

# Viaduct Feasibility & Location Study

## GOTHENBURG, NEBRASKA



November 2010



### PREPARED FOR:

The City of Gothenburg, Nebraska

### PREPARED BY:

The Schemmer Associates Inc.

In association with: Iteris, Inc.



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# **VIADUCT FEASIBILITY AND LOCATION STUDY**

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THE SCHEMMER ASSOCIATES INC.  
134 S. 13TH STREET, SUITE 1100  
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## EXECUTIVE SUMMARY

Providing a safe and efficient transportation system to its residents is important to the City of Gothenburg. This mission pertains not only to streets and intersections, but also to the at-grade crossings with the Union Pacific Railroad.

The objective of this study is to evaluate the feasibility of an additional viaduct and determine a location that provides for improved public safety, reduction in vehicular delay and minimizes the disruption and impacts to surrounding properties. Furthermore, this study also assesses the appropriateness of connecting an additional viaduct to new roadways that would divert traffic traveling through the community along Lake Avenue to this new roadway.

To this end, Schemmer was contracted by the City of Gothenburg to perform a feasibility and location study for a new viaduct over the Union Pacific Railroad and U.S. Highway 30. To assist in this effort, Schemmer contracted with Iteris to conduct a thorough traffic engineering analysis to assess the impacts of the various alternatives. The results of this analysis are documented in the appendix of this report.

Four preliminary concepts were prepared. Of these concepts, two are on the eastern edge of Gothenburg while the remaining two are on the western edge of the community. All four concepts would span both the Union Pacific Railroad and U.S. Highway 30 and all would provide accommodations for pedestrians and bicyclists.

As part of this study, closures of a minimum of two public crossings of the Union Pacific Railroad were considered necessary to obtain Nebraska Department of Roads and Union Pacific funding participation. For purposes of this study, these two crossings were assumed to be Lake Avenue and Cottonwood Drive. Figure 1 illustrates the study area.

### Recommendations:

The following recommendations were developed based on the analysis detailed in this report:

- 1) The study team recommends that the City of Gothenburg pursue Concept 1 as shown in Figure 4 of this report. This concept constructs a viaduct over the Union Pacific Railroad and U.S. Highway 30 and includes associated roadway connects generally on the western edge of the community.

The proposed structure is anticipated to consist of two, 12-foot travel lanes, two, eight-foot shoulders and a 10-foot (clear) sidewalk/trail. Including bridge rails, the bridge deck width will be approximately 53.5-foot wide.

The estimated total project cost for the preferred concept is \$15,800,000. This cost includes not only the cost to construct the viaduct and connecting roadways but also cost for utility relocations, easement and right-of-way purchases, design engineering, and construction engineering. A further breakdown of these project costs is provided in Table 1 of this report.

- 2) It is recommended that the City of Gothenburg, in cooperation with Dawson County, pursue grade-separation funding administered through the Nebraska Department of Roads. It is further recommended that the City of Gothenburg pursue additional funding through the local Railroad Transportation Safety District.
- 3) Maintain communications with the Nebraska Department of Roads such that capital improvement program funding can be programmed for the remaining portion of the project, once the current funding deficit for road projects is resolved.

**Probable Project Costs of Preferred Concept**

<b>ITEM</b>	<b>COST (2010 \$)</b>
Viaduct/Roadway Construction	\$11,600,000
Utilities	\$350,000
Right-of-Way	\$950,000
Design Engineering & Environmental Review	\$1,900,000
Construction Engineering	\$1,000,000
<b>TOTAL PROJECT COST</b>	<b>\$15,800,000</b>

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## INTRODUCTION

### A. STUDY OBJECTIVES

The objective of this study is to evaluate alternatives for the location of a viaduct and associated truck route on both the east and west sides of Gothenburg, Nebraska. This viaduct would span both the Union Pacific Railroad (UPRR) and U.S. Highway 30. The truck route would provide an alternate route for vehicles, specifically truck traffic, that presently use Nebraska Highway 47 through downtown Gothenburg and residential areas of town via Lake Avenue.

This study began by evaluating four alternatives that were ultimately reduced to the two most feasible alternatives. Later in this report, the preferred alternative, which was selected based on a review of potential benefits and impacts, is identified. The next step in the viaduct planning and implementation process will be to perform a more detailed environmental review of the preferred alignment prior to proceeding to design and construction.

### B. PROJECT BACKGROUND

To address growing concerns regarding vehicles and pedestrians being able to safely cross the UPRR in Gothenburg, the City of Gothenburg is studying the feasibility of an additional grade-separated crossing. Furthermore, to address the concerns of high volumes of truck traffic passing through the heart of Gothenburg via Nebraska Highway 47, the City is also evaluating the feasibility of additional roadways that would serve as a truck route on the east or west side of the community. The study area is illustrated in Figure 1.

### C. GRADE SEPARATION CRITERIA

The Nebraska Department of Roads (NDOR) considers 20 different criteria when performing grade separation studies. The criteria include the following:

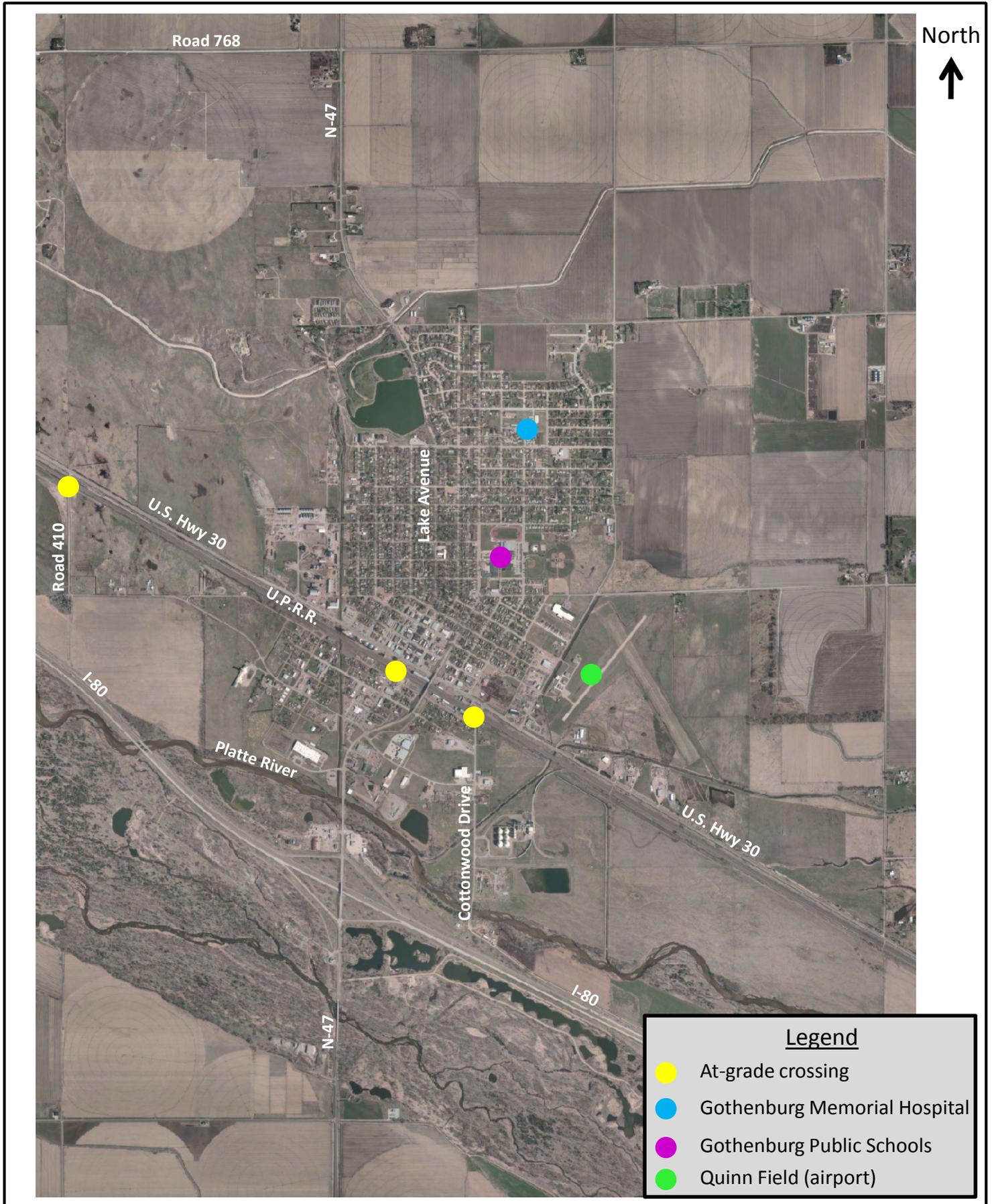
1. Train Data
2. Vehicle Data
3. Crossing Data
4. Crash History
5. Nearby Developments
6. Adjacent Crossing
7. Sight Distances
8. School Locations/Bus Routes
9. Hospital Locations
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14. Structure Profile
15. Right of Way/Relocation Expenses
16. Effect of Structure Location on Community
17. Roadway Approach Speed
18. Roadway Approach Angle
19. Local Support and Funding
20. Railroad Support and Funding

Each of these criteria and their relevance to an additional viaduct in Gothenburg are discussed below. Nebraska state statute requires that two existing at-grade crossings be closed in order for the project to be eligible for State funding. As such, information regarding the crossings at Cottonwood Drive, Lake Avenue and County Road 410 relative to these criteria is provided.

#### 1. Train Data

Current at-grade crossings along the UPRR are located at Cottonwood Drive (Avenue J), Lake Avenue (Avenue E) and County Road 410, all of which are less than 200 feet south of U.S. Highway 30. The UPRR mainline has three tracks, which currently carry more than 120 trains per day, according to the Federal Railroad Administration (FRA) railroad crossing inventory. Recent economic conditions have negatively influenced the rate of train volume increases throughout the

# Gothenburg Viaduct Feasibility & Location Study



United States. However, if train volumes increase at a modest rate of two percent per year, railroad activity on this section of the UPRR mainline corridor could exceed 145 trains per day by year 2020 and 175 trains by year 2030. The maximum Time Table Speed for the tracks at each of these crossings is 70 miles per hour (mph) with a Typical Speed Range of 50-70 mph, according to the FRA Crossing Inventory.

In addition to the three existing mainline tracks, multiple spur tracks and sidings are present within the project limits, providing rail service to several industrial and agricultural businesses.

## **2. Vehicle Data**

Turning movement counts were conducted at the U.S. Highway 30 intersections of Cottonwood Drive and Lake Avenue on a typical weekday in May 2010 to determine current peak hour traffic volumes. Heavy vehicle volumes were recorded separately during the turning movement counts.

Mechanical counters were also used in the vicinity of these intersections to determine the average daily traffic volumes (ADT) on both Cottonwood Drive and Lake Avenue. Daily traffic volumes were also collected along County Road 410 near the UPRR. Results of these activities are summarized below and are included in more detail in the attached Technical Appendix of Transportation Analyses.

### Cottonwood Drive Traffic Volumes

The peak hour counts indicate that 54 vehicles during the a.m. peak hour and 65 vehicles during the p.m. peak hour are crossing the UPRR tracks at Cottonwood Drive.

The daily traffic counts indicate that approximately 870 vehicles are crossing the tracks at Cottonwood Drive on a daily basis. Approximately 15% of these daily vehicles at Cottonwood Drive were found to be heavy

vehicles (e.g., farm trucks, tractor trailers, etc.).

### Lake Avenue Traffic Volumes

The peak hour volumes indicate that 139 vehicles during the a.m. peak hour and 207 vehicles during the p.m. peak hour are crossing the UPRR tracks at Lake Avenue.

The daily traffic counts indicate that approximately 2,480 vehicles are crossing the tracks at Lake Avenue on a daily basis. Approximately 10% of these daily vehicles at Lake Avenue were found to be heavy vehicles (e.g., farm trucks, tractor trailers, etc.).

### County Road 410 Traffic Volumes

The peak hour volumes indicate that 8 vehicles during the a.m. peak hour and 11 vehicles during the p.m. peak hour are crossing the UPRR tracks at County Road 410.

The daily traffic counts indicate that approximately 85 vehicles are crossing the tracks at County Road 410 on a daily basis. Approximately 5% of these daily vehicles at Lake Avenue were found to be heavy vehicles (e.g., farm trucks, tractor trailers, etc.).

Due to the close proximity of agricultural operations, any new viaduct constructed would need to be designed to accommodate wide farm machinery.

## **3. Crossing Data**

At the UPRR, Cottonwood Drive is not classified according to the State Functional Classification System. It is located near the eastern edge of Gothenburg and crosses the UPRR immediately south of U.S. Highway 30. The US DOT crossing number for this crossing is 817760B and is located at milepost 0248.41 on the UPRR.

At the UPRR, Lake Avenue is not classified according to the State Functional

Classification System. It is located in central Gothenburg and crosses the UPRR immediately south of U.S. Highway 30. The US DOT crossing number for this crossing is 817759G and is located at milepost 0248.76 on the UPRR.

At the UPRR, County Road 410 is not classified according to the Station Functional Classification System. It is located west of the city limits and crosses the UPRR immediately south of U.S. Highway 30. The US DOT crossing number for this crossing is 817787K and is located at milepost 0250.14 on the UPRR.

As mentioned previously, the UPRR currently has three mainline tracks at each of these crossings. Each crossing is equipped with advanced warning signs, flashing lights, gate arms, and bells.

#### 4. Crash History

The three at-grade crossings in or near Gothenburg are major conflict points between train, vehicular and pedestrian traffic and are therefore, safety concerns to the City of Gothenburg, Dawson County, UPRR, and the area residents and business owners. Crash data was obtained from the NDOR during the four-year period of January 2007 through December 2009 for the following study roadways and railroad crossings in the project area:

- Along U.S. Highway 30 from County Road 413 to County Road 410
- Cottonwood Drive and UPRR crossing
- Lake Avenue and UPRR crossing
- County Road 410 and UPRR crossing

During this three-year period, U.S. Highway 30, from County Road 413 to County Road 410, experienced 20 crashes, resulting in a crash rate of 0.70 crashes per ten million vehicle-miles of travel. This crash rate is relatively low as compared to the 2007-2009 state-wide average for similar-type roadways

of 1.015. Of these 20 crashes, six (6) occurred at the intersection of U.S. Highway 30 and Lake Avenue, resulting in a crash rate of 0.90 crashes per million entering vehicles. This rate is also relatively low as compared to the 2007-2009 state-wide average for similar-type intersections of 0.42. See section 2.4 of the Technical Appendix of Transportation Analyses for more detailed crash history.

The inventory records from the Federal Railroad Administration (FRA) include the following reported train/vehicle crashes in the last 30 + years:

- Cottonwood Drive and UPRR crossing: 5 crashes (11/27/05, 05/08/98, 04/21/96, 03/15/88, 03/24/79); all property damage only
- Lake Avenue and UPRR crossing: 6 crashes (01/18/08, 11/28/07, 11/11/00, 04/04/95, 02/01/80, 11/22/79); 4 crashes resulted in property damage only, 1 crash resulted in the injury to one person and the extent of injury/property damage resulting from the remaining crash is unknown
- County Road 410 and UPRR crossing: 6 crashes (11/11/97, 06/07/97, 05/23/97, 05/29/89, 01/22/85, 04/14/84); 5 crashes resulted in property damage only and the remaining crash resulted in the injury to one person

#### 5. Nearby Developments

The most significant proposed development within the entire study area is a 156 acre industrial site east of the community, as shown in Figure 2. This property is owned by the Gothenburg Improvement Company, whose mission is to develop economic opportunities for the community.

This proposed development site is the home of a proposed ethanol plant that never materialized. The site has been annexed into

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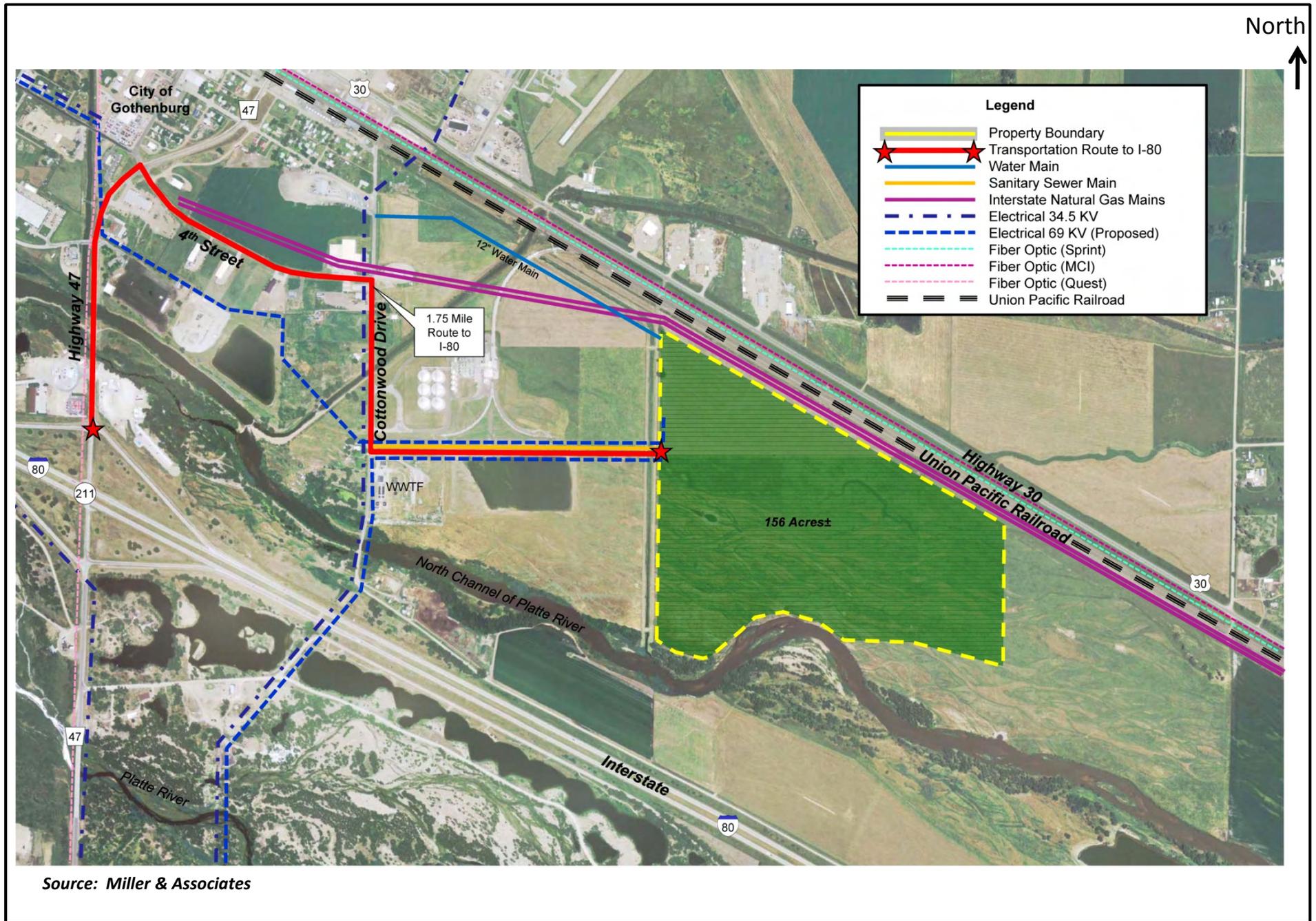


Figure 2  
Nearby Industrial Development Site

the City limits and has also been identified as being in a redevelopment area. The Union Pacific Railroad has given approval for rail access to the site and Phase I environmental review has been completed.

#### **6. Adjacent Crossing**

In addition to the aforementioned at-grade crossings, an existing grade-separated crossing is also provided along Avenue G, as part of the Nebraska Highway 47 alignment. This crossing presently accommodates approximately 5,150 vehicles per day.

The nearest at-grade crossing east of the Cottonwood Drive crossing is a private crossing (817758A) located approximately 0.56 miles east of Cottonwood Drive. This crossing is equipped with stop signs. The nearest at-grade, public crossing east of Cottonwood Drive is that at Road 415 (817752J) which is approximately 4.0 miles east of Cottonwood Drive. This crossing is equipped with crossbucks and advance warning signs. According to the FRA Crossing Inventory, each of these crossings experiences less than 25 vehicles per day.

The nearest at-grade crossing west of the Road 410 Drive crossing is a private crossing (817786D) located approximately 1.1 miles west of Road 410. This crossing is equipped with stop signs. The nearest at-grade, public crossing west of Road 410 is that at Peckham Road (817783H) which is approximately 3.4 miles west of Road 410. This crossing is equipped with crossbucks. According to the FRA Crossing Inventory, each of these crossings is characterized by less than 25 vehicles per day.

#### **7. Sight Distances**

Sight distance for southbound drivers at each of the UP crossings can be restricted looking east along the mainline tracks when vehicles are stopped on the northbound approach at US Highway 30. A skewed crossing can also impact sight distance since severe angles require drivers to look back over their shoulder for oncoming trains. The Road 410

crossing is skewed with a crossing angle of approximately 30 degrees while the remaining two crossings are nearly perpendicular.

#### **8. School Locations and School Bus Routes**

Gothenburg Public Schools' educational activities are provided at two locations. Gothenburg Junior/Senior High School is located at 1322 Avenue I and Dudley Elementary School, serving kindergarten through 6<sup>th</sup> grade, is located at 1311 Avenue G. These schools are located approximately one-half mile from the Lake Avenue and Cottonwood Drive at-grade crossings.

According to information provided by the superintendent's office, school buses do not cross the UPRR at any of the at-grade crossings as the bus drivers are required to use the existing viaduct along Avenue G (Nebraska Highway 47).

#### **9. Hospital Locations**

Gothenburg Memorial Hospital is located at 910 20<sup>th</sup> Street, approximately one-mile from the Lake Avenue and Cottonwood Drive at-grade crossings.

#### **10. Police and Fire Stations**

Gothenburg has a 44-member volunteer fire department, which is headquartered two blocks north of U.S. Highway 30 at 602 10<sup>th</sup> Street.

The Gothenburg Police Department employs six full-time officers and is located at 405 9<sup>th</sup> Street. The Dawson County Sheriffs Office is located in Lexington, Nebraska.

#### **11. Project Location**

The location of the project in relation to the State highway and Dawson County road network is illustrated in Figure 1. An additional viaduct, located at either the eastern or western edge of Gothenburg, would provide a second grade-separated crossing of the UPRR and U.S. Highway 30

and also provide an alternate route for vehicles, specifically heavy truck traffic, using Nebraska Highway 47 to pass through the community. Associated connecting roadways to an additional viaduct would also enhance the connectivity of the existing transportation network, providing access to existing businesses and neighborhoods and future development.

**12. Cost/Benefits**

The Federal Railway Administration’s (FRA) on-line Quiet Zone Calculator was used to estimate potential train-vehicle crash cost savings as a result of closing any of the at-grade crossings at Cottonwood Drive, Lake Avenue or County Road 410. This cost savings is calculated in the form of a Risk Index, which is defined as the predicted cost to society of the injury and fatal casualties per year resulting from the expected collisions at specific railroad crossings. The Risk Index calculations are based on the exposure and national averages per crossing with flashers/gates protection, compared with the proposed viaduct and crossing closures.

Based on existing, daily vehicle and train volumes, the Risk Indices from FRA’s calculator conclude the following annual safety savings at each of the at-grade crossings being evaluated.

At-grade Crossing	Risk Index
Cottonwood Drive	\$172,525
Lake Avenue	\$277,365
County Road 410	\$38,620

As train volumes and vehicle volumes continue to increase, thus increasing the respective exposure factors, these annual savings will also continue to increase,

resulting in greater benefit of a potential grade separation project.

**13. Pedestrian Traffic Pattern**

Because of the surrounding land uses, which are mostly industrial, the existing at-grade crossing at Cottonwood Drive experiences very little pedestrian activity. In fact, in May 2010, when traffic data collection activities were performed, no pedestrians or bicyclists were observed traversing the railroad tracks at this location.

The UPRR crossing at Lake Avenue is presently used by pedestrians on a greater basis than the crossing at Cottonwood Drive. This is due primarily because of its proximity to downtown and local businesses. Pedestrian activity was observed during traffic counts performed in May 2010. During this five-hour time period, a total of 13 pedestrians/bicyclists were observed traversing the railroad tracks at Lake Avenue.

Because of the close proximity of the existing Avenue G viaduct to Lake Avenue, it is anticipated that with the construction of a viaduct on either the eastern or western edge of Gothenburg, and the associated closure of the Lake Avenue crossing, an additional grade-separated crossing for pedestrians would not be constructed.

**14. Structure Profile**

A viaduct over the UPRR and U.S. Highway 30 will most likely require three (3) spans with a total structure length of approximately 385 feet. Since the terrain in this area is generally flat, the clearance over the UPRR will control the vertical profile of any proposed viaduct. Grades of less than 5% are desirable given the high percentage of trucks anticipated to be using the viaduct and to meet the requirements of the American with Disabilities Act (ADA). The conceptual elevation view of the proposed structure profile is shown in the appendix.

### **15. Right-of-Way / Relocation Expenses**

With each of the studied alternatives, some degree of property acquisition is required to be designated as public right-of-way. If Federal funds are to be used for construction on the project, right-of-way acquisition cannot begin until after all environmental documents have been approved. Disproportionately high and adverse human health or environmental effects on minority and low-income populations must also be identified and addressed.

### **16. Effect of Structure Location on the Community**

The primary benefit of constructing a new viaduct is reduced exposure to train/vehicle and train/pedestrian conflicts at the existing at-grade crossings. This would result in a generally safer and more efficient transportation system with reduced delay waiting for trains to clear the current at-grade crossings.

One of the secondary benefits of eliminating at-grade crossings is the reduction of train horn noise. The significance of this is that two public at-grade crossings of the UPRR within or near the city limits of Gothenburg could be eliminated, resulting in a significant decrease in train horn noise along this corridor.

With the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive, access to/from businesses and residences within the community will be affected, resulting in changes to travel patterns within the community. Additionally, the community would be left with no public, at-grade crossings within its corporate limits.

### **17. Roadway Approach Speed**

The current posted speed limit of Cottonwood Drive, south of U.S. Highway 30, is 25 mph. At the Lake Avenue crossing, the posted speed limit south of U.S. Highway 30 is 35 mph and 25 mph north of U.S. Highway 30. The speed limit of County Road 410, in the vicinity of the UPRR crossing is not posted.

It should be noted, however, that due to existing stop sign control at U.S. Highway 30 and the expectation of stopping at the UPRR crossing, the speeds at each of these crossings were observed to be much lower.

### **18. Roadway Approach Angle**

Both of the existing crossings at Cottonwood Drive and Lake Avenue intersect the UPRR at angles of 90 degrees. At the County Road 410, the crossing is severely skewed at an angle of approximately 60 degrees.

The approaches for a potential future viaduct should be as close to perpendicular (90°) as possible, while also considering right-of-way requirement to reduce project costs.

### **19. Local Support and Funding**

Although a funding plan has not been fully developed, it is conceivable the City of Gothenburg would contribute five percent (5%) of the cost of the viaduct, including engineering and right-of-way costs.

To date, public opposition has been expressed for the project because of a stated lack of need for the project as well as the impacts to private property.

### **20. Railroad Support and Funding**

The criteria used by NDOR and UP generally consider the exposure (number of trains multiplied by number of vehicles) in a 24-hour period, community support, and the closure of crossings in comparing benefits of competing projects for limited grade separation funding. A minimum exposure rating of 75,000 is generally required for consideration of a grade separation.

The current (2010) exposure rating of the Lake Avenue, Cottonwood Drive and Road 410 crossings of the UP are estimated at 297,600, 104,400 and 10,200, respectively. Based on the anticipated growth of both vehicular and train traffic, these ratings can be expected to reach 442,200 (Lake Avenue), 155,100 (Cottonwood Drive) and 15,150 (Road 410) by year 2020 and 718,600

(Lake Avenue), 303,100 (Cottonwood Drive) and 65,900 (Road 410) by year 2030. See Tables 3 and 4 in the Technical Appendix of Transportation Analyses.

NDOR also requires a minimum of two at-grade public crossings be closed for each grade separation. The two existing at-grade public crossings that are likely to be closed in conjunction with a new viaduct are Lake Avenue and Cottonwood Drive.

## SITE CONDITIONS

### A. UTILITIES

#### Public Utilities

Electricity – The west alignments encounter various overhead crossings within the city limits along 1<sup>st</sup> Street and 4<sup>th</sup> Street. Beyond the western city limits, the electrical utility does not appear to be in conflict with the proposed alignments. The east alignment along 4<sup>th</sup> Street may be in conflict with the overhead transmission line along Cottonwood Drive. The extent of conflict would be dependent on the actual vertical profile of the new roadway.

Sanitary Sewer – The west alignments along 1<sup>st</sup> Street and 4<sup>th</sup> Street will cross existing sanitary sewer pipes ranging in size from 6 to 12 inches, however, no conflicts appear to exist. The east alignment along 4<sup>th</sup> Street and Avenues L and M will cross pipes ranging in size from eight to 18 inches. Depending on the actual horizontal and vertical alignment, reconstruction of portions of the pipe may be required due to the additional fill that will be placed over the existing lines.

Water Main – The west alignments along 1<sup>st</sup> Street and 4<sup>th</sup> Street will cross existing watermain pipes ranging in size from six to eight inches, however, no conflicts appear to exist. The east alignment along 4<sup>th</sup> Street and Avenues L and M cross pipes ranging in size from four to 12 inches. Depending on the actual horizontal and vertical alignment, reconstruction of portions of the watermain may be required due to the additional fill that will be placed over the existing lines.

#### Private Utilities

Coordination with private utilities was not conducted as part of the study.

### B. ENVIRONMENTAL CONCERNS

#### Wetlands

Based on review of the National Wetland Inventory GIS mapping web site, no impacts to mapped wetlands would occur with any of the alignments considered. However, formal wetland delineation, in accordance with the 1987 manual, should be conducted for this project to verify that unmapped wetlands are not present along the alignments.

#### Floodplain

There is a FEMA defined floodplain that extends into the southern reaches of Gothenburg. The west alignments along 1<sup>st</sup> Street and 4<sup>th</sup> Street are located north of the 100-year floodplain. The east alignment extends into the fringe of the existing floodplain.

A draft 100-year floodplain has been developed but has not yet been adopted by FEMA. This draft floodplain does extend further into the southern part of the community. Both the 1<sup>st</sup> Street and 4<sup>th</sup> Street alignments along the western edge of Gothenburg and the east alignment would fall within this draft floodplain. However, these alignments do not appear to impact the draft floodway. A detailed floodplain analysis would be required with the development of the chosen alignment to more precisely determine the impact to the floodplain elevations.

#### Landfill

An abandoned landfill is located northwest of Lake Helen. If the west alignment is moved forward into environmental review and design, a more detailed investigation will be required to determine the location and environmental conditions of this area.

## ALTERNATIVE ANALYSIS

### A. ALTERNATIVE CONCEPTS

Four alternative viaduct alternatives, incorporating the associated connecting roadways, were developed to evaluate the relative merits of each alternative location in satisfying the goals of the project while avoiding, or minimizing, potential impacts. In order to be eligible for Federal funding participation, two existing at-grade railroad crossings would be eliminated for both of the alternative concepts developed.

#### Concept 1

Concept 1, illustrated in Figure 3, is generally located on the western edge of Gothenburg. This concept connects to Nebraska Highway 47 at 1<sup>st</sup> Street and follows the existing 1<sup>st</sup> Street alignment west to Avenue A. From Avenue A, the concept continues in the northwesterly direction before turning north and spanning the UPRR and U.S. Highway 30 approximately one-quarter mile west of 2<sup>nd</sup> Avenue. North of U.S. Highway 30 and after descending to existing grade at approximately 16<sup>th</sup> Street, the alignment continues due north before curving to the east and connecting to Nebraska Highway 47 just south of Road 768.

South of U.S. Highway 30 and the UPRR, a modified roadway network would be constructed to connect to the existing street network, specifically 4<sup>th</sup> Street. At the north touchdown of the proposed viaduct, additional roadways would be provided to connect motorists to U.S. Highway 30 and 16th Street. While the concept does include the closure of existing roadways, the improvements illustrated in Figure 3 would maintain overall street network connectivity.

#### Concept 2

Concept 2, illustrated in Figure 4, is quite similar to Concept 1. The most significant difference is that instead of connecting to

Nebraska Highway 47 at 1st Street, Concept 2 connects at 4th Street. This concept follows the existing 4th Street alignment until approximately 1st Avenue before turning north and spanning U.S. Highway 30 and the UPRR approximately one-tenth of a mile west of 2nd Avenue. Other minor differences between this concept and Concept 1 are the specific roadway closures and the ways in which the new roadway connects to the existing street network, specifically, US 30, 16th Street and 4th Street west of the city.

#### Concept 3

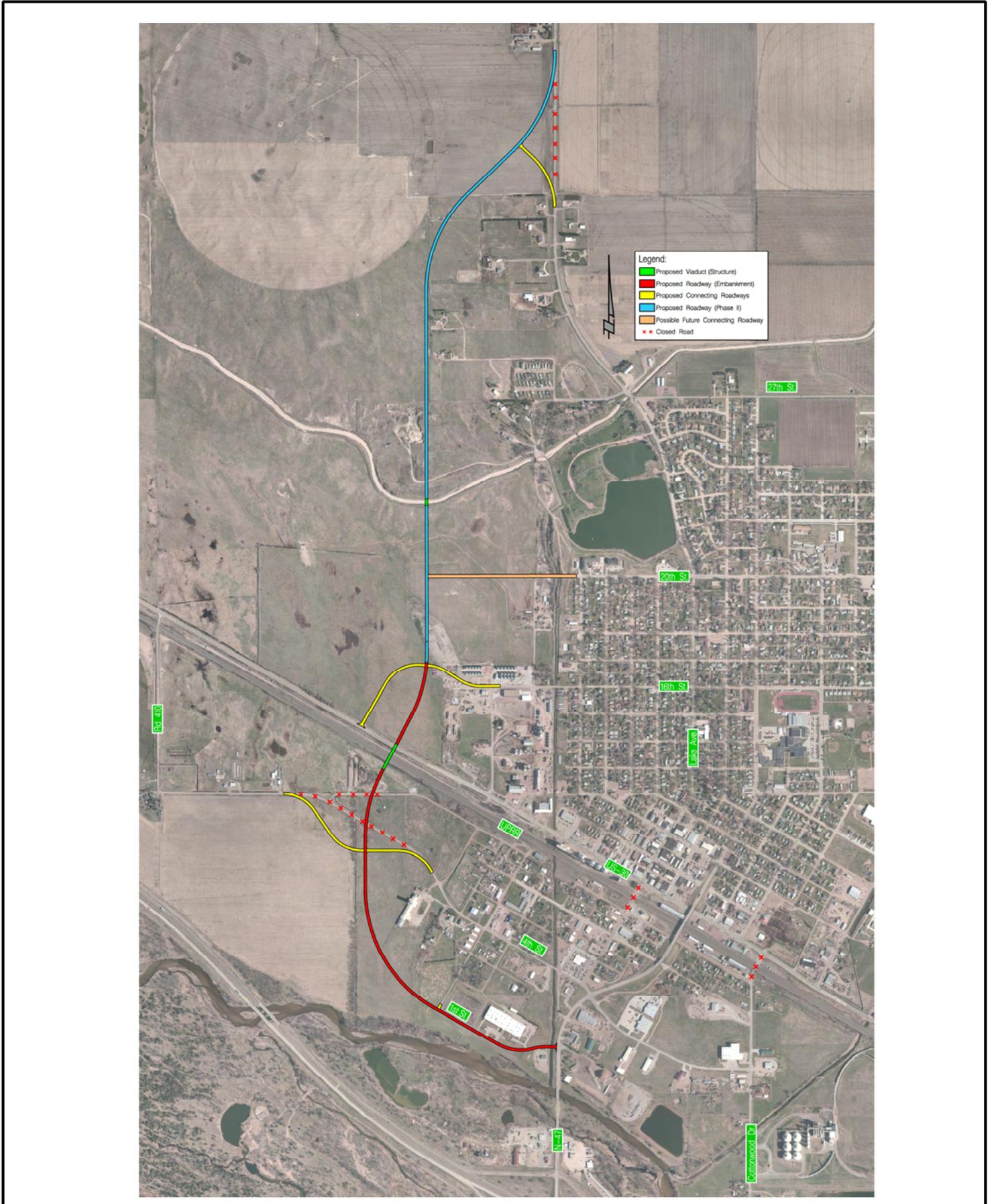
Concept 3, illustrated in Figure 5, is generally located on the eastern edge of Gothenburg. This concept connects to Nebraska Highway 47 at 4<sup>th</sup> Street and follows the existing 4<sup>th</sup> Street alignment east for approximately 800 feet before turning north and continuing in a northeasterly direction and crossing the UPRR and U.S. Highway 30 at Avenue L. North of U.S. Highway 30, this concept follows the current alignment of Avenue L, Avenue M and 27<sup>th</sup> Street and connects to Nebraska Highway 47 at the 27<sup>th</sup> Street intersection. Additional roadway closures and improvements would be included with this concept to connect to the existing roadway network.

#### Concept 4

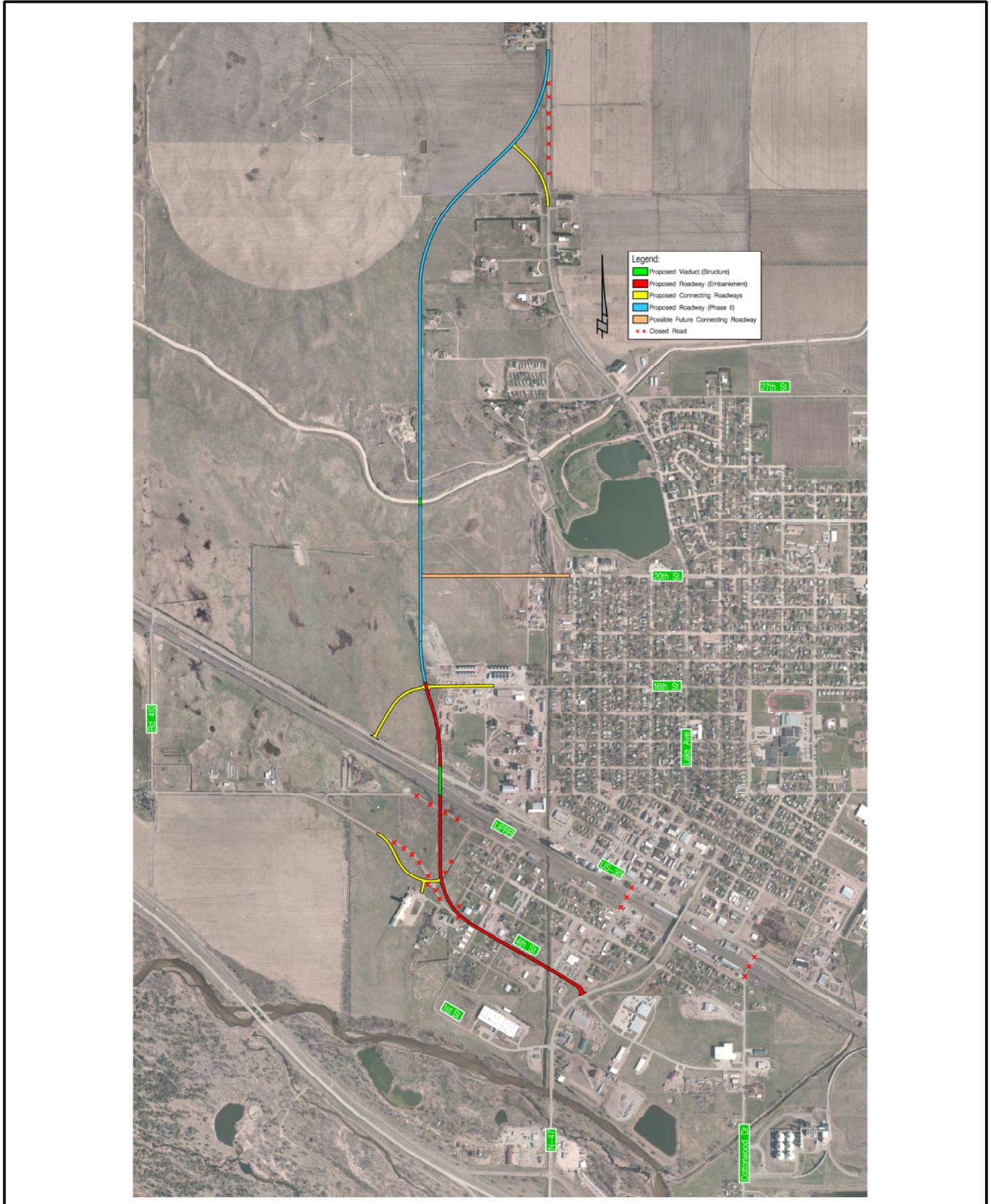
South of U.S. Highway 30, Concept 4, illustrated in Figure 6, is similar to Concept 3. The most significant differences south of U.S. Highway 30 are that the proposed alignment follows the existing 4<sup>th</sup> Street alignment for a longer distance and the roadway improvements needed to maintain network connectivity.

North of U.S. Highway 30, Concept 3 and 4 are identical between the highway and approximately 12<sup>th</sup> Street. In this concept, the proposed alignment turns east at 12<sup>th</sup> Street, eventually to a north-south alignment one-half mile east of Avenue M. In Concept 4, the alignment continues due north until a

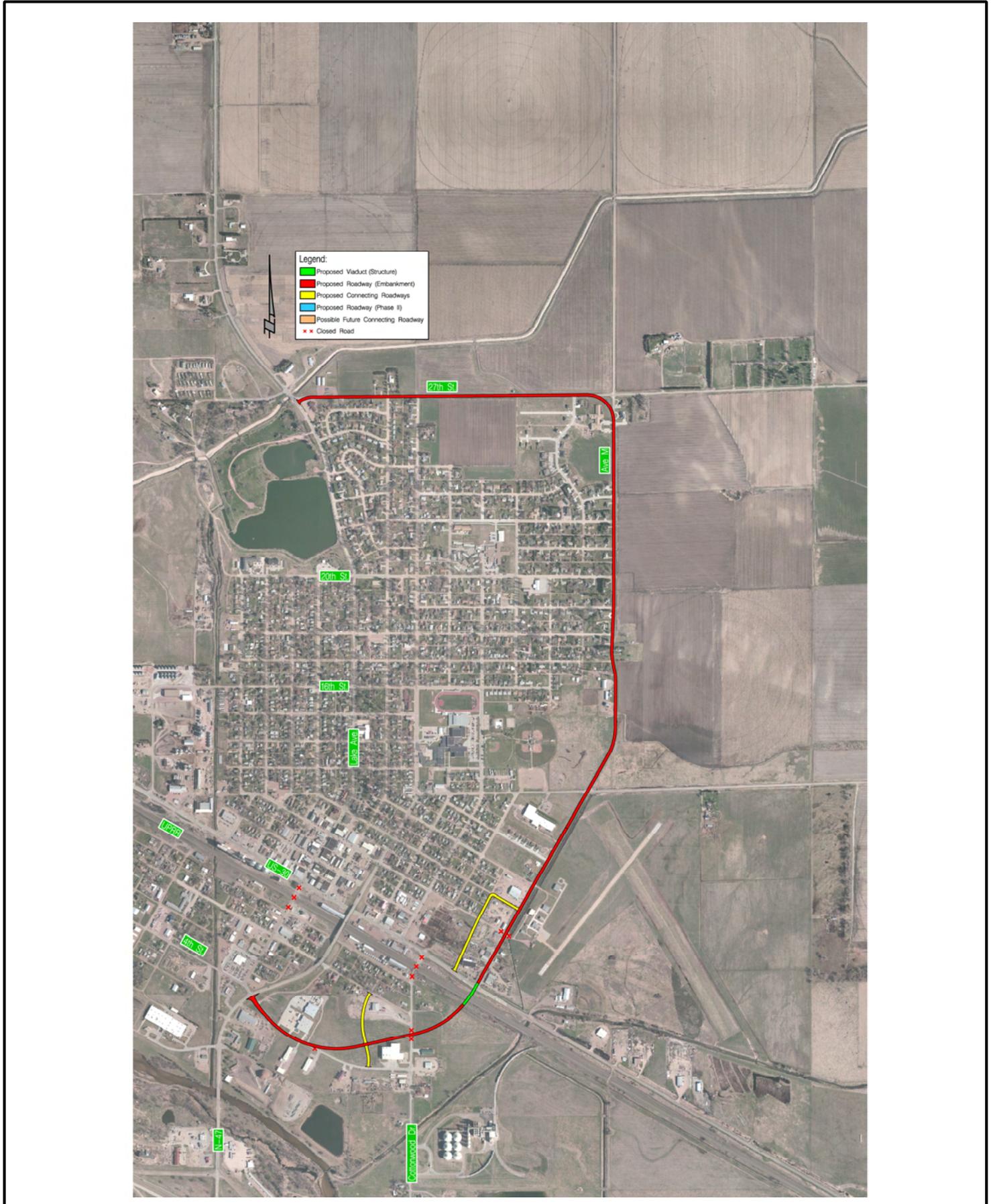
# Gothenburg Viaduct Feasibility & Location Study



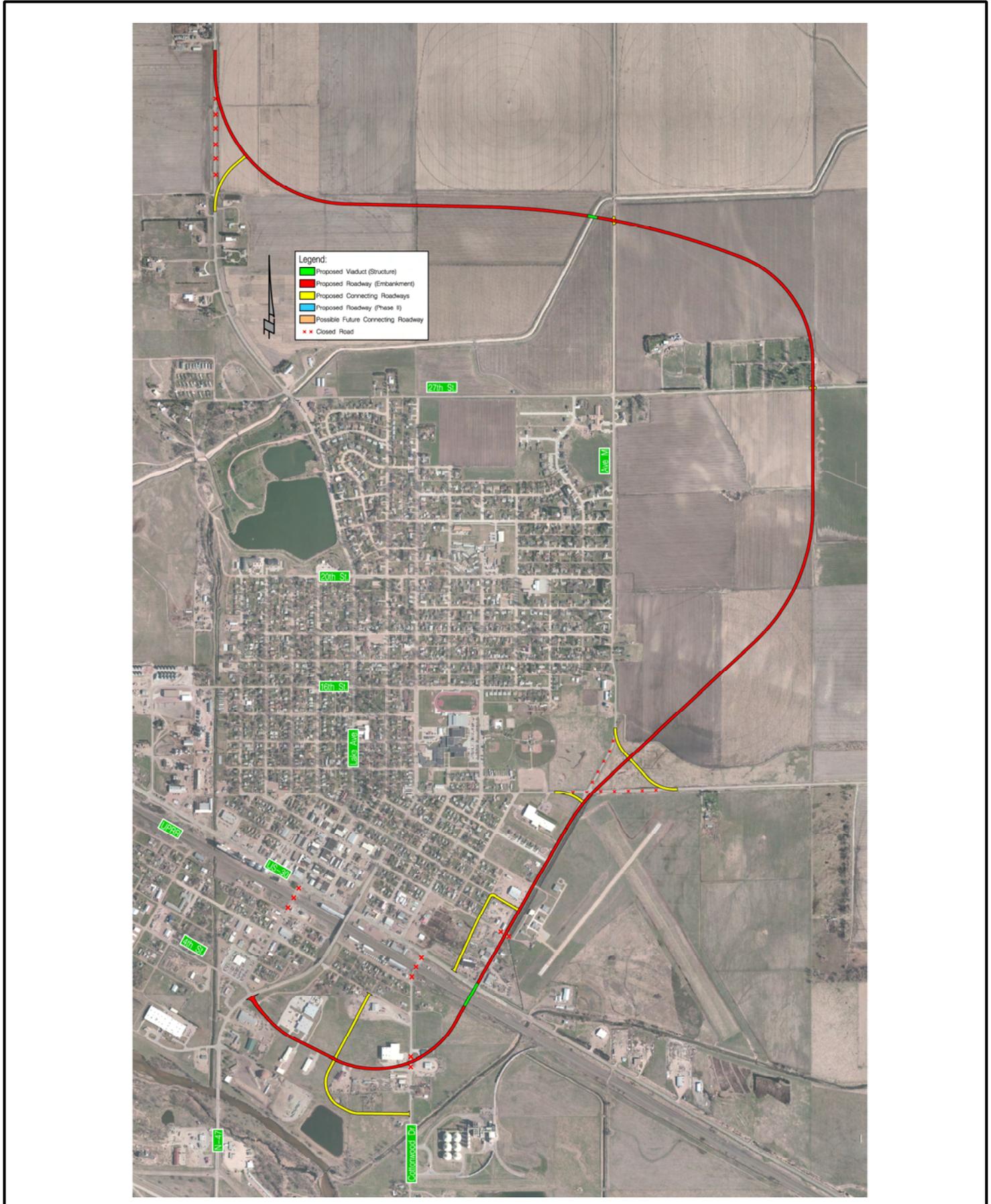
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location just north of 27<sup>th</sup> Street before turning west, crossing Avenue M and the Gothenburg Canal then turning north again before intersection Nebraska Highway 47 just south of Road 768.

Similar to Concept 4, additional roadway closures and improvements would be incorporated to maintain roadway connectivity.

## B. SCREENING CRITERIA

In addition to the formal criteria required by NDOR as described previously in this document, each of the four concepts were evaluated against several factors to assist the study team in eliminating certain concepts from further consideration. These additional factors include:

- Ability to eliminate the railroad crossing hazard and improve safety
- Cost
- Connectivity to existing/future roadway network
- Impacts to private property, including access
- Public support
- Ability to accommodate truck and farm machinery traffic
- Environmental impacts
- Benefits (how much traffic is served)
- Conflicts with Quinn Field (airport)

Using the above referenced NDOR criteria and the project specific factors, two of the four concepts were eliminated from further consideration while the remaining two concepts were moved forward for more detailed study. Reasons for which the two concepts were eliminated are provided below.

### Concept 3

The estimated project cost for Concept 3 is \$14,800,000. An estimated 1,700 daily vehicles could be expected to use this viaduct based on 2030 land use assumptions.

This concept was given initial consideration for the following reasons:

- Lower cost by utilizing existing right-of-way
- Provides an alternate route for “through” traffic

Despite the reasons for which this concept was initially considered, Concept 3 was eliminated from further consideration for the following reasons:

- Conflicts with Quinn Field (airport)
- Impacts to abutting properties along Avenue M
- Minimal benefit (versus cost) to reducing traffic volumes along Lake Avenue

### Concept 4

The estimated project cost for Concept 4 is \$20,600,000. An estimated 1,690 daily vehicles could be expected to use this viaduct based on 2030 land use assumptions.

This concept was given initial consideration for the following reasons:

- Provides an eastern alternative that minimizes residential impacts
- Promotes future northern/eastern growth
- Provides an alternate route for “through” traffic

Despite the reasons for which this concept was initially considered, Concept 4 was eliminated from further consideration for the following reasons:

- Conflicts with Quinn Field (airport)
- Cost
- Minimal benefit (versus cost) to reducing traffic volumes along Lake Avenue

## C. ANALYSIS OF FEASIBLE ALTERNATIVES

The two remaining concepts were scrutinized in greater detail to assist the study team in identifying the preferred concept. These concepts are discussed below:

### Concept 1

The estimated project cost for Concept 1 is \$15,800,000. An estimated 2,720 daily vehicles could be expected to use this viaduct based on 2030 land use assumptions.

This concept was given initial consideration for the following reasons:

- Promotes future western growth
- Provides alternate route for “through” traffic
- Results in the greatest traffic volume relief, including trucks, to Lake Avenue
- Provides sufficient connectivity to existing street network
- Provides access to existing industrial areas

Despite the reasons for which this concept was initially considered, Concept 1 is characterized by the following disadvantages:

- Impacts to agricultural property
- Minor impact to proposed floodplain

### Concept 2

The estimated project cost for Concept 2 is \$16,300,000. An estimated 2,750 daily vehicles could be expected to use this viaduct based on 2030 land use assumptions.

This concept was given initial consideration for the following reasons:

- Promotes future western growth
- Provides alternate route for “through” traffic
- Results in the greatest traffic volume relief, including trucks, to Lake Avenue

- Provides sufficient connectivity to existing street network
- Provides access to existing industrial areas

Despite the reasons for which this concept was initially considered, Concept 2 is characterized by the following disadvantages:

- Impacts to agricultural property
- Minor impact to proposed floodplain

## PROJECT COORDINATION

### A. PUBLIC INVOLVEMENT

For purposes of providing the study team with direction and immediate feedback to study results, concepts and recommendations, a study steering committee was formed. This committee included:

- Joyce Hudson, Mayor
- Jim Aden, City Council
- Jeff Whiting, City Council
- Bruce Clymer, City Administrator
- Anne Anderson, Community Development Office, Executive Director
- Gary Fritch, Gothenburg Improvement Company

Throughout the duration of the project, the project team met with the steering committee on three separate occasions. The primary agenda for each meeting was as follows:

- Meeting #1 – Project Kickoff
- Meeting #2 – Review Study Results (to date) and prepare for public meeting
- Meeting #3 – Discuss results of public meeting and meet with NDOR representatives

One public information meeting was held for this project, employing an open house format. This meeting was held on July 27, 2010 at the Gothenburg Public Library. A total of 51 persons signed in as attendees of the meeting and 23 project questionnaires or unsolicited letters were submitted. A summary of the written comments and questionnaire responses is provided below with actual comment sheets included in the appendix.

#### Statistics

Number of Signed-In Attendees: 51  
 City Population: 3,619 (2000 census)  
 Percent of City in Attendance: 1.4%  
 Number of comment sheets or letters submitted: 23

#### Responses to Meeting Questionnaire

No. of Respondents in Support of Additional Viaduct (and Associated At-grade Crossing Closures): 3

Reasons given:

- Additional viaduct would help extend the “boundaries” of the City, a necessity if we continue to grow
- Main [existing] crossing is dangerous
- Reduce train noise (whistles)

No. of Respondents in Opposition to Additional Viaduct (and Associated At-grade Crossing Closures): 18 (2 respondents did not indicate support or opposition)

Reasons given:

- Unnecessary (11)
- Too expensive (8)
- Opposed to closing at-grade crossings (6)
- Will result in other traffic problems (5)
- Negative impacts to private property (5)
- Negative impacts to downtown businesses (3)
- Railroad (UP) contribution to project funding is inadequate
- Make the necessary improvements to the existing viaduct
- Anti-railroad sentiment

Which of the four concepts do you most support?

East Far	0
East Near	0
West A (1st Street)	8
West B (4th Street)	5
None	10

Note: Some respondents selected multiple concepts (e.g., both west concepts) while others did not select any concepts. Several (10) respondents wrote that they did not support any of the concepts.

General Comments

- I am against the East Near concept – we desire a quiet and safe neighborhood
- Both West concepts are signs of progress

- Push west routes further west to lessen impacts to residential areas
- Hold off for now, but likely needed in the future
- I appreciate City staff and Council members answering my questions and explaining the process.
- Since our property would be split, we would want access to cross to both sides.
- Rather see the City spend money on better projects.

The study methodology and preferred alternative, as discussed in the next section, were presented to the public and the Gothenburg City Council on Tuesday, October 19, 2010. This meeting included a presentation by the study team and allowed the opportunity for additional public input via verbal testimony. Although not all persons attending the Council meeting were there for the viaduct study agenda item, 17 persons, other than the City officials normally in attendance at the Council meetings, attended this meeting. The City Council minutes, which include comments made and questions asked during public testimony, are included in the appendix of this document. Following the Council meeting, one letter was submitted to the City of Gothenburg and is included in the appendix.

During the month of November 2010, the City of Gothenburg conducted a survey related to this project as part of their monthly utility billing activities. The survey question read as follows:

“The city is currently doing a Transportation Study looking at alternative routes across the railroad. If the City is to move forward with a project, this will include the closing of the Lake Avenue and Cottonwood Drive at-grade crossings and add a viaduct that will potentially reroute Highway 47.”

This survey produced 521 responses with the results as follows:

- 233 I am strongly opposed
- 109 I am opposed
- 60 I am in favor
- 45 I am strongly in favor
- 74 I do not have enough information at this time to respond

## B. PREFERRED ALTERNATIVE

As summarized previously, two alternatives were identified by the project team and steering committee as being acceptable alternatives improving transportation safety within Gothenburg along with the diversion of “through” traffic from Lake Avenue. Both of these alternatives involve the construction of a grade-separated crossing on the western edge of Gothenburg, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive, and the construction of associated roadways.

Selection of a preferred alternative must carefully consider not only the study criteria but also public comments in order to achieve public acceptance of a suitable alternative. Although there was general opposition expressed at the public meeting summarized previously for not moving forward with any of the concepts, the project team and steering committee agreed that it was important to, at a minimum, identify which of the alternatives should be identified as the preferred alternative, even if it is never constructed.

### Preferred Concept

Between the two concepts that satisfied the initial screening criteria, there is little difference. However, because of the following reasons, Concept 1 was identified as the preferred concept by both the study team and the steering committee:

- Concept 1 provides better access to existing and future industrial areas in the southwest quadrant of the community than does Concept 2
- Concept 1 avoids sending additional vehicles through the intersection of Nebraska Highway 47/4<sup>th</sup> Street, an already heavily traveled intersection.

The proposed structure is anticipated to consist of two, 12-foot travel lanes, two, eight-foot shoulders and a 10-foot (clear) sidewalk/trail. Including bridge rails, the

bridge deck width will be approximately 53.5-foot wide.

### C. PROGRAM/FUNDING ASSISTANCE

It is recommended that the City of Gothenburg, in conjunction with Dawson County and the local Railroad Transportation Safety District, jointly pursue grade separated funding administered through NDOR. This funding would be aimed at the construction of a grade-separated crossing on the west edge of Gothenburg and the connecting roadways to U.S. Highway 30 and those roadways south to Nebraska Highway 47. These funds are a combination of Federal Safety Funds and Train-Mile taxes imposed on the railroads to reduce train-vehicle conflicts. Although the present lack of community support could hinder the funding process, the current and projected future exposure factors indicate a need for a future viaduct, if not now, in the future. It would be in the City of Gothenburg's best interest to move forward with the design of an additional viaduct to establish the project's priority for Federal and State funding. Meanwhile, additional public involvement activities could be conducted to garner additional community support. It should be noted that according to NDOR representatives, the earliest year for which funding would be available for construction to occur is 2016. However, based on other communities involvement in similar projects and thus additional demand for funds that typically fund only one or two projects every year, it is very possible that the project would not be constructed until after year 2020, even if the community decided "today" to move the project forward.

To qualify for the funding of a grade-separated crossing, two existing at-grade crossings will need to be closed upon completion of the viaduct construction. At this time, the crossings at Lake Avenue and Cottonwood Drive are the two crossings recommended for closure to vehicular and pedestrian traffic. It would also be advantageous during negotiations with the

Union Pacific Railroad and NDOR to consider the closure of other at-grade crossings. As such, it is recommended that the crossing at Road 410 also be considered for closure.

In order to realize the full benefit of the improvements included with Concept 1, the construction of the remaining roadway north of U.S. Highway 30 to Nebraska Highway 47 should also be completed. Based on preliminary discussions with NDOR representatives, there may be interest on their part to designate the new roadway associated with Concept 1 as "Nebraska Highway 47" and relinquishing the existing highway alignment (i.e., Lake Avenue) to the City of Gothenburg. However, the State of Nebraska is currently facing a significant deficit for funding road projects other than those that are intended for preserving the existing transportation system. Until a new or alternative method for funding capital improvement projects, which this project would be considered to be, is identified, State funding for this piece of the project is highly unlikely.

## RECOMMENDATIONS

The following recommendations were developed based on the analysis detailed in this report:

- 1) The study team recommends that the City of Gothenburg pursue Concept 1 as shown in Figure 3 of this report. This concept constructs a viaduct over the Union Pacific Railroad and U.S. Highway 30 as well as associated roadway connects generally on the western edge of the community.

The estimated total project cost for the preferred concept is \$15,800,000. This cost includes not only the cost to construct the viaduct and connecting roadways but also cost for utility relocations, easement and right-of-way

purchases, design engineering, and construction engineering. A further breakdown of these project costs is provided in Table 1.

- 2) It is recommended that the City of Gothenburg, in cooperation with Dawson County, pursue grade-separation funding administered through the Nebraska Department of Roads. It is further recommended that the City of Gothenburg pursue additional funding through the local Railroad Transportation Safety District.
- 3) Maintain communications with the Nebraska Department of Roads such that capital improvement program funding can be programmed for the remaining portion of the project, once the current funding deficit for road projects is resolved.

**Table 1 – Probable Project Costs of Preferred**

ITEM	COST (2010 \$)
Viaduct/Roadway Construction	\$11,600,000
Utilities	\$350,000
Right-of-Way	\$950,000
Design Engineering & Environmental Review	\$1,900,000
Construction Engineering	\$1,000,000
<b>TOTAL PROJECT COST</b>	<b>\$15,800,000</b>

## **APPENDIX**

**TRANSPORTATION ANALYSES (Iteris, Inc.)**

# TECHNICAL APPENDIX

*Transportation Analyses Conducted For*

Gothenburg, Nebraska  
Viaduct Location Study

*Prepared for*

City of  
Gothenburg, Nebraska

Submitted by



In Cooperation with



September, 2010

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## 1.0 INTRODUCTION

This document summarizes traffic analyses conducted for the Gothenburg Viaduct Location Study. Information provided in the following sections of this technical appendix document both existing and projected future transportation conditions in the City of Gothenburg related to the potential construction of a second viaduct. This information is intended to function as a reference and provides input data into the formal Gothenburg Viaduct Location Study document.

### 1.1 TRANSPORTATION BACKGROUND

The City currently has one viaduct, at Avenue G, and three at-grade crossings at County Road 410, Avenue J, and Avenue E/Lake Avenue. The railroad tracks are located on the south side of US Highway 30 and run parallel to the highway through town. County Road 410 and Avenue J provide access to US Highway 30 from the south and form a t-intersection with US Highway 30. Avenue E/Lake Avenue provides access to US Highway 30 from the north and south.

Train activity has steadily increased along this corridor and Union Pacific (UP) anticipates the growth to continue into the future. This increase in train traffic creates more potential vehicle-train conflicts at crossing locations. Based on future, planned development in Gothenburg, the study area transportation network was evaluated for the feasibility of a second viaduct to promote the safety of vehicle movements that would be provided by such a facility.

### 1.2 STUDY AREA

The study area for the traffic analysis consists of the City of Gothenburg's roadway network and the surrounding roadways that serve as the main travel routes to/from Gothenburg. Primary routes included in the study are:

- US Highway 30
- Nebraska Highway 47
- Lake Avenue/Avenue E
- County Road 766 / 16<sup>th</sup> Street
- Avenue M
- Cottonwood Drive/Avenue J
- County Road 410
- 4<sup>th</sup> Street

## 2.0 EXISTING CONDITIONS

This section of the document provides a summary of existing study area traffic conditions. A primary purpose of the existing conditions analysis was to establish baseline transportation circulation in the City of Gothenburg. Elements

of the existing conditions analysis were also used for the transportation model development task, as well as to identify potential transportation improvements. A summary of existing transportation conditions is provided below.

## **2.1 EXISTING TRANSPORTATION NETWORK**

The City of Gothenburg transportation system consists of limited arterial streets, moderate collector roadways, and residential streets. US Highway 30 bisects the community and traverses through Gothenburg on a northwest/southeast alignment. The Union Pacific mainline tracks parallel US Highway 30 to the south. There are three main highway/railroad crossings in Gothenburg that allow north/south travel. At-grade crossings are located at County Road 410, Avenue J/Cottonwood Drive, and Avenue E/Lake Avenue, with all the intersections being stop controlled. The intersection of Avenue E/Lake Avenue and US Highway 30 is the only at-grade intersection that provides access to US Highway 30 from the north and south. County Road 410 and Avenue J/Cottonwood Drive provide access to the Highway from the south. Avenue G is grade-separated and the only existing viaduct in Gothenburg, which spans both US Highway 30 and the UP tracks and provides connectivity between Lake Avenue on the south and 10<sup>th</sup> Street on the north. This segment is designated and signed as the NE Highway 47 route which currently runs through the center of the city.

## **2.2 DATA COLLECTION AND FIELD REVIEW**

The field review and data collection effort was focused on primary roadways and intersections within the City of Gothenburg. Field review was conducted at all study area roadways and intersections to document lane geometrics, traffic control, speed limits, general vehicle operations, vehicle circulation and queuing.

Automated, 24-hour counts were conducted at roadway segment locations to collect daily vehicle volumes. These counts were collected and summarized by direction, in 15-minute intervals. The 24-hour volume count data was utilized in the calculation of crash rates and in the model validation/calibration process. The locations of the counts with the resulting volumes in study area are illustrated in **Figure 1**.

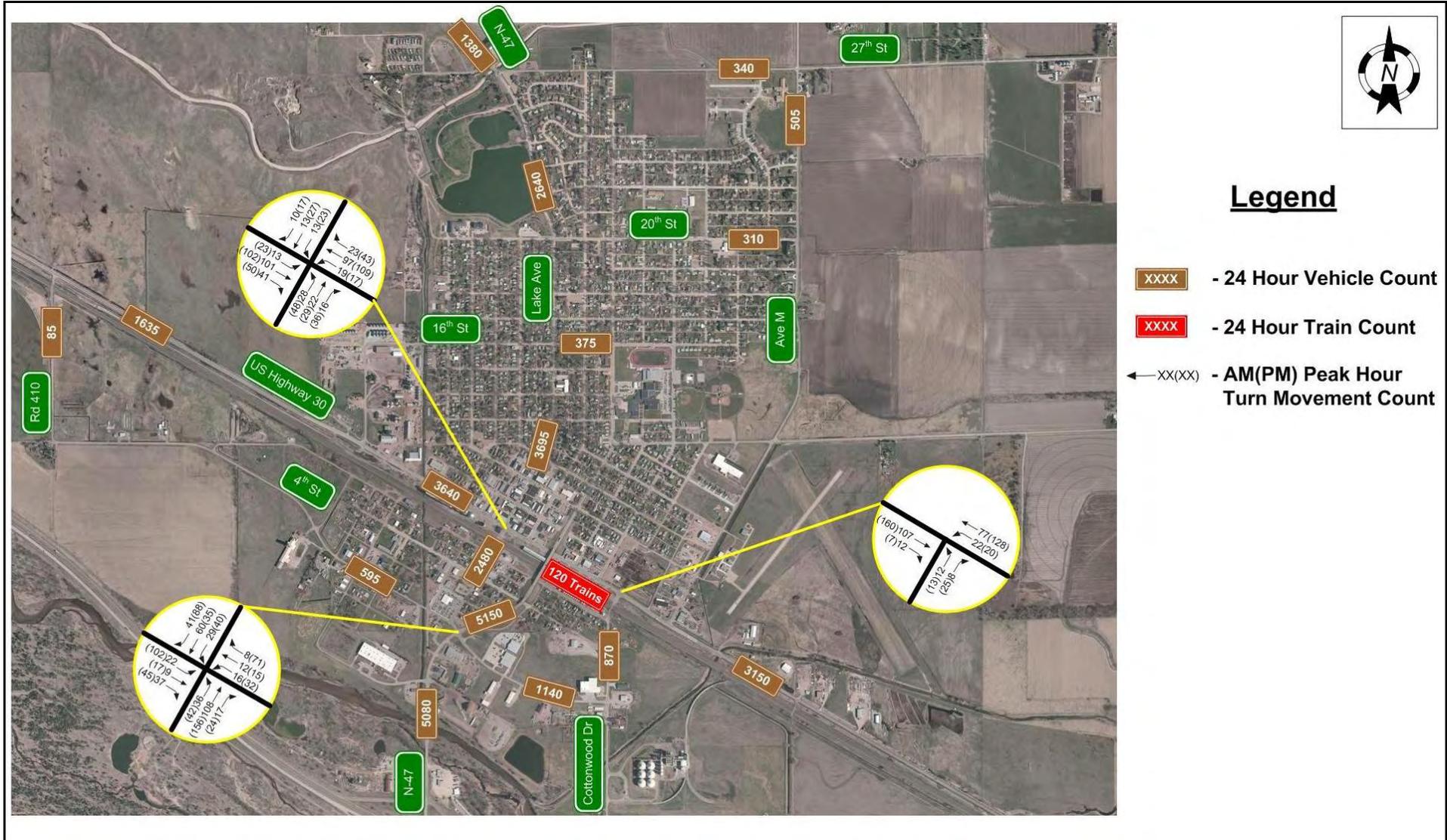


FIGURE 1: EXISTING COUNT DATA

## 2.3 INTERSECTION SAFETY ANALYSIS

Crash data was provided by the Nebraska Department of Roads for a three year period from January 1, 2007 through December 31, 2009 and reviewed for the three study intersections along US Highway 30 to identify potential safety deficiencies. Crash rates for those intersections can be found in **Table 1**. The crash rate for an intersection is based on the number of crashes, average daily traffic (ADT) of the two streets of the intersection, and the number of years in which crash data is being analyzed for. The results of the safety analysis indicated that overall vehicle crash rates were low. Crash rate analysis typically uses a rate of 1.5 as an indicator of potential safety problems at an intersection of these types.

TABLE 1: VEHICULAR CRASH RATE ANALYSIS RESULTS

Route	Cross Street	Route ADT	Cross Street ADT	Total Crashes	Crash Rate
Hwy 30	CR-410	1635	85	2	1.06
Hwy 30	Lake Ave	3640	2480	6	0.90
Hwy 30	Cottonwood (Ave J)	3150	870	1	0.23

## 2.4 EXISTING RAILROAD CROSSING CHARACTERISTICS

Existing characteristics of the major at-grade crossing locations within the study area were evaluated as part of the analyses. These crossing locations included Road 410, Lake Avenue and Cottonwood Drive. Inventory records from the Federal Railroad Administration (FRA) included the vehicle and train crash data shown in **Table 2**:

TABLE 2: TRAIN/VEHICLE CRASHES

<b>TRAIN / VEHICLE CRASHES</b>		
<b>Crossing Location</b>	<b>Date</b>	<b>Result</b>
Road 410	4/14/84	Property Damage
Road 410	1/22/85	Injury
Road 410	5/29/89	Property Damage
Road 410	5/23/97	Property Damage
Road 410	6/7/97	Property Damage
Road 410	11/11/97	Property Damage
<b>6 Total Crashes</b>		
Lake Ave.	11/22/79	Property Damage
Lake Ave.	2/1/80	Property Damage
Lake Ave.	4/4/95	Property Damage
Lake Ave.	11/11/00	Property Damage
Lake Ave.	11/28/07	Injury
Lake Ave.	1/18/08	Property Damage
<b>6 Total Crashes</b>		
Cottonwood Dr.	3/24/79	Property Damage
Cottonwood Dr.	3/15/88	Property Damage
Cottonwood Dr.	4/21/96	Property Damage
Cottonwood Dr.	5/8/98	Property Damage
Cottonwood Dr.	11/27/05	Property Damage
<b>5 Total Crashes</b>		
<b>Grand Total</b>		<b>17 Crashes</b>

Source: Federal Railroad Administration (FRA) Inventory

As illustrated in the previous count summaries, approximately 120 trains per day travel through the limits of Gothenburg. The impacts of these train crossings on adjacent traffic vary by time of day, speed and length of train, and the specific traffic movements.

Additional analyses of the railroad crossings were conducted to further assess the transportation impacts of the crossings. One of the measures considered by the Nebraska Department of Roads when evaluating the justification of a viaduct is the crossing location exposure factor. The exposure factor is the product of the number of vehicles that cross at a given railroad crossing per day and the number of trains that pass through the crossing per day. If the crossing has an

exposure factor of 75,000 or greater, it satisfies the NDOR minimum threshold for consideration of a viaduct. The exposure factor is intended to provide guidance on the amount of exposure that would be reduced at specific locations by eliminating their status as an at-grade crossing. The exposure factors for the three at-grade crossing locations were calculated based on existing vehicle traffic and train data and are illustrated in **Table 3**. Train data was provided by UP.

**TABLE 3: EXISTING EXPOSURE FACTORS**

<b>EXISTING EXPOSURE FACTOR</b>			
<b>Location</b>	<b>Trains / Day</b>	<b>Vehicles / Day</b>	<b>Factor</b>
Lake Ave.	120	2,480	<b>297,600</b>
Cottonwood Dr.	120	870	<b>104,400</b>
Road 410	120	85	<b>10,200</b>
<b>Combined</b>			<b>412,200</b>

As illustrated in the table, two of the locations are well beyond the 75,000 threshold. Typically when a viaduct is considered for implementation it eliminates the existing at-grade crossing where it is constructed, and one additional at-grade crossing location. This is based on funding requirements for viaduct construction and the incentive to reduce the largest exposure of safety concerns for current at-grade locations. As illustrated in the table, the combined exposure factor for existing traffic and train volumes at all crossings is 412,200.

### **3.0 TRANSPORTATION MODEL DEVELOPMENT**

This section provides an overview of the City of Gothenburg Travel Demand Forecast (TDF) model development and calibration process. The City of Gothenburg model was developed using the TransCAD modeling software, version 5.0. Use of TransCAD is consistent with NDOR standards and requirements for travel demand model development. The development of future year traffic volume assignments (Year 2030) and evaluation of potential transportation alternatives was facilitated with use of the model and is described in more detail in later sections of the document.

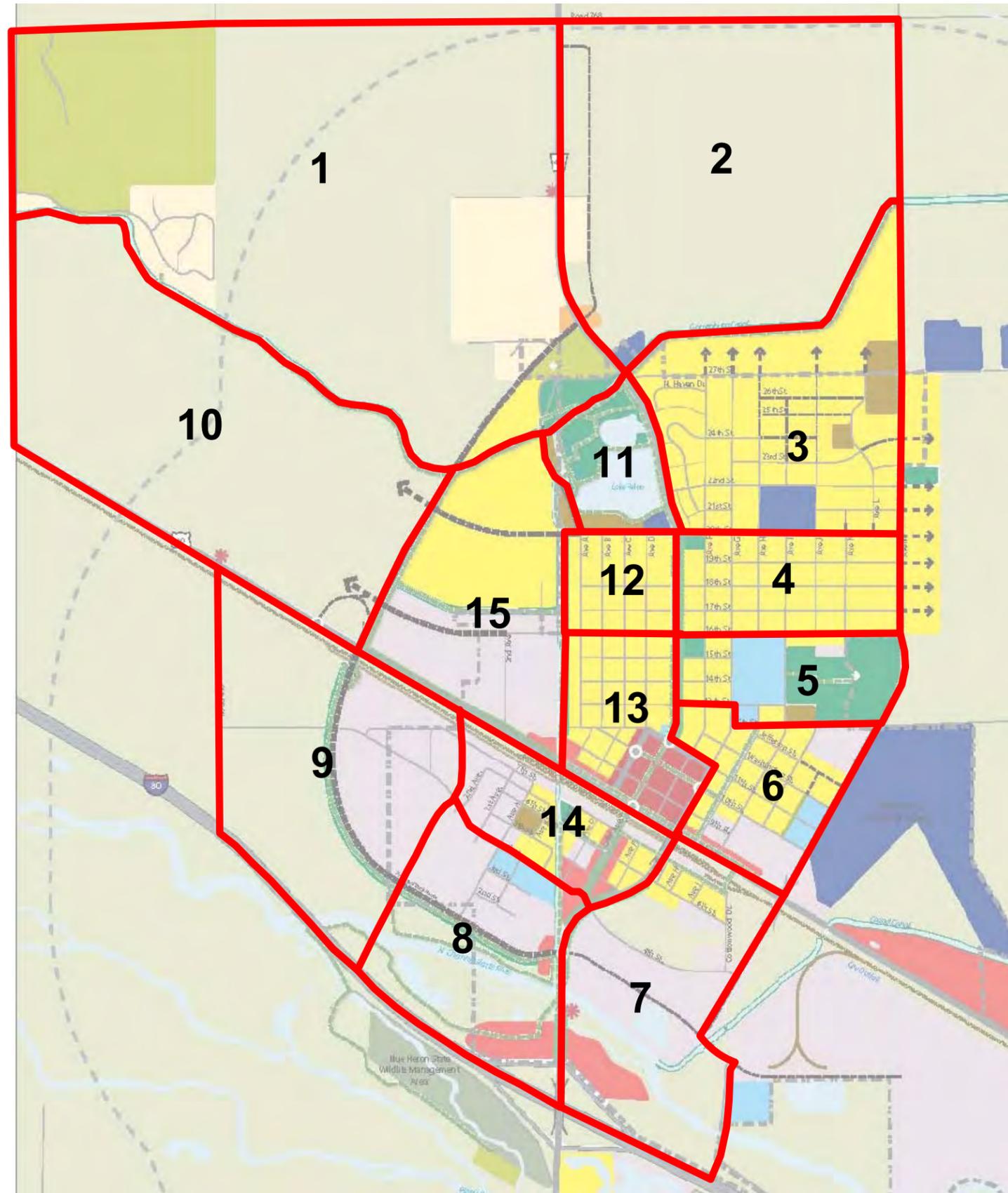
#### **3.1 TRANSPORTATION MODEL PROCESS OVERVIEW**

The use of TDF models are an important component of the transportation planning process. TDF models are used to predict the impacts that various policies and programs will have on travel in an area. In general, travel demand forecasting attempts to quantify the amount of travel (demand) on the transportation system (supply). The initial travel demand forecasting model developed for the City of Gothenburg provides daily traffic volumes (24-hour forecasts) based on the existing land use and roadway network. The TDF model development process used for this project consisted of several sub-models including estimating the number of daily vehicle trips by traffic analysis zones

(TAZ) from the land use inventory, distribution of vehicle trips by TAZ, and then assigning the vehicle trips to the street network. The two major types of data which are used as inputs to develop the City of Gothenburg TDF model are land use data and transportation roadway network data. Land use data was provided by the City from the most recent data available in the Comprehensive Plan. This data was updated with known land use activity since the plan was originally documented to obtain existing base land use conditions. The Gothenburg transportation modeling process included the following steps:

- Development of 2010 transportation roadway network
- Determination of 2010 land use data
- Trip Generation – generation of vehicle trips for each land use
- Trip Distribution – geographical distribution of vehicle trips between origin and destination TAZ
- Trip Assignment – assignment of traffic volumes to specific roadways

The travel demand model was utilized as an additional planning level tool to evaluate traffic patterns with various transportation alternatives on the study area roadway network. The model was calibrated to existing conditions and checked for reasonableness, so that it could be utilized for future traffic volume development and alternative analysis. The City of Gothenburg TAZ system and roadway network is presented in **Figure 2**.



**Legend**

-  - TAZ Boundary
- 4** - TAZ Identification #

**Future Land Use Type**

-  Single-Family Residential Use
-  Multi-Family Residential Use
-  Rural/ Large Lot Estate
-  Public/School Facilities
-  Civic Uses
-  Industrial Use
-  Downtown Mixed Use
-  Neighborhood Mixed Use
-  Commercial Use
-  Commercial Recreation
-  Open Space/Agricultural
-  Parks and Recreation
-  Drainageway
-  Gateway Feature
-  Downtown Gateway Feature

## 4.0 VIADUCT ALTERNATIVES ANALYSES

Based upon the initial development of viaduct alternatives by the study project team, additional TransCAD model runs were developed from the base model to analyze the potential impact on the daily traffic volumes and patterns for each of the alternatives. Future land use assumptions that were able to be quantified for the study area were provided by the City from data available in the Comprehensive Plan.

Four initial viaduct concepts were developed. Two alternatives were developed for a west overpass west of 2<sup>nd</sup> Avenue and two alternatives were developed for an east overpass near Avenue M. These four alternatives were modeled under the future land use and network scenario. These alternatives included a viaduct alternative at the respective east/west location with closure of the at-grade crossing at Avenue E/Lake Avenue and Avenue J. The four alternatives were labeled “East Near”, “East Far”, “West 1<sup>st</sup>”, and “West 4<sup>th</sup>” concepts in the model. The following paragraphs describe these alternatives.

### East Near

- This concept includes a viaduct on the approximate Avenue M viaduct alignment, with the viaduct crossing US Highway 30 and the UP railroad tracks. The northern section of the route follows the current Avenue M alignment north of 12<sup>th</sup> Street to 27<sup>th</sup> Street and continues west on the current 27<sup>th</sup> Street align where it connects to Nebraska Highway 47. The modeling results of this concept are illustrated in **Figure 3**. The modeled viaduct volume is the third lowest among the four alternatives modeled and approximately half that of the western alternatives.

### East Far

- This concept includes a viaduct on the approximate Avenue M viaduct alignment. The northern section of the route connects to Nebraska Highway 47 approximately a half mile north of 27<sup>th</sup> Street and traverses approximately a half mile east of Avenue M before aligning at Avenue M and 12<sup>th</sup> Street. Access to US Highway 30 is provided by Avenue K on the north. Access to US Highway 30 on the south would be eliminated with the closures at Avenue E/Lake Avenue and Avenue J. Traffic utilization for the modeled viaduct was the lowest of the four concepts modeled, with the volumes being very similar to the *East Near* alternative. This model is illustrated in **Figure 4**.

West 1<sup>st</sup>

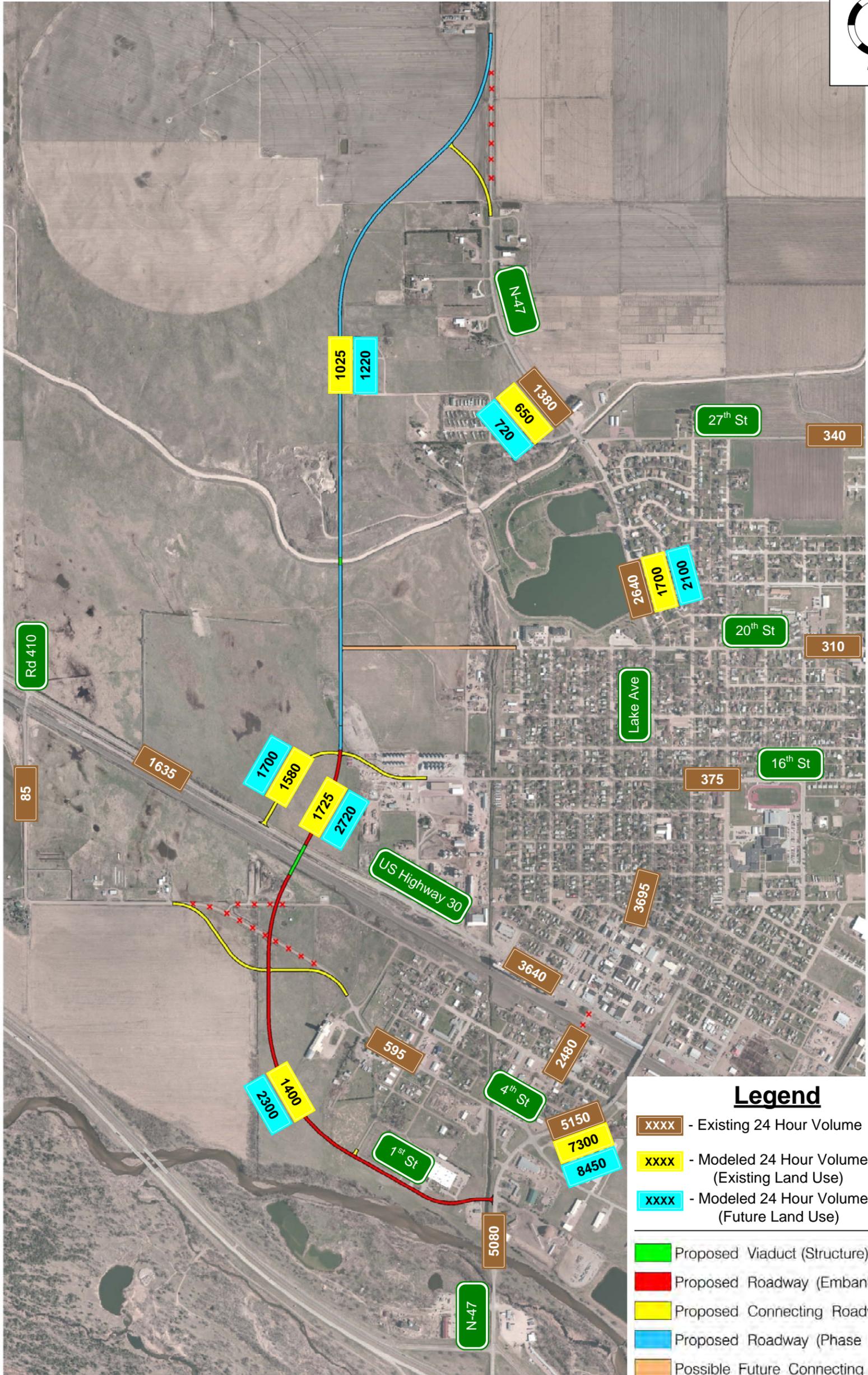
- This concept includes a viaduct located west of 2<sup>nd</sup> Avenue. North of US Highway 30 the alignment is north/south and connects to Nebraska Highway 47 approximately a half mile south of county Road 768. South of US Highway 30 the roadway connects to 1<sup>st</sup> Street and follows the 1<sup>st</sup> Street alignment to Nebraska Highway 47. Access to US Highway 30 is provided by 16<sup>th</sup> Street. Traffic utilization was high for this concept which includes closures of the at-grade crossings at Avenue E/Lake Avenue and Avenue J. This concept is illustrated in **Figure 5**.

West 4<sup>th</sup>

- This concept includes a viaduct located west of 2<sup>nd</sup> Avenue, but not as far west as the *West 1<sup>st</sup>* alignment. The alignment north of US Highway 30 is the same as the *West 1<sup>st</sup>* alternative. South of US Highway 30 the alignment connects to the existing 4<sup>th</sup> Street alignment and continues east to Nebraska Highway 47. This alternative also provides access to US Highway 30 via 16<sup>th</sup> Street and has closures at the at-grade crossings at Avenue E/Lake Avenue and Avenue J. This concept indicated the highest traffic utilization of the four alignments, which was only slightly higher than the *West 1<sup>st</sup>* alternative. The model run for this scenario is illustrated in **Figure 6**.

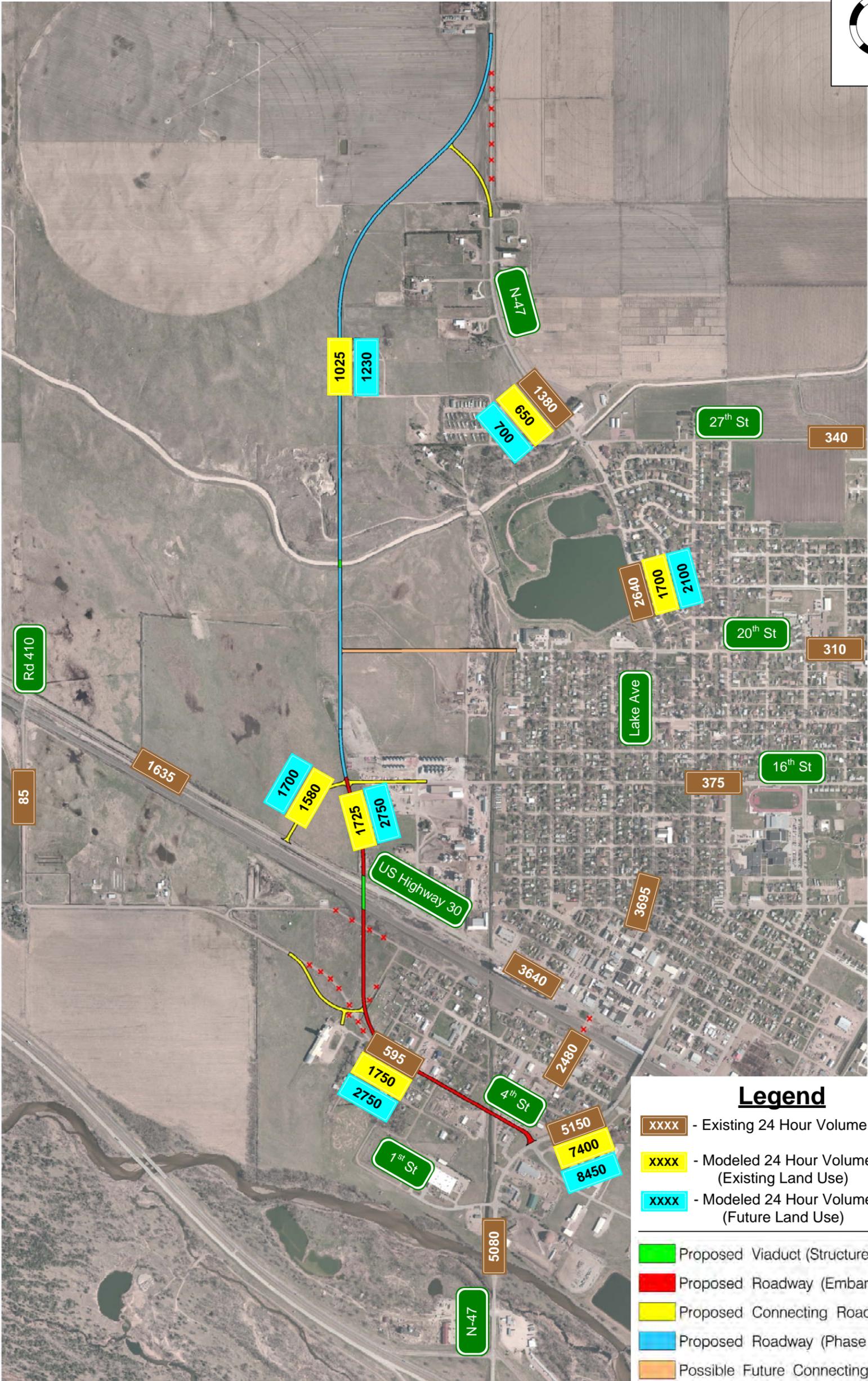
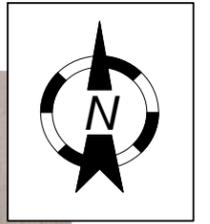






**Legend**

- XXXX - Existing 24 Hour Volume
- XXXX - Modeled 24 Hour Volume (Existing Land Use)
- XXXX - Modeled 24 Hour Volume (Future Land Use)
- Proposed Viaduct (Structure)
- Proposed Roadway (Embankment)
- Proposed Connecting Roadways
- Proposed Roadway (Phase II)
- Possible Future Connecting Roadway
- × × Closed Road



#### 4.1 FUTURE EXPOSURE FACTOR

Exposure factors were again calculated for projected future traffic and train volumes for two separate horizon years and are illustrated in **Table 4**. Future train volume projections were calculated based on expected annual growth provided by UP. Traffic Volumes were developed based on “no-build” annual growth rates.

TABLE 4: FUTURE EXPOSURE FACTORS

<b>YEAR 2020 EXPOSURE FACTOR</b>			
<b>Location</b>	<b>Trains / Day</b>	<b>Vehicles / Day</b>	<b>Factor</b>
Lake Ave.	146	3,023	<b>442,218</b>
Cottonwood Dr.	146	1,061	<b>155,133</b>
Road 410	146	104	<b>15,157</b>
<b>Combined</b>			<b>612,508</b>

<b>YEAR 2030 EXPOSURE FACTOR</b>			
<b>Location</b>	<b>Trains / Day</b>	<b>Vehicles / Day</b>	<b>Factor</b>
Lake Ave.	178	4,030	<b>718,604</b>
Cottonwood Dr.	178	1,700	<b>303,133</b>
Road 410	178	370	<b>65,976</b>
<b>Combined</b>			<b>1,087,713</b>

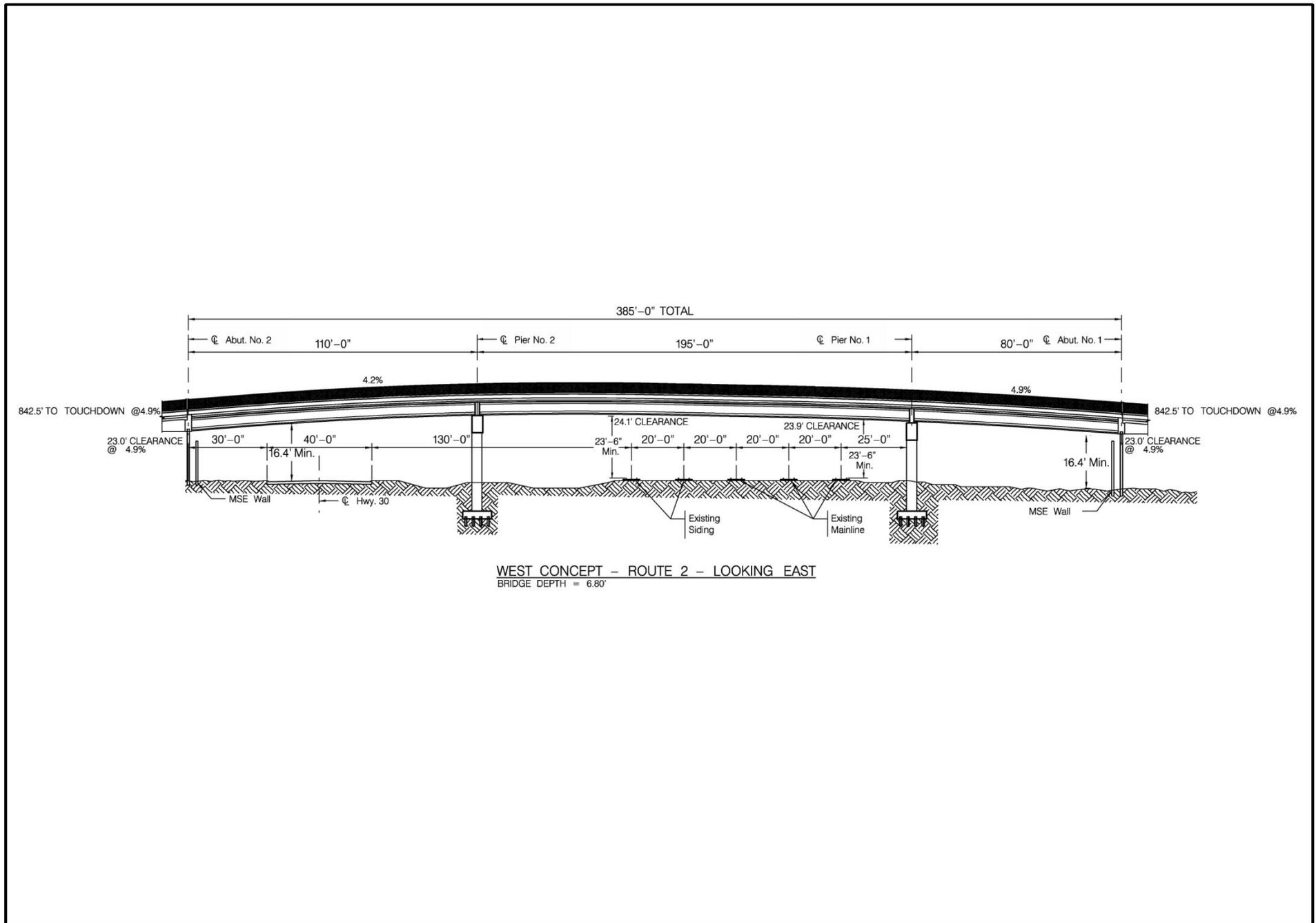
As illustrated in the table, with moderate annual growth in train volumes, the exposure factors begin to increase exponentially and show combined factors significantly beyond the 75,000 threshold.

#### 5.0 CONCLUSIONS

Based upon the transportation analyses conducted as part of this technical appendix to the Gothenburg Viaduct Location Study, viaduct concepts along a western alignment indicate the highest traffic volume forecasts, and would likely result in reduction of through traffic and truck traffic along existing Lake Avenue. A viaduct within the west Gothenburg vicinity would reduce exposure factors that are significantly beyond the 75,000 threshold under both existing and projected future traffic conditions. With implementation of such an improvement, pedestrian circulation must be taken into account and provisions for a pedestrian walkway would need to be planned with such a viaduct to facilitate this movement.

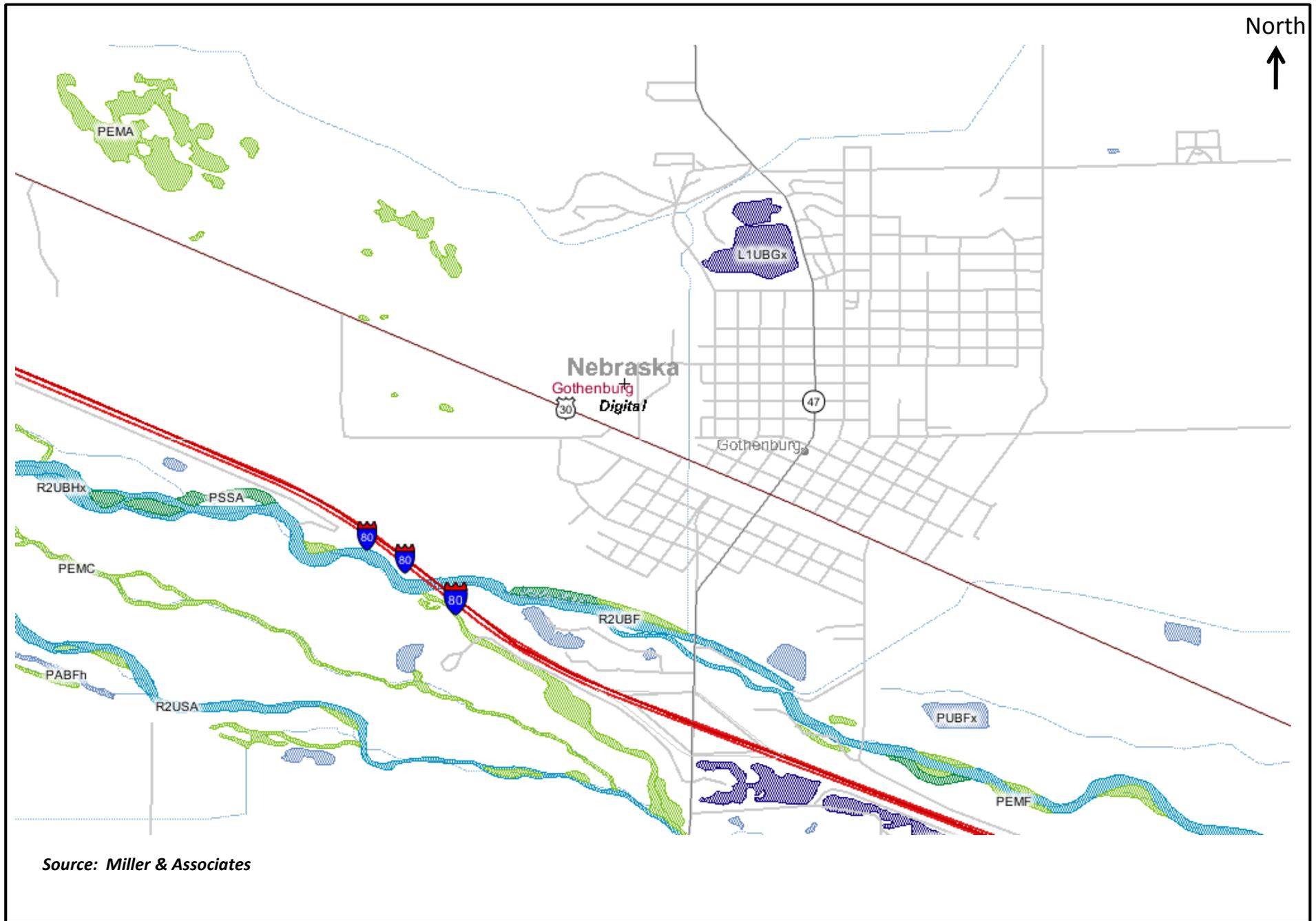
## **ELEVATION VIEW OF PREFERRED VIADUCT**

# Gothenburg Viaduct Feasibility & Location Study



## **WETLAND INVENTORY MAP**

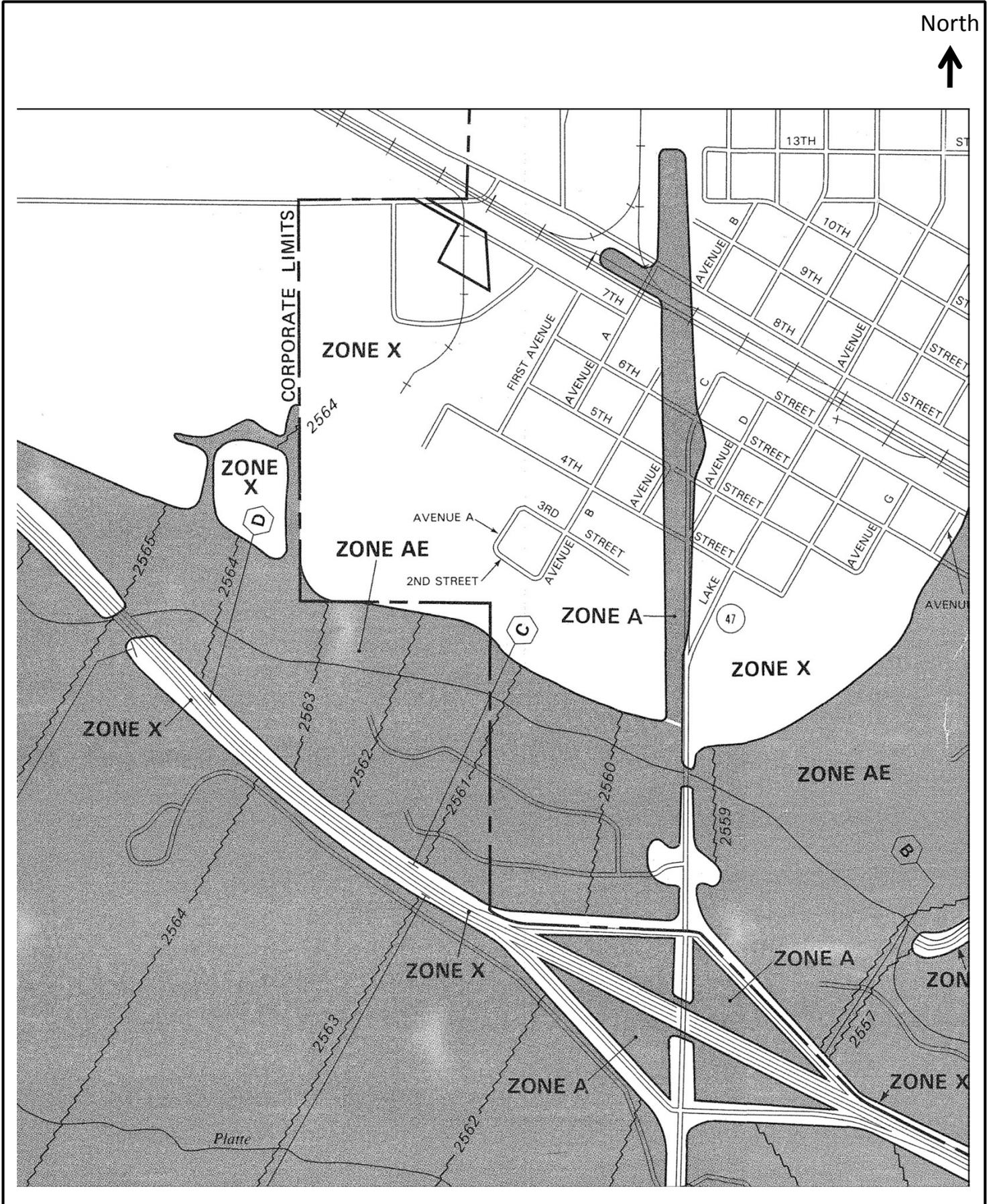
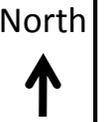
# Gothenburg Viaduct Feasibility & Location Study



Source: Miller & Associates

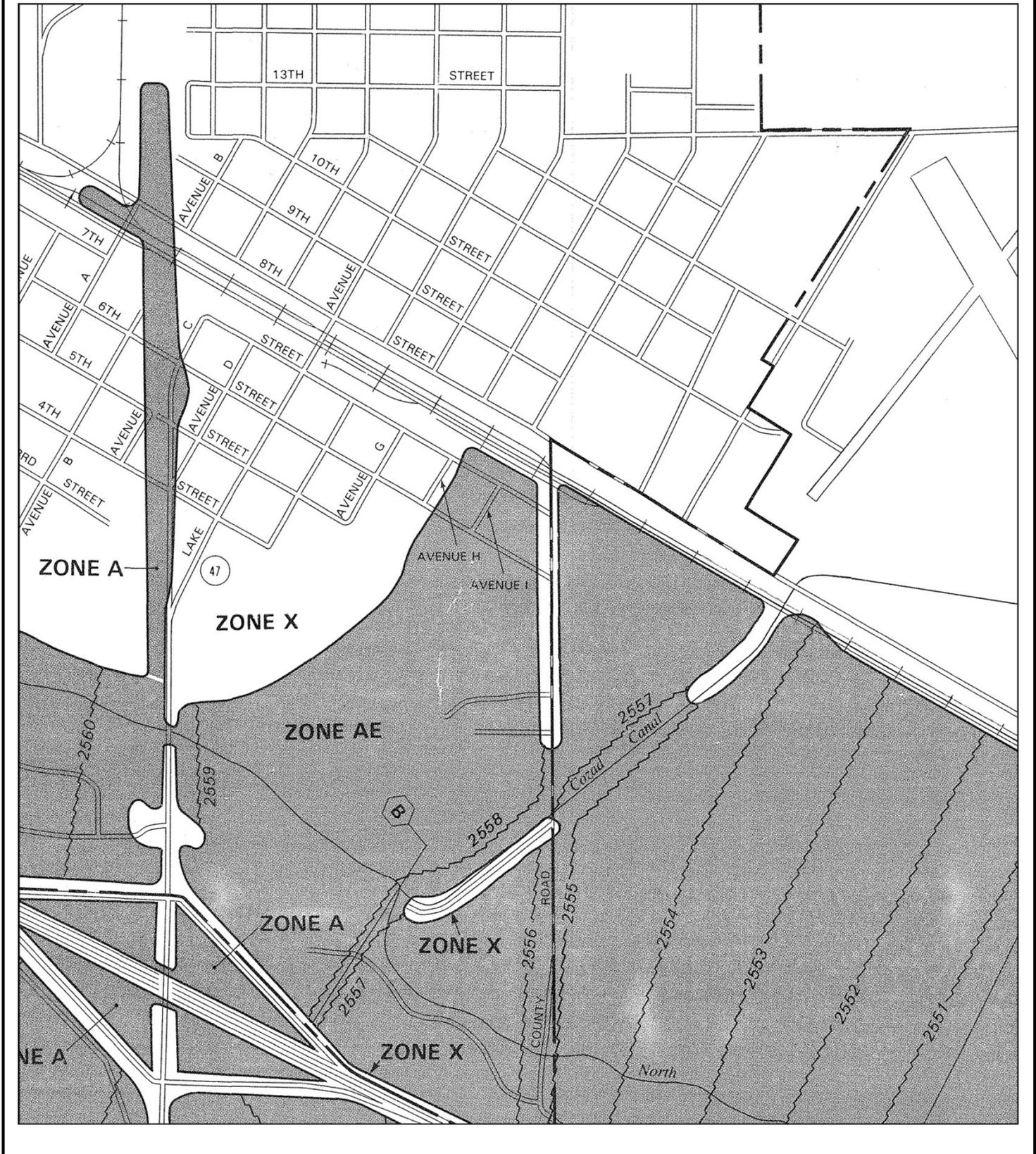
## **FLOODPLAIN MAPS**

# Gothenburg Viaduct Feasibility & Location Study

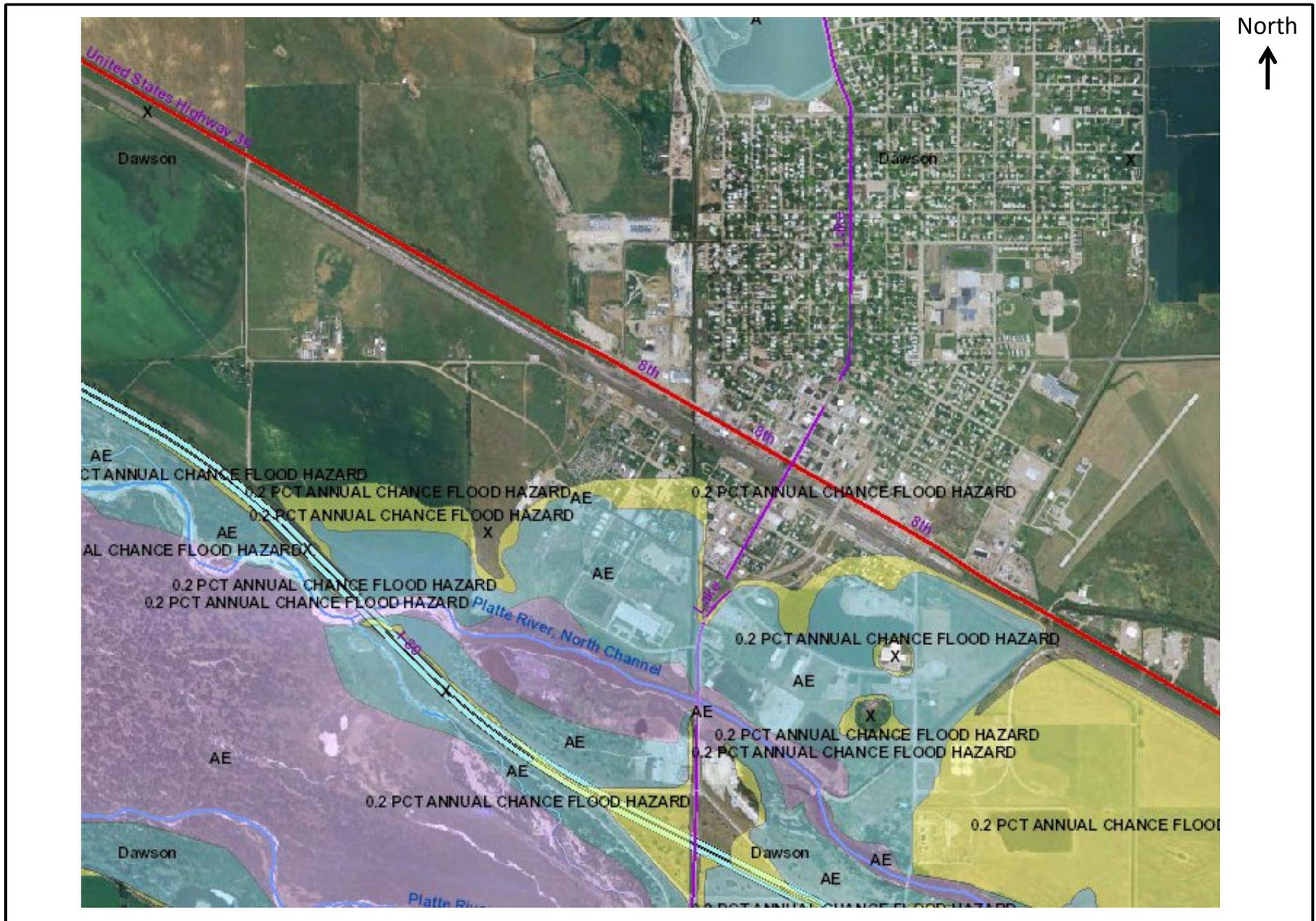


# Gothenburg Viaduct Feasibility & Location Study

North



# Gothenburg Viaduct Feasibility & Location Study



**PUBLIC INFORMATION MEETING  
DISPLAYS AND COMMENT SHEETS**

# Project Intent & Understanding

## Project Intent

To evaluate the feasibility of an additional viaduct, spanning both the UPRR and U.S. Highway 30. Should an additional viaduct be found feasible, alternative analyses will be performed to identify its preferred concept and location.

## Project Understanding

In order for an additional viaduct to be feasible, several criteria must be satisfied. Some of these criteria are in the form of:

- Train Data
- Vehicle Data
- Accident History
- Nearby Development
- Adjacent RR crossings
- Sight Distance
- School Locations/Bus Routes
- Hospital Locations
- Fire Station Locations
- Project Location
- Cost-Benefit Analysis
- Pedestrian Traffic
- Right-of-Way/Relocation
- Impact on Community
- Local Support & Funding
- Railroad Support & Funding

# Funding Eligibility

## Exposure Factor

- Equivalent to the number of trains per day multiplied by the number of cars per day at a single, at-grade railroad crossing.

$$\text{Exposure Factor} = \text{No. Trains per Day} \times \text{No. Vehicles per Day}$$

- A minimum exposure factor of 50,000 for a single crossing, shall be required for identification as a potential location for a grade-separated crossing (i.e., viaduct).

## Crossing Closures

- A new grade separation project will require closing a minimum of two public at-grade crossings.

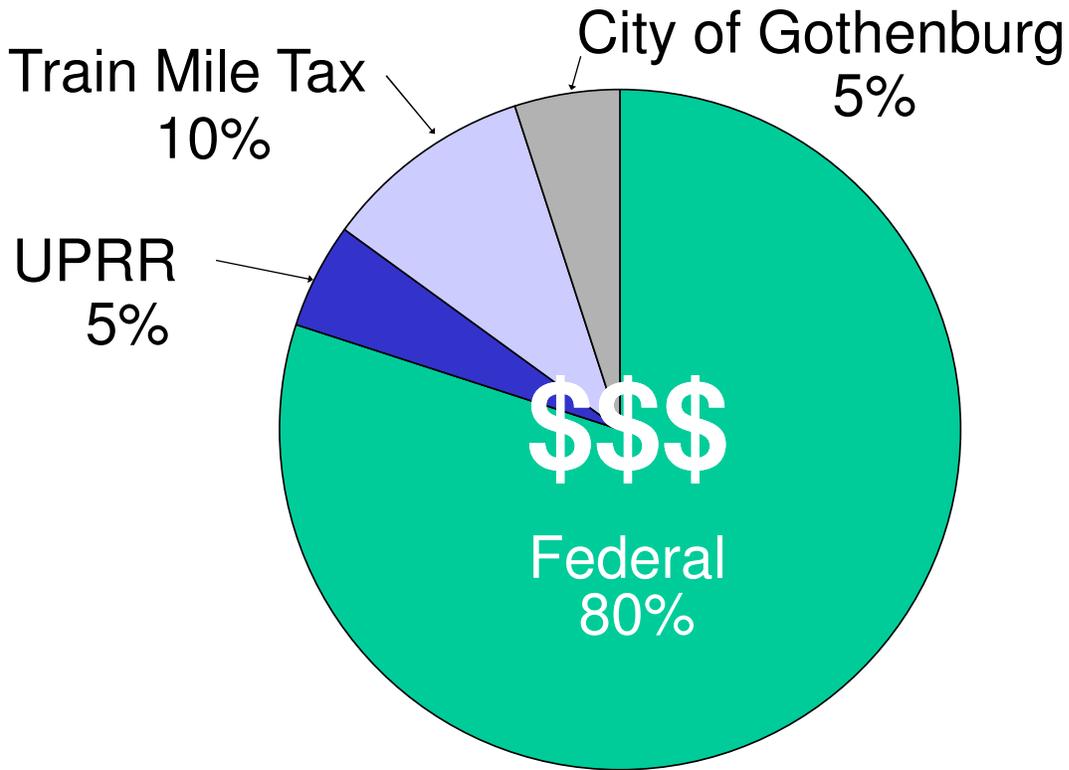
*Source: Nebraska Department of Roads – Title 415*

# Screening Criteria

- **Ability to eliminate crossing hazard and improve safety**
- **Cost**
- **Connectivity to existing/future roadway network**
- **Impact to private property, including access**
- **Ability to accommodate truck and farm machinery traffic**
- **Environmental impacts**
- **Benefits (how much traffic the alternative serves and/or how much traffic is removed from Lake Avenue)**

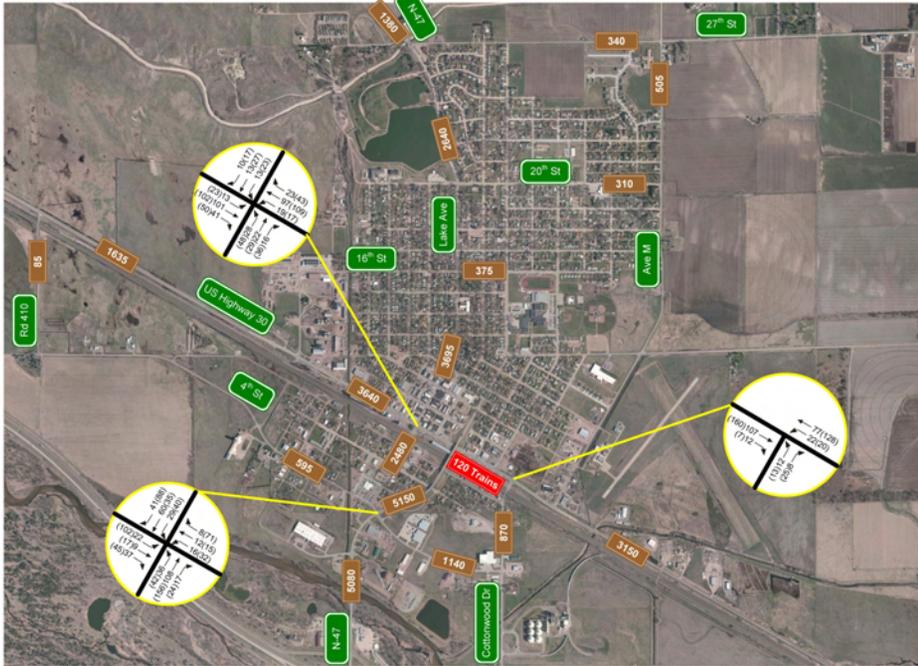


# Typical Sources of Railroad Viaduct Funding



- City of Gothenburg is responsible for the cost of conducting the feasibility study.
- Federal and railroad participation requires closure of two existing, at-grade crossings. These agencies will only be interested in closing those existing, at-grade crossings with the highest “exposure.”

# Traffic Characteristics



Existing Volumes



## Legend

- XXXX - 24 Hour Vehicle Count
- XXXX - 24 Hour Train Count
- ←-XX(X)X- AM(PM) Peak Hour Turn Movement Count

## Crash History & Exposure

### CRASH DATA

TRAIN / VEHICLE CRASHES		
Crossing Location	Date	Result
Road 410	4/14/84	Property Damage
Road 410	1/23/85	Injury
Road 410	5/23/89	Property Damage
Road 410	5/23/97	Property Damage
Road 410	6/7/97	Property Damage
Road 410	11/11/97	Property Damage
<b>6 Total Crashes</b>		
Lake Ave.	11/22/79	Property Damage
Lake Ave.	2/1/80	Property Damage
Lake Ave.	4/4/95	Property Damage
Lake Ave.	11/11/00	Property Damage
Lake Ave.	11/28/07	Injury
Lake Ave.	1/18/08	Property Damage
<b>6 Total Crashes</b>		
Cottonwood Dr.	3/24/79	Property Damage
Cottonwood Dr.	3/15/88	Property Damage
Cottonwood Dr.	4/21/96	Property Damage
Cottonwood Dr.	5/8/98	Property Damage
Cottonwood Dr.	11/27/05	Property Damage
<b>5 Total Crashes</b>		
<b>Grand Total</b>		<b>17 Crashes</b>

Source: Federal Railroad Administration (FRA) Inventory

### EXPOSURE FACTOR DATA

EXISTING EXPOSURE FACTOR			
Location	Trains / Day	Vehicles / Day	Factor
Lake Ave.	120	2,480	297,800
Cottonwood Dr.	120	870	104,400
Road 410	120	85	10,200
<b>Combined</b>			<b>412,200</b>

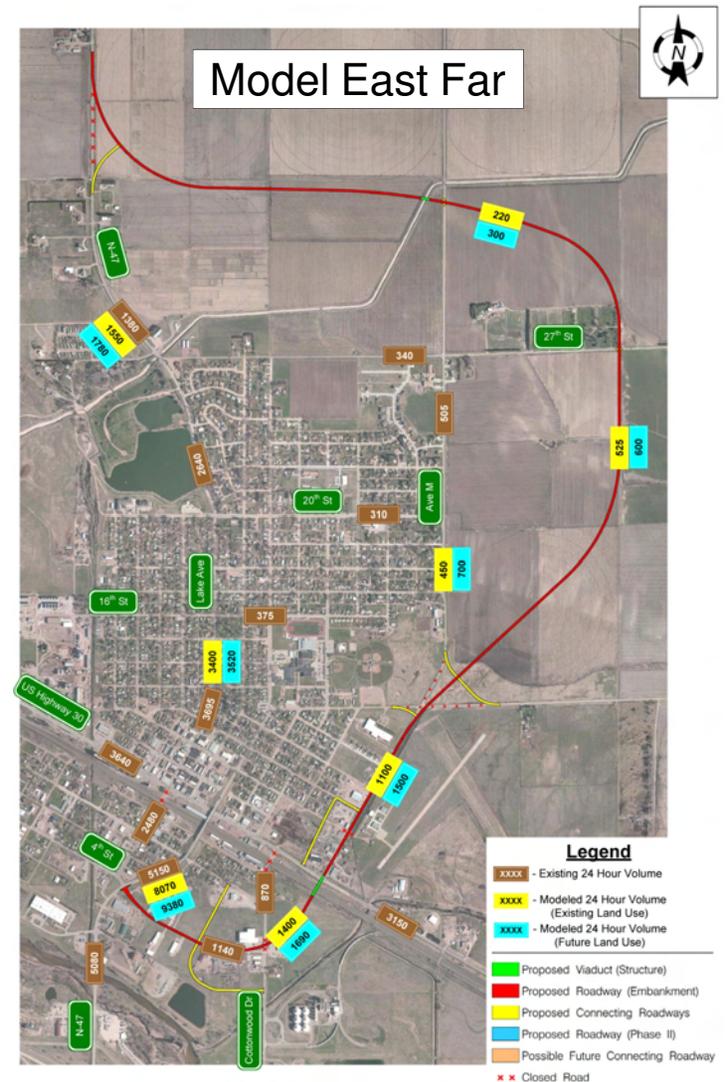
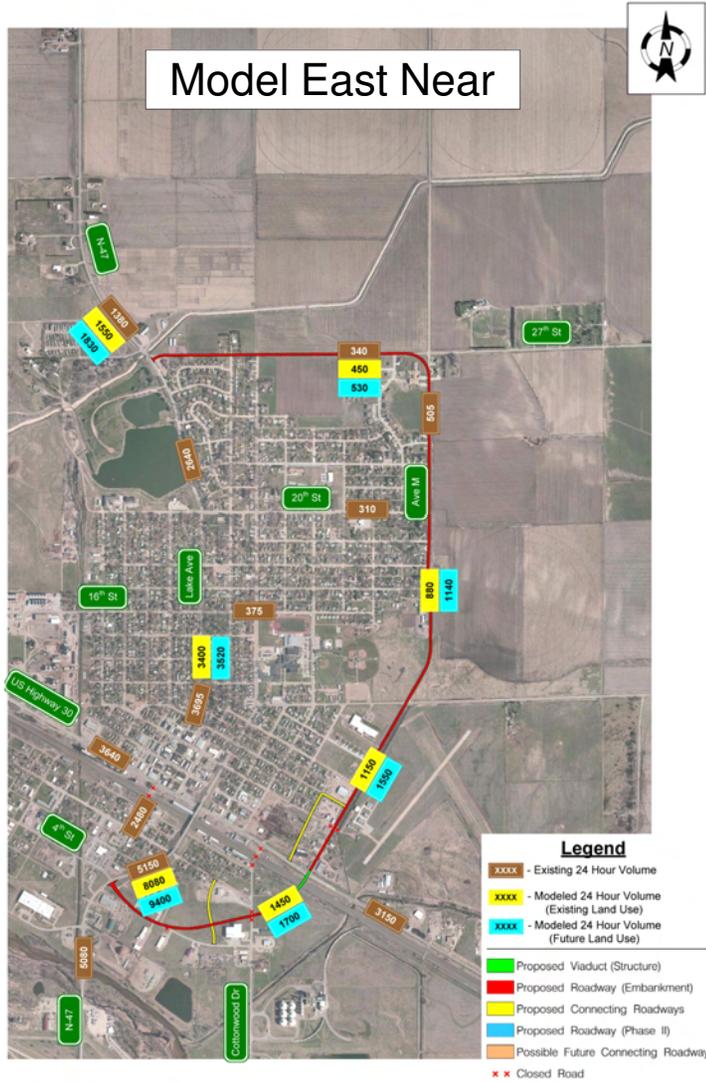
YEAR 2020 EXPOSURE FACTOR			
Location	Trains / Day	Vehicles / Day	Factor
Lake Ave.	146	3,023	442,218
Cottonwood Dr.	146	1,061	156,133
Road 410	146	104	16,167
<b>Combined</b>			<b>612,508</b>

YEAR 2030 EXPOSURE FACTOR			
Location	Trains / Day	Vehicles / Day	Factor
Lake Ave.	178	4,030	718,604
Cottonwood Dr.	178	1,700	303,133
Road 410	178	370	66,976
<b>Combined</b>			<b>1,087,713</b>

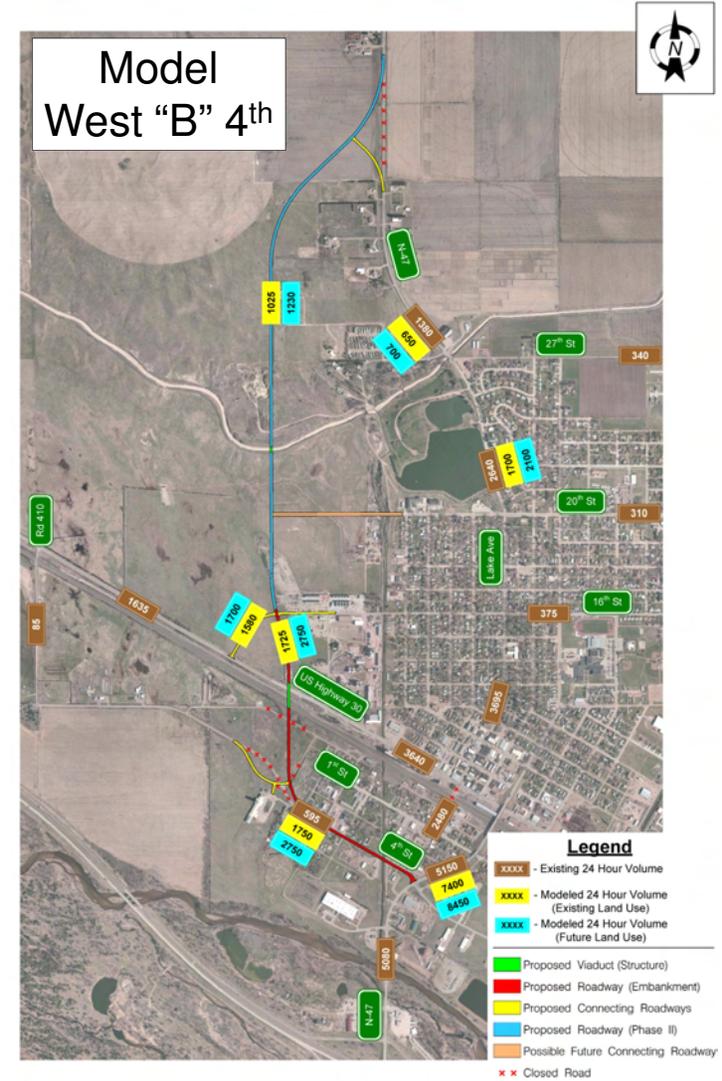
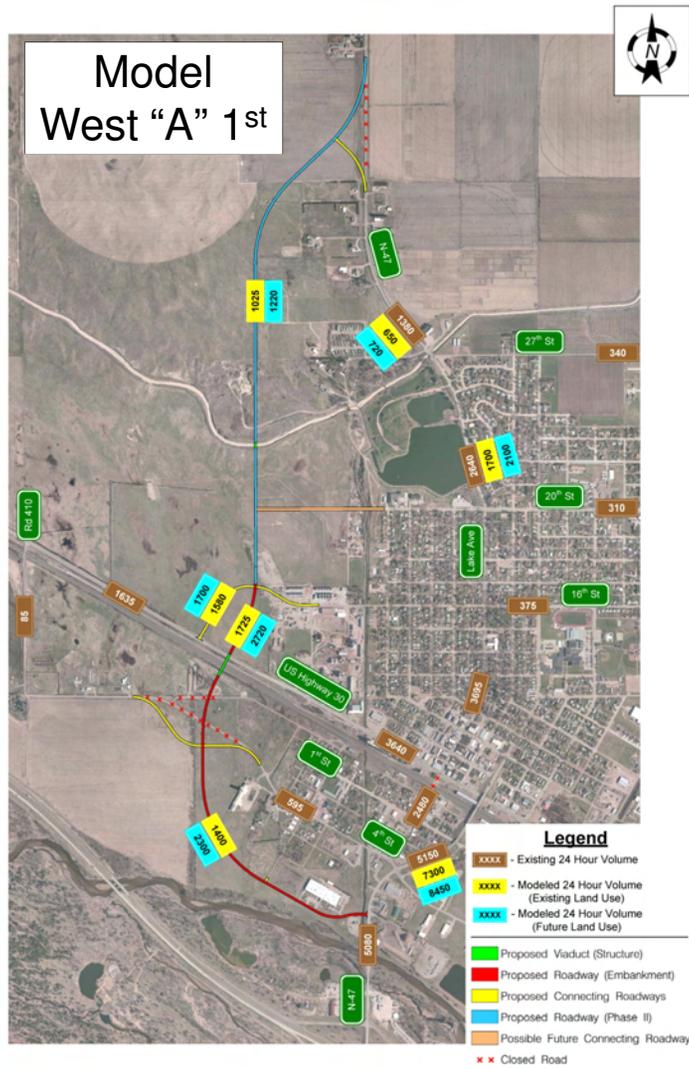
- Exposure Factor of 50,000 Warrants a Viaduct
- Assumes 2% Annual Growth in Vehicle & Train Volumes
- Year 2030 Traffic Volumes are from Future Base Model

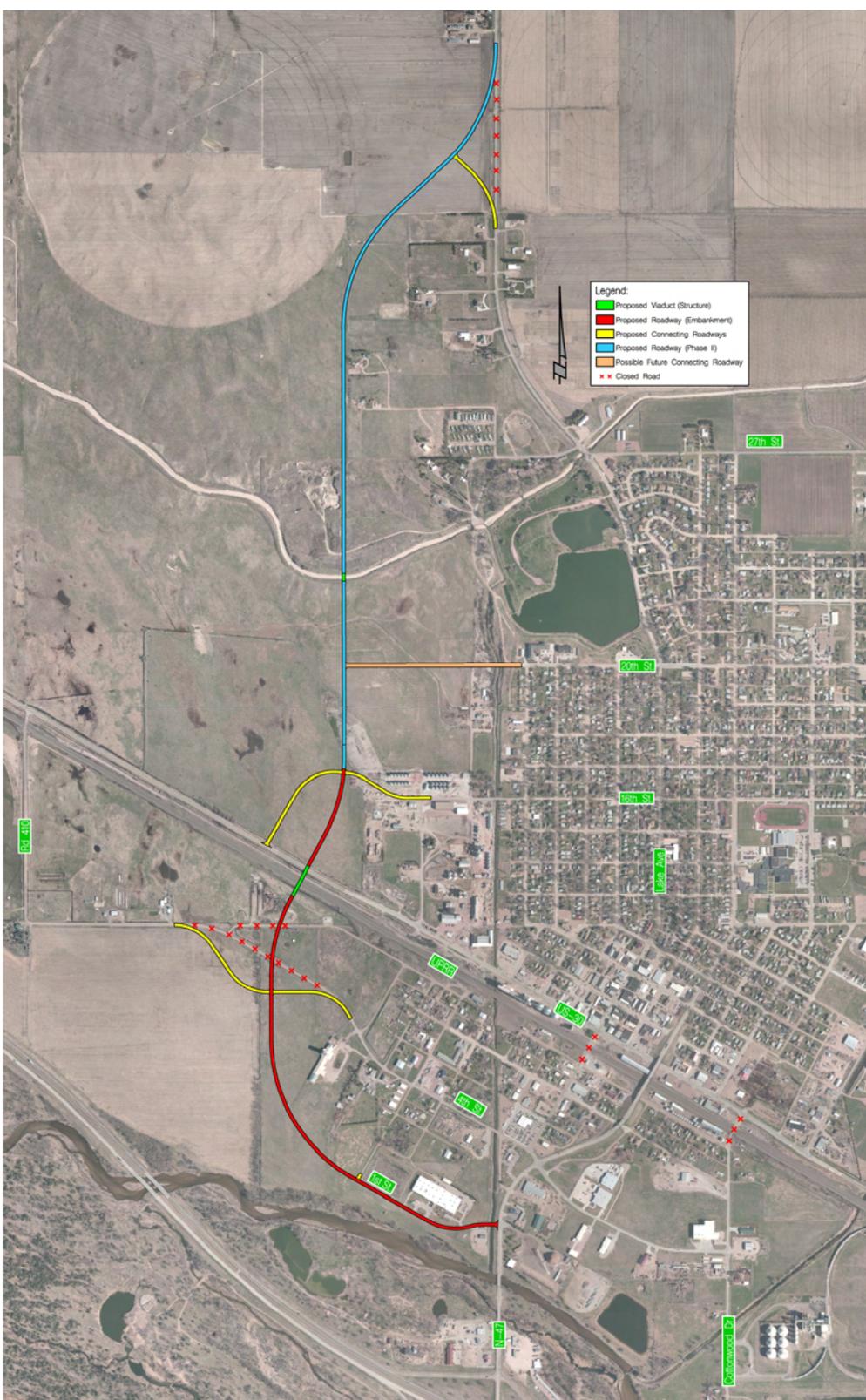
Intersection Crash Data - Vehicles					
Route	Cross Street	Route ADT	Cross Street ADT	Crashes	Crash Rate
Hwy 30	CR-410	1635	85	2	1.06
Hwy 30	Lake Ave	3640	2480	6	0.90
Hwy 30	Cottonwood (Ave J)	3150	870	1	0.23

# East Alternatives



# West Alternatives





## Concept “West A” (1<sup>st</sup> Street)

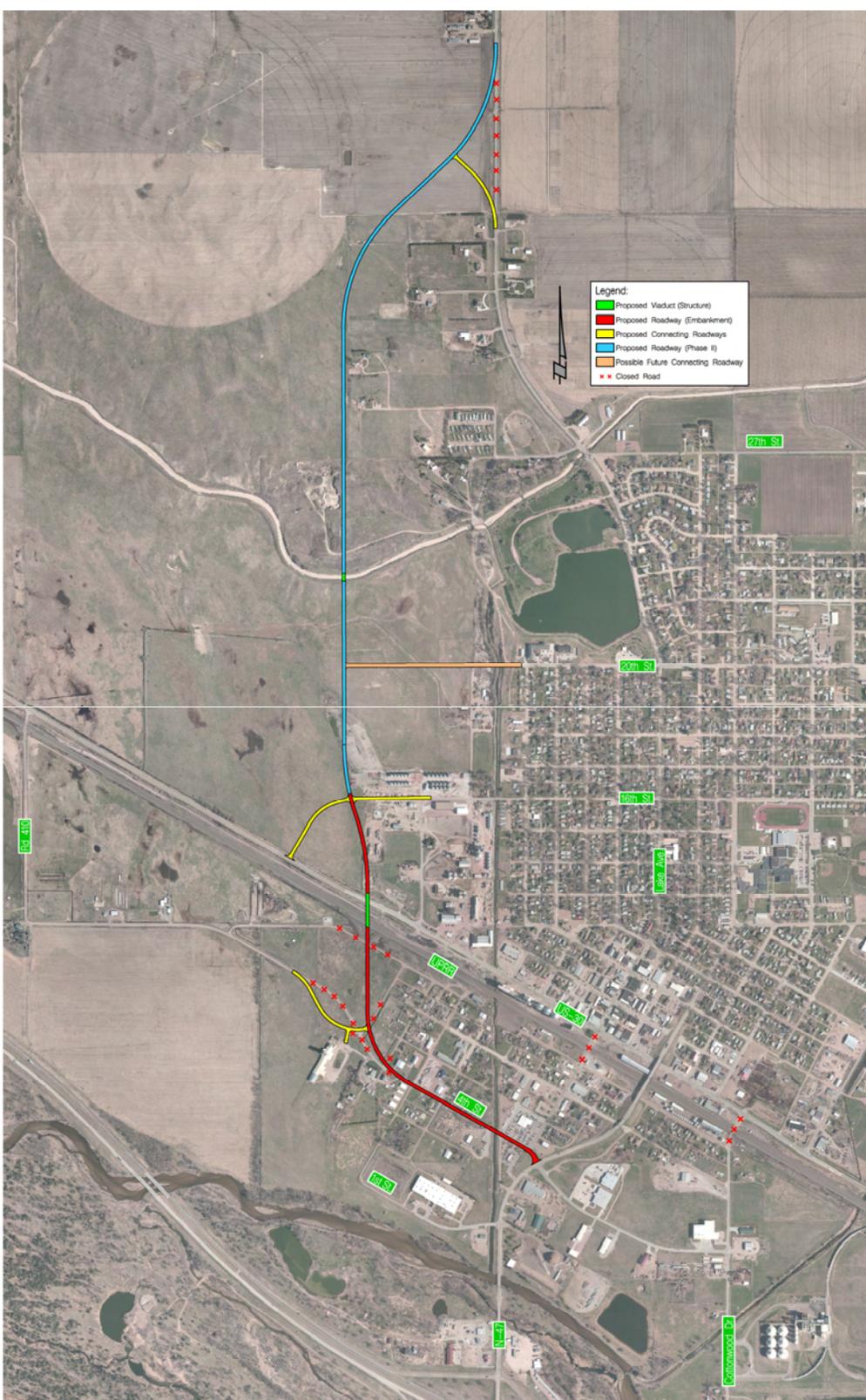
- Estimated project cost: \$16.3 Million
- Daily traffic volume:
  - 1,725 (2010 land use)
  - 2,720 (2030 land use)
- Lake Avenue traffic reduced 43%

## Reasons for Consideration

- Promotes future western growth
- Provides alternate route for “through” traffic
- Greatest traffic volume relief, including trucks, to Lake Avenue
- Connectivity to existing street network
- Improves access to existing industrial areas

## Disadvantages

- Impacts to agricultural property
- Minor impact to proposed floodplain



## Concept “West B” (4<sup>th</sup> Street)

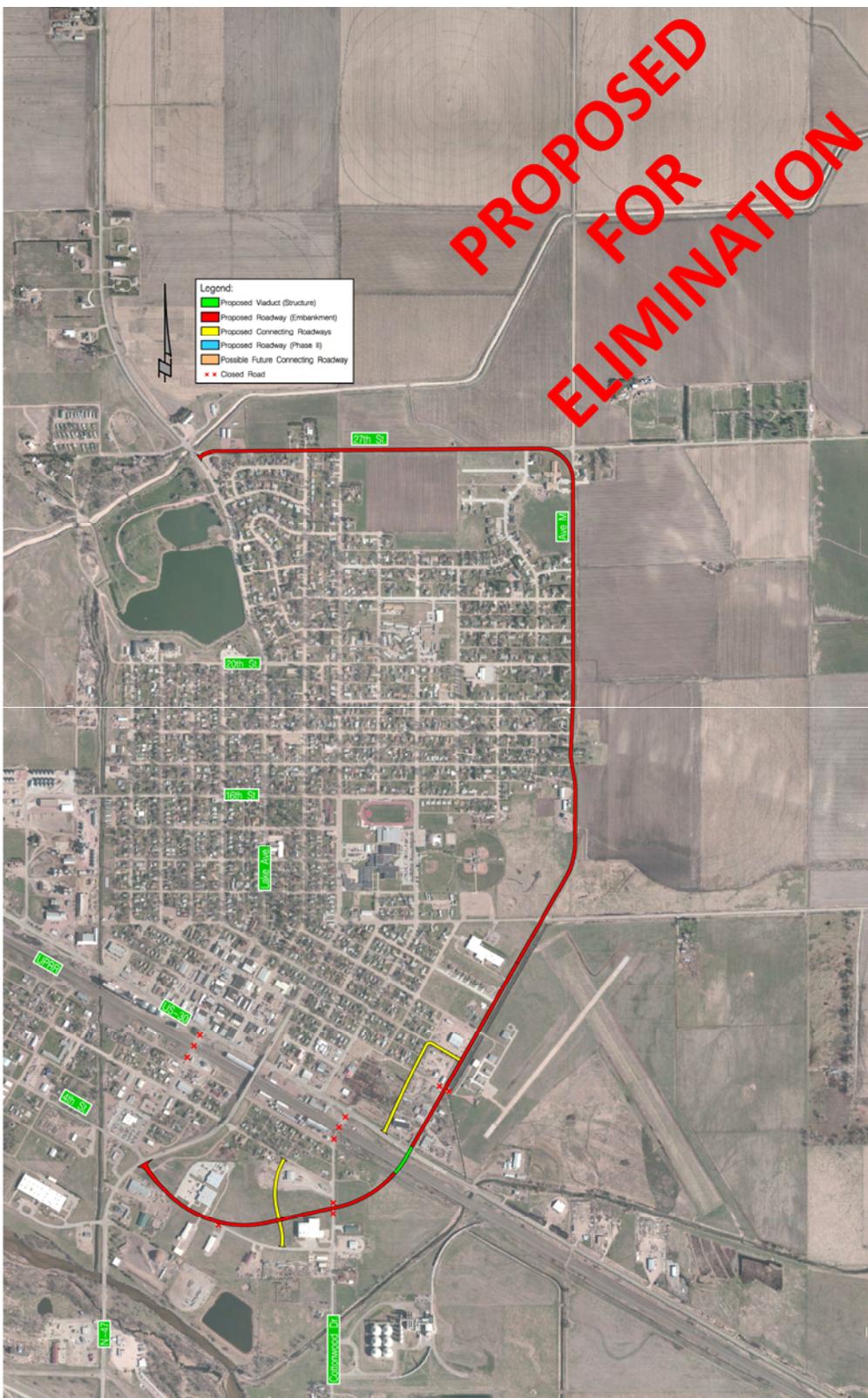
- Estimated project cost: \$16.0 Million
- Daily traffic volume:
  - 1,725 (2010 land use)
  - 2,750 (2030 land use)
- Lake Avenue traffic reduced 43%

### Reasons for Consideration

- Promotes future western growth
- Provides alternate route for “through” traffic
- Greatest traffic volume relief, including trucks, to Lake Avenue
- Connectivity to existing street network

### Disadvantages

- Impacts to agricultural property
- Negligible impact to proposed floodplain



## Concept “East Near”

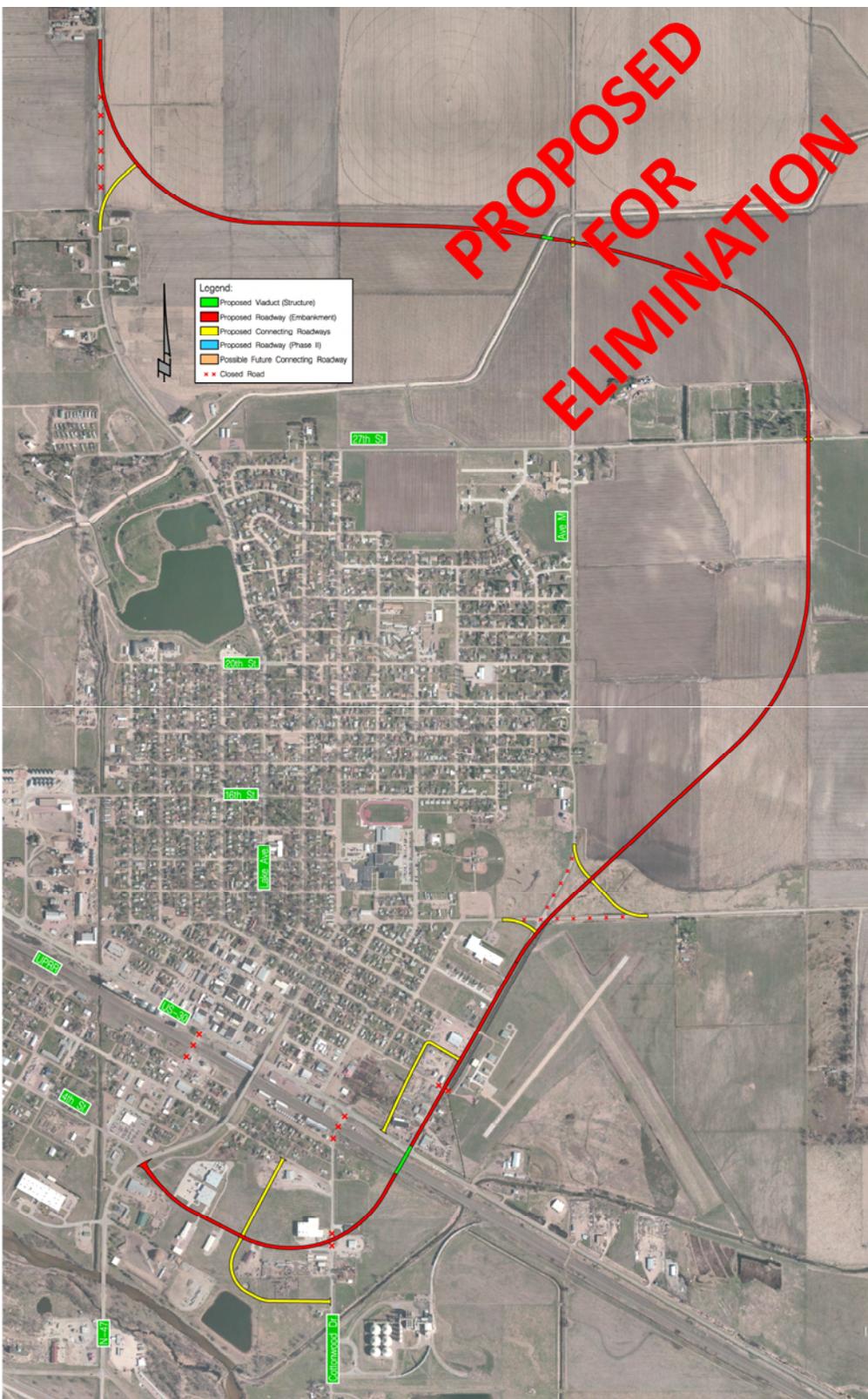
- Estimated project cost: \$14.8 Million
- Daily traffic volume:
  - 1,450 (2010 land use)
  - 1,700 (2030 land use)
- Lake Avenue traffic reduced 20%

## Reasons for Proposed Elimination

- Conflicts with Quinn Field (airport)
- Impacts to abutting properties along Avenue M
- Minimal benefit (vs. cost) to reducing traffic volumes along Lake Avenue

## Reasons for Initial Consideration

- Lower cost (utilizes existing right-of-way)
- Provides alternate route for “through traffic”



## Concept “East Far”

- Estimated project cost: \$20.6 Million
- Daily traffic volume:
  - 1,400 (2010 land use)
  - 1,690 (2030 land use)
- Lake Avenue traffic reduced 23%

## Reasons for Proposed Elimination

- Conflicts with Quinn Field (airport)
- Cost
- Minimal benefit (vs. cost) to reducing traffic volumes along Lake Avenue

## Reasons for Initial Consideration

- Provides eastern alternative that minimizes residential impacts
- Promotes future northern/eastern growth
- Provides alternate route for “through” traffic

**GOTHENBURG VIADUCT STUDY**  
**PUBLIC MEETING NO. 1**  
**JULY 27, 2010**

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

I am VERY opposed to the concept of an additional viaduct in Gothenburg and the closing of railroad crossings. It would be a poor decision to spend tax dollars on something so totally unnecessary. For a community of only 3500 people, the current viaduct handles the traffic flow sufficiently and as a rural community, we expect and encourage truck traffic.

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Which of the four concepts presented at this public meeting do you most support? Why?

I am not interested in any of the four concepts presented nor would I be interested in any additional proposed concepts.

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**GOTHENBURG VIADUCT STUDY**  
**PUBLIC MEETING NO. 1**  
**JULY 27, 2010**

Please provide any additional comments and concerns that you would like to communicate to the project team.

I don't think I can make myself any more clear! We didn't need to do this study, we don't need an additional viaduct and it is a shame to waste tax dollars on such. I know this study was funded by grant money, but grant money is still money out of the taxpayer's pocket and this is a waste of money.

It bothers me that the City doesn't want the traffic to come through town. We need the traffic and business it can bring to our town. Maybe the City should worry more about the downtown and the future of downtown and not try to encourage everything to go outside of town.

**Please return this to the comment box at tonight's meeting or return to:**

Schemmer  
Attn: Mark Lutjeharms  
134 S. 13<sup>th</sup> Street, Suite 1100  
Lincoln, NE 68508  
mlutjeharms@schemmer.com  
(402) 488-3221 (fax)

# GOTHENBURG VIADUCT STUDY

## PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

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Which of the four concepts presented at this public meeting do you most support? Why?

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**GOTHENBURG VIADUCT STUDY**  
**PUBLIC MEETING NO. 1**  
**JULY 27, 2010**

Please provide any additional comments and concerns that you would like to communicate to the project team.

A + B west Plans are signs  
of progress.  
Delvin R. Saal

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# GOTHENBURG VIADUCT STUDY

## PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

No, I do not support a viaduct that is absolutely not needed. There is ~~not~~<sup>no</sup> need in spending federal money ~~for~~ a country that is over their heads in debt. Let's stop it! It will ruin our pasture & livid-land. We have worked a good share of time (the American way) to succeed. No like traffic downtown + expect trucks (we are a farm community) - a load more.

Which of the four concepts presented at this public meeting do you most support? Why?

None!



# GOTHENBURG VIADUCT STUDY

## PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

I oppose it.

There would be way more expense than benefit.  
The overpass we have is not overloaded and I would hate to see the other crossings closed.

Which of the four concepts presented at this public meeting do you most support? Why?

None

The west routes split my pasture several pieces leaving the biggest part isolated from my corral, sheds, & submersible well. Where the west routes join with 1<sup>st</sup> St. on 4<sup>th</sup> St and then to Hwy 47 is already a bottleneck.



**GOTHENBURG VIADUCT STUDY**

**PUBLIC MEETING NO. 1**

**JULY 27, 2010**

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

*Take care need to stay open*

*DeRoy K. Osborn*

Which of the four concepts presented at this public meeting do you most support? Why?



**GOTHENBURG VIADUCT STUDY**

**PUBLIC MEETING NO. 1**

**JULY 27, 2010**

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

No! I do not support closing the crossings. Increased traffic through residential neighborhoods would be lower property values & be more dangerous. Building an additional viaduct would not help traffic at Coop. When weather is bad - icy, etc, it is very difficult to get over the viaduct. Pedestrian crossings such as the one at Brady would be miserable to use in winter. And - who is responsible for maintaining these when they are finished.

Which of the four concepts presented at this public meeting do you most support? Why?

None - We do not need to spend more money - at the local, state or federal level. Again - who maintains the pedestrian or viaduct crossings.



**GOTHENBURG VIADUCT STUDY**

**PUBLIC MEETING NO. 1**

**JULY 27, 2010**

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

AT THIS TIME I WOULD SAY THAT OUR CURRENT CONFIGURATION IS ADEQUATE. I APPRECIATE THE STUDY IDEA AND SEE MOST OF THE POINT. BUT I THINK AT THIS TIME WE ARE BETTER OFF STICKING TO WHAT WE HAVE.

Which of the four concepts presented at this public meeting do you most support? Why?

WITH SOME MODIFICATION 1<sup>st</sup> STREET MAKES MORE SENSE. I WOULD ASK THAT WE LOOK INTO PUSHING WEST A BIT MORE SO THAT WE AVOID INTRUSION INTO RESIDENTS AFFECTED BY THE PROJECT

Koby Rickertsen  
370 31<sup>st</sup> Street

**GOTHENBURG VIADUCT STUDY  
PUBLIC MEETING NO. 1  
JULY 27, 2010**

Please provide any additional comments and concerns that you would like to communicate to the project team.

NO MATTER WHAT CHOICE, WE ARE  
LOOKING AT RESISTANCE FROM SOMEONE  
I WOULD BE WILLING TO COMPROMISE  
AS LONG AS THE BY PASS DID NOT  
COME TO CLOSE TO MY HOME. I  
BOUGHT MY HOUSE FOR THE REASON  
OF HAVING MORE SPACIOUS QUIET  
LIVING. I DO NOT LOOK FORWARD  
TO THE JAKE BRACKS ROLLING  
BY. I WOULD SAY HOW OFF FOR  
NOW.

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**GOTHENBURG VIADUCT STUDY**

**PUBLIC MEETING NO. 1**

**JULY 27, 2010**

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

*I oppose.*

*Why - What is the cost & where does money come from.*

*Why - Do we really "need" another viaduct or do we just like to have one.*

*Harold Peterson*

Which of the four concepts presented at this public meeting do you most support? Why?

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## GOTHENBURG VIADUCT STUDY

### PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

I oppose the concept of an additional viaduct because it would disrupt 3 pieces of farm ground that we own. This is our income and the "west B" concept greatly separates it. Who has the cash to pay for this land? I don't think you can afford what we want!

Which of the four concepts presented at this public meeting do you most support? Why?

I do not approve of any of the proposed concepts. Our town is fine the way it is. Traffic is not a concern here - if it were a larger community maybe -



**GOTHENBURG VIADUCT STUDY**  
**PUBLIC MEETING NO. 1**  
**JULY 27, 2010**

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

I oppose the concept of an additional viaduct in Gothenburg and therefore closing the existing at-grade crossings at Lake Ave.

I oppose it based on the concept of closing the at-grade crossings and therefore possibly eliminating the majority of traffic to the down town businesses.

Which of the four concepts presented at this public meeting do you most support? Why?

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**GOTHENBURG VIADUCT STUDY**  
**PUBLIC MEETING NO. 1**  
**JULY 27, 2010**

Please provide any additional comments and concerns that you would like to communicate to the project team.

The cost of the project to me does not outweigh the lost of possible financial impact to the downtown businesses. The main benefactor to a viaduct is to the railroad, with them paying a small amount of the bill the taxpayers will pay close to 90% of the bill. I know that the federal funds for these project have been all spent out and it may be 5 to 10 years before this project will even start.

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**GOTHENBURG VIADUCT STUDY**

**PUBLIC MEETING NO. 1**

**JULY 27, 2010**

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

NO. THE FIRST ONE DID NOT ACCOMPLISH  
WHAT IT SHOULD HAVE AND PROBABLY A  
SECOND ONE WOULD ONLY MAKE A BAD  
SITUATION WORSE, MAKE THE NECESSARY  
IMPROVEMENTS TO NUMBER 1 AND SAVE  
THE EXPENSE OF THE SECOND.

Which of the four concepts presented at this public meeting do you most support? Why?

NONE. IT IS A MATTER OF PICKING  
A FAVORITE OUT OF POOR CHOICES.



**GOTHENBURG VIADUCT STUDY**  
**PUBLIC MEETING NO. 1**  
**JULY 27, 2010**

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

*I do not support an additional viaduct  
with our lakes that are high  
on our property it will be  
of no use.*

Which of the four concepts presented at this public meeting do you most support? Why?

*None*

**GOTHENBURG VIADUCT STUDY**  
**PUBLIC MEETING NO. 1**  
**JULY 27, 2010**

Please provide any additional comments and concerns that you would like to communicate to the project team.

*I am sure it will benefit the town with all the businesses that are closing and not help that with just one grocery store and people will not benefit.*

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Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

I oppose AN additional Viaduct in Gothenburg.  
The use of right of ways & LAND (commercial and residential) some Ag. - does not warrant what I see as little benefit to what we already have. Our current viaduct is not that busy and we still have 3 crossings, in the event it is closed for a brief time, yes, we may have to wait for a train to pass. -

Which of the four concepts presented at this public meeting do you most support? Why?

None - because of my comments above -



# GOTHENBURG VIADUCT STUDY

## PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

I oppose an additional viaduct.  
I don't think we need.  
Why spend more money?  
There is too much traffic on  
Ave M the way it is  
We need to direct traffic more  
to downtown to keep our business's  
open.

Which of the four concepts presented at this public meeting do you most support? Why?

none



# GOTHENBURG VIADUCT STUDY

## PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

I oppose the additional viaduct in Gothenburg and the closing of the (2) existing grade crossings. The so called problems to be solved would only create traffic congestions in other locations, some where problems already exist. Many property owners would end up with divided parcels. The cost would be much greater than the benefits!

Which of the four concepts presented at this public meeting do you most support? Why?

Concept West A



## GOTHENBURG VIADUCT STUDY

### PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

I believe that the current system is adequate and works well. I am against the railroad closing more crossings. They are cross arm regulated and work well. Their contribution to the project is inadequate. The safety issue they push is nothing but political jargon. It was a good meeting.

Which of the four concepts presented at this public meeting do you most support? Why?

Both west roads. That is where most of the truck congestion is and would solve the problem. The issue should be solved by solving the truck supported problem driving the new viaduct.



**GOTHENBURG VIADUCT STUDY**

**PUBLIC MEETING NO. 1**

**JULY 27, 2010**

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

An additional viaduct would help extend the "boundaries" of the city - a necessity if we continue to grow.

I don't like closing the crossings but understand there is no choice.

For long range planning we should go ahead.

Which of the four concepts presented at this public meeting do you most support? Why?

Concept "West B" 4<sup>th</sup> Ave



# GOTHENBURG VIADUCT STUDY

## PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

*Support - Train crossing is dangerous -  
reduce train noise - esp. whistles*

Which of the four concepts presented at this public meeting do you most support? Why?

*West A - 1st street -  
would go thru area with no homes -  
more of an obstructed way as far as buildings -*



# GOTHENBURG VIADUCT STUDY

PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

YES, I AGREE.

Which of the four concepts presented at this public meeting do you most support? Why?

1ST ST. or 4TH ST. CONCEPT IS FINE WITH US AS OUR PROPERTY IS ON THE NORTH SIDE, SINCE OUR PROPERTY IS BEING SPLIT WE WOULD WANT ACCESS TO CROSS TO BOTH SIDES, WE WOULD BE INTERESTED IN HEARING ABOUT "FUTURE WESTERN GROWTH".



# GOTHENBURG VIADUCT STUDY

## PUBLIC MEETING NO. 1

JULY 27, 2010

Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

generally Oppose it.

The closing of Cottonwood crossing would impact our future plans of growth & warehouse location

Which of the four concepts presented at this public meeting do you most support? Why?

C. ~~2~~



GOTHENBURG VIADUCT STUDY  
PUBLIC MEETING NO. 1  
JULY 27, 2010



Do you support or oppose the concept of an additional viaduct in Gothenburg, and therefore, the closing of the existing at-grade crossings at Lake Avenue and Cottonwood Drive? Why or why not?

Though I would like to hear less train noise, I question whether or not any viaduct is really needed in a town this size. I personally do not feel we really have any congestion problems currently. I question why we would want to spend the \$ for an unnecessary viaduct, another waste of government money in my opinion.

Which of the four concepts presented at this public meeting do you most support? Why?

East of the west ones. Both appear to reduce traffic congestion the most & would give the most value per dollar invested. The avenue <sup>rd</sup> route looks the worst, as why run a bunch of trucks near a residential area? The far East is a close 2<sup>nd</sup> to west due to cost of very little traffic reduction.

**GOTHENBURG VIADUCT STUDY**  
**PUBLIC MEETING NO. 1**  
**JULY 27, 2010**

Please provide any additional comments and concerns that you would like to communicate to the project team.

West looks better than East, but do we really need another viaduct in the 1<sup>st</sup> place?

~~Yes~~ I would rather see the city spend the \$ on better projects (+) to help with the railroad.

**Please return this to the comment box at tonight's meeting or return to:**

Schemmer  
Attn: Mark Lutjeharms  
134 S. 13<sup>th</sup> Street, Suite 1100  
Lincoln, NE 68508  
mlutjeharms@schemmer.com  
(402) 488-3221 (fax)

July 23, 2010

COPY

Mayor Joyce Hudson  
409 9<sup>th</sup> St.  
Gothenburg, NE 69138

Bruce Clymer  
409 9<sup>th</sup> St.  
Gothenburg, NE 69138

Jeff Whiting  
1221 Avenue F  
Gothenburg, NE 69138

Jim Aden  
2216 Avenue M  
Gothenburg, NE 69138

Gary Fritch  
815 19<sup>th</sup> St.  
Gothenburg, NE 69138

Anne Anderson  
P.O. Box 263  
Gothenburg, NE 69138

RE: Transportation and Viaduct Study

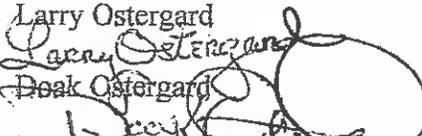
Ladies and Gentlemen

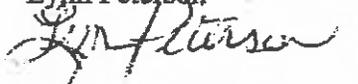
The purpose of this letter is to inform you of our strong displeasure and disagreement in your consideration of the placement of a viaduct on any part of our land west of Gothenburg. It is our understanding that there are several possible routes for the placing of a viaduct and two of them are west of town, both of which would affect our land. The land we own has been in our family for over 70 years and means a lot to us to keep it in the family. We currently use our pasture for raising alfalfa and for grazing and raising cattle and need that pasture to feed the number of head of cattle owned. Over the years our family has spent a lot of time there hunting, riding horses, sledding in the winter months, checking cattle, feeding the baby calves and spending quality time together,

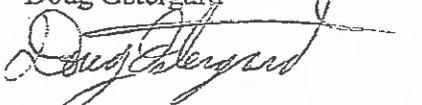
Furthermore, in our opinion, traffic and transportation is not a problem in our community; certainly not enough of a problem to justify spending tax dollars and government funds for a second viaduct. We are a rural community and expect to hear trains and wait on trains. We do not feel it necessary to close railroad crossings and feel that the current viaduct handles the traffic flow sufficiently.

We would hope that as you review this transportation study, you would consider the negative affect a second viaduct would have on our family and our cattle business. As you know, they don't make anymore land so we want to keep what we have.

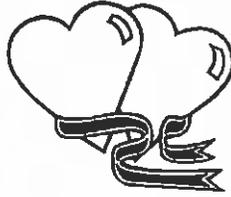
Sincerely,

Larry Ostergard  
  
Doug Ostergard  
  
Cc: Tim Strauser, Jeff Kennedy

Joan Ostergard  
  
Lynn Peterson  


Lori Clymer  
  
Doug Ostergard  


HILLTOP



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PO Box 429

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(308)537-7138

[www.hilltopestatesgothenburg.com](http://www.hilltopestatesgothenburg.com)

October 3, 2010

Bruce Clymer, City Admin.  
City of Gothenburg  
409 9th Street  
Gothenburg, NE 69138

Bruce:

I am writing in reference to the proposed options for a second viaduct in Gothenburg. While not able to attend the public meeting, I appreciate the article in the Gothenburg Times bringing it to my attention.

I'm writing to protest the option of running the proposed viaduct traffic down Avenue M and 27th Streets. Hilltop Estates and the homes in this area were built with the confidence of a quiet neighborhood. Routing that traffic onto an already busy route would only increase the noise and reduce the safety in this neighborhood.

I would vote in favor of a route around Gothenburg because it doesn't make sense to me to build a viaduct to reduce noise (horns) in one neighborhood but the results would increase noise (traffic) in another already quite & safe neighborhood.

Thank you for listening and please call if you have questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'S.A. Bahe'.

Scott A. Bahe, NHA

Cc: Craig D. Bartruff, MD

Present: Mayor – Joyce Hudson  
Council members Jeff Kennedy  
Jim Aden  
Tim Strauser  
Jeff Whiting  
City Administrator Bruce Clymer  
City Attorney Mike Bacon  
City Clerk Connie L. Dalrymple

Also present: Shane Gruber, Schemmer reps Mark Lutjeharms, Lonnie Berkland, and Doug Holle, Scott Bahe, Shawn Boyd, Frank Boyd, Robert Boyd, Joe Richeson, Joan Ostergard, Larry Ostergard, Jeff Morris, Donna Morris, Lori Clymer, Josie Clymer, Mary Lou Block, Dale Block, Lois Stanton, Anne Anderson, Koby Rickertsen

Mayor Hudson opened the meeting and public hearings at 7:00 p.m. Advance notice and a copy of the agenda were given to the Council and members of the press. City Council meetings are conducted in accordance with the Open Meetings Act, a copy of which is available for public inspection on the north wall of the Council Chambers.

The public hearing on the transportation study was taken up at 7:00 p.m. Schemmer Association has been working on a transportation study that includes truck routes and the feasibility of a second overpass since April. A public meeting was held on July 27 to solicit public comments on the results of the study. They have tried to address those comments in a draft of the study and will take technical questions today.

They have tried to compile a safe, efficient evaluation of the feasibility of an additional overpass and connecting roads that also diverts truck traffic from the downtown and residential areas. The entire community was considered in the evaluation. Any State funding assistance requires a grade separation study and any new grade separation requires a minimum of two at-grade rail crossing closings. There are 20 criteria for a grade separation, one being a minimum exposure of 75,000 vehicles.

The traffic analysis included traffic volume, train volume, crash data and exposure factors. Gothenburg's existing combined factor is more than five times greater than the 75,000 minimum. The East side alternative sees 500 to 600 vehicles per day, the West side alternative sees 2,000 to 3,000 per day and would relieve some Lake Ave traffic. Factoring growth and traffic increase, it's estimated our exposure factor without an overpass will be 612,500 by 2020 and 1,087,713 by the year 2030.

Screening criteria used for each proposed site:

**West A (1st Street):** \$15.8 million

- Pros: Promotes future growth  
Provides alternate route for through traffic  
Provides greatest traffic relief on Lake Avenue  
Easy connectivity to existing streets  
Provides access to existing industry
- Cons: Impact on Agricultural property  
Minor impact to property in floodplain

**West B (4th Street):** \$14.8 million

- Pros: same as West A concept

Cons: same as West A concept

**Near East:** \$14.8 million

This option was eliminated because it follows Avenue M to 27th Street and there is less vehicle traffic and more residential properties on Avenue M.

**Far East:** \$20.6 million

This option was eliminated because of impact from airport property and it required more right-of-way.

At the July 27 meeting, 51 people signed in, although more were there, and 23 comment sheets were left. Of those, 18 were opposed to the viaduct, two supported it, and two did not respond.

Comments supporting the viaduct included:

Rail crossing safety

Promotes growth

Train horn noise is lessened if two crossings are closed

The preferred option was West A with 1st Street as the connector because it provides better access to industrial areas in the southwest area and it avoids the existing Hiway 47 / 4th Street intersection.

Comments in opposition:

It's unnecessary

Cost

Loss of at-grade crossing access

Impact on private property

The West A / 1st Street option is also the technical recommendation of the Schemmer study team. It would consist of two 12 foot lanes, a 10 foot sidewalk and two eight foot rights-of-way. State funding would require two grade crossings be closed, Lake Avenue and Cottonwood Dr. Typical construction cost share is 80% federal, 10% state, 5% railroad, and 5% local.

Action required will be to hear public comment, then have Council approve and accept the report and recommendation of the team. If Council decides to proceed, the Department of Roads will review the study, preliminary design would begin, and necessary documents prepared. A request for funding approval, right-of-way acquisition, and then final design all occur before construction begins.

The City will include a public question sheet as a bill stuffer in the utility bills in November. Once tabulated those responses will be included in the final report of the Schemmer team and then the Council will take action on the report. Construction would require a separate decision. It is such a long process that the earliest construction could begin would be 2016, probably past 2020.

At this point, the podium was opened to the public for questions and comments (Q- question, A - answer, C - comment).

C: If a viaduct is mainly for the railroad, they should contribute more than 5%.

Q: What's the impact to retail stores when you skirt a town? Are those numbers available? Surely stores would appear along the new route.

Q: If there are to be two at-grade crossings closed, why not the Road 410 crossing since the viaduct would be 1000 feet away?

A: The Dep't of Roads wants the most for their money. There is more traffic exposure at the Cottonwood Dr. and Lake Avenue crossings. Road 410 has less than 100 vehicles a day crossing it. According to Gary

Thayer of the Dep't of Roads, if the City chooses to go forward with the project, the City could ask to close all three crossings and it would help the funding.

Q: If the Council decides to move forward, what recourse do the citizens have? It should go to a public vote. If the Council says 'no' and the railroad says 'yes' and will pay the cost, will there be a vote about closings and funding?

A: This is a City project, not a railroad project, and the railroad will not just close two crossings. A public vote would be at the discretion of the Council.

Q: Should voting have been done in the first place? It seems like a waste of money with no public input.

A. The Council goes through lots of issues as representatives of the people. Funding for the study is partially provided by the Dawson County Transportation Safety Committee. The entire County pays property taxes into the DCTSC which was formed for railroad safety. By State Statute, the Committee consists of three first class City Council members (Lexington) and three County Commissioners. The Committee has decided to provide funds county-wide. The Gothenburg study cost \$50,000 but only \$19,000 is City funds. All of this originated with the 1995 Comprehensive Plan and the traffic issues that were recognized at that time.

As a Council, we try to use a 'crystal ball' to look into future community needs. This was an opportunity to cost share and see about future needs. If Gothenburg continues to grow, we need to be aware of issues 15 years from now. Studies such as this help see how the future may look based on current activity. Projects such as these take a very long time to complete. For example, we were just told it could be 2020 before construction begins, if we have no study in place, we could add another ten years.

Q: Has any thought been given to upgrading the current overpass? It's too narrow for combines and farm equipment. Going west is an even further loop.

C: Maybe the surveys should have been done before spending money on the study.

Whiting moved, Kennedy seconded, to close the hearing at 7:46 p.m. Roll call vote: Yea - Strauser, Aden, Kennedy, Whiting. Nay - none.

The public hearing on a request from Mike Wagner for a special use permit to place three 3000 gallon poly tanks on the property at 811 6th Street was taken up at 7:47 p.m. The Planning & Zoning Commission met last week and continued the hearing to a special meeting on November 1 hoping to have answers to some of their questions. There was no input and the hearing will be continued to November 2.

Kennedy moved, Whiting seconded, approving the consent agenda that included:

City Council minutes - October 5

Cemetery Board Report- July, August, September

Treasurer's Report - September

Annual Treasurer's Report - Oct 1 2009 thru Sept 30, 2010

Planning & Zoning Commission minutes - October 12

Roll call vote: Yea - Strauser, Aden, Whiting, Kennedy. Nay - none.

Kennedy moved, Strauser seconded, allowing payment of claims against the City, \$75,590.80, except #1920, #1323, and #1308; Public Works Division \$369,172.58; and the October 14 payroll of \$31,223.48. Roll Call vote: Yea - Aden, Strauser, Whiting, Kennedy. Nay - none.

Aden moved, Strauser seconded, allowing payment of claim #1920 to Kennedy Landscape Services. Roll call vote: Yea - Whiting, Strauser Aden. Nay - none.

Strauser moved, Kennedy seconded, allowing payment of claim #1308 to Runza. Roll call vote: Yea - Aden, Kennedy, Strauser. Nay - none.

Whiting moved, Kennedy seconded, allowing payment of claim #1323 to T & T Corporation. Roll call vote: Yea - Kennedy, Aden, Whiting. Nay - none.

#### Open Forum

- We have advertised for a Depot lease after November 30.

- There will be an open house at City Hall on November 4 from 2:00 to 4:00 p.m. to view the contents of the time capsule. The newly renovated police department will also be open to the public at that time.

Superintendent Teahon has proposed to the School Board a retreat of the governing entities, the hospital, City, School, and County representatives to discuss any issue of mutual importance and benefit. The Council agreed it was a good idea.

Aden moved, Kennedy seconded, to pass and approve Resolution 2010-12 approving a Deed of Conservation Easement between Gifford Massie and the Central Platte Natural Resources District. Roll call vote: Yea - Whiting, Strauser, Kennedy, Aden. Nay - none.

Resolution 2010-13 is a redraft of a prior resolution that named two spots on the north side of 9th Street for handicap parking. The Gothenburg State Bank owns the property adjacent to the east handicap spot and the new resolution allows the elimination of the handicap designation upon 90 days notice from the bank that they will open the fourth lane of their drive-thru. Kennedy moved, Strauser seconded, to pass and approve Resolution 2020-13 as proposed. Roll call vote: Yea - Whiting, Aden, Strauser, Kennedy. Nay - none.

Strauser moved, Whiting seconded, approving Drawdown #14 on the Downtown Revitalization Project, \$34,518. Roll call vote: Yea - Aden, Kennedy, Whiting, Strauser. Nay - none.

Strauser moved, Kennedy seconded, appointing Joyce Hudson, Bruce Clymer, Shane Gruber, J Buddenberg, Tim Strauser and one as yet unnamed citizen to a Community-wide Sewer Study Committee. Miller & Assoc will be included. Roll call vote: Yea - Whiting, Aden, Kennedy, Strauser. Nay - none.

Strauser moved, Whiting seconded, to adjourn the meeting at 7:59 p.m. Roll call vote: Yea - Kennedy, Aden, Whiting, Strauser. Nay - none. The next regular meeting will be November 2, 2010.

---

Joyce Hudson, Mayor

---

Connie L. Dalrymple, City Clerk

17 November 2010

Bruce Clymer  
City Administrator  
City of Gothenburg, NE  
409 - 9<sup>th</sup> St  
Gothenburg, NE 69138

Dear Bruce:

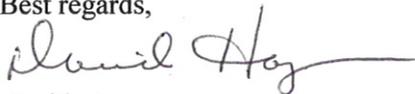
This letter is my response to the stuffer/questionnaire that was included with City of Gothenburg utility bills for the November billing.

From reading through the materials about the potential of an additional overpass over the railroad tracks and US30 presented to the council by the consultant and your presentation at Rotary on 15 November I have some thoughts I wish to share. I think I can better present my ideas by letter than completing the questionnaire form. I share the concern for the current and increasing traffic volumes in town (particularly on Lake Avenue). This is a very vibrant agricultural area that needs easy access to grain handling facilities for a significant volume of trucks.

- ✓ Closing of the Cottonwood crossing has the potential to push additional traffic (particularly grain trucks) onto the city streets to reach the current overpass as they go to Frito-Lay.
- ✓ I don't believe that 1<sup>st</sup> Street was really ever developed for the potential traffic volume that the west route proposed overpass could generate. From a personal perspective, I have concerns about the additional traffic going by the Baldwin Filters plant. Our employees and the truckers making deliveries and pickups will have to be more aware of oncoming traffic from both directions.
- ✓ Having a standard 'T' intersection between Highway 47 and 1<sup>st</sup> street will create a more unsafe intersection than exists today based on the traffic estimates in the study. At a minimum, this intersection should have turn lanes in all directions, and I believe it is an absolute necessity that traffic control signals with turn arrows be installed. A better approach might be to develop a less than 90 degree turn approach to 1<sup>st</sup> Street to improve the ease of traffic flow. The proximity of the Runza driveways to the intersection will also cause more traffic congestion and potential for accidents.
- ✓ My comments related to 1<sup>st</sup> Street are also appropriate to the 4<sup>th</sup> Street intersection with Highway 47 if that option is chosen for access to a new overpass.
- ✓ If the plan for installing this proposed overpass on either side of town is implemented, it is very important that several intersections be provided into the business and residential areas of town. I applaud the efforts to revitalize the downtown area and keep the Gothenburg retail areas vibrant. There is risk that without easy access points from the overpass road that these efforts will be wasted.

Thank you for the opportunity to provide input to the deliberations about this proposed improvement for Gothenburg.

Best regards,



David Haynes  
Plant Operations Manager

# Viaduct – Transportation Study

- The city is currently doing a Transportation Study looking at alternative routes across the railroad. If the City is to move forward with a project, this will include the closing of the Lake Avenue and Cottonwood Drive at-grade crossings and add a viaduct that will potentially re-route Highway 47. Please provide the following:
  - 233 I am strongly opposed
  - 109 I am opposed
  - 60 I am in favor
  - 45 I am strongly in favor
  - 74 I do not have enough information at this time to respond