



# PHASE I - LUBBOCK OUTER ROUTE FEASIBILITY STUDY



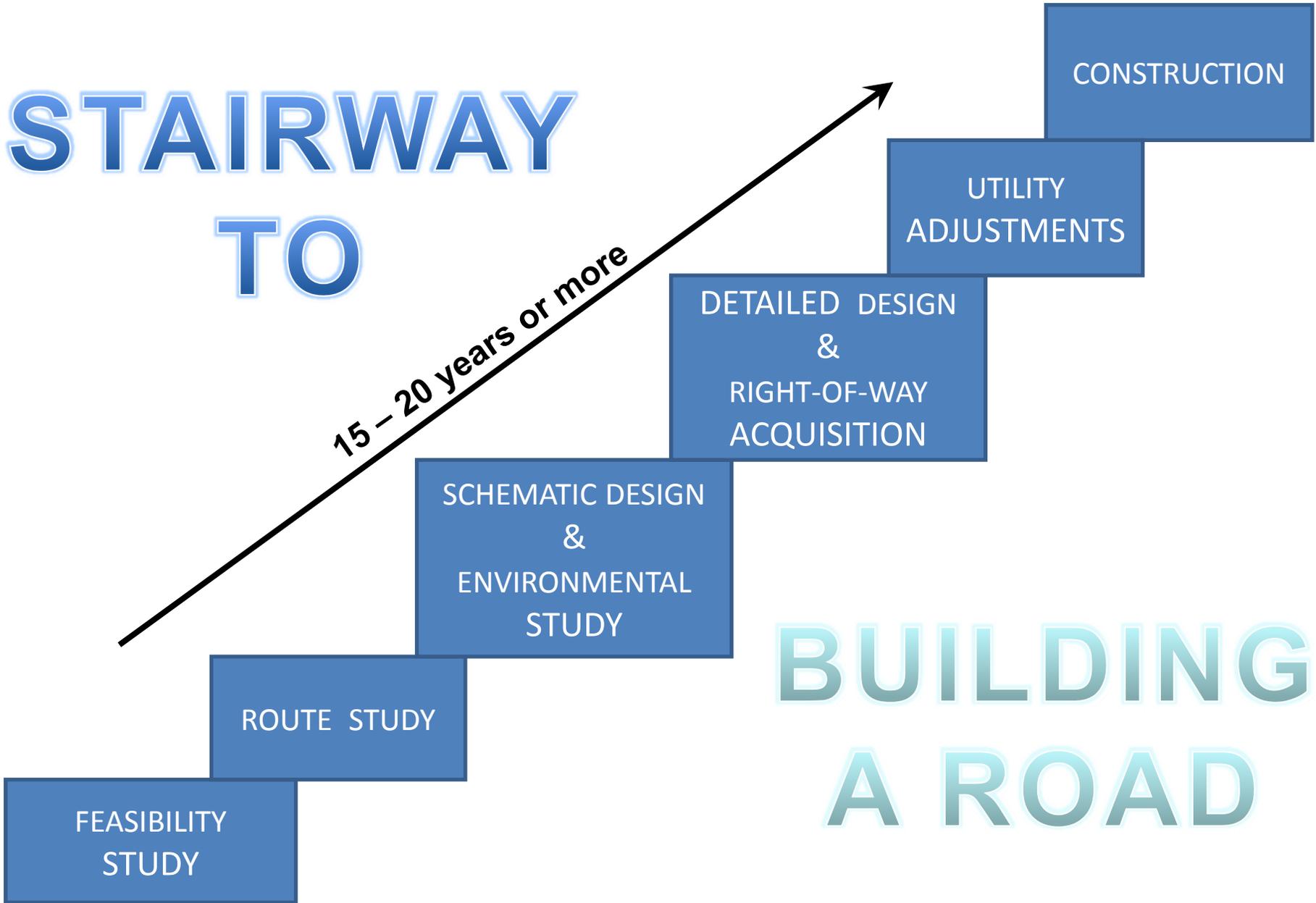
PUBLIC MEETING  
January 26, 2010



# Phase I - Lubbock Outer Route Feasibility Study

# STAIRWAY TO

15 – 20 years or more



# 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 Protection 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

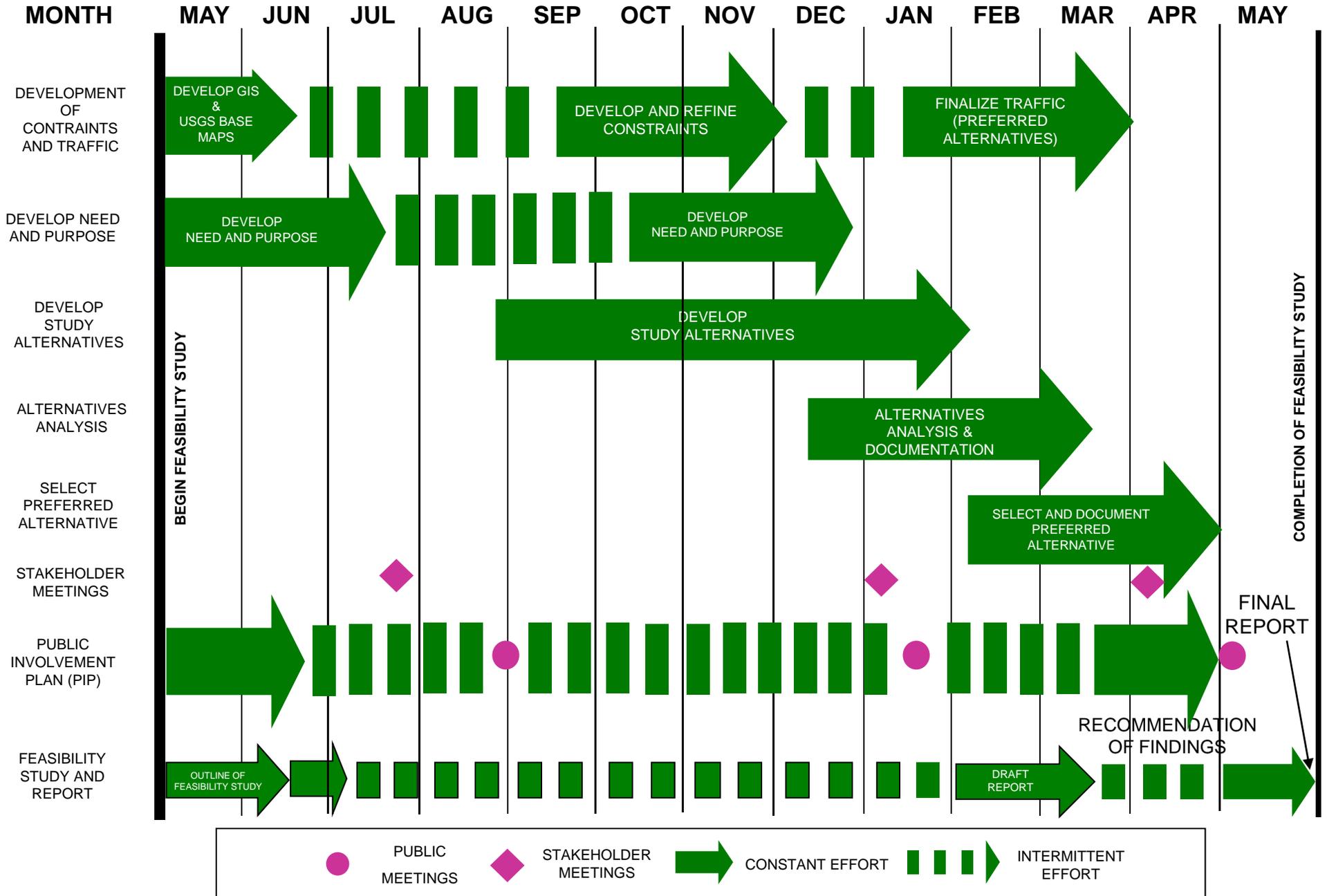
# Phase I - Lubbock Outer Route Feasibility Study

## Project Schedule

Begin Feasibility Study	May 2009
Outline of Feasibility Study	Jul 2009
First Public Meeting	Sep 2009
<b>Second Public Meeting</b>	<b>Jan 2010</b>
Draft Feasibility Study	Mar 2010
Third Public Meeting	Apr 2010
Final Feasibility Study	May 2010
Complete Feasibility Study	May 2010
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Begin Route Study	Jun 2010



# FEASIBILITY STUDY SCHEDULE



# 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

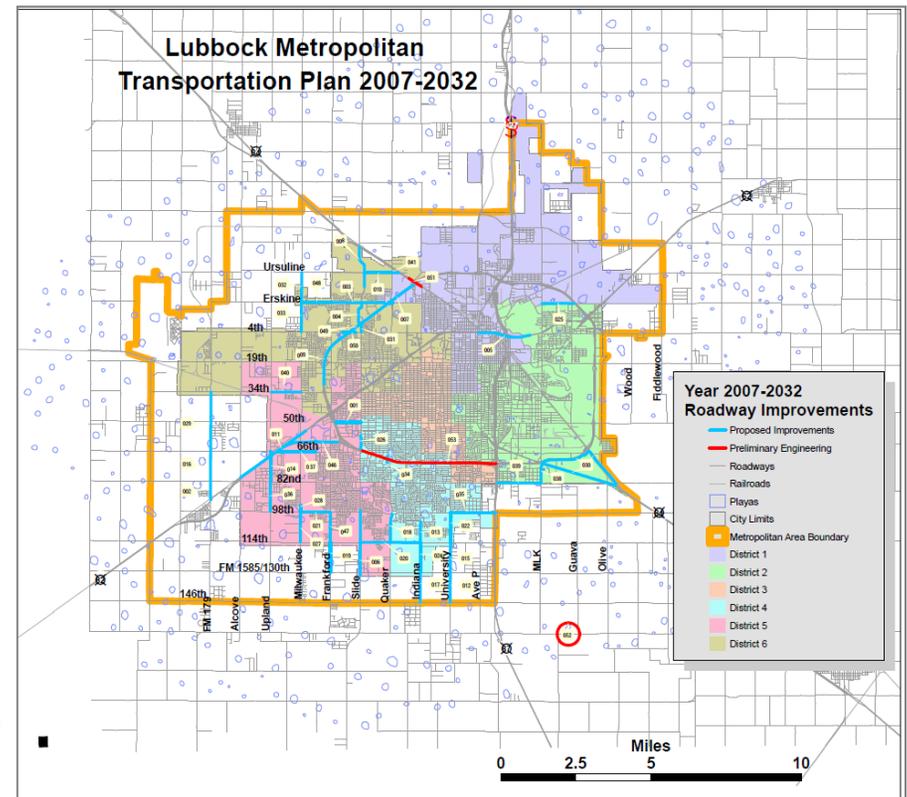
## **Steps Include:**

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

# Phase I - Lubbock Outer Route Feasibility Study

## *Need and Purpose*

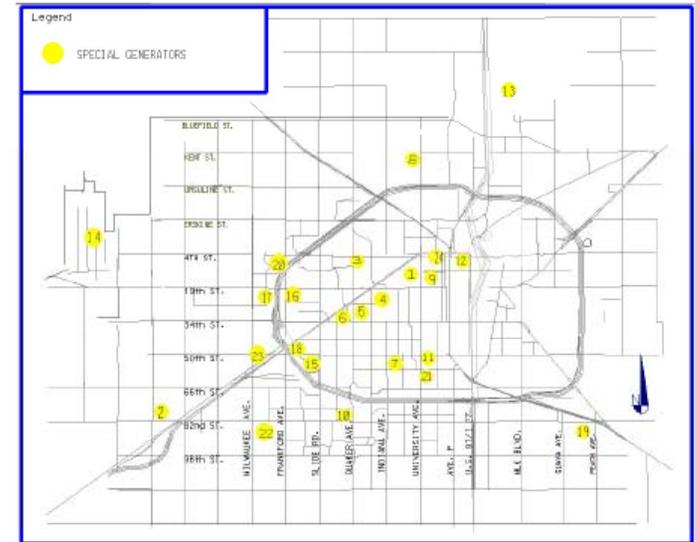
- Investigation of need and purpose
- Creation of uncontrolled aerial mosaic
- Research previous studies
  - Lubbock 2032 MTP
  - Cities land use plans
  - Ports to Plains
  - ITS Plans



# 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.



- |                                 |                      |   |
|---------------------------------|----------------------|---|
| 1 Texas Tech University         | 11 Highland Hospital | 15 South Plains Mall                          |
| 2 Frenship High                 | 12 Downtown:         | 16 Lubbock Christian University               |
| 3 University Medical Center/HSC | Lubbock A-J Plant    | 17 Wayland Plaza                              |
| 4 Covenant Hospital             | Federal Building     | 18 NTS  |
| 5 Covenant Lakeside Hospital    | County Courthouse    | 19 Montford Correctional Unit                 |
| 6 Coronado High                 | City of Lubbock      | 20 Walmart/4 <sup>th</sup> Street             |
| 7 Monterey High                 | LISD Administration  | 21 Kmart Supercenter                          |
| 8 State School/SBC              | Civic Center         | 22 Walmart/52 <sup>nd</sup> St. and Frankford |
| 9 Lubbock High                  | 13 Airport           | 23 Canyon West                                |
| 10 Wall-Mart/S. Loop            | 14 Reese Center      | 24 Walmart/4 <sup>th</sup> and Ave. Q         |

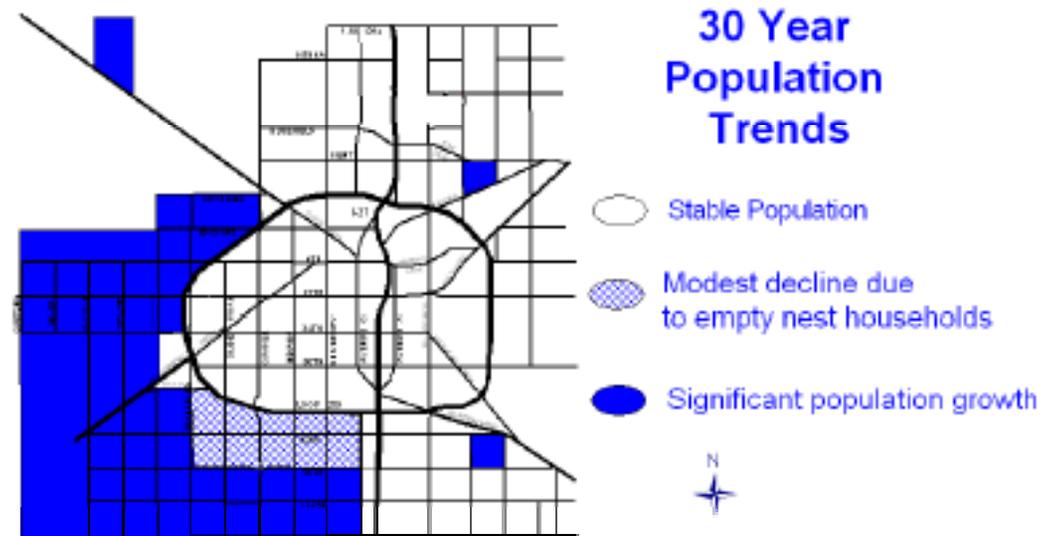
Source: Lubbock Metropolitan Planning Organization

# Phase I - Lubbock Outer Route Feasibility Study

## *Need and Purpose (continued)*

- Data Collection
  - Population growth
  - Employment characterization

Figure 3-2: 30-Year Population Trends



- Draft Need and Purpose Report
  - Record updated field inventories and reviews
  - Summaries of data developed
  - Catalog all information collected

# Phase I - Lubbock Outer Route Feasibility Study

## ***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

# Phase I - Lubbock Outer Route Feasibility Study

## *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

# Phase I - Lubbock Outer Route Feasibility 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 study area and will be considered in all stages of alternatives analysis
- Environmental considerations will be documented and reported for use in future NEPA compliance studies



# Phase I - Lubbock Outer Route Feasibility 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 Feasibility Study

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

### **Selected Known Constraints:**

- Floodplains, Playa lakes (usually not jurisdictional), Yellow House Draw and tributaries may be USACE jurisdictional
- Threatened and Endangered species:
  - Federal: incidental migratory birds
  - State: Texas horned lizard
- Several monitored species:
  - Plains spotted skunk
  - Black-tailed prairie dog
  - Western burrowing owl
  - Bald Eagle
- Properties eligible for the National Register of Historic Places (NRHP) (e.g., old farmsteads) should be avoided.



# Phase I - Lubbock Outer Route Feasibility Study

## *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
- Selected estimated Lubbock County changes in land use between 1992 and 1997:
  - Cultivated cropland decreased by 3.5%
  - Non-cultivated cropland decreased by 8.3%
  - Rangeland increased by 11.4%
  - Minor land cover/uses (Farm/ranch HQs, other farmland, etc.) increased by 10.9%
  - Urban-small and large built-up increased by 23.9%



# Phase I - Lubbock Outer Route Feasibility Study

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

### **Selected Known Constraints (continued):**

- BNSF/WTLR railroad crossings, 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
- Regional health of resources will be assessed for use in future indirect and cumulative effects analyses
- All other regulated resources will be investigated
- SAFETEA-LU (Safe, Accountable, Flexible, Efficient, Transportation Equity Act-A Legacy for Users) serves as backdrop

# Phase I - Lubbock Outer Route Feasibility Study

## *Evaluation of Existing Systems*

- Confirm Study Area
- Prepare Data Collection Plan
- Existing Safety and Traffic Operational Analyses
  - Accident reports/analysis
  - Capacity level of service analysis
- Corridor Deficiencies
  - Identify areas of congestion
  - Identify high accident locations
- Study goals and objectives
  - Refinement of need and purpose statement
  - Create deficiency map

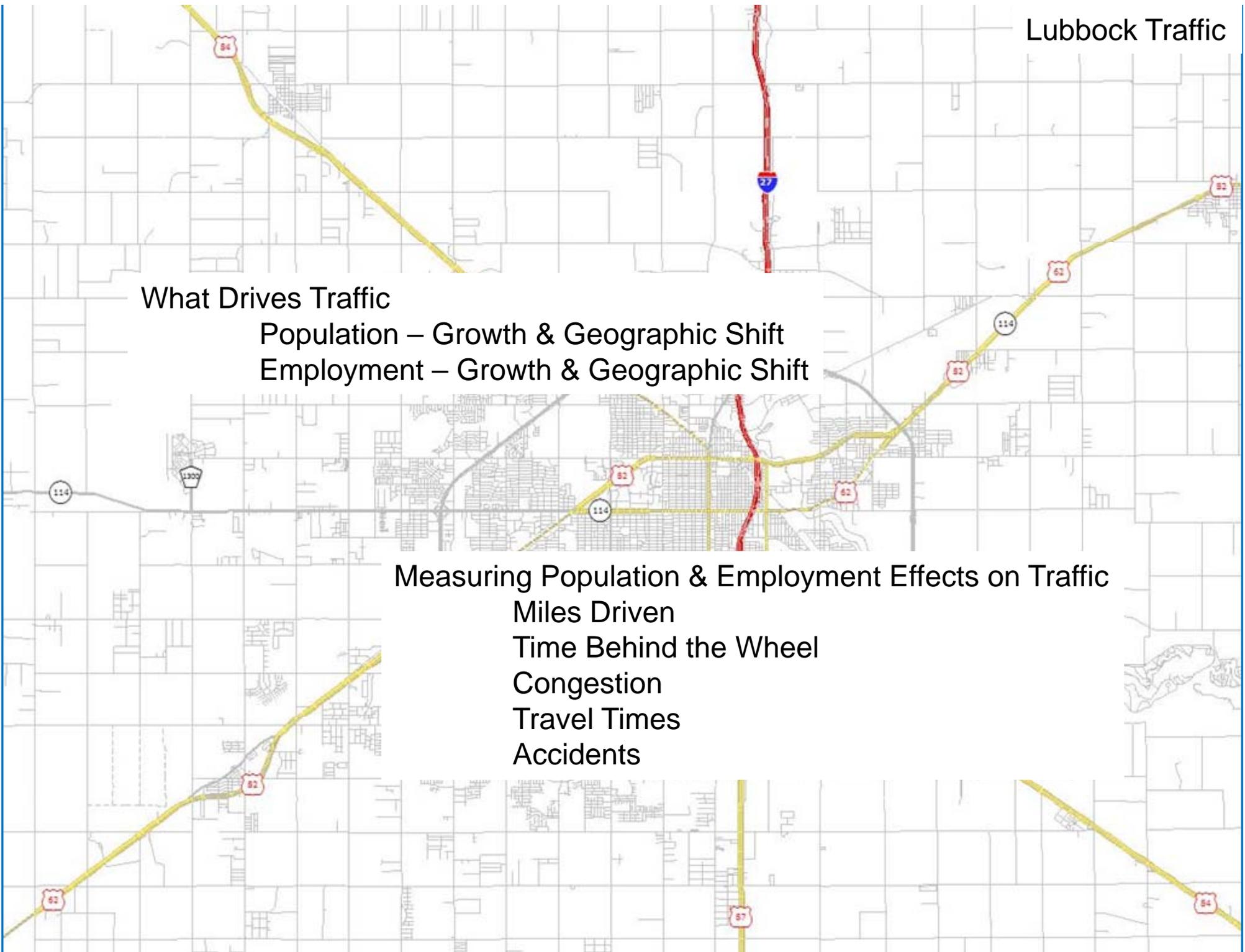


What Drives Traffic

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

Measuring Population & Employment Effects on Traffic

- Miles Driven
- Time Behind the Wheel
- Congestion
- Travel Times
- Accidents



# 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**

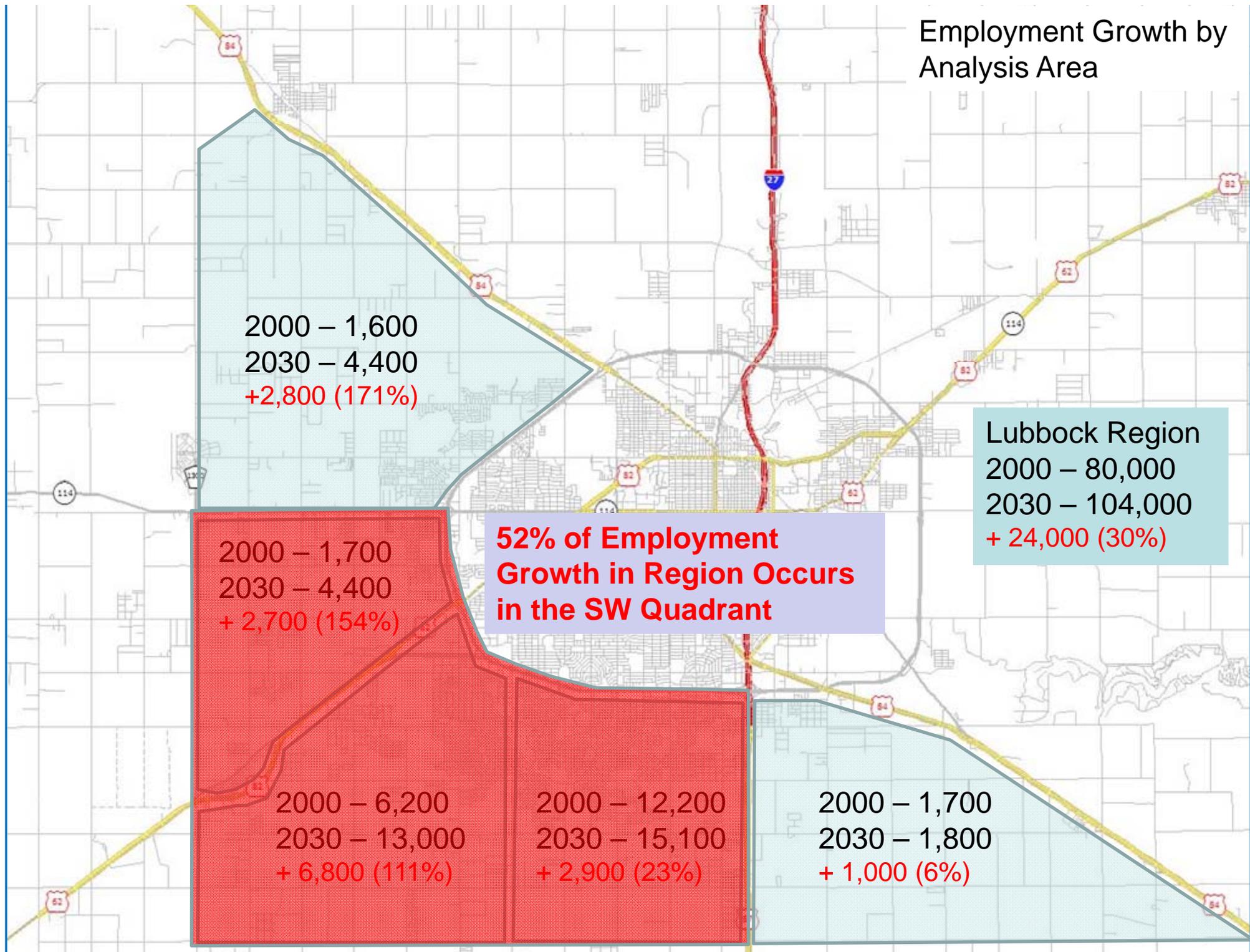
2000 – 7,900  
2030 – 13,700  
**+ 5,800 (73%)**

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%)**

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%)**

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

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

# Total Miles Driven by Analysis Area - Typical Day

2000 – 361,400  
2030 – 580,000  
+ 218,600 (60%)

Lubbock Region  
2000 – 4,461,400  
2030 – 6,545,200  
+ 2,083,800 (47%)

**Almost Half (47%) of Growth in Driven Miles in Region Occurs in the SW Quadrant**

2000 – 301,400  
2030 – 515,500  
+ 214,100 (71%)

2000 – 295,030  
2030 – 739,700  
+ 444,700 (151%)

2000 – 401,200  
2030 – 728,400  
+ 327,200 (82%)

2000 – 229,500  
2030 – 377,800  
+ 148,300 (65%)

# Total Hours Spent Behind the Wheel by Analysis Area - Typical Day

2000 – 9,800  
2030 – 16,900  
**+7,100 (72%)**

**Lubbock Region**  
2000 – 130,600  
2030 – 196,700  
**+ 66,100 (51%)**

**Almost Half (48%) of Growth in Hours in Region Occurs in the SW Quadrant**

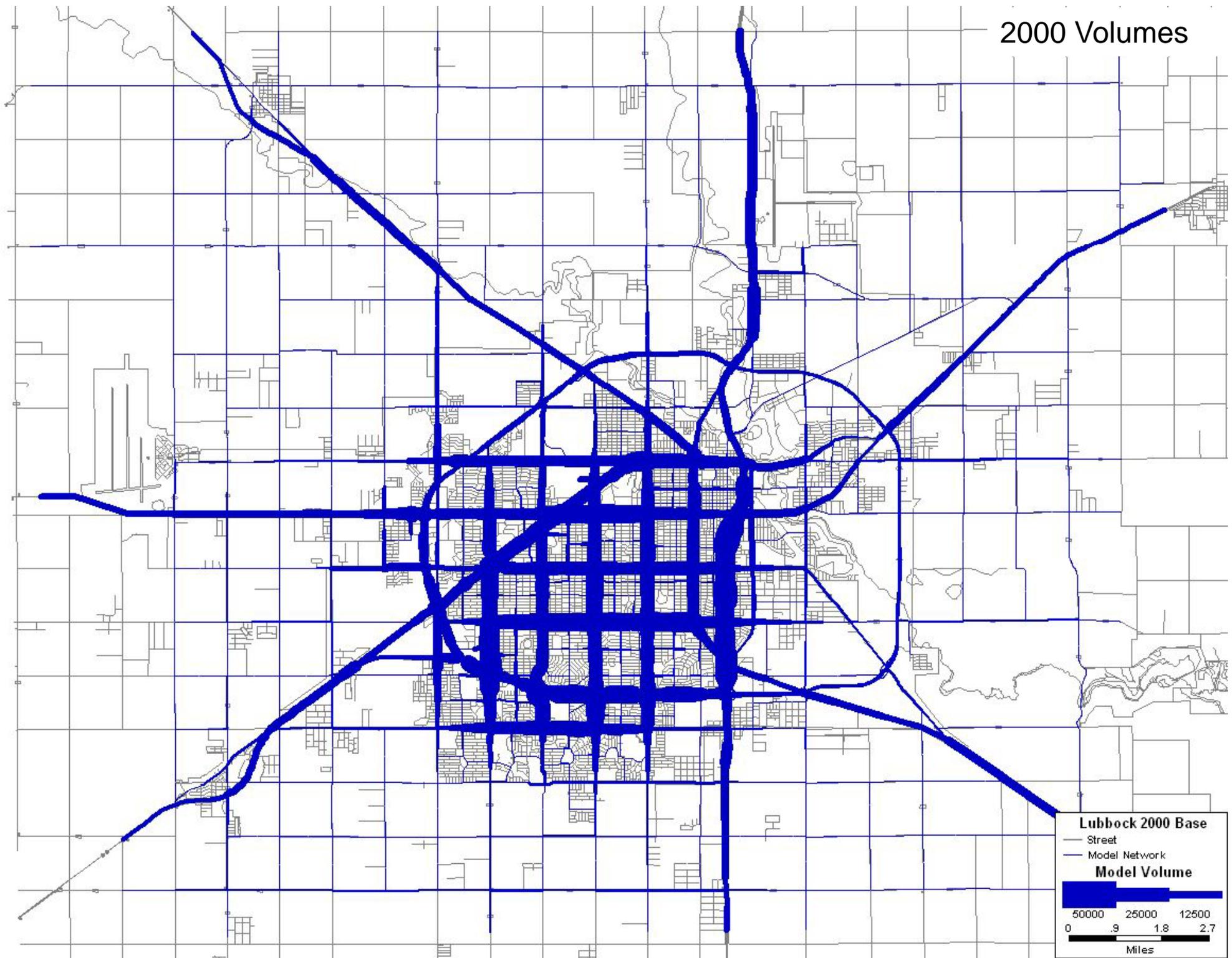
2000 – 8,500  
2030 – 15,800  
**+ 7,300 (84%)**

2000 – 8,600  
2030 – 22,800  
**+ 14,200 (165%)**

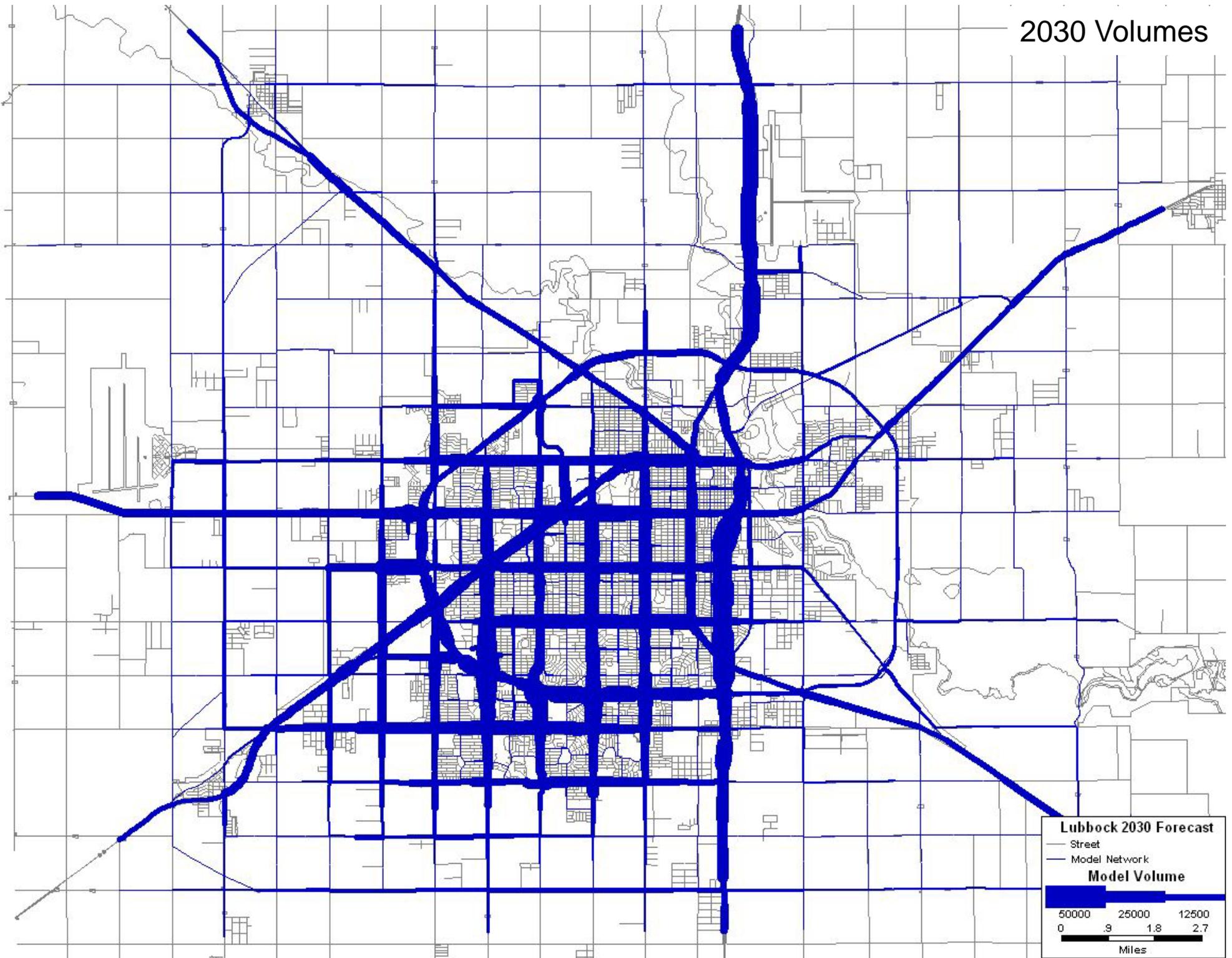
2000 – 11,700  
2030 – 21,600  
**+ 9,900 (85%)**

2000 – 5,900  
2030 – 9,800  
**+ 3,900 (67%)**

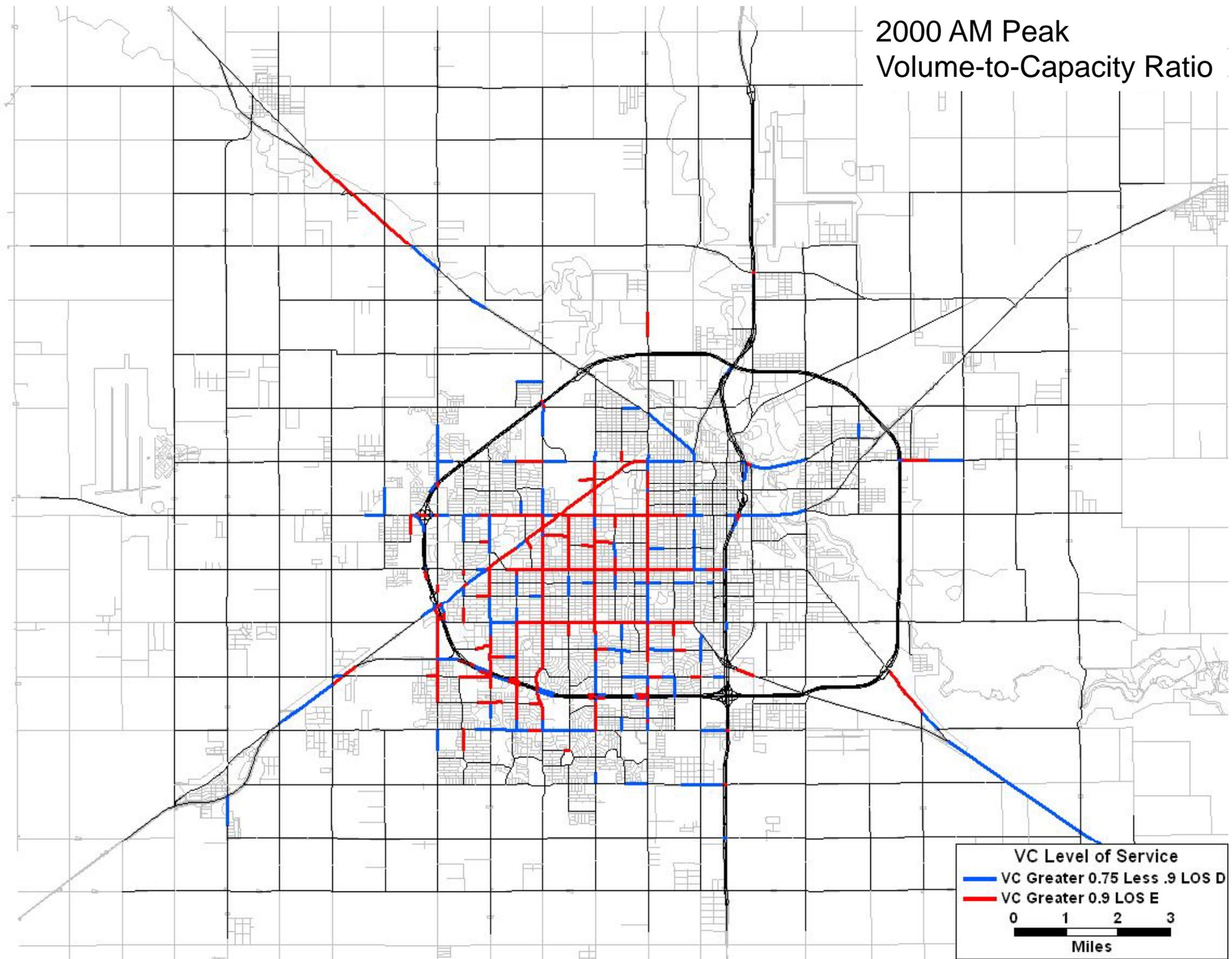
# 2000 Volumes



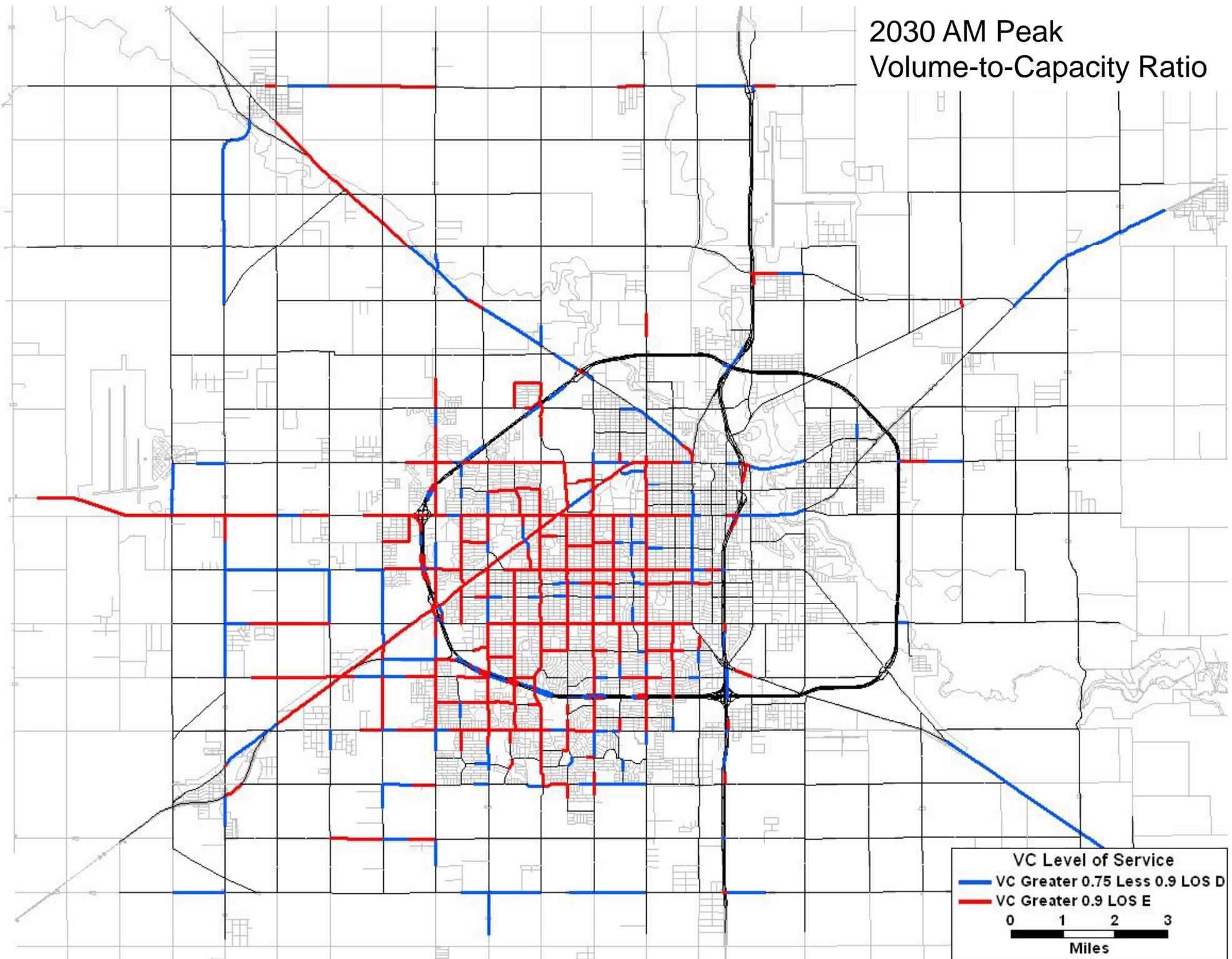
# 2030 Volumes



# 2000 AM Peak Volume-to-Capacity Ratio

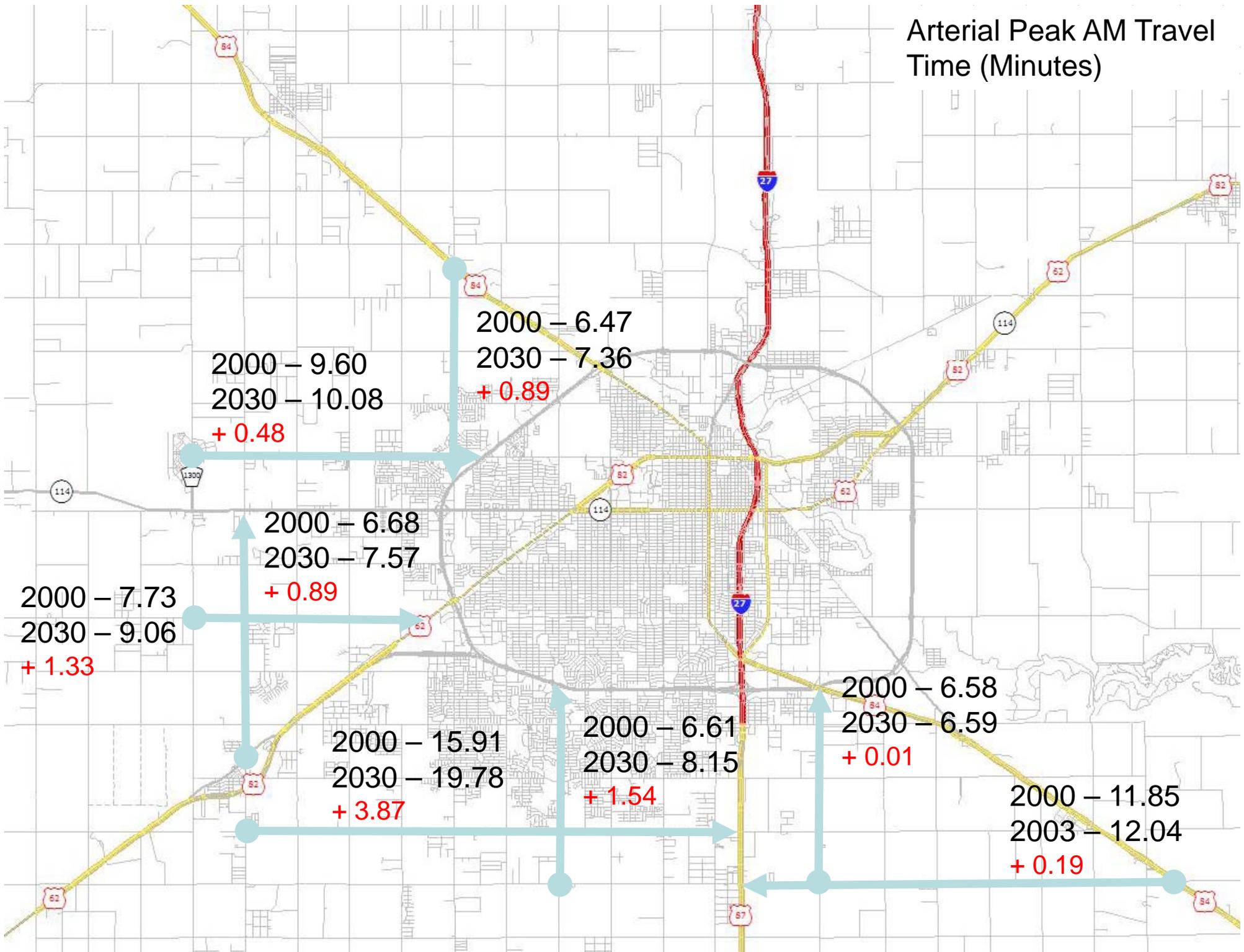


# 2030 AM Peak Volume-to-Capacity Ratio

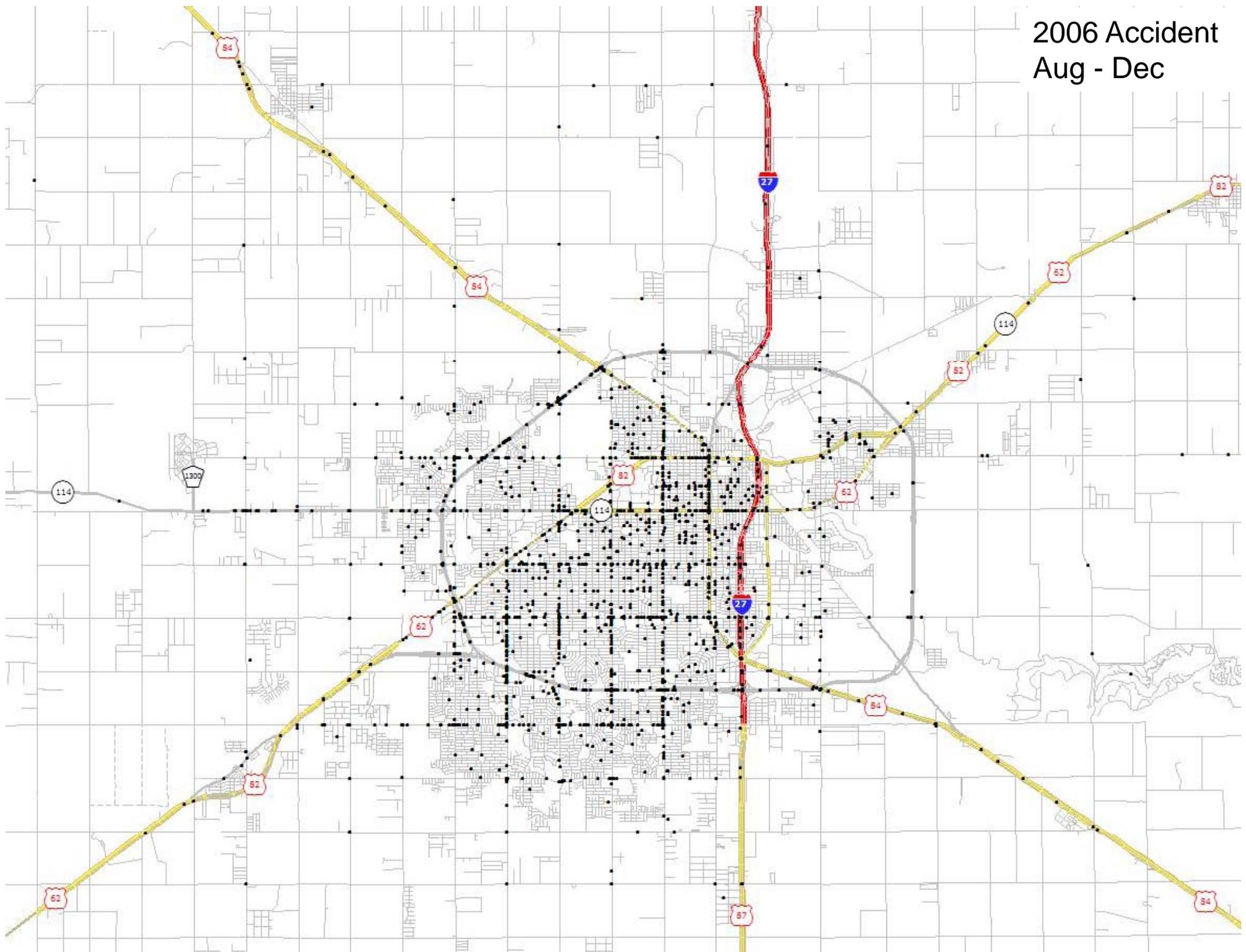




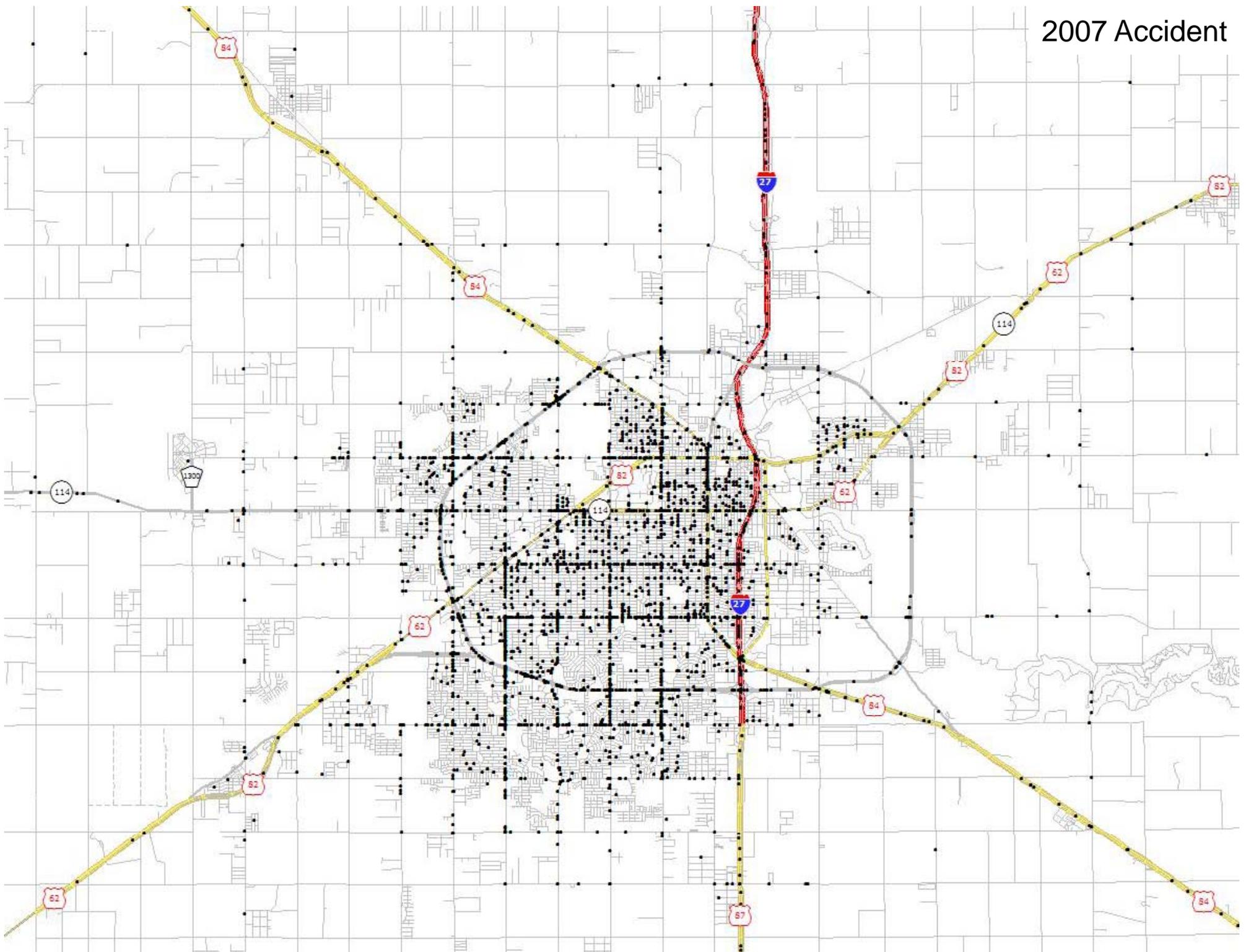
# Arterial Peak AM Travel Time (Minutes)



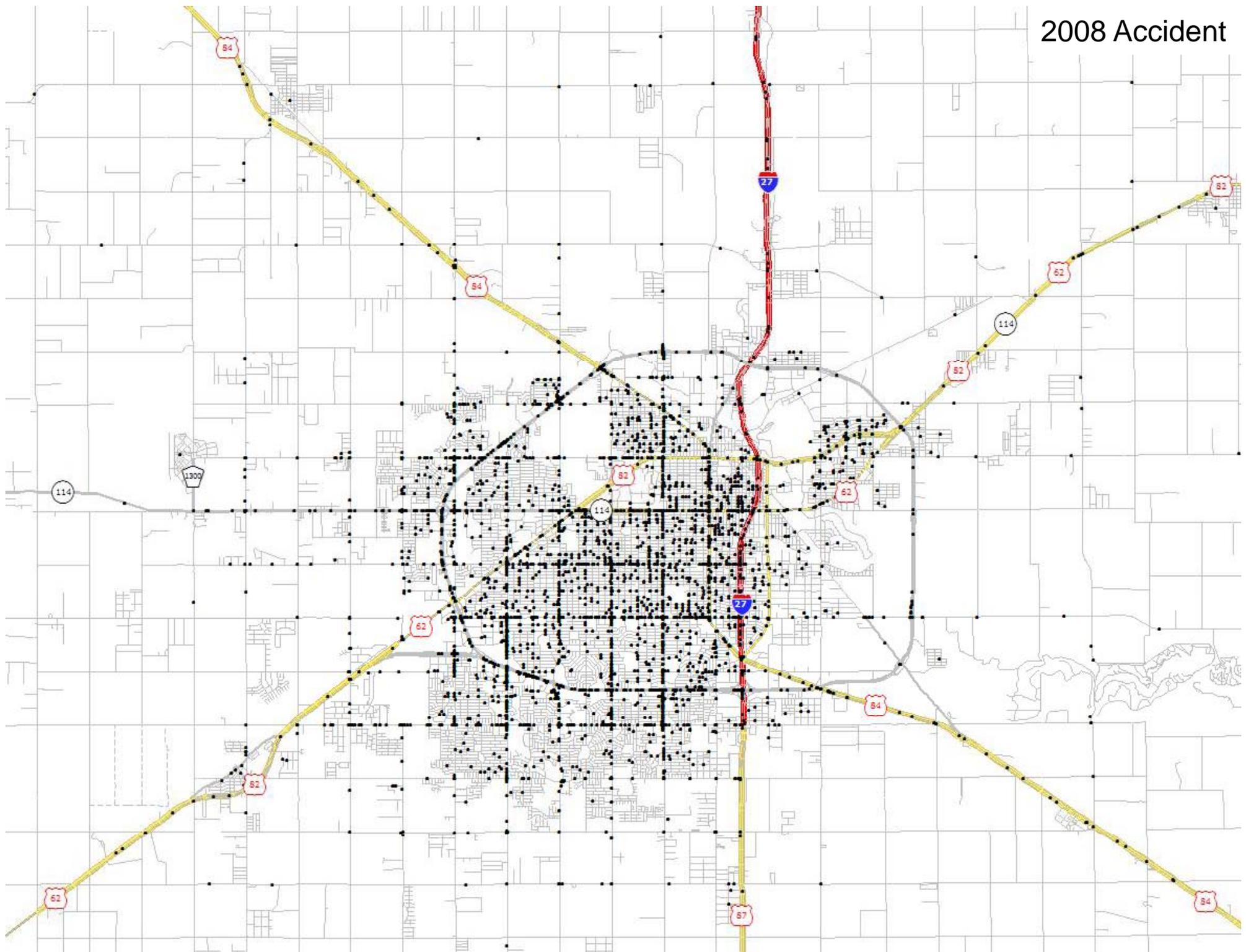
2006 Accident  
Aug - Dec



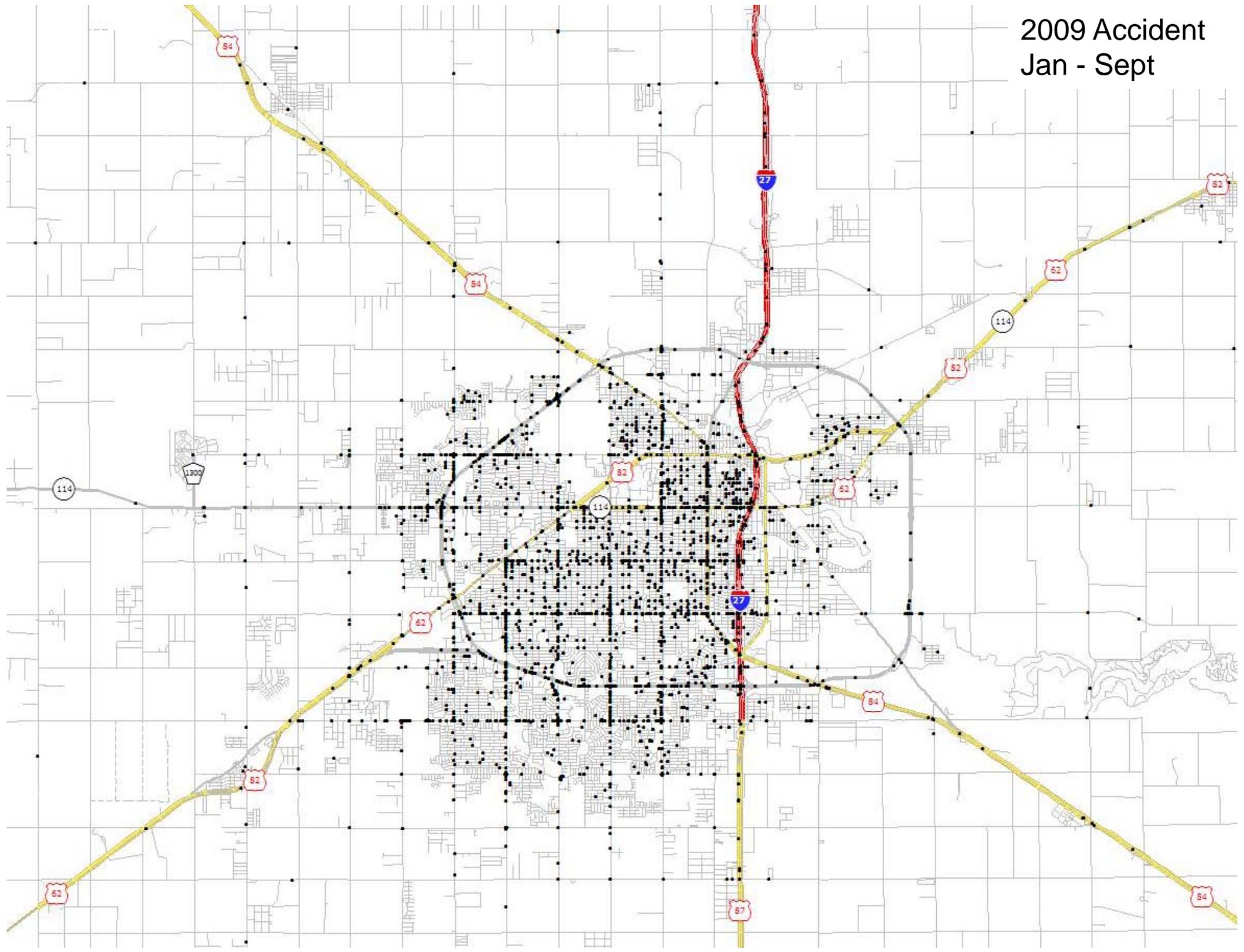
# 2007 Accident



# 2008 Accident



2009 Accident  
Jan - Sept



Accident Count by Year  
 2006 Aug – Dec  
 2009 Jan – Sept

2006 - 137  
 2007 - 309  
 2008 - 387  
 2009 - 276

2006 - 64  
 2007 - 159  
 2008 - 144  
 2009 - 123

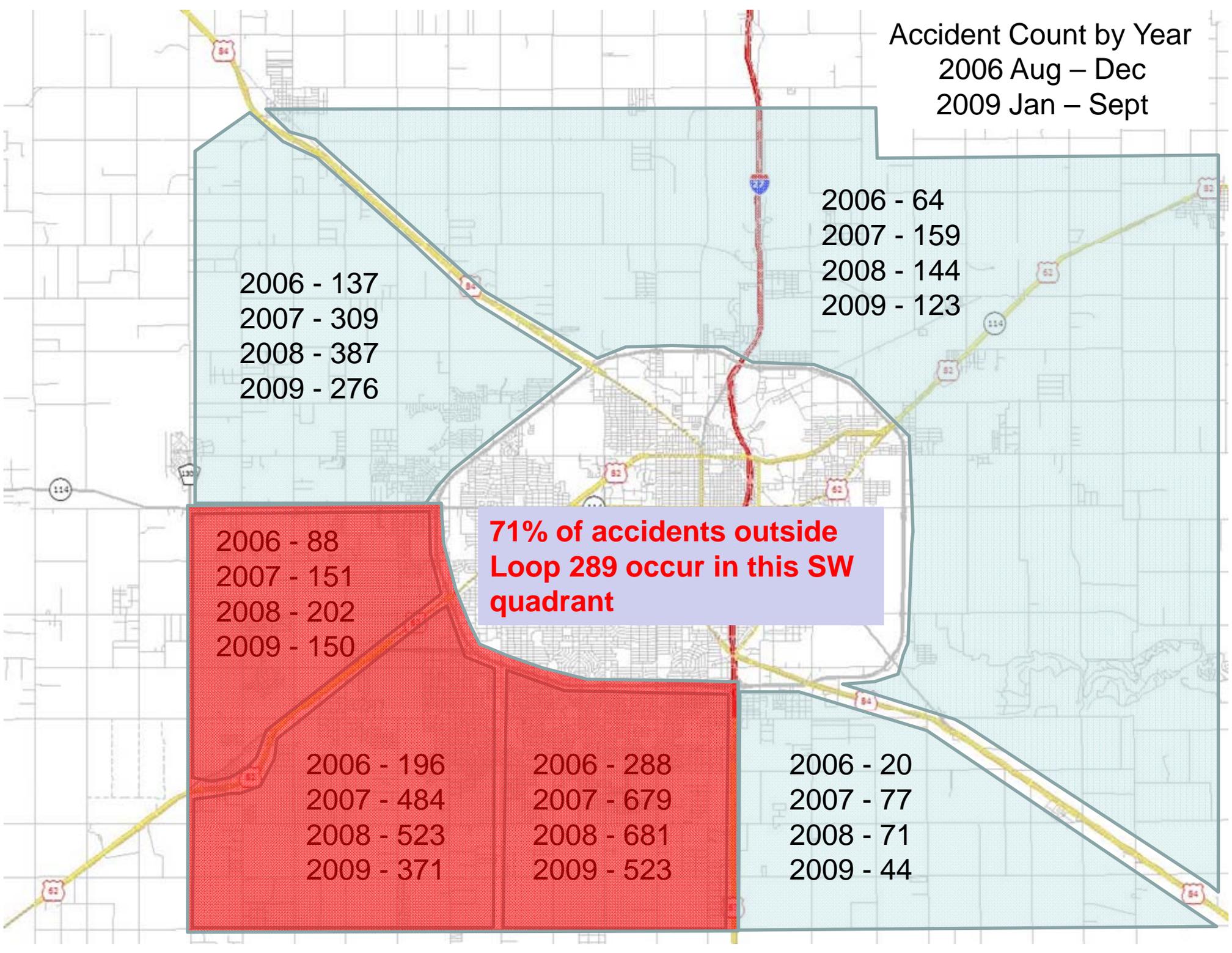
2006 - 88  
 2007 - 151  
 2008 - 202  
 2009 - 150

**71% of accidents outside  
 Loop 289 occur in this SW  
 quadrant**

2006 - 196  
 2007 - 484  
 2008 - 523  
 2009 - 371

2006 - 288  
 2007 - 679  
 2008 - 681  
 2009 - 523

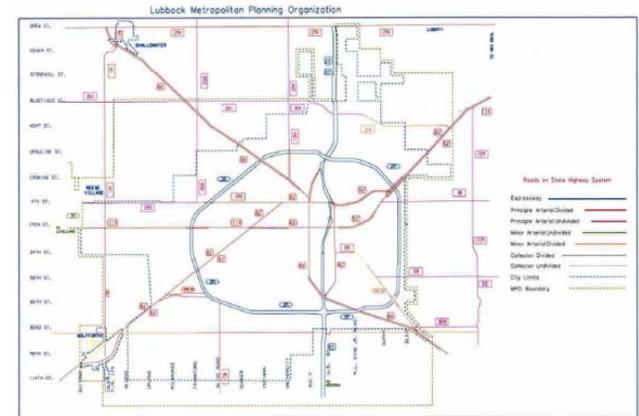
2006 - 20  
 2007 - 77  
 2008 - 71  
 2009 - 44



# Phase I - Lubbock Outer Route Feasibility Study

## *Technical Methodology*

- Identify Viable Alternatives
- Uncontrolled Aerial Photography
- Data Collection
  - Digital aerial photos
  - Color infrared photography
  - County soil survey maps
  - Hazardous materials database information
  - Demographic maps / census information
  - Environmental Constraints
  - Development plans
- Approximate Right of Way Requirements.
- Development of an Evaluation Matrix



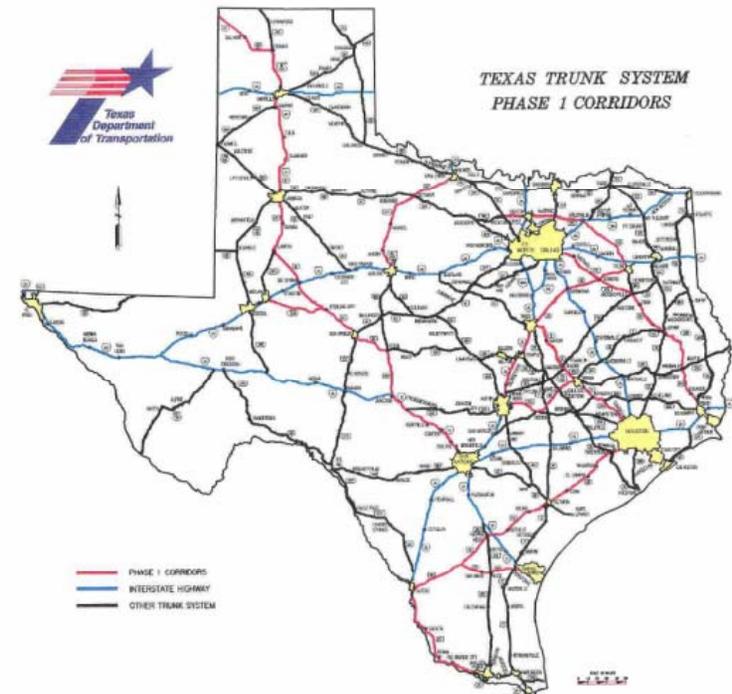
# Phase I - Lubbock Outer Route Feasibility Study

## ***Alternative Analysis***

*(Minimum of Two Alternatives and a No-Build Alternative)*

## **Traffic Analysis**

- Analyze traffic data to assist in evaluating the viability and impacts of proposed alternatives.
  - Appropriate roadway geometry
    - Widening
    - New Alignment
      - Number of Lanes
      - Type of Facility
    - Phasing
    - Access
      - Interchanges
      - At-Grade
- Diagrammatic Configurations
  - Interchange Types
  - Regional Mobility
  - Local Access
  - Route Continuity
  - Lane Balance
  - Interchange Spacing
  - Right of Way Requirements
  - Estimated Construction Costs
  - Public Comments



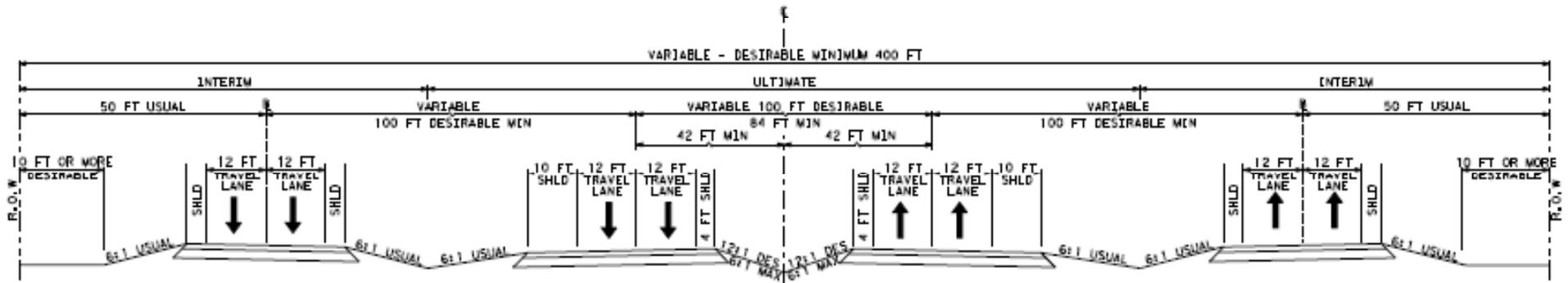
# Phase I - Lubbock Outer Route Feasibility Study

## *Alternative Analysis (continued)*

*(Minimum of Two Alternatives and a No-Build Alternative)*

- Evaluation Matrix
  - Environmental Considerations
    - Right of Way Impacts / Potential Displacement
    - Natural / Cultural Resource Impacts
    - Public Comments
  - Roadway / Engineering Considerations
    - Design Objectives
    - Capital Cost
    - Major Utilities
  - Traffic and Mobility Studies
    - Regional Mobility
    - Travel Time
- Selection of a Recommended Alternative
  - Logical Termini
- Narrative Descriptions

# Phase I - Lubbock Outer Route Feasibility Study

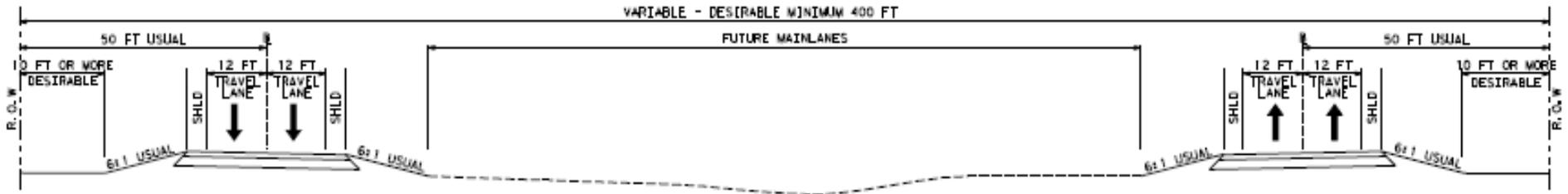


**PROPOSED ULTIMATE FREEWAY SECTION**



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

# Phase I - Lubbock Outer Route Feasibility Study

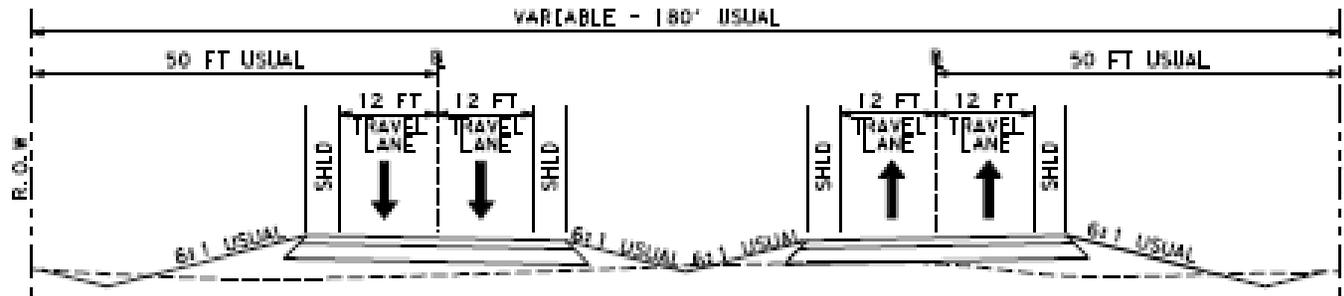


**PROPOSED INTERIM FREEWAY SECTION**



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

# Phase I - Lubbock Outer Route Feasibility Study

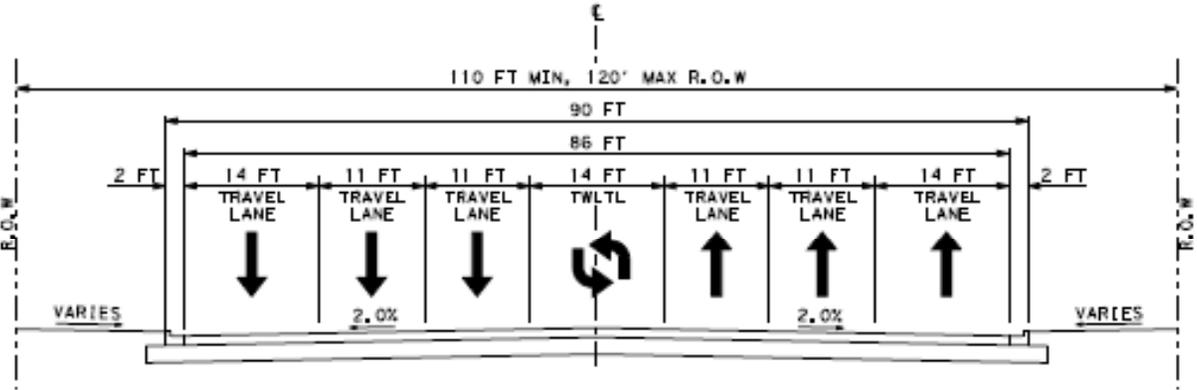


**TYPICAL FOUR-LANE DIVIDED SECTION**



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

# Phase I - Lubbock Outer Route Feasibility Study



**PROPOSED ARTERIAL SECTION**



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

# 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 and financing
    - Economic impact analysis
    - Funding results
  - Environmental issues:
    - Social and environmental evaluation
    - Constraints
  - Feasibility Recommendation

# Phase I - Lubbock Outer Route Feasibility Study

## ***Funding***

- Traditional
  - Programmed dollars – project is not currently using any program dollars.
- Innovative
  - Direct users fees: Tolls
  - Indirect user fees: pass-through financing agreements
  - SIB Loans
  - TIFIA Loans
  - Advanced Construction Funding
  - GARVEE bonds
  - Value Capture
  - Tax Increment financing
  - Benefit Assessment Districts
- Other
  - Federal and State discretionary funds
  - Commission Discretionary Funds
  - Governors Business Development Fund
  - Congressional Earmarks
  - Public Private Partnerships and Joint Development Agreements

# Phase I - Lubbock Outer Route Feasibility Study

## *Funding (continued)*

### **Evaluation of Tolls**

- Based on a combination of traffic and toll rates
  - Dependent on current and future land uses
  - Dependent on interaction with the current and future transportation system

### **Evaluation of Pass Through Financing**

- Eligibility: TxDOT, Private, Local/County Government
- Identify Project
  - Project Description
  - Statement of benefits
  - Description of Local Support
- Analyze project
  - Estimate traffic
  - Evaluate project using conventional tolling
  - Estimate of minimum and maximum repayment periods
  - Determine impacts of conventional tolling

# Phase I - Lubbock Outer Route Feasibility Study

## *Funding (continued)*

### **Evaluation of State Infrastructure Bank**

- Jurisdiction must qualify for federal aid under existing rules.
- Finance or financially enhanced transportation projects, which meet its selection criteria.
- SIB loans must be re-paid
  - Selection Criteria
    - Eligible transportation projects must be included in the associated planning document (e.g., Planning and Preliminary must be in the MTP)
  - Repayment
    - Increased taxes
      - Property
      - Sales
      - TIF
    - Program Dollars
    - Benefit Assessment Districts, etc.

# Phase I - Lubbock Outer Route Feasibility Study

**The successful results of this project will provide:**

- *A NEPA Compliant Process*
- *A defensible Need and Purpose Statement*
- *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*

**✓ If proposed project is feasible, begin Route Study**