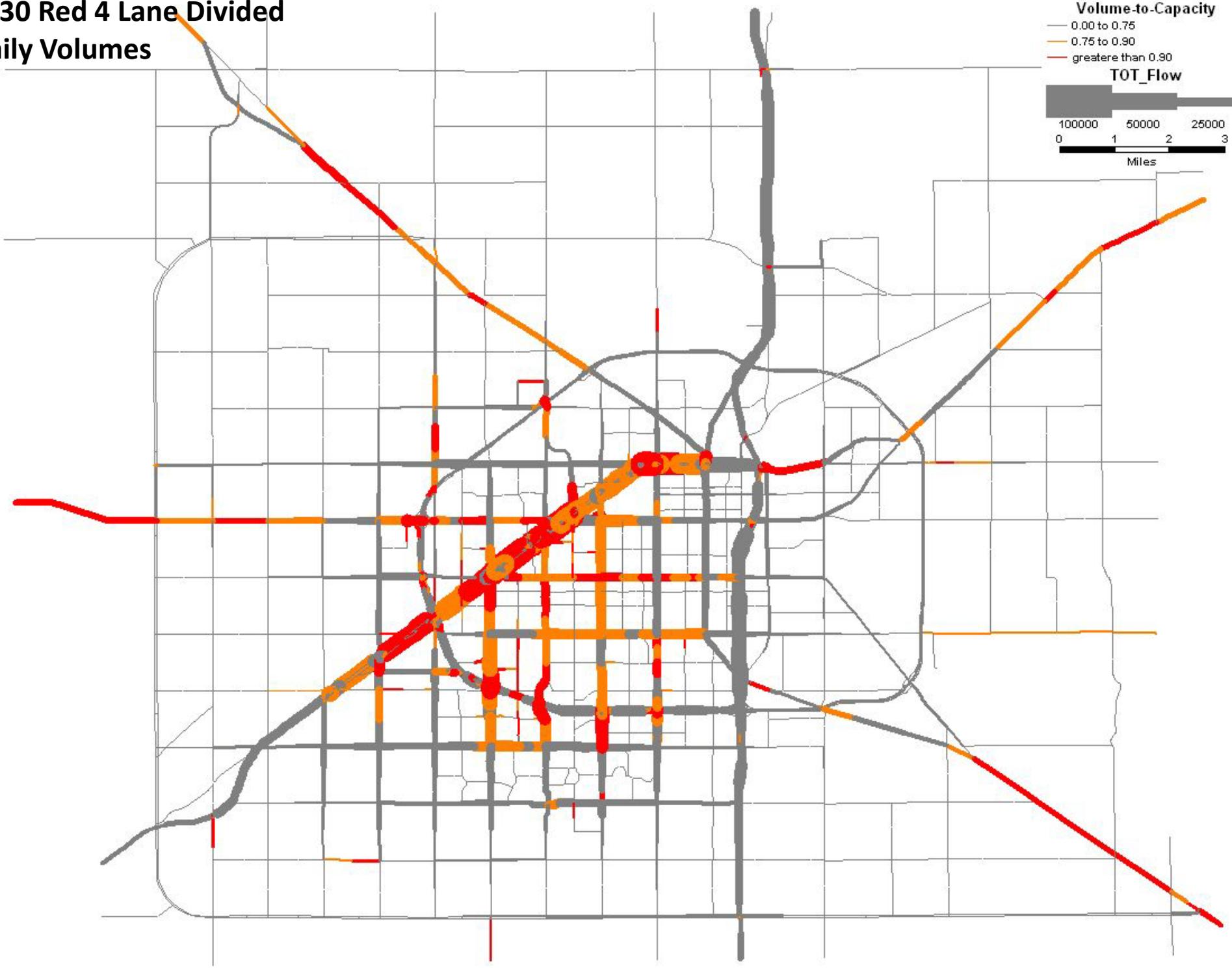
- 0.00 to 0.75
- 0.75 to 0.90
- greater than 0.90

TOT_Flow

100000 50000 25000

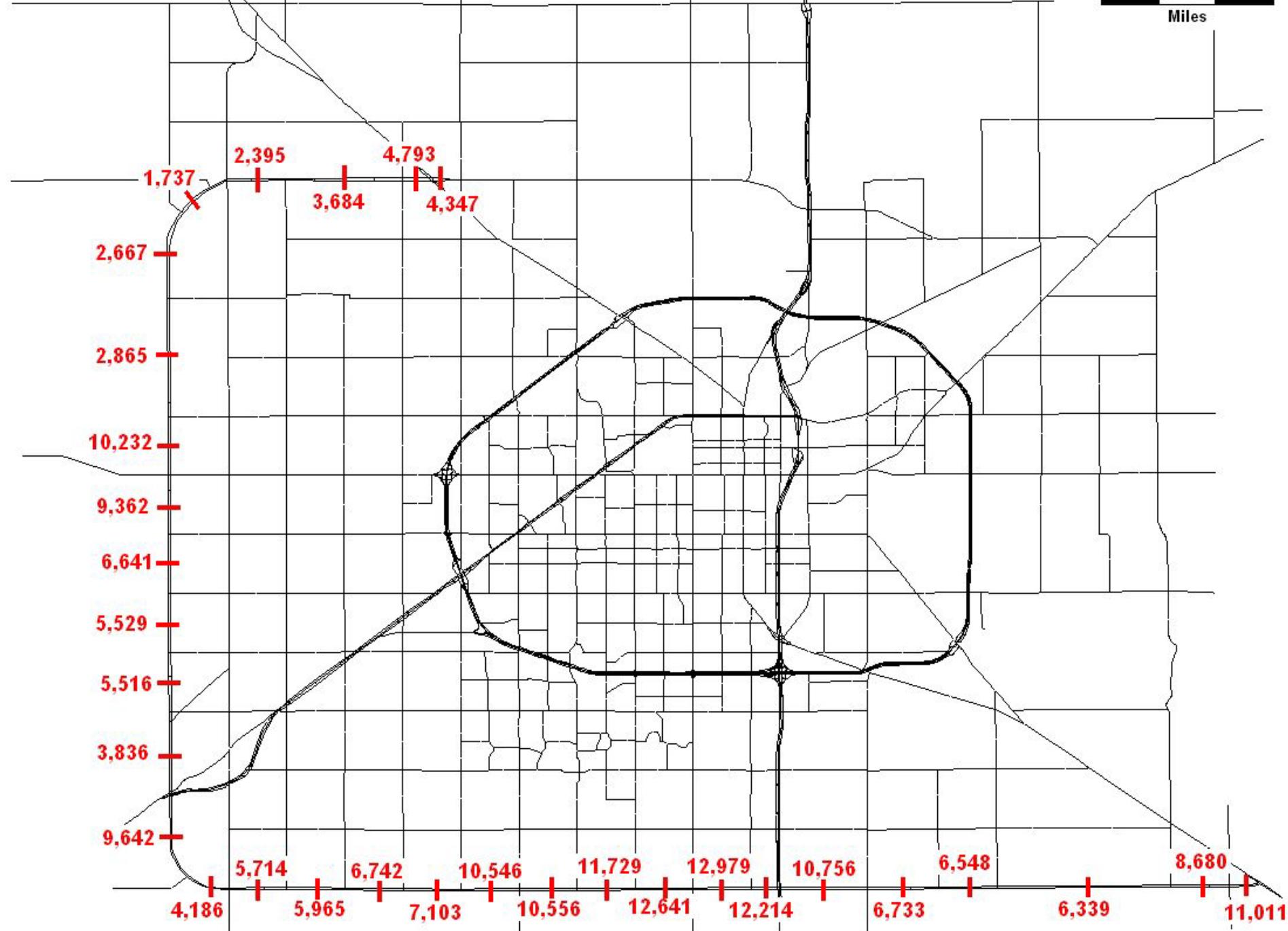
0 1 2 3

Miles

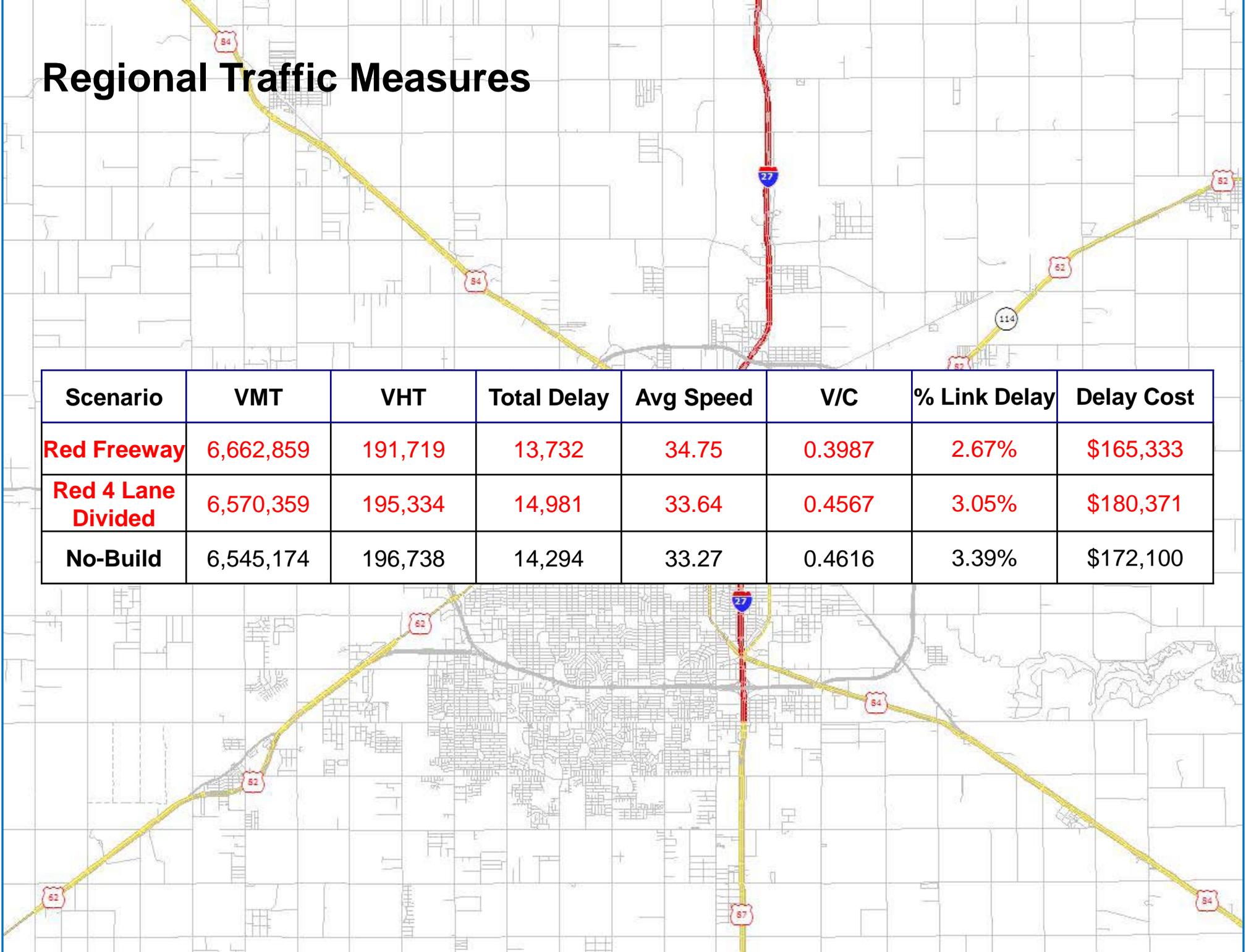


2030 Red 4 Lane Divided Daily Volumes

2030 Red 4 Lane Divided
Model Network
0 1 2 3
Miles

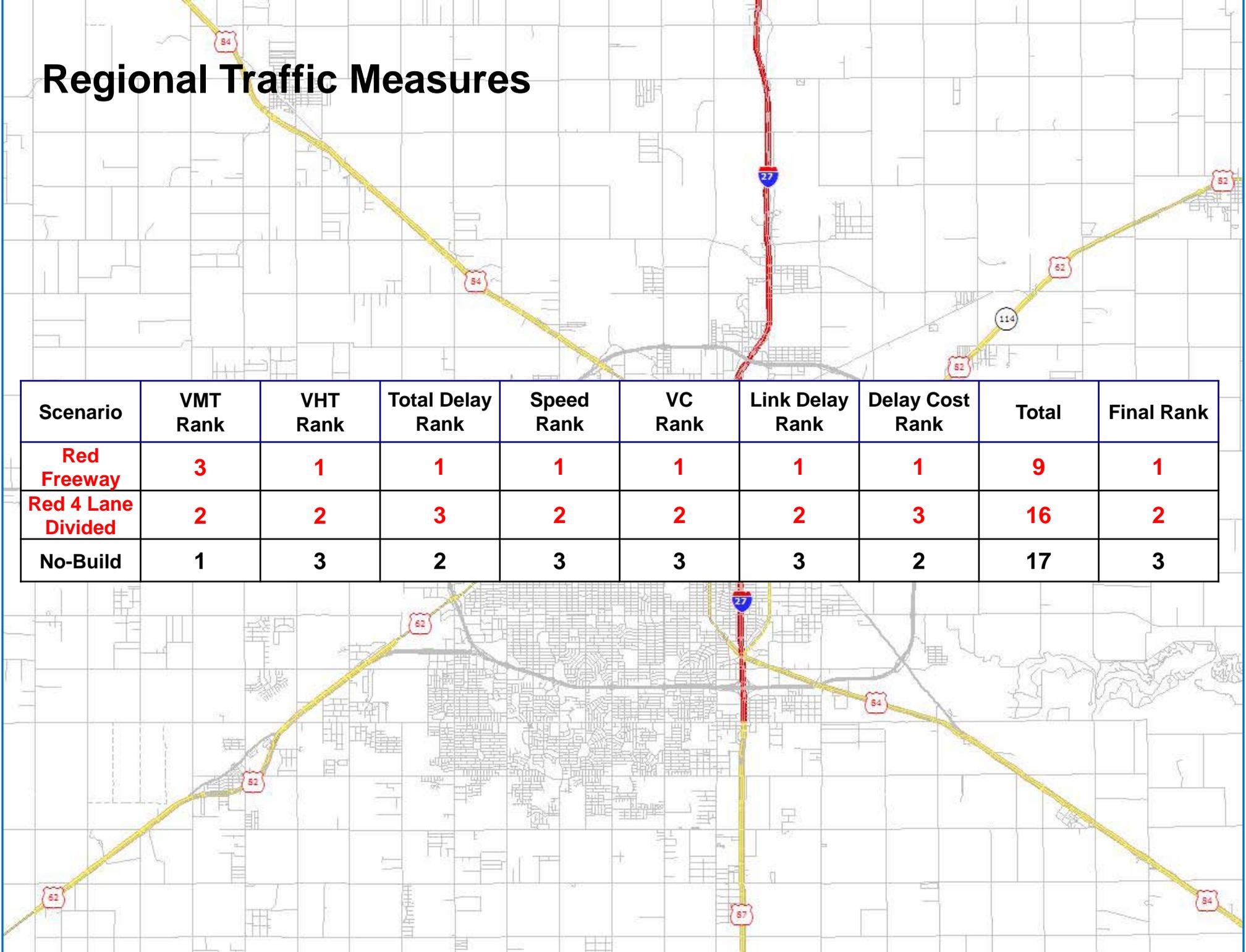


Regional Traffic Measures



Scenario	VMT	VHT	Total Delay	Avg Speed	V/C	% Link Delay	Delay Cost
Red Freeway	6,662,859	191,719	13,732	34.75	0.3987	2.67%	\$165,333
Red 4 Lane Divided	6,570,359	195,334	14,981	33.64	0.4567	3.05%	\$180,371
No-Build	6,545,174	196,738	14,294	33.27	0.4616	3.39%	\$172,100

Regional Traffic Measures

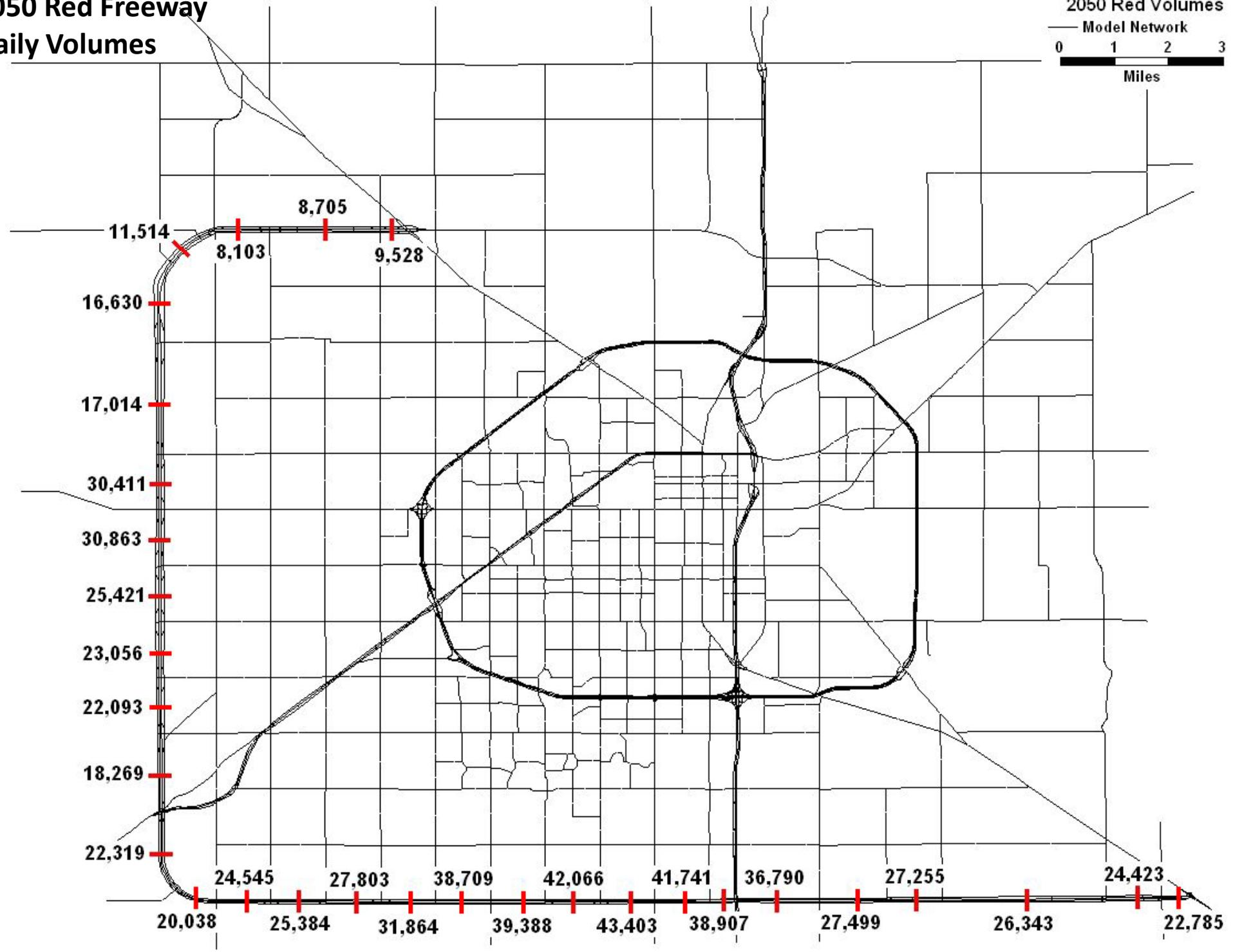


The map displays a network of roads with three primary routes highlighted in yellow: Route 84 running diagonally from the top-left to the center, Route 27 running vertically through the center, and Route 52 running diagonally from the center to the bottom-right. A red line highlights a specific section of Route 27. Other roads shown include Route 82, Route 114, and Route 87. The background is a light gray grid representing the road network.

Scenario	VMT Rank	VHT Rank	Total Delay Rank	Speed Rank	VC Rank	Link Delay Rank	Delay Cost Rank	Total	Final Rank
Red Freeway	3	1	1	1	1	1	1	9	1
Red 4 Lane Divided	2	2	3	2	2	2	3	16	2
No-Build	1	3	2	3	3	3	2	17	3

2050 Red Freeway Daily Volumes

2050 Red Volumes
— Model Network
0 1 2 3
Miles



Phase I - Lubbock Outer Route Feasibility Study

Refine Alternatives

- Refine alternatives based upon:
 - Public / stakeholder input
 - Design issues:
 - Geometric features
 - Traffic forecasts
 - Mobility assessment
 - Cost effectiveness:
 - Capital costs
 - Affordability
 - Economic impact analysis
 - Funding options
 - Environmental issues:
 - Social and environmental evaluation
 - Constraints
 - Feasibility Recommendation

Phase I - Lubbock Outer Route Feasibility Study

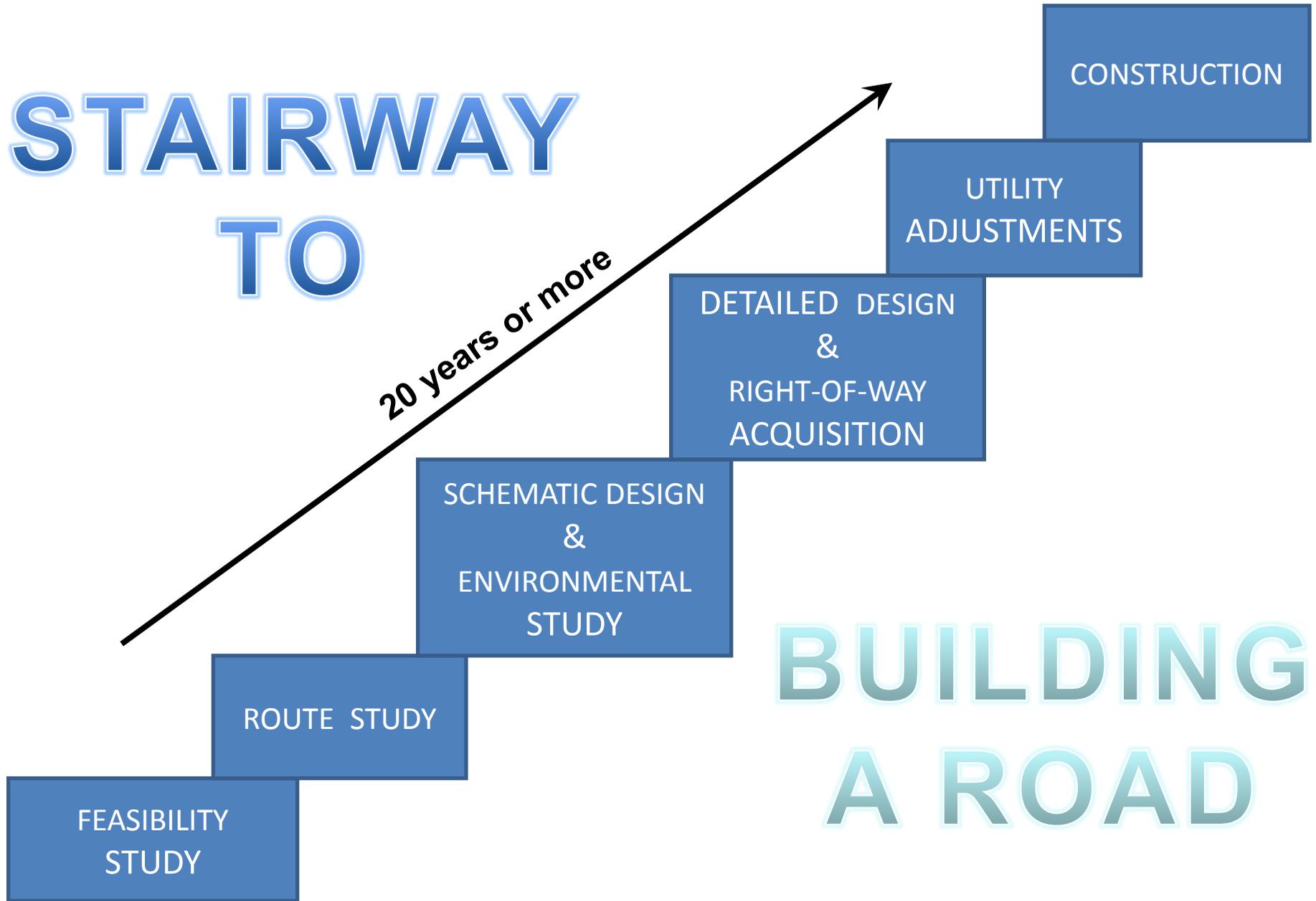
Conclusions and Recommendations:

- The proposed Lubbock Outer Route is marginally feasible as a freeway in 2050
- The proposed Lubbock Outer Route is feasible as a 4-lane divided highway in 2030
- The preferred corridor is the Red Alignment
- Further evaluation of the Red and Blue Corridors at the Route Study level
- Elimination of the Green Corridor alignment alternative from further evaluation
- The preferred facility type is the interim freeway

Phase I - Lubbock Outer Route Feasibility Study

STAIRWAY TO

20 years or more



BUILDING A ROAD

Phase I - Lubbock Outer Route Feasibility Study

The website address is as follows:

http://www.txdot.gov/project_information/projects/lubbock/outer_route/default.htm

**Texas Department of Transportation
135 Slaton Road
Lubbock, Texas 79404-5201**

**Jerry Cash, PE
(806) 748-4411**

