



Highway 965 Corridor Master Plan

November 2008



HIGHWAY 965 CORRIDOR MASTER PLAN

NORTH LIBERTY/CORALVILLE IOWA

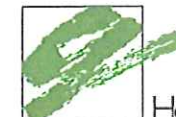
NOVEMBER 2008

PREPARED BY:

MCCLURE ENGINEERING
&
HOWARD R. GREEN COMPANY

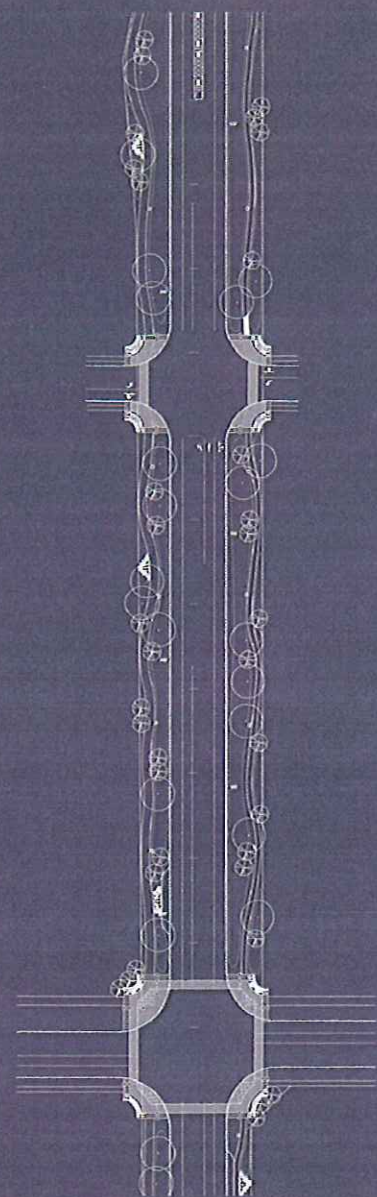
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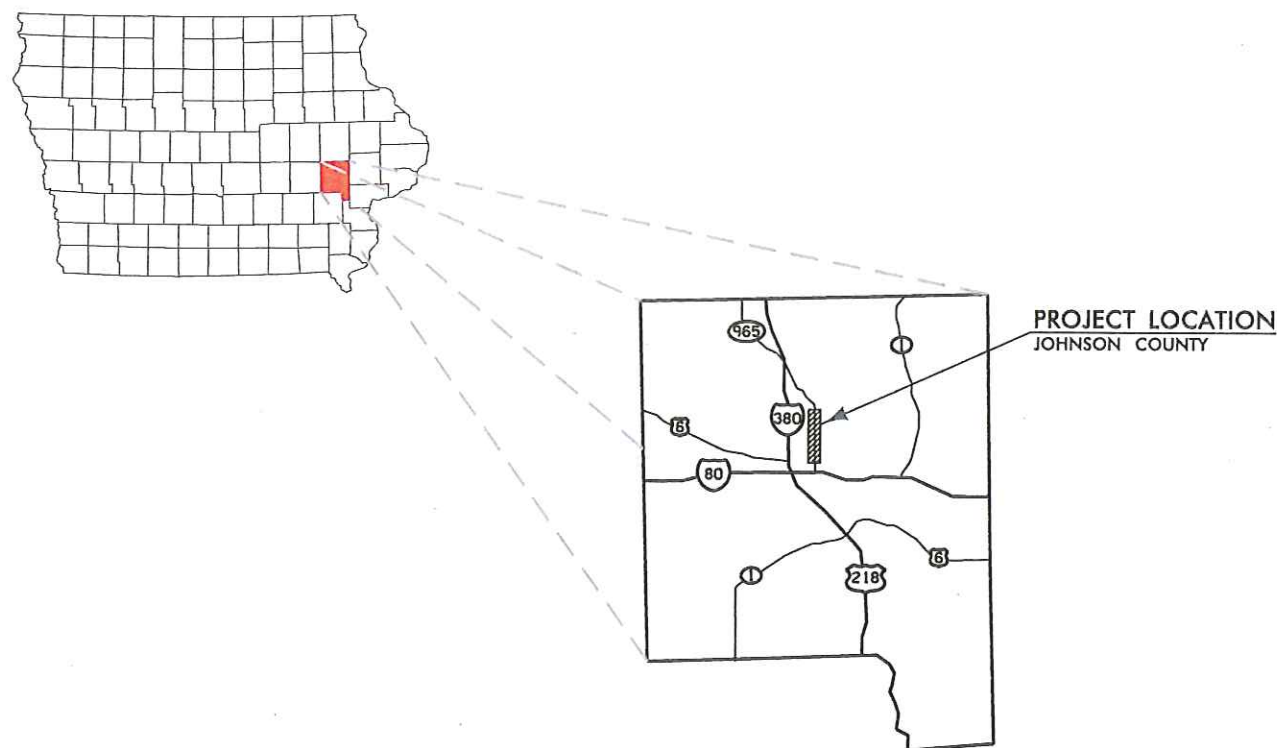
ACKNOWLEDGEMENTS

This document was prepared in conjunction with the Highway 965 Task Force, the City of North Liberty, and the City of Coralville. With their assistance and guidance, we have created a planning document to guide the cities of North Liberty and Coralville. Special thanks go out to those who participated including:

Tom Salm, North Liberty Mayor
Ryan Heir, North Liberty City Administrator
Dean Wheatley, North Liberty City Planner
Kevin Trom, North Liberty City Engineer
Dan Holderness, Coralville City Engineer
John Yapp, JCCOG

TABLE OF CONTENTS

- A. Introduction
- B. Background
- C. Existing Conditions
- D. Existing and Proposed Right of Way
- E. Traffic Analysis
- F. Proposed Design Criteria
- G. Proposed Typical Sections
- H. Conceptual Roadway Drawings
- I. Conceptual Streetscape/Landscape Drawings
- J. Stormwater Management
- K. Project Phasing
- L. Opinion of Probable Construction Costs



A. INTRODUCTION

The purpose of this document is to provide a conceptual plan for the improvement of the Highway 965 Corridor in North Liberty and Coralville, from the northern city limits of North Liberty to Holiday Road in Coralville. The main goal of the study was to find a balanced solution, one that took into account vehicular and pedestrian movement as well as safety, corridor functionality, design for the environment, and the ability to maintain a distinct image for each community. Recommended improvements from the study address pedestrian, bicycle, and vehicular travel within the Corridor, as well as streetscape and landscape enhancements to enrich the visual appearance of the Corridor.



The recommendations presented in this document required a detailed look at the existing characteristics of the Corridor as well as a look at the future uses and characteristics of the Corridor, and the surrounding region. These recommendations are intended to provide a foundation for the future of the Corridor.

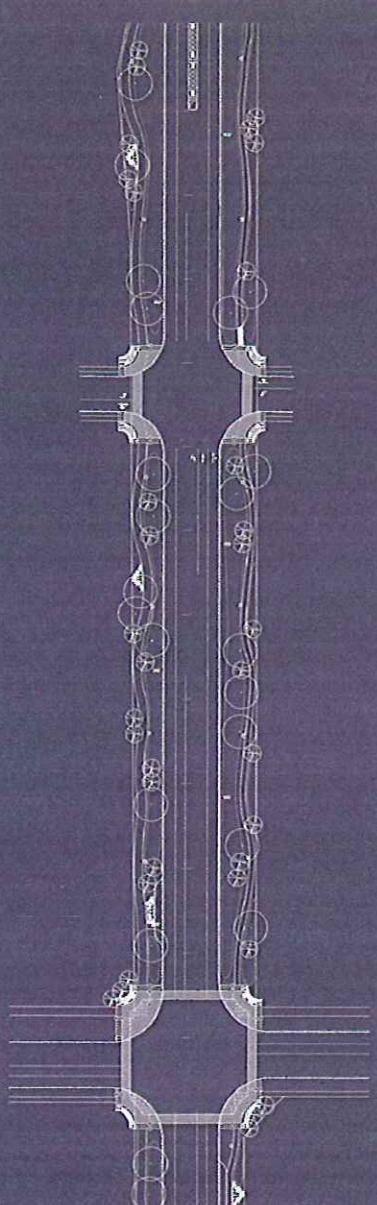
Additional planning and engineering will be necessary to create a final set of design plans based on the recommendations in this document. Therefore, it is emphasized that the recommendations in this document be used as a guideline, and adjusted as necessary to adapt to the needs and requirements of the Corridor.

The scope of this document provides enough detail for feasibility analysis and planning decisions, but not the construction of any recommended improvements.





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B. BACKGROUND

Highway 965 provides access to numerous commercial, office, and residential subdivisions in North Liberty and Coralville. It is also a secondary commuter and commercial traffic route between Iowa City and Cedar Rapids. As traffic continues to increase, the roadway has become less safe for motorists and pedestrians, and roadway congestion continues to worsen.

In 2005, the City of North Liberty appointed a Citizen Task Force to discuss needed improvements to Highway 965. The Task Force identified several needs for the Corridor including; increased vehicle capacity, pedestrian and bicycle facilities, and streetscape/landscape enhancements. The findings from the Task Force were used as the basis for The Highway 965 Corridor Master Plan. The Corridor Master Plan has expanded upon these findings to take a more detailed look at the Corridor including; analysis of existing and projected future traffic based on a recently updated traffic model; development of conceptual alternatives addressing vehicle and pedestrian needs as well as streetscape/landscape options; public input meetings to gather information and ideas from the entire community; recommended phasing to implement the conceptual design; and an Engineer's Opinion of Construction Cost to aid both communities as they prepare to implement the Corridor Master Plan

C. EXISTING CONDITIONS

Location and Classification

The Corridor limits begin at the northern city limits of North Liberty and end at Holiday Road in Coralville. Highway 965 is classified as a major arterial and is capable of carrying over 20,000 vehicles per day.

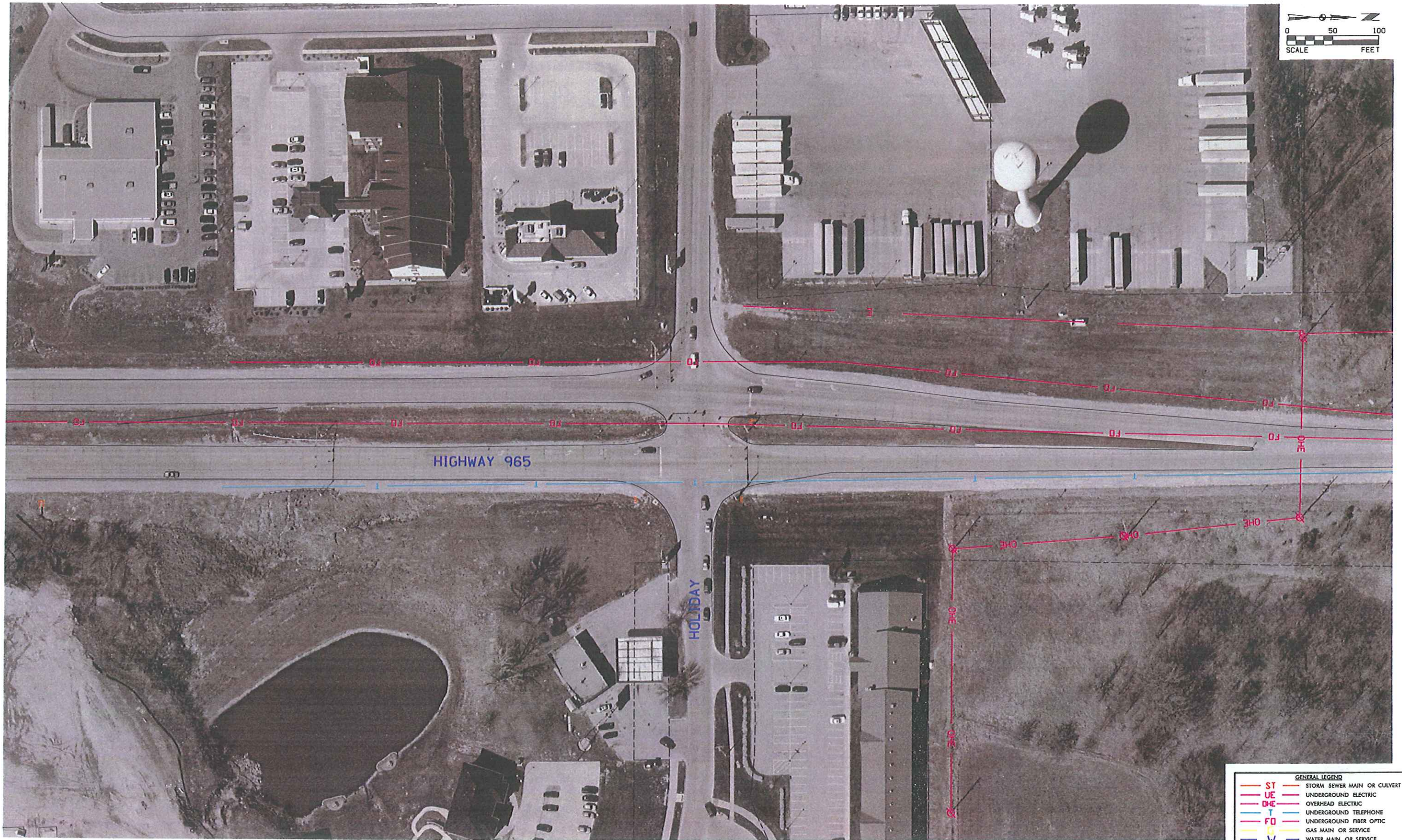
Roadway Characteristics

The existing roadway varies in width from 2 lanes up to 5 lanes at several intersections. The corridor lacks sufficient capacity along a majority of the corridor, and lacks adequate turn lanes at multiple intersections.

Pedestrian and bicycle facilities are limited along the Corridor. Many of the comments received from the public meetings centered on the need for safe pedestrian facilities along the Corridor.

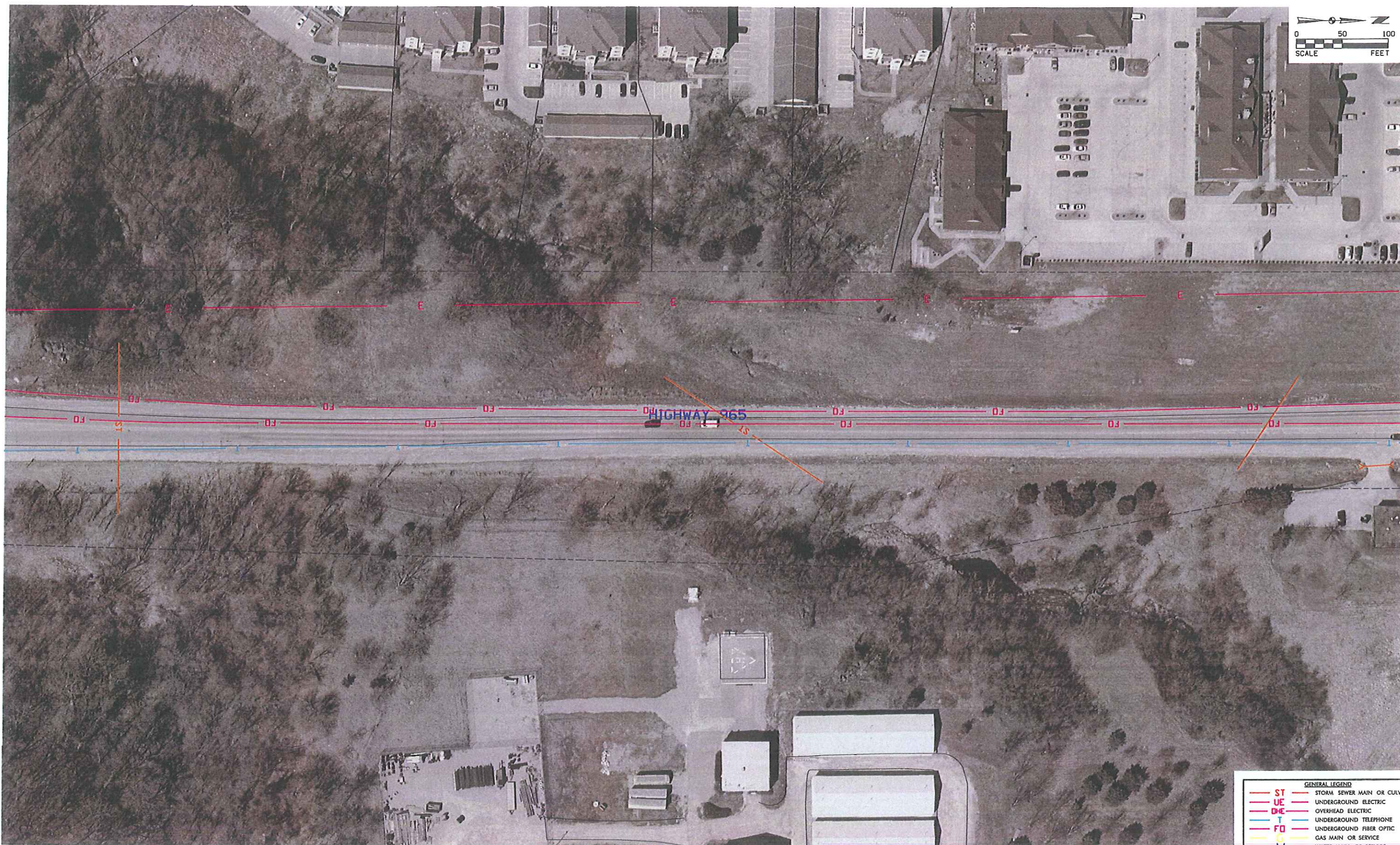
Existing Utilities

Within the right of way there are multiple utilities, both underground and overhead, and scattered lighting mainly located at the signalized intersections. The exhibits on the following pages show the approximate location of these utilities within the Corridor. The exact location of each utility will need to be verified during final design



GENERAL LEGEND	
ST	STORM SEWER MAIN OR CULVERT
UE	UNDERGROUND ELECTRIC
OHE	OVERHEAD ELECTRIC
T	UNDERGROUND TELEPHONE
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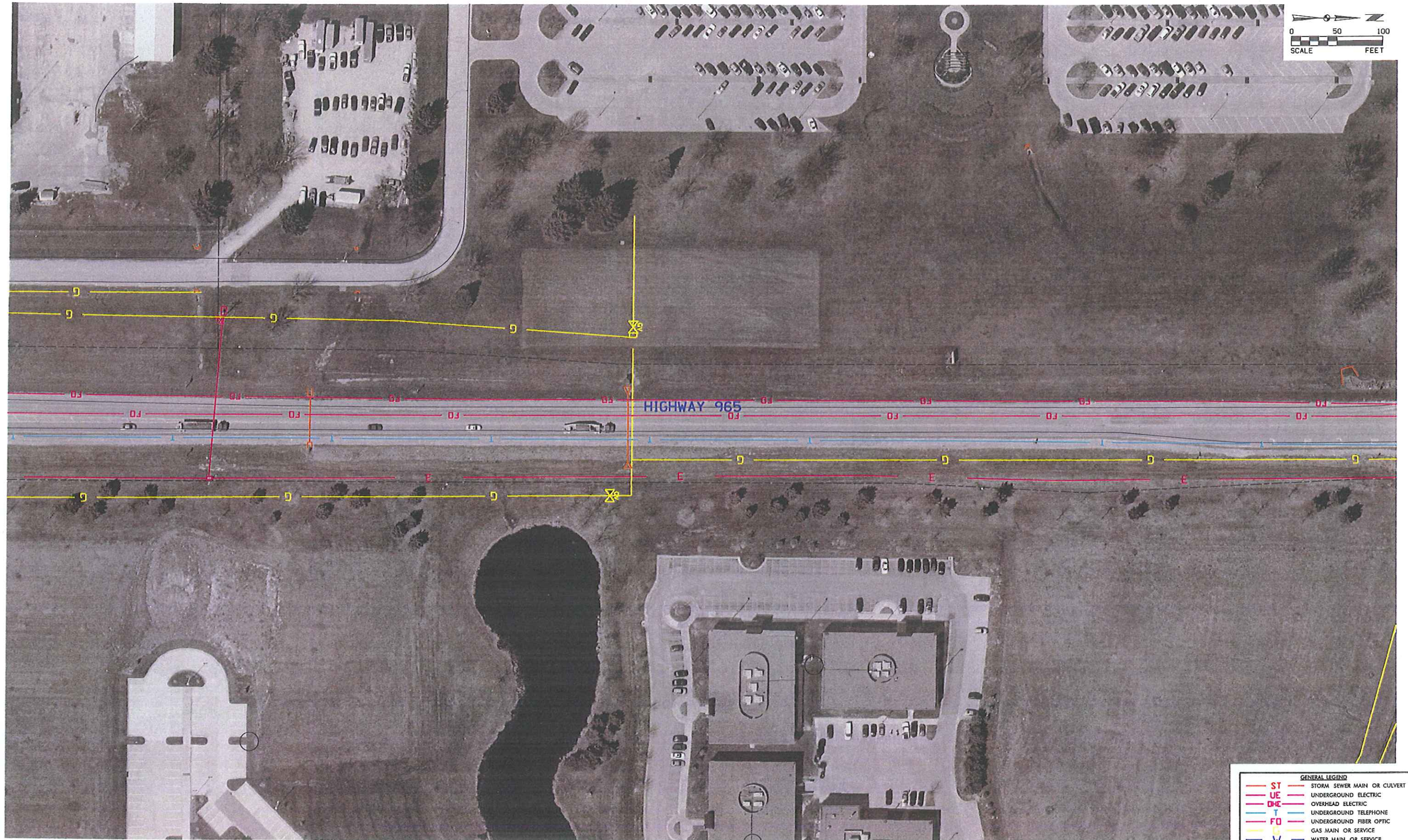


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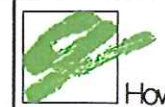
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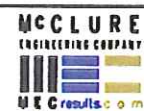
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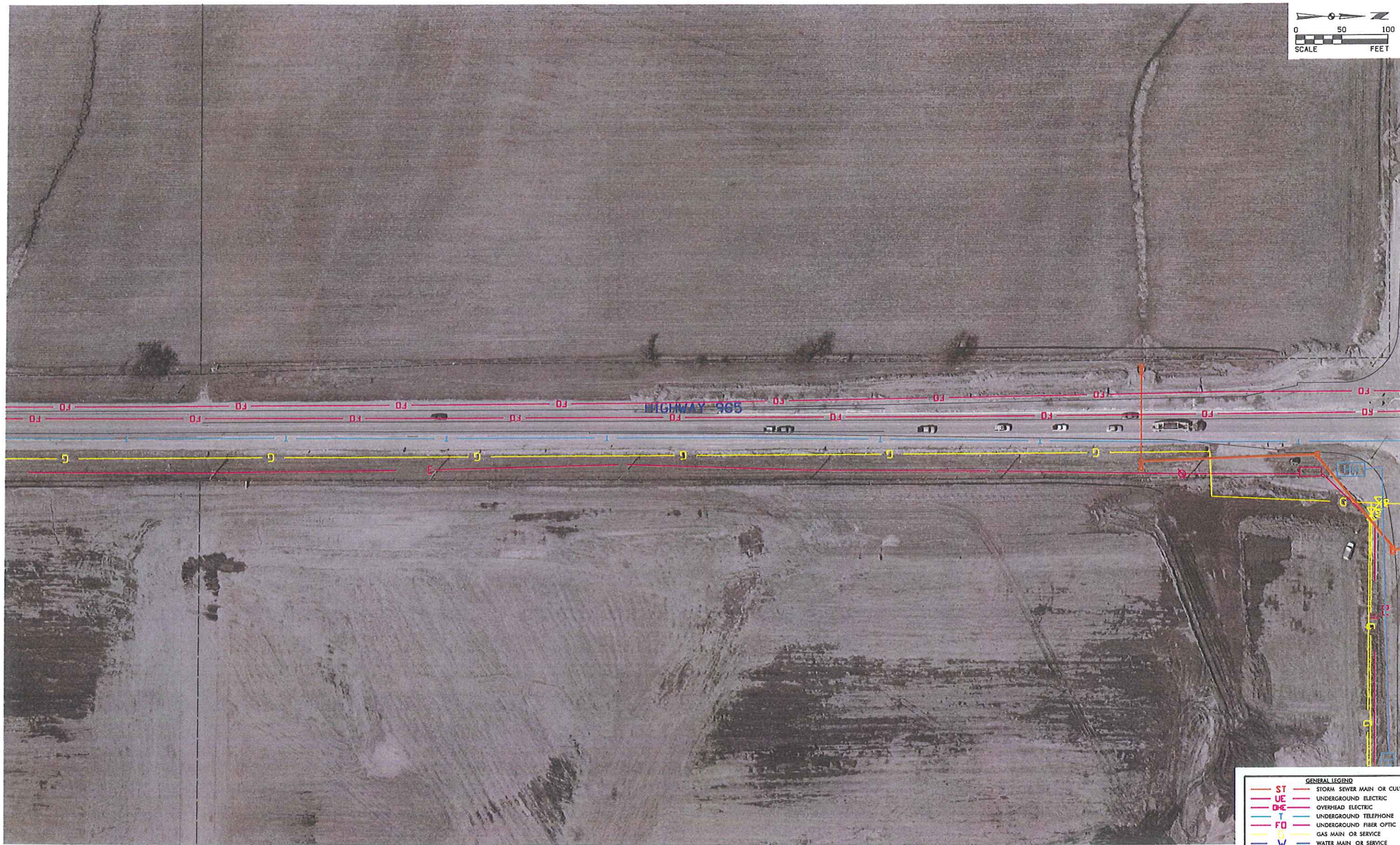
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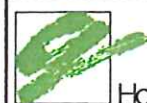
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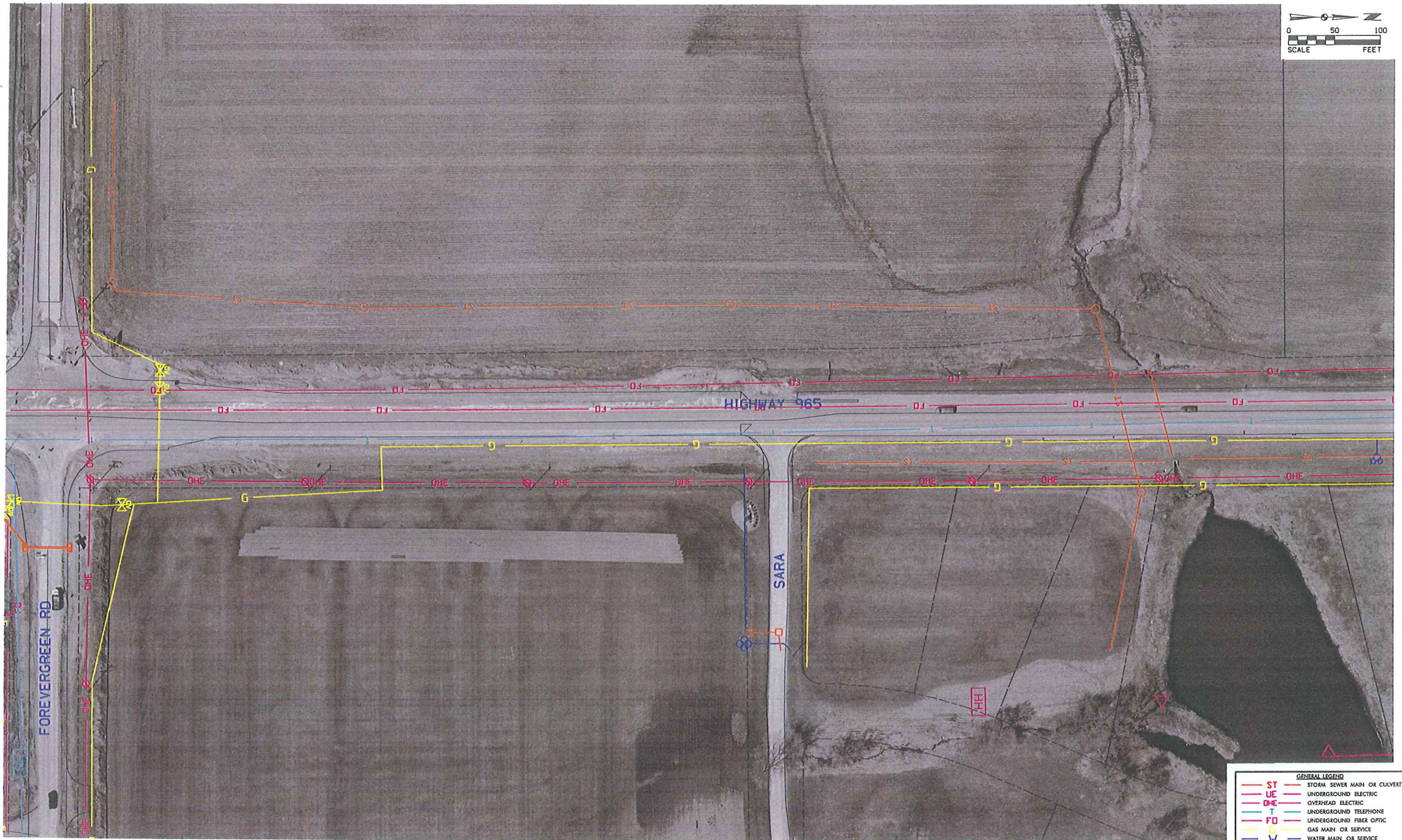


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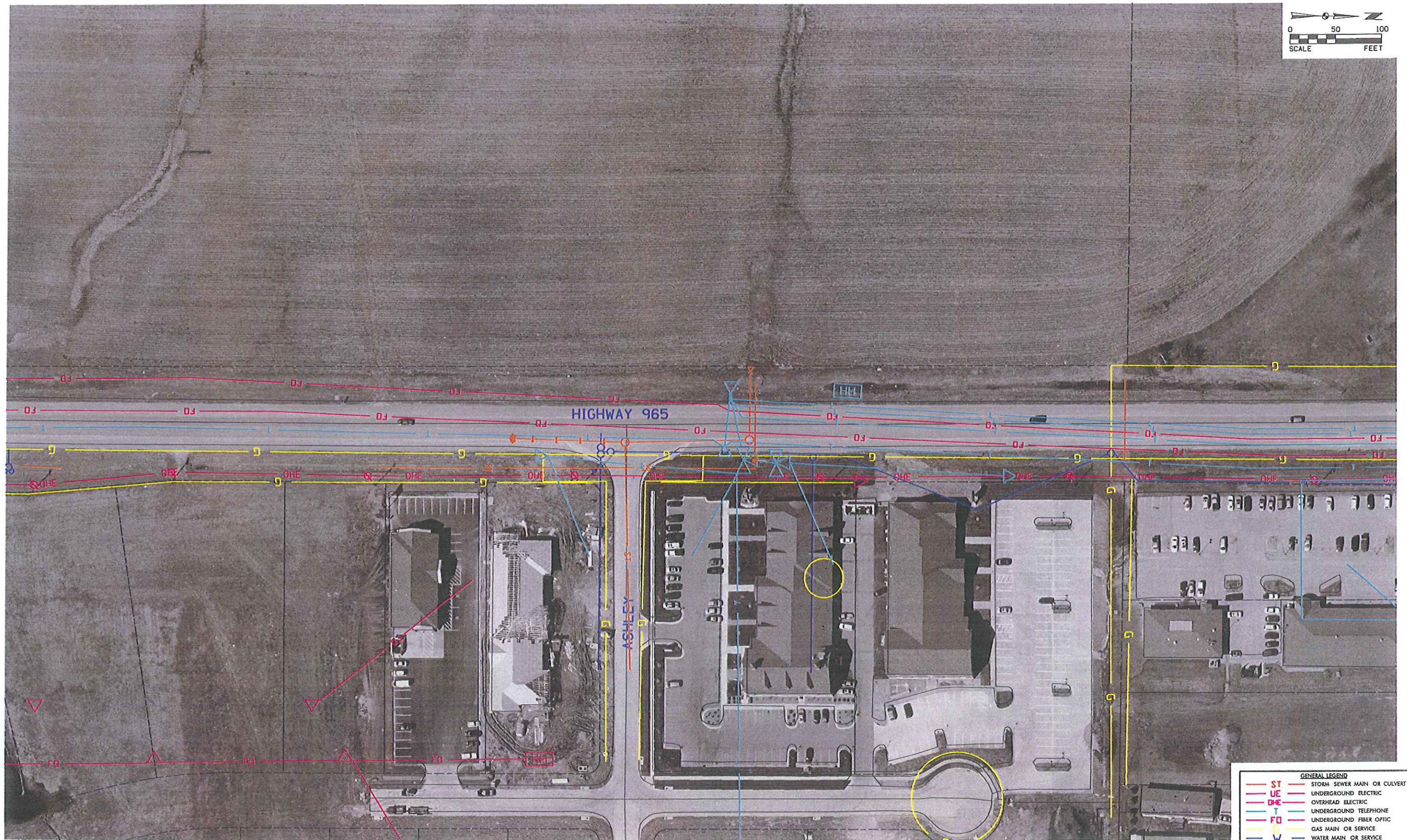
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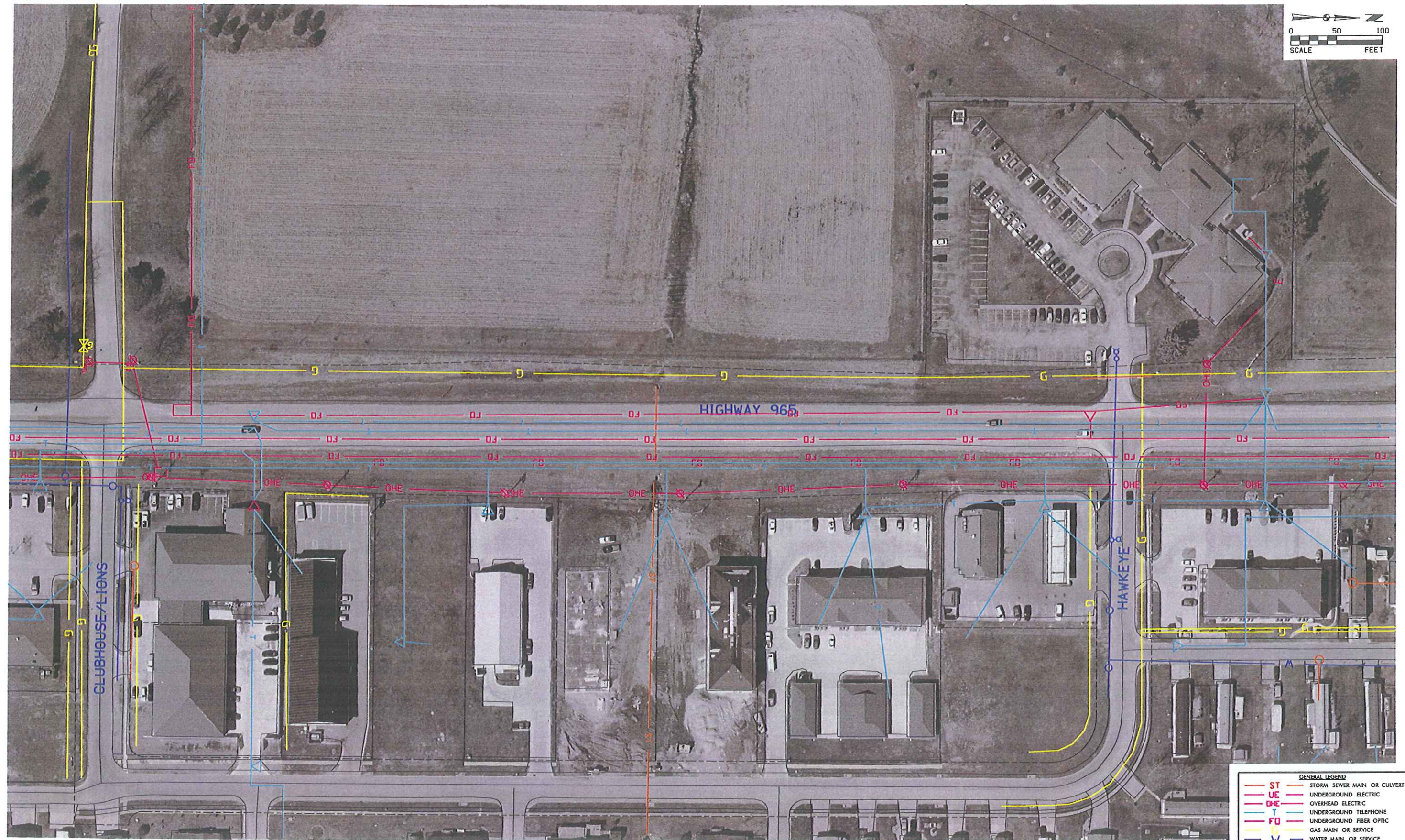
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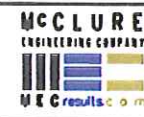
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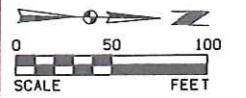
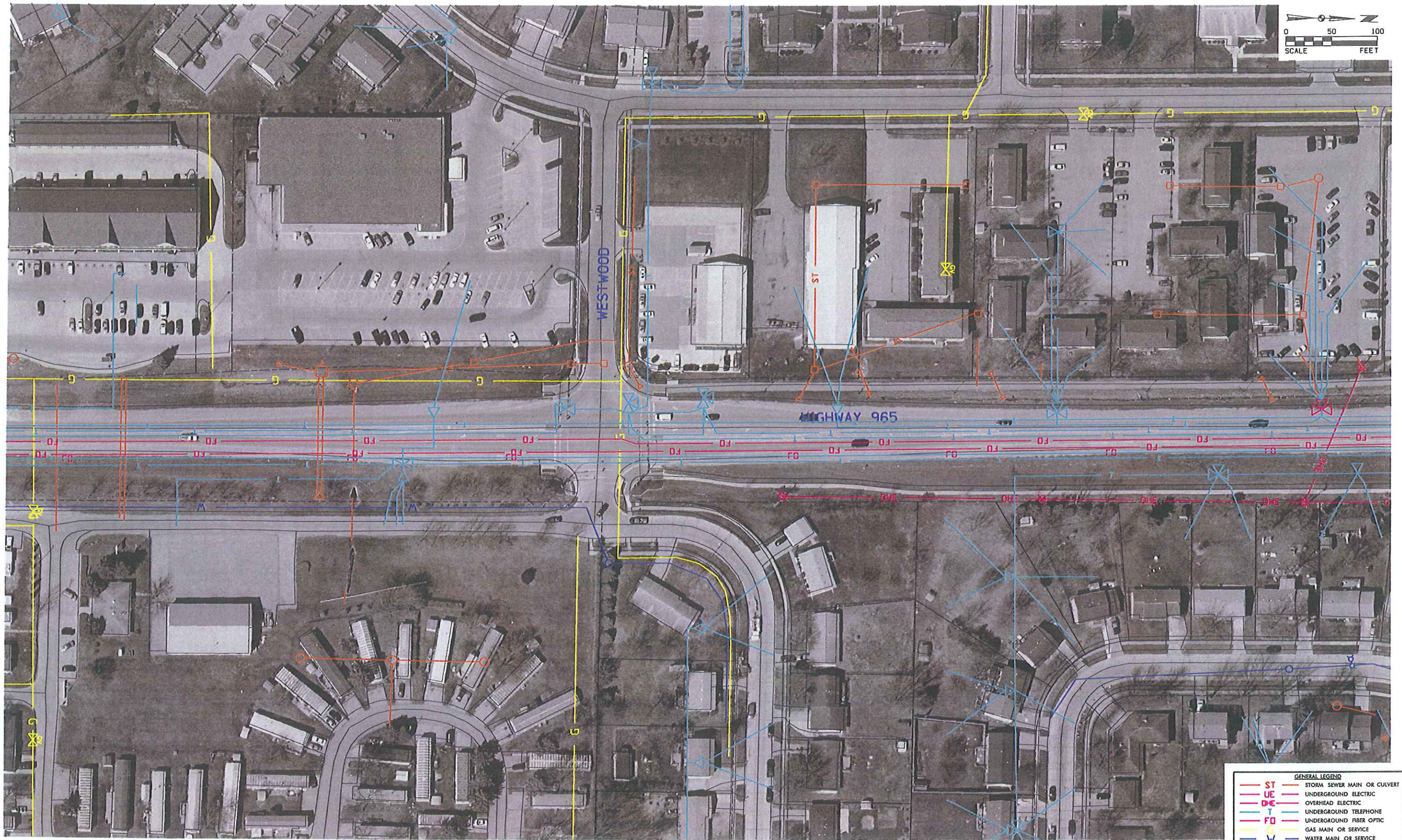
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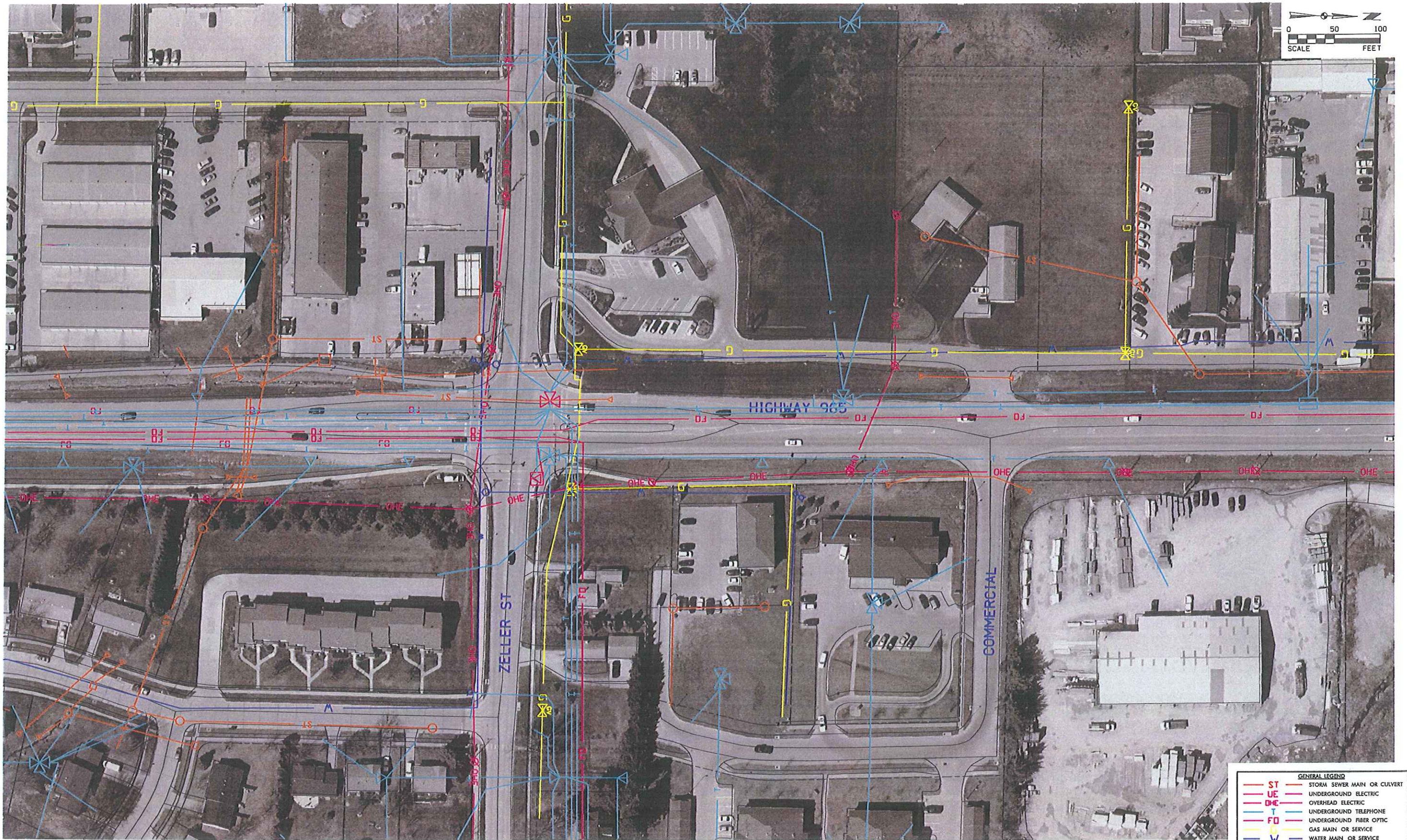
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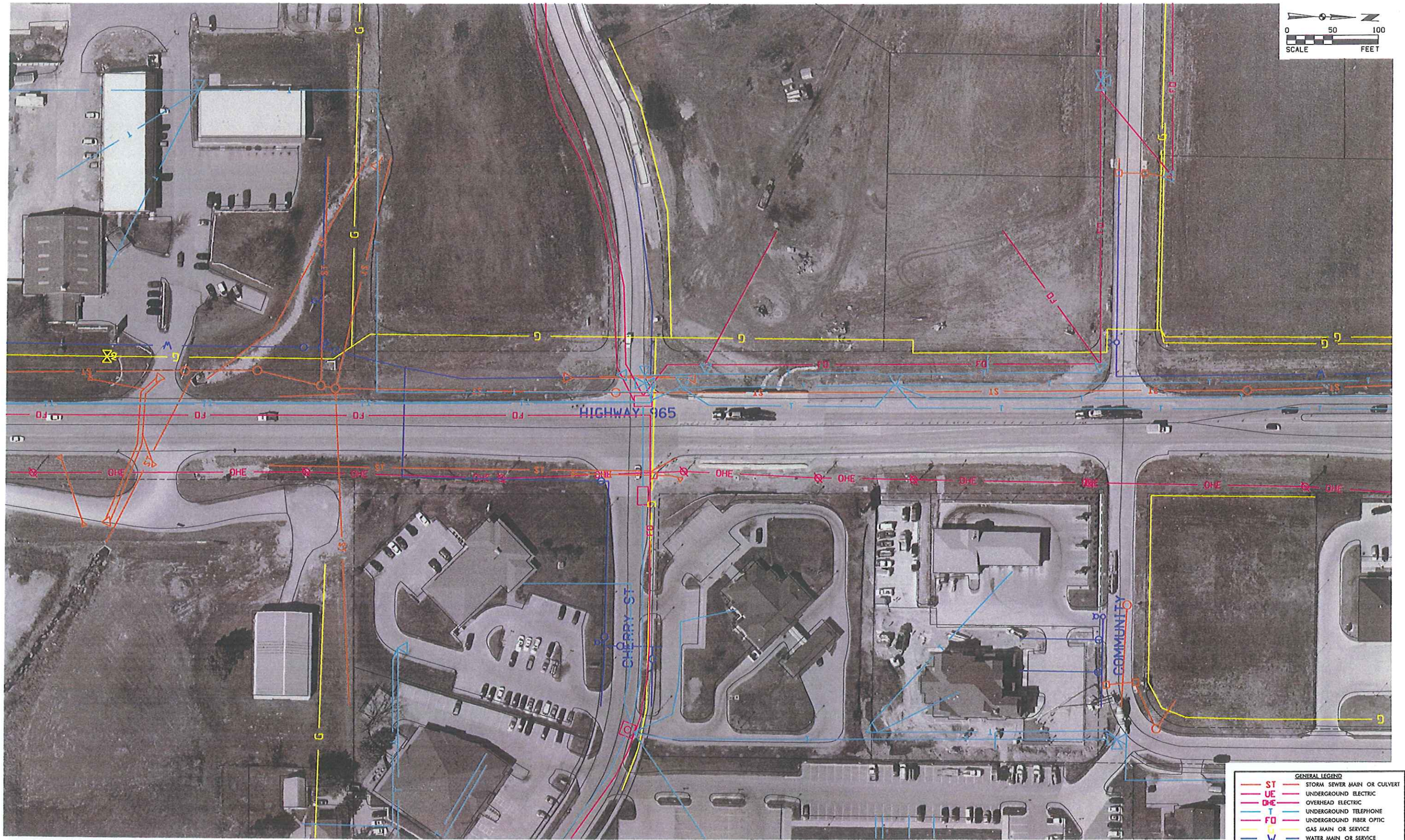


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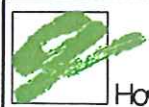


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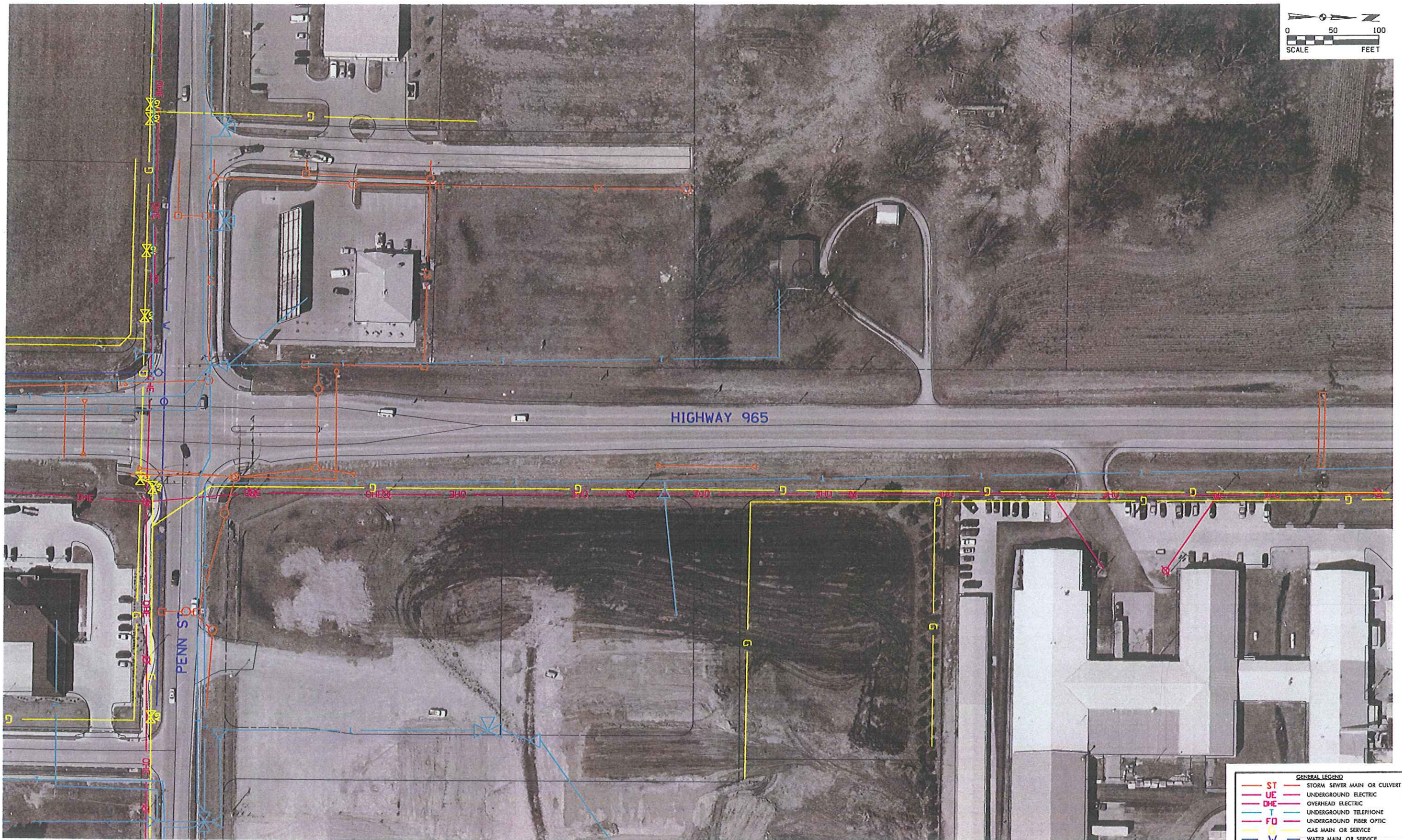


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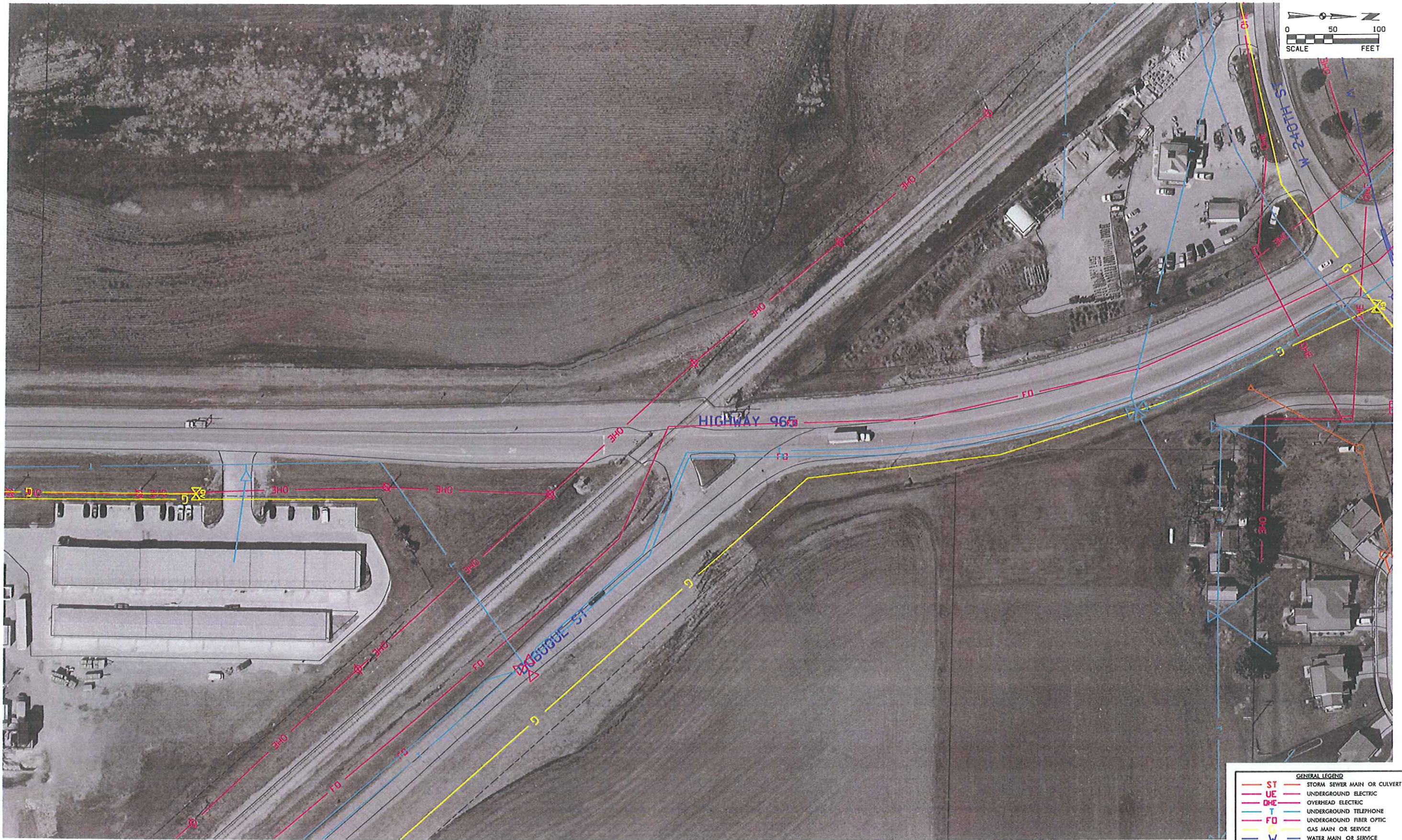
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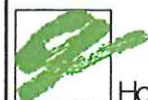
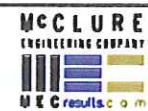
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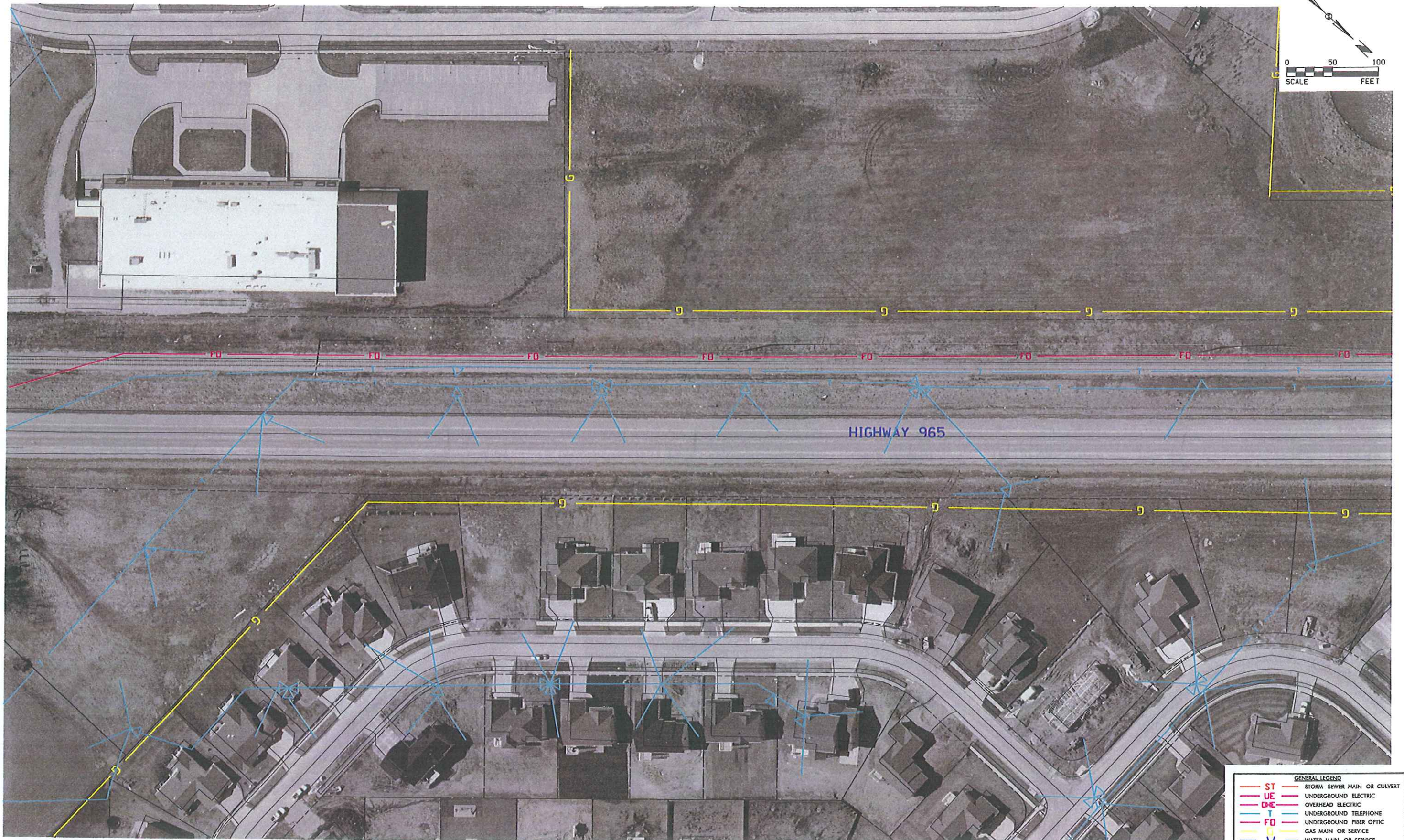
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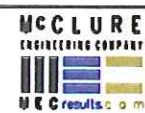
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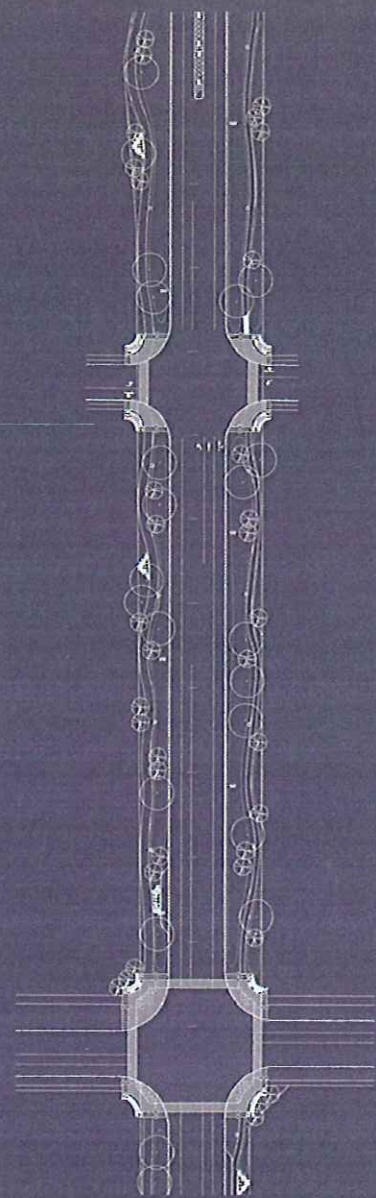


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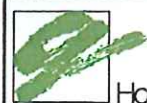
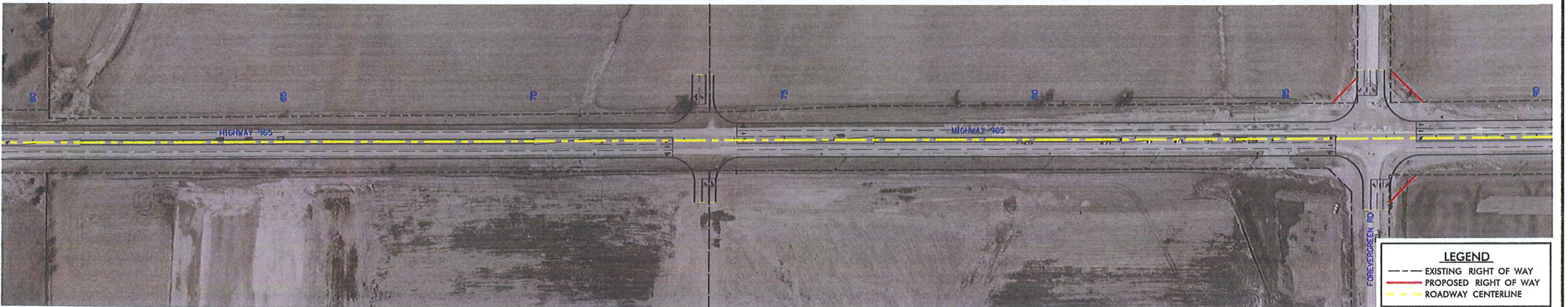
D. RIGHT OF WAY

The width of the right of way along the Corridor varies from approximately 120 feet to 320 feet. For the majority of the Corridor, the recommended improvements should be able to be constructed within the existing right of way. The exhibits on the following pages show the location of the existing right-of-way as well as the potential right of way impacts along the Highway 965 Corridor.

EXISTING AND PROPOSED RIGHT OF WAY

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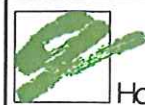
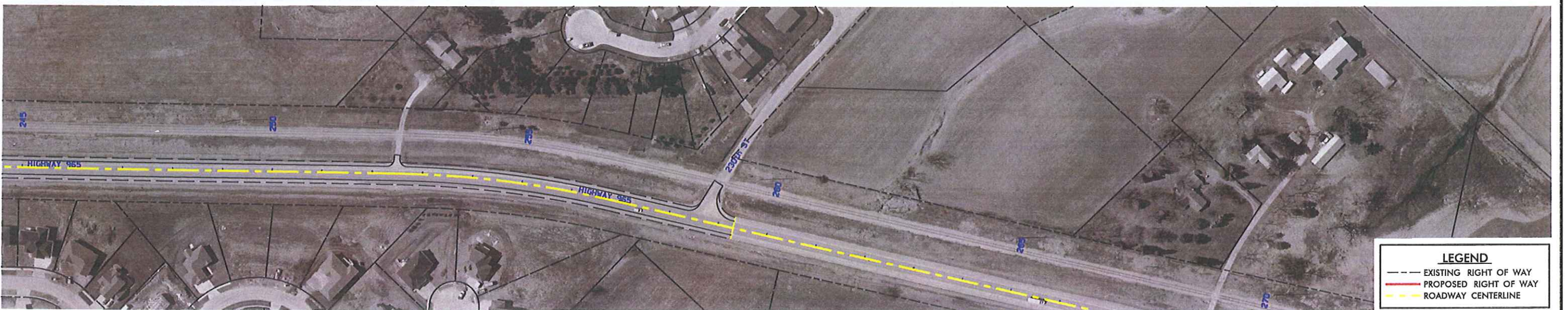
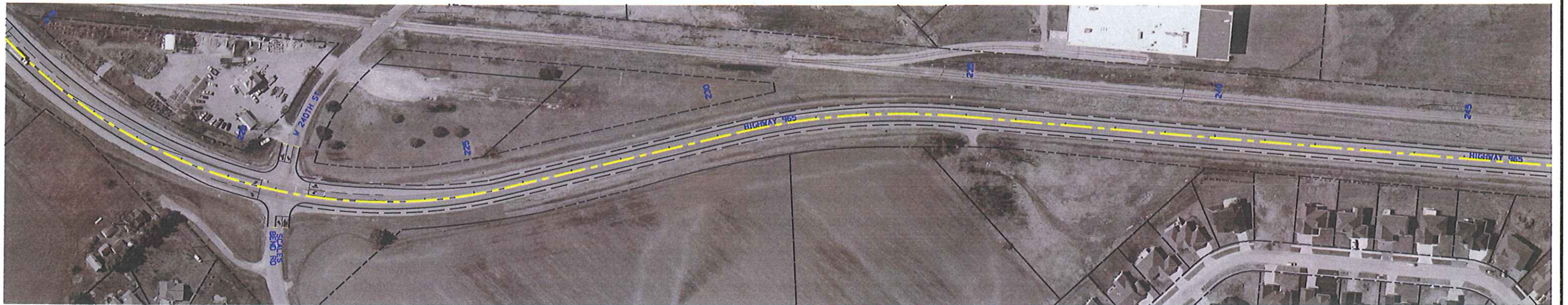
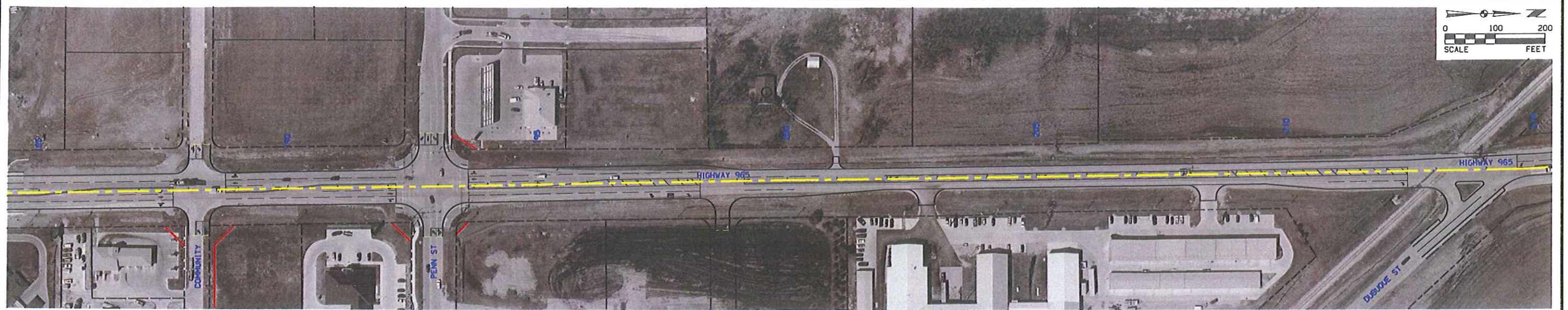
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EXISTING AND PROPOSED RIGHT OF WAY

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EXISTING AND PROPOSED RIGHT OF WAY

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1. Introduction

Highway 965 is an old two lane rural section state highway that once ran from Highway 6 in Coralville, through North Liberty, to 75th Street in Cedar Rapids. The highway was decommissioned in July 2003 and given back to the cities and counties except for the south end which connects Interstate 80 to Highway 6. The former highway is a primary north-south arterial between the Cities of Coralville and North Liberty.

The arterial has experienced significant traffic growth in recent years and is starting to experience a degradation of operation. Some intersection improvements have occurred to alleviate the traffic congestion but other intersections remain in need of improvements. Improvements have included signalization and the addition of left and right turn lanes.

There are still large undeveloped agricultural areas along the corridor that are projected to be developed over the next 20 years. They are located on all four quadrants of the Forevergreen Road and 965 intersection. The areas directly adjacent to 965 are zoned for commercial development and additional areas not directly adjacent to 965 are zoned for residential.

The purpose of the traffic analysis was to determine the required geometry for the Highway 965 corridor to carry the projected 2035 traffic volumes with an adequate level of service.

2. Existing Conditions

The study area is from Holiday Road in the south to 230th Street in the north and is within the cities of Coralville and North Liberty. The study includes all intersections on Highway 965 within the study area.

The accident data from 2001-2006 was examined using the Iowa Department of Transportation CMAT software. The accident analysis is shown on Sheet E.02 of this report. The majority of the accidents are from failure to yield right of way when making a left turn and following too close. These are occurring all along highway 965 with clusters at the intersections.

The Johnson County Council of Government staff conducted AM and PM Peak hour turning movement counts at the major intersections along the corridor between July 2007 and August 2007. The AM Peak Hour generally occurs from 0700-0800 and the PM Peak Hour generally occurs from 1630-1730. The raw count data was balanced through out the corridor so that the incoming and outgoing volumes matched between the intersections. The existing traffic volumes are shown on Sheet E.03 of this report.

The existing Level of Service (LOS) is shown on Sheet E.07 of this report. The signalized intersections all operate at LOS of C or better but many of the unsignalized intersections have approaches that are operating at LOS of F because of delays. The arterial LOS is generally LOS C or better but there are some segments that drop to LOS D and one segment that has enough delay to show a LOS of F.

During the peak hour, significant queuing occurs on 965 between Forevergreen Road and Westwood because of the number of unsignalized intersections without turn lanes. The left turning vehicles have to stop in the through lane which backs up traffic waiting for them to turn. The queues sometimes extend back far enough to affect the adjacent upstream intersection. This is especially a problem at Fairview and Golfview intersections because of their close proximity.

3. Proposed Development

The Iowa Department of Transportation worked with the Johnson County Council of Government transportation planners to implement a new traffic model for the Iowa City/North Liberty/Coralville area. The model was generally complete in the late fall of 2007 and preliminary 2035 model forecasts were generated. The City of North Liberty staff, McClure Engineering Company, and Howard R. Green Company worked with the DOT to debug the initial runs and provide updated employment and zoning information for the model. The final 2035 Forecast was delivered in February of 2008 by JCCOG.

The 2035 Forecast model included the following elements:

- 1. A new interchange at Forevergreen Road and Interstate 380.
- 2. Kansas Avenue extended from Penn Street to Highway 6.
- 3. Jones Blvd extended from Forevergreen Road to Highway 6.
- 4. All existing agricultural area adjacent to 965 was fully developed commercial.

Four different scenarios were completed to see the effects of different geometry on the traffic volumes. Two lane capacity (existing geometry); three lane geometry (left turn lanes at all intersections); four lane geometry (two through lanes but no additional left turn lanes); and five lanes (two through and left turn lanes at the intersections). Three of the scenarios were used in the analysis: existing, three lane, and five lane. The 2035 Forecast average daily total (ADT) volumes are shown on Sheet E.04 of this report.

The traffic forecast provided ADT volumes for the arterial roads only. The 2035 ADT volumes were converted to PM Peak Hour volumes using a K value of 8%. The intermediate intersections were estimated beginning with the existing counts and the turning movement percentages and then increasing 965 based on the nearest 2035 forecast volume. Finally the volumes were balanced across the network so that entering and departing intersection volumes matched at each intersection.

The three lane scenario has less ADT traffic than the five lane because the capacity is maxed out. This results in a larger volume of traffic on both Jones Blvd and Front Street for the three lane scenario. The five lane scenario draws more traffic from the network than the three lane and also results in less growth on Jones and Front. Although those streets were beyond the scope of this study, it appears Jones would need to be improved to handle the additional traffic from the three lane scenario.

A traffic forecast was generated for the three lane scenario and the five lane scenario. The three lane scenario is located on Sheet E.05 of this report. The five lane scenario is located on Sheet E.06 of this report.

4. Future Conditions

The two scenarios were analyzed using the traffic modeling software Synchro and SimTraffic. The Synchro software is used to build the model, analyze the operation of individual intersections, and optimize timing plans. SimTraffic is used to develop a simulation of the network and it factors in the interaction between intersections.

Both software packages provide reports of how the system is operating. The Highway Capacity Software (HCS) report generated by Synchro is the standard for evaluating the operation of intersections. This works well where there is minimal interaction between the intersections but during high volumes where traffic is backing up from one intersection and delaying the upstream intersection, the HCS report underestimates delay.

SimTraffic simulates the operation of the entire network and takes into consideration the interaction between the signals. The SimTraffic arterial delay report shows the actual delays between intersections and includes the interaction of traffic between intersections. During high volumes, SimTraffic may show significantly higher delays for the arterial than the Synchro report.

The analysis began using the existing traffic control for the intersections and then the model was simulated. It was determined all major intersections will need to be signalized to handle the 2035 volumes and maintain an adequate level of service for the intersections. The signals will also need to be interconnected and coordinated for optimum performance. The turn lane lengths were determined based on model calculated queue lengths and observation of the simulation.

The three lane scenario broke down at the 2035 volumes. There is not enough capacity with three lanes and the northbound vehicles queue up from Forevergreen Road south to Oakdale Blvd during the PM Peak hour. The system breakdown is shown in the arterial delay charts on Sheet E.07 where delay increases to a high of 436 seconds per vehicle with a vehicle speed of 5 mph.

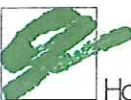
The five lane scenario functions with adequate level of service throughout the corridor for the 8% K value. The highest arterial delay is only 36.4 seconds with a vehicle speed of 16 miles per hour even with the larger volume of traffic with the five lane scenario.

The K value was increased to 10% to see the effects. At 10% there are some queuing issues north of Forevergreen Road during the Peak Hour and 965 at Oakdale needs dual left turns. Although some queuing occurs during the peak hour, developing beyond the five lane section for the North Liberty section is not practical.

The level of service for the future scenarios is show on Sheet E.07 of this report.

5. Recommendations

The traffic analysis clearly shows the three lane section is inadequate for the 2035 volumes and the five lane section should ultimately be constructed.

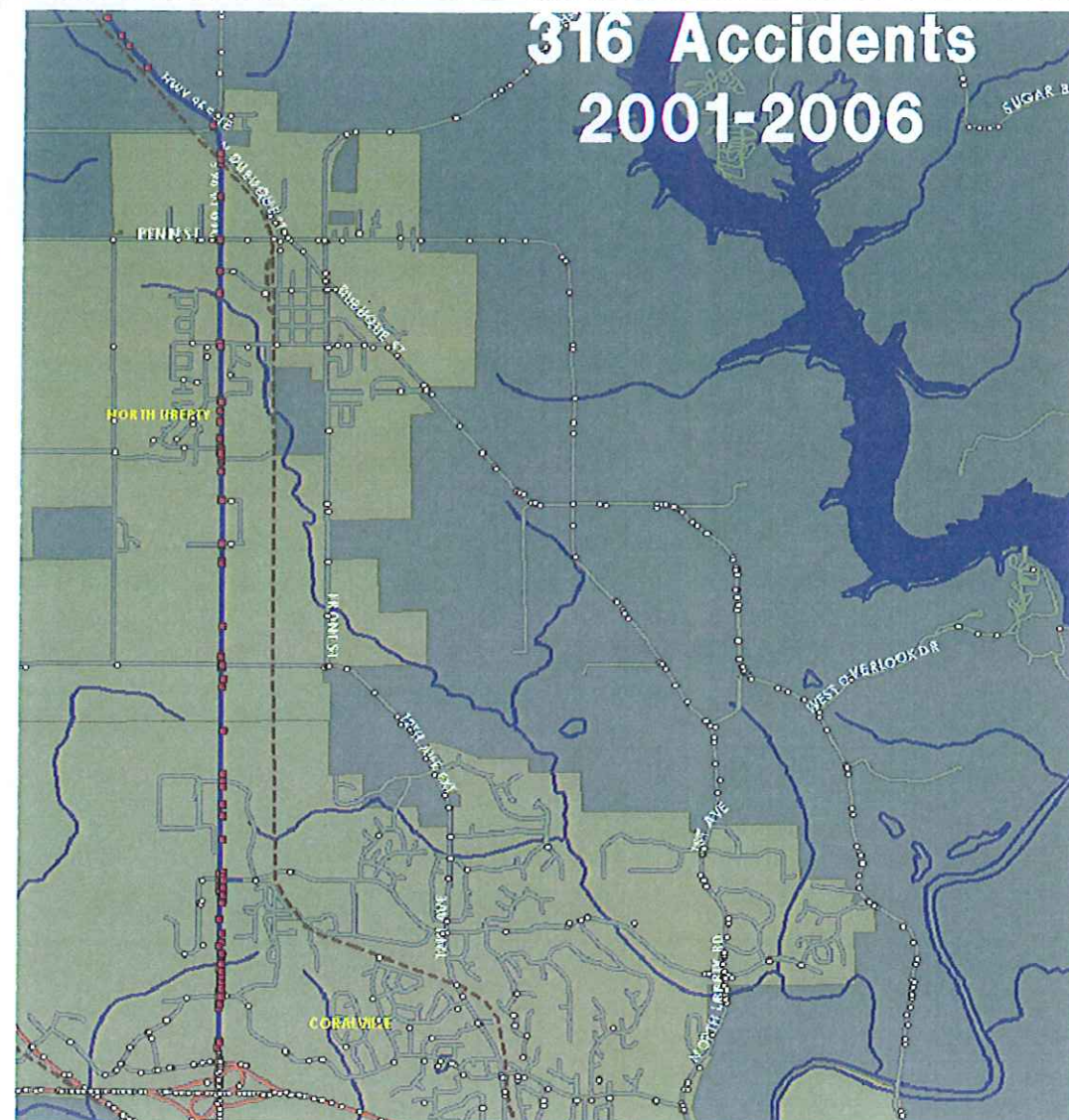


Howard R. Green Company

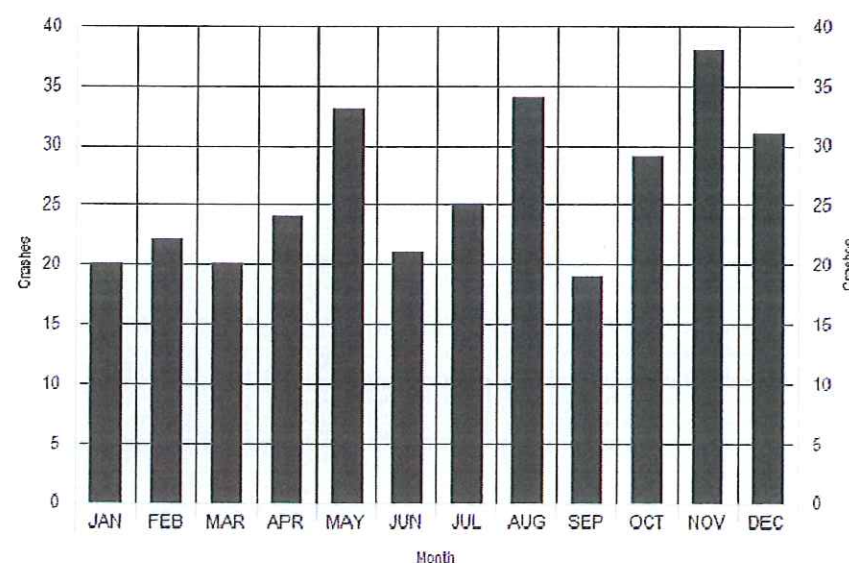
HIGHWAY 965 CORRIDOR STUDY
NORTH LIBERTY/CORALVILLE
IOWA 2008

TRAFFIC ANALYSIS

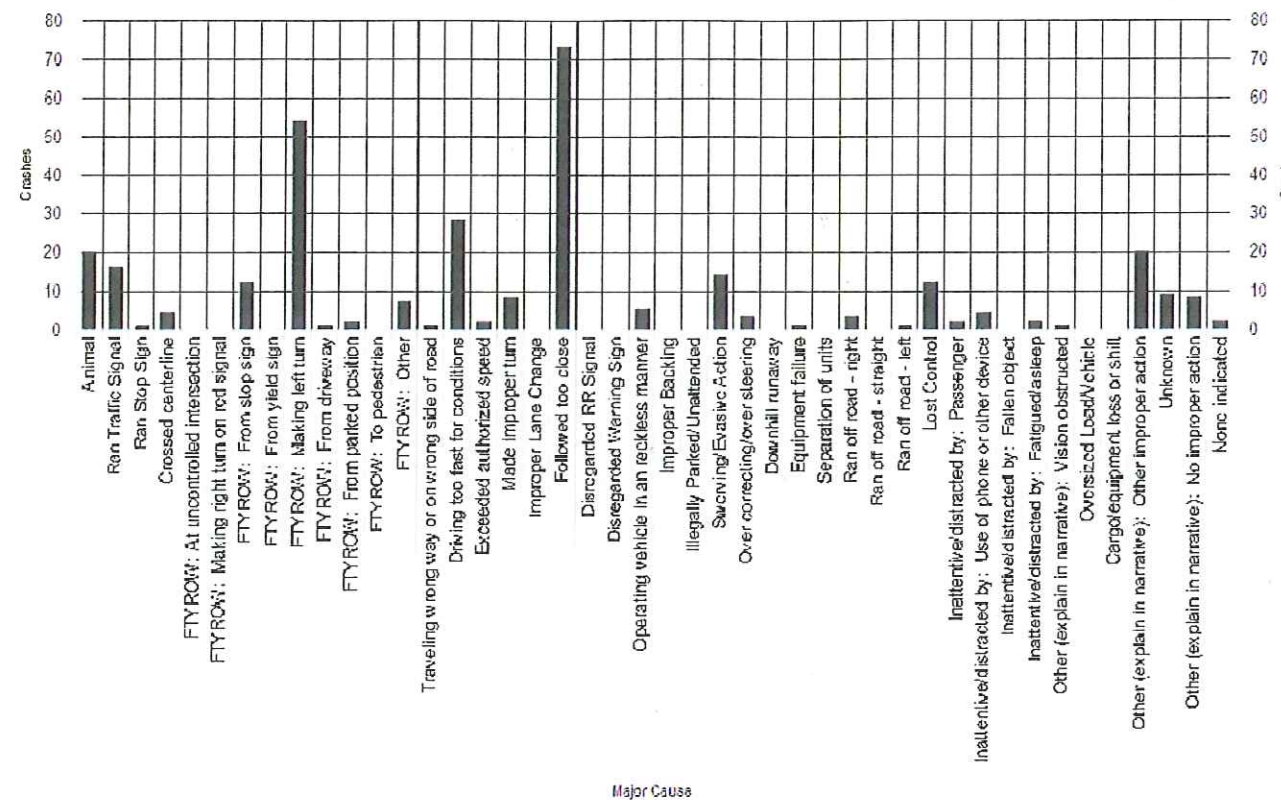
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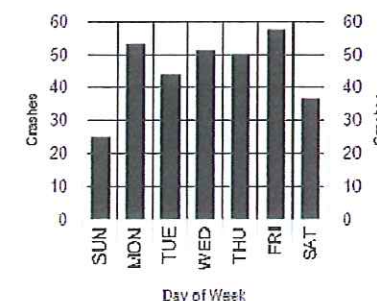
Accident Location Map 2001-2006



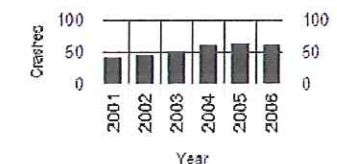
Accidents by Month of Year



Accidents by Cause



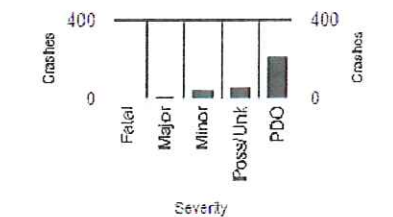
Accidents by Day of Week



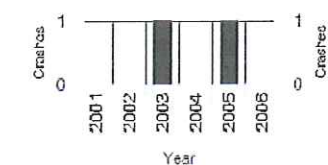
Accidents by Year



Accidents by Day of Month



Accidents by Severity



Fatalities

ACCIDENT ANALYSIS

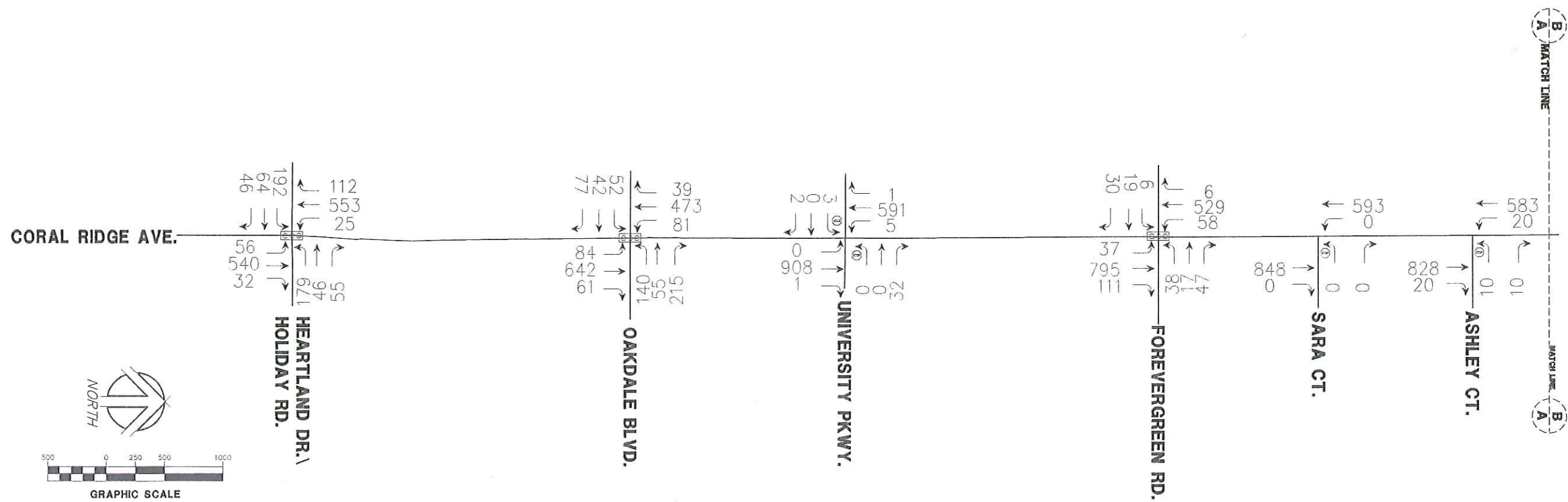
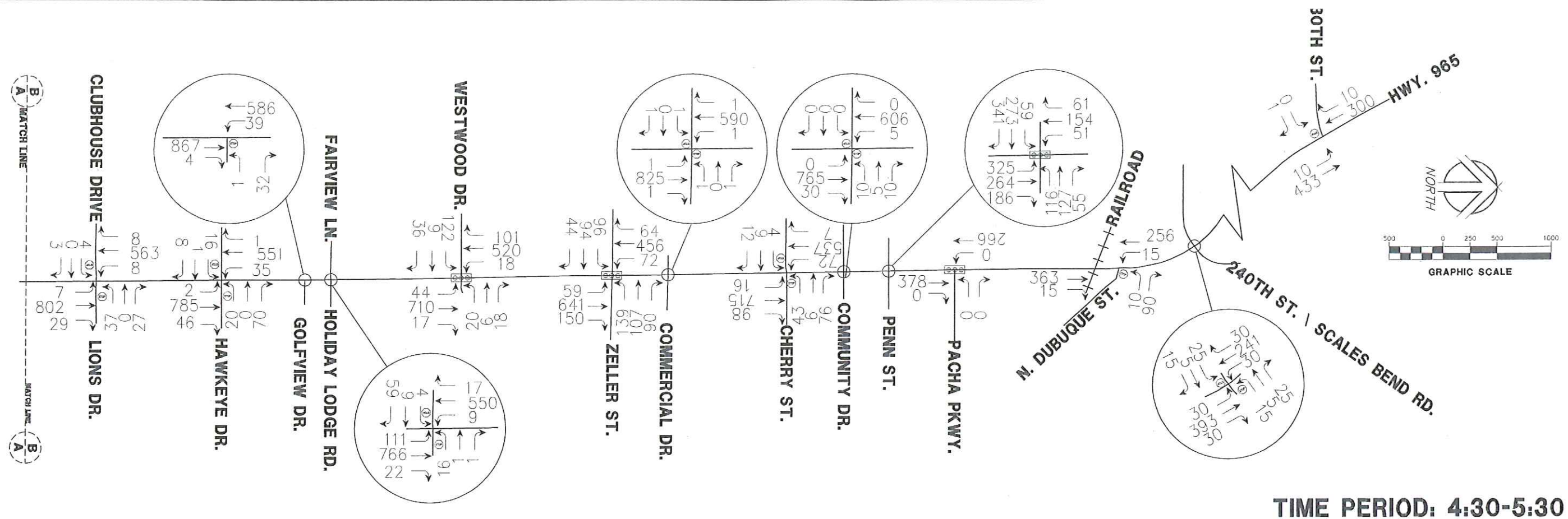
There have been 316 accidents including two fatalities between 2001 and 2006. The accidents are distributed relatively evenly along 965 with clusters of accidents at the intersections. The yearly accident totals increase between 2001 and 2005 with a slight decrease in 2006.

The primary accidents are: following to close, and failure to yield ROW while making a left turn. These accidents are occurring at the intersections and demonstrate the need for improvements including turn lanes and eventually traffic signals. The majority of the accidents are property damage only and a few involved minor or major injuries.

The two fatalities both occurred in December and appear to be weather related. One accident occurred in 2003 and one in 2005 and both were located mid block.

The accidents by month chart shows the accidents increase in the fall (October - December) and in the months of May and August. The accidents are distributed throughout the month with no spikes indicating specific problem days. During the week, more accidents occur during the weekdays than weekend and there are spikes on Monday and Friday which is a typical accident distribution.

There are no specific locations that have a significantly higher accident rate. The accident data instead shows a need for intersection improvements throughout the corridor. Adding left turn lanes at all intersections and traffic signals as they become warranted should reduce the rates of accidents along the corridor.



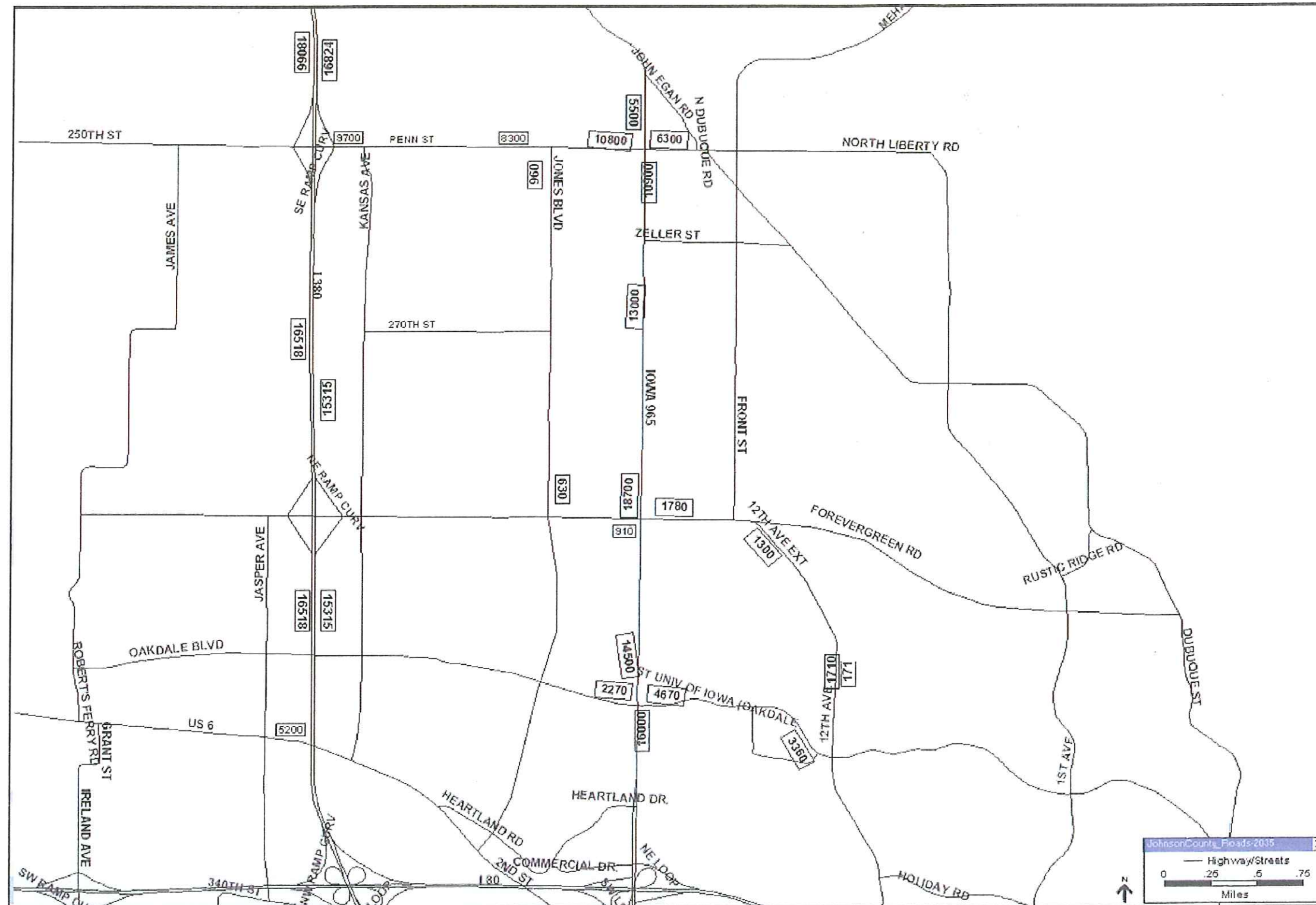


Figure 6: Base Year (2002) Traffic Counts

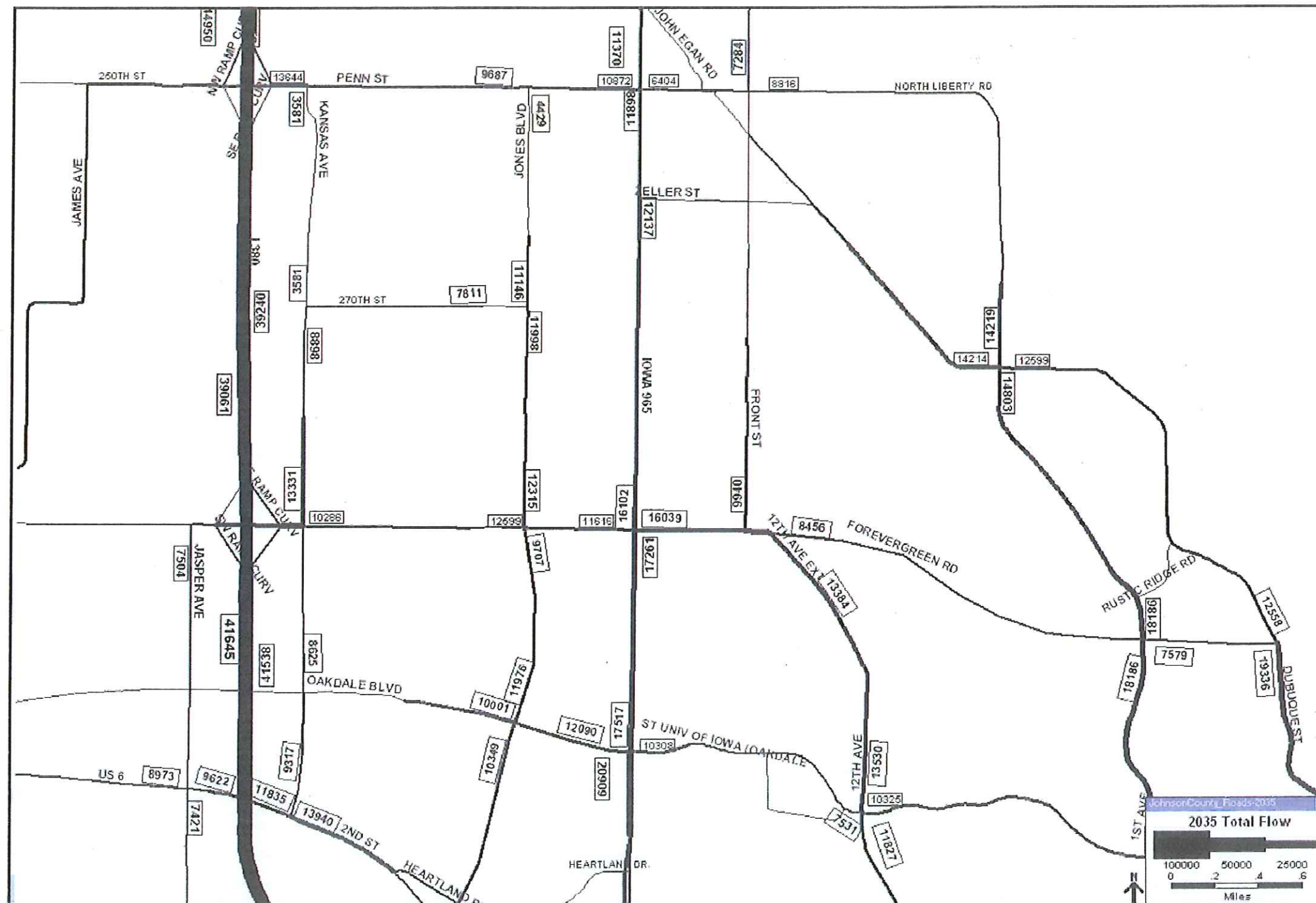


Figure 7: 2-Lane Capacity (Iowa 965) Moderate (Mixed) Zoning

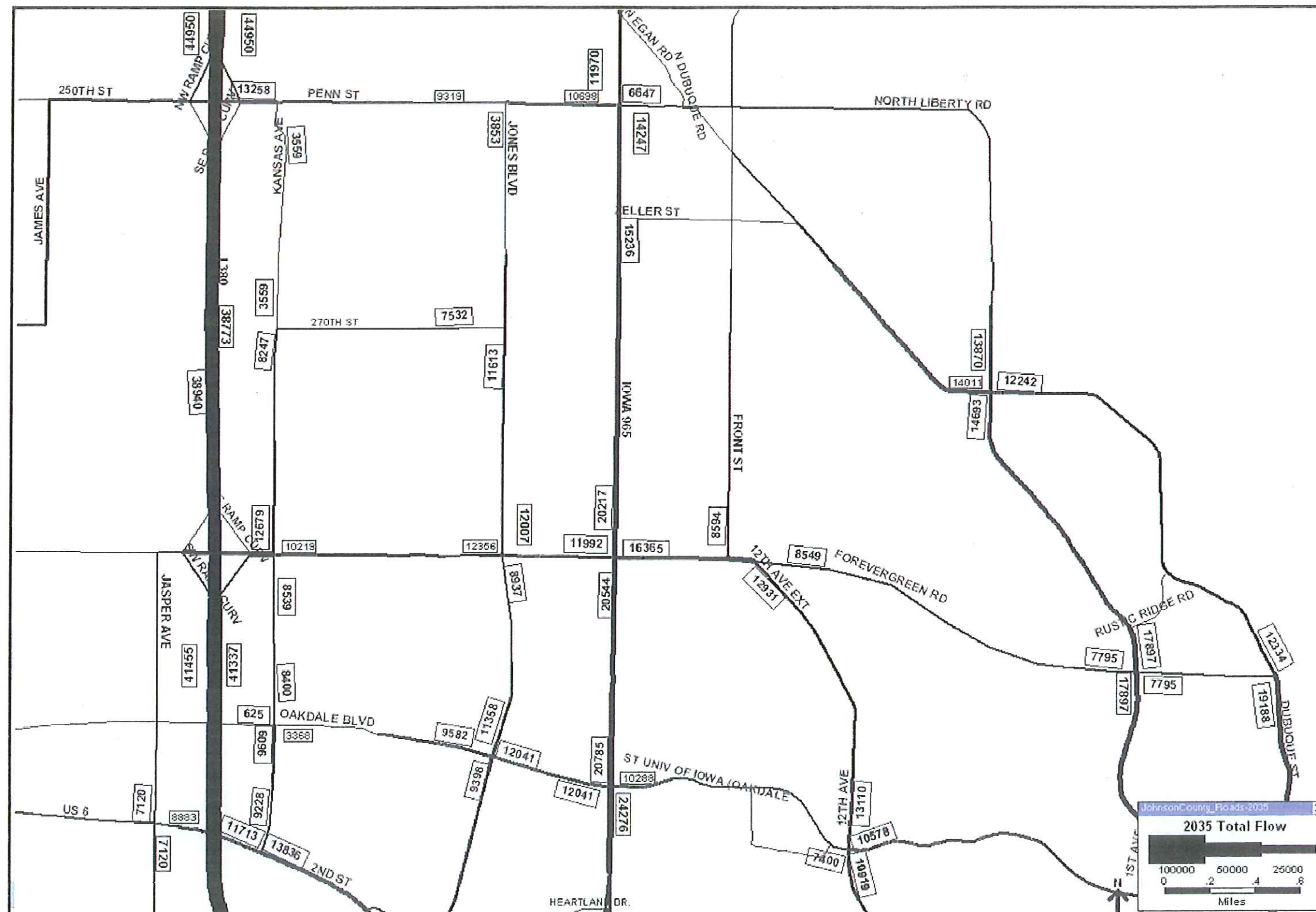


Figure 8: 3-Lane Capacity (Iowa 965) Moderate (Mixed) Zoning

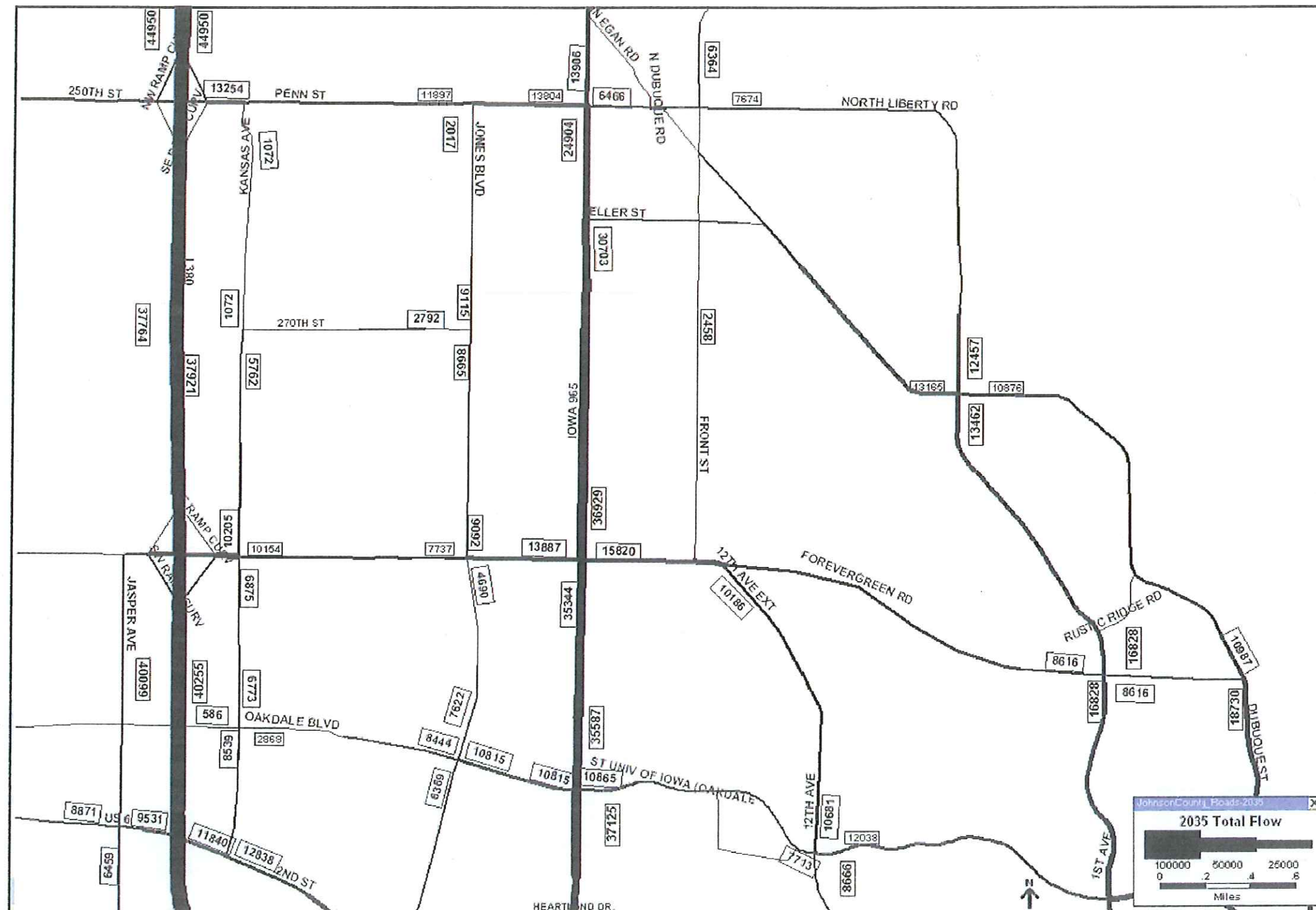
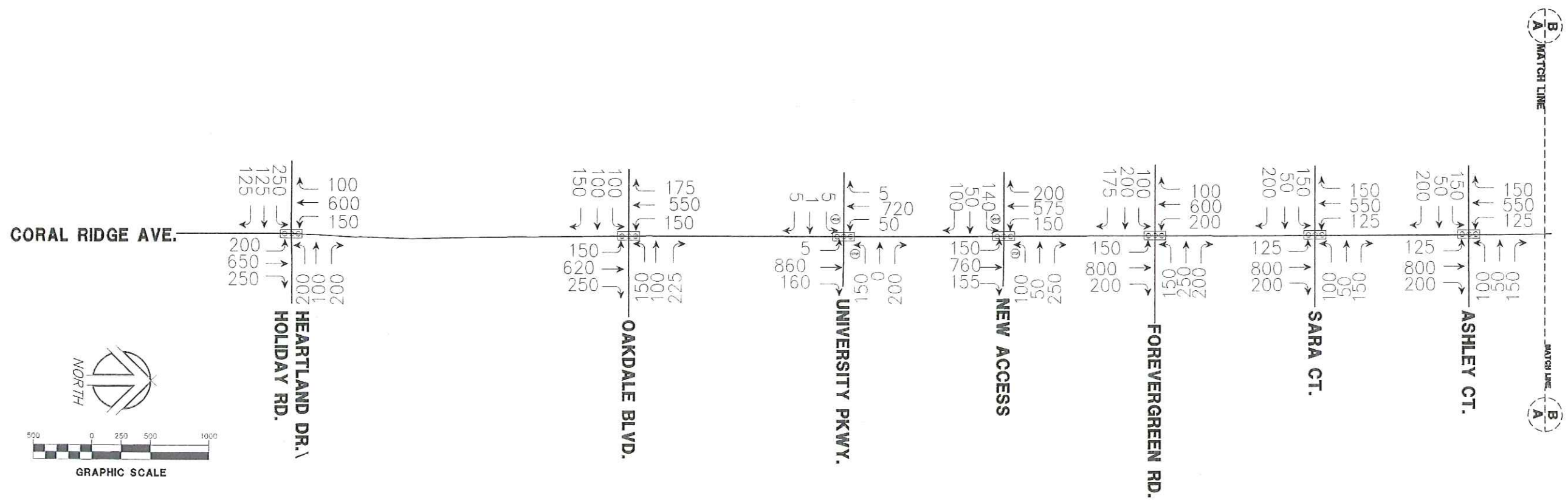
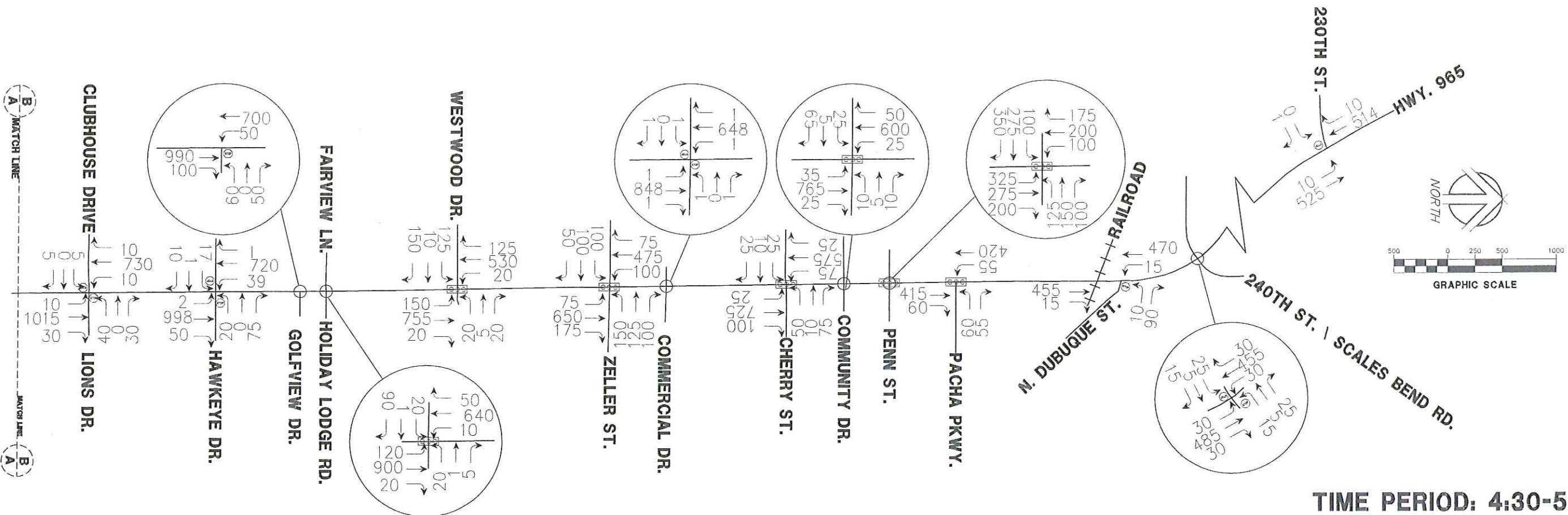
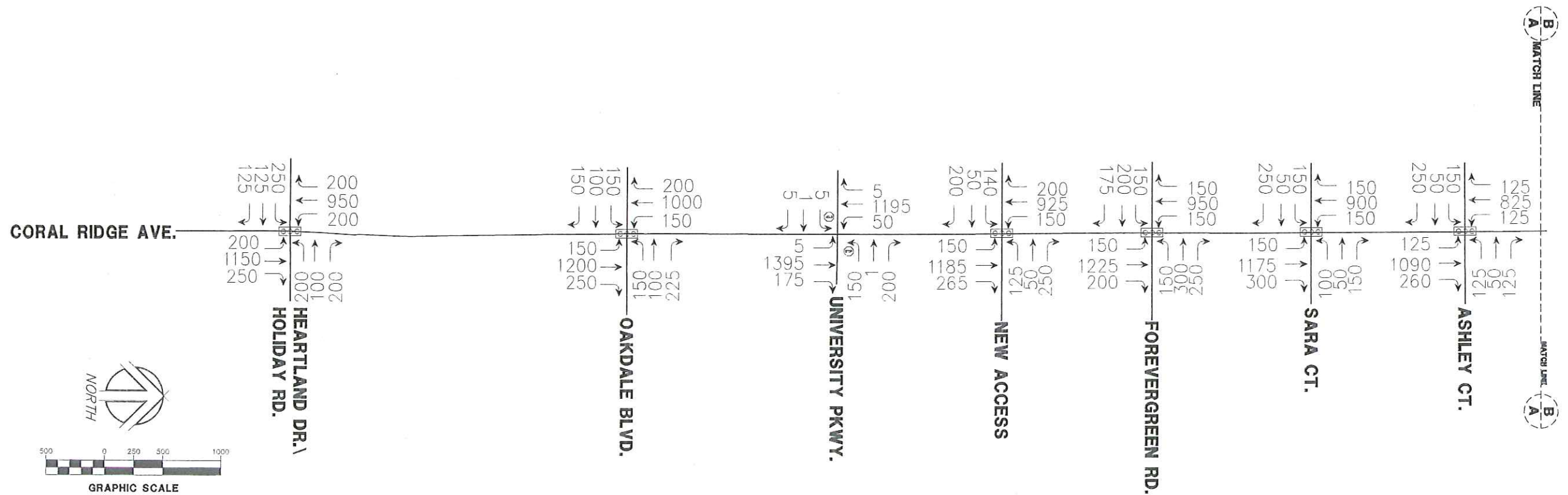
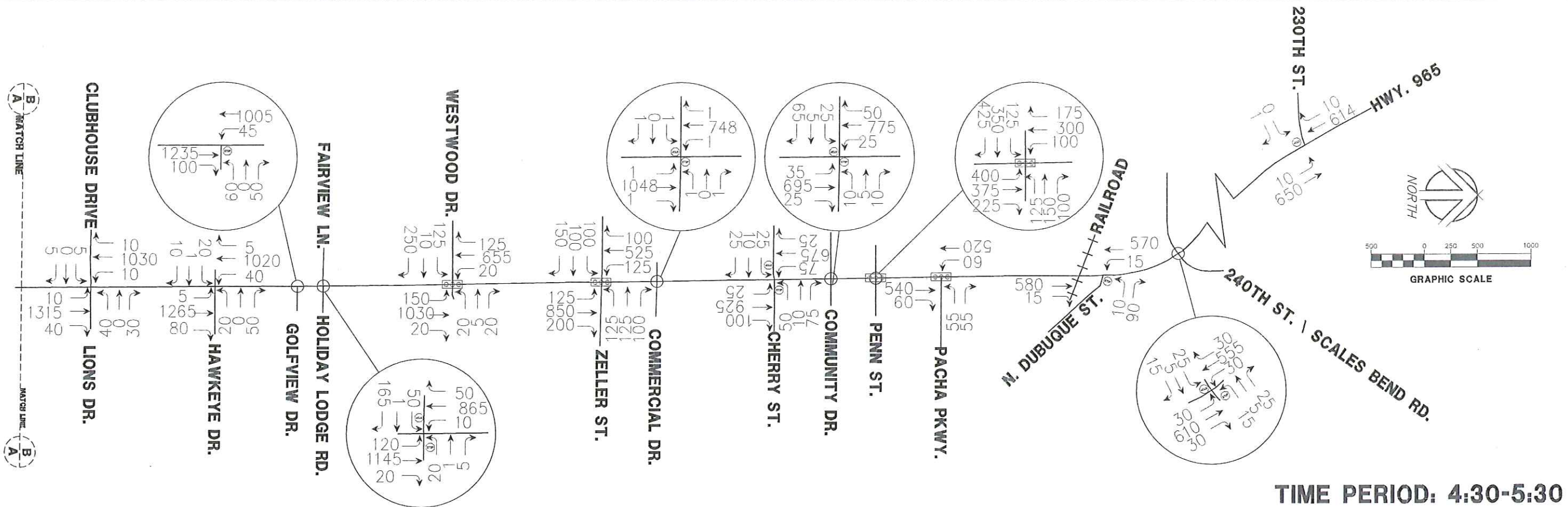


Figure 9b: 4-Lane Capacity (Iowa 965) with left turns
Moderate (Mixed) Zoning





Arterial Level of Service: NB Hwy 965

Cross Street	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
I-80 Ramp	11.1	28.8	0.2	24
	1.7	9.1	0.1	29
Cedar	0.1	4.6	0.0	33
Holiday Road	20.3	38.2	0.2	19
	4.2	13.8	0.1	22
Oakdale Blvd	16.7	55.0	0.5	30
University Parkway	8.0	39.2	0.5	42
Forevergreen Road	22.2	58.6	0.5	33
Sara Court	3.7	16.0	0.2	34
Ashley Ct	4.3	25.1	0.3	36
Lions Drive	7.2	21.2	0.2	29
Hawkeye Drive	5.6	27.7	0.2	27
Golfview Drive	15.5	34.9	0.2	19
Fairview Lane	10.3	15.4	0.0	11
Westwood Drive	79.8	103.8	0.2	8
Zeller Street	17.6	45.7	0.3	21
Commercial Drive	2.5	13.0	0.1	27
Cherry Street	4.4	26.7	0.2	28
Community Drive	3.0	13.6	0.1	26
Penn Street	21.9	31.2	0.1	11
Pacha Pkwy	2.3	13.5	0.1	28
Dubuque	2.9	32.7	0.3	33
Scales Point	8.2	23.7	0.1	19
Total	273.4	691.6	4.6	24

Arterial Level of Service: SB Hwy 965

Cross Street	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Dubuque	0.3	17.3	0.1	26
Pacha Pkwy	10.0	43.9	0.3	24
Penn Street	17.9	24.3	0.1	16
Community Drive	2.3	12.4	0.1	27
Cherry Street	0.9	11.4	0.1	31
Commercial Drive	2.7	24.9	0.2	30
Zeller Street	12.2	22.3	0.1	16
Westwood Drive	32.5	61.2	0.3	16
Fairview Lane	6.0	30.2	0.2	27
Golfview Drive	3.9	9.1	0.0	19
Hawkeye Drive	4.7	24.4	0.2	27
Lions Drive	6.3	28.8	0.2	26
Ashley Ct	3.9	18.7	0.2	33
Sara Court	3.9	24.8	0.3	37
Forevergreen Road	11.5	23.8	0.2	23
University Parkway	8.3	45.2	0.5	43
Oakdale Blvd	17.1	47.7	0.5	35
	7.7	45.4	0.5	37
Heartland Drive	16.4	24.9	0.1	12
Cedar	3.0	21.6	0.2	33
	0.4	4.9	0.0	31
I-80 Ramp	18.5	24.8	0.1	10
Total	190.3	591.9	4.4	27

Arterial Level of Service: NB Hwy 965

Cross Street	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cedar Entrance	1.1	9.3	0.1	41
Holiday Road	32.8	49.1	0.2	15
	9.8	20.6	0.1	22
Oakdale Blvd	118.8	151.2	0.4	10
University Parkway	436.1	473.6	0.5	6
New Access	203.1	226.5	0.3	5
Forevergreen Road	153.1	174.2	0.3	5
Sara Court	32.6	43.2	0.2	12
Ashley Court	85.3	111.6	0.3	9
Lions Drive	4.6	22.8	0.2	28
Hawkeye Drive	4.4	26.7	0.2	28
Golfview Drive	5.8	25.8	0.2	26
Fairview Lane	1.7	6.1	0.0	27
Westwood Drive	8.5	27.9	0.2	30
Zeller Street	32.9	61.3	0.3	16
Commercial Drive	4.2	12.6	0.1	27
Cherry Street	8.3	30.4	0.2	24
Community Drive	5.7	16.5	0.1	22
Penn Street	19.7	29.2	0.1	11
Pacha Parkway	3.8	15.6	0.1	25
Dubuque	4.3	34.2	0.3	30
Scales Bend Rd	2.8	18.6	0.1	29
	1.5	14.1	0.1	36
	1.3	14.8	0.2	40
	2.9	28.6	0.3	38
230th Street	3.2	11.9	0.1	40
Total	1188.2	1657.1	5.1	13

Arterial Level of Service: SB Hwy 965

Cross Street	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	1.1	12.4	0.1	35
	2.6	26.4	0.3	39
	1.9	15.5	0.2	38
240th St	1.9	11.5	0.1	44
Dubuque	1.6	14.3	0.1	35
Pacha Parkway	5.6	36.1	0.3	29
Penn Street	34.5	45.7	0.1	9
Community Drive	8.4	18.0	0.1	18
Cherry Street	5.9	16.8	0.1	22
Commercial Drive	3.3	24.9	0.2	30
Zeller Street	21.0	29.1	0.1	12
Westwood Drive	11.9	40.1	0.3	24
Fairview Lane	3.5	23.3	0.2	35
Golfview Drive	2.2	6.0	0.0	36
Hawkeye Drive	2.0	21.5	0.2	31
Club House Drive	3.4	25.5	0.2	30
Ashley Court	18.5	36.4	0.2	17
Sara Court	27.3	53.0	0.3	17
Forevergreen Road	99.5	114.6	0.2	7
New Access	22.4	43.9	0.3	21
University Parkway	6.9	30.1	0.3	34
Oakdale Blvd	13.4	50.9	0.5	32
	6.9	41.7	0.4	36
Holiday Road	24.9	34.5	0.1	13
Cedar Entrance	3.5	20.4	0.2	36
Total	334.4	792.7	5.0	24

Arterial Level of Service: NB 965

Cross Street	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Cedar Entrance	0.7	8.2	0.1	38
Heartland Drive	25.0	43.4	0.2	17
	4.5	14.6	0.1	29
Oakdale Blvd	24.3	59.1	0.4	26
Driveway	13.7	51.7	0.5	32
New Access	28.0	51.8	0.3	20
Forevergreen Road	36.4	57.4	0.3	16
Sara Court	18.5	34.8	0.2	18
Ashley Court	10.3	37.0	0.3	24
Lions Drive	3.7	21.9	0.2	29
Hawkeye Drive	3.9	26.1	0.2	29
Golfview Drive	4.1	23.7	0.2	28
Fairview Lane	1.4	6.3	0.0	27
Westwood Drive	6.9	30.7	0.2	26
Zeller Street	18.2	46.6	0.3	21
Commercial Drive	2.6	12.9	0.1	27
Cherry Street	5.4	27.3	0.2	27
Community Drive	2.3	11.8	0.1	31
Penn Street	25.1	33.4	0.1	12
Pacha Parkway	5.9	17.7	0.1	22
Dubuque Street	4.5	34.5	0.3	30
240th St	3.2	17.0	0.1	26
	1.8	11.2	0.1	34
	2.1	17.3	0.2	39
	4.4	28.9	0.3	37
230th Street	2.4	14.1	0.1	33
Total	299.2	739.0	5.1	25

Arterial Level of Service: SB 965

Cross Street	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	1.0	12.8	0.1	36
	3.0	27.6	0.3	39
	2.2	17.5	0.2	38
240th St	2.6	11.3	0.1	34
Dubuque Street	3.4	16.6	0.1	26
Pacha Parkway	6.0	36.8	0.3	28
Penn Street	29.4	40.8	0.1	10
Community Drive	7.4	17.5	0.1	19
Cherry Street	3.1	13.5	0.1	27
Commercial Drive	1.8	23.8	0.2	31
Zeller Street	13.2	23.4	0.1	15
Westwood Drive	12.8	41.8	0.3	23
Fairview Lane	3.6	27.3	0.2	30
Golfview Drive	0.6	5.5	0.0	30
Hawkeye Drive	1.6	21.3	0.2	31
Club House Drive	2.3	24.4	0.2	31
Ashley Court	9.1	27.7	0.2	23
Sara Court	11.3	38.1	0.3	24
Forevergreen Road	18.3	34.2	0.2	16
New Access	20.7	42.4	0.3	22
Driveway	13.1	36.2	0.3	28
Oakdale Blvd	20.2	57.4	0.5	29
	8.6	44.0	0.4	35
Heartland Drive	10.0	18.8	0.1	22
Cedar Entrance	2.7	21.5	0.2	34
Total	207.9	682.2	5.0	26

Existing 2007 Arterial Delay

The Arterial Delay chart shows the actual delay experienced by vehicles traveling the corridor. The delay includes the interaction between intersections where queuing from one intersection may interfere with the operation of the upstream intersection. The chart also includes the travel time between intersections and the average speed of vehicles.

The chart clearly shows the large delays generated by the 3-lane scenario when vehicle queues become so large they back up and affect the operation of the upstream signals. The large delays on the mainline cause increase delays on the side street traffic. The 5-lane scenario operates with delays only slightly worse than today's peak hour.

3-Lane 2035 Arterial Delay**5-Lane 2035 Arterial Delay**

2007 Existing		Approach Levels of Service											
		Side Street			Side Street			Highway 965			Highway 965		
Street Name		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cedar Entrance	Unsignalized	-	-	-	-	-	A	-	A	A	A	A	-
Heartland Drive	Signalized	D	C	C	C	C	C	C	B	A	C	B	A
Oakdale Blvd	Signalized	C	C	C	C	C	C	A	B	A	A	A	A
University Parkway	Unsignalized	E	E	E	-	-	-	A	A	A	A	A	A
New Access	Future	-	-	-	-	-	-	-	-	-	-	-	-
Forevergreen Road	Signalized	C	C	C	C	C	C	A	A	A	A	A	A
Sara Court	Unsignalized	-	-	-	A	-	A	-	A	A	A	A	-
Ashley Court	Unsignalized	-	-	-	D	-	D	-	A	A	A	A	-
Lions Drive	Unsignalized	E	E	E	-	-	-	A	A	A	A	A	A
Hawkeye Drive	Unsignalized	-	-	-	E	E	E	A	A	A	A	A	A
Golfview Drive	Unsignalized	-	-	-	C	-	C	-	A	A	A	A	-
Fairview Lane	Unsignalized	D	D	D	-	-	B	A	A	A	A	A	A
Westwood Drive	Signalized	C	C	C	C	C	C	B	B	B	A	A	A
Zeller Street	Signalized	C	C	C	C	C	C	A	A	A	A	A	A
Commercial Drive	Unsignalized	E	E	E	E	E	E	A	A	A	B	B	B
Cherry Street	Unsignalized	E	E	E	-	-	-	A	A	A	B	B	B
Community Drive	Unsignalized	A	A	A	D	D	D	A	A	A	A	A	A
Penn Street	Signalized	B	C	B	B	B	B	B	B	B	B	B	B
Pacha Parkway	Signalized	-	-	-	A	-	A	-	A	A	A	A	-
Dubuque	Unsignalized	-	-	-	B	B	B	A	A	A	A	A	A
240th St	Unsignalized	C	C	C	C	C	C	A	A	A	A	A	A
230th St	Unsignalized	B	-	B	-	-	-	A	A	-	-	A	A

2035 3 Lane		Approach Levels of Service											
		Side Street			Side Street			Highway 965			Highway 965		
Street Name		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cedar Entrance	Unsignalized	-	-	-	-	-	A	-	A	A	A	A	-
Heartland Drive	Signalized	D	D	C	D	D	D	D	C	B	B	C	A
Oakdale Blvd	Signalized	D	D	D	D	D	D	A	B	A	C	B	A
University Parkway	Signalized	C	C	C	D	C	C	A	A	A	A	A	A
New Access	Signalized	D	D	D	C	D	D	B	C	B	B	A	A
Forevergreen Road	Signalized	B	C	C	B	C	C	C	C	C	C	C	C
Sara Court	Signalized	-	D	D	D	D	D	A	B	B	E	B	B
Ashley Court	Signalized	-	D	D	D	D	D	A	C	C	C	B	B
Lions Drive	Unsignalized	-	-	-	-	-	-	A	A	A	C	C	C
Hawkeye Drive	Unsignalized	-	-	-	-	-	-	A	A	A	B	B	B
Golfview Drive	Unsignalized	-	-	-	-	-	C	-	B	B	B	B	-
Fairview Lane	Unsignalized	E	B	B	-	-	-	A	A	A	A	A	A
Westwood Drive	Signalized	D	C	C	C	C	C	A	A	A	A	A	A
Zeller Street	Signalized	D	C	C	D	D	D	A	C	C	C	B	B
Commercial Drive	Unsignalized	-	-	-	-	-	-	A	A	A	B	B	B
Cherry Street	Signalized	D	D	D	D	D	D	A	A	A	A	A	A
Community Drive	Signalized	D	D	D	D	D	D	A	A	A	A	A	A
Penn Street	Signalized	C	D	C	C	C	C	A	B	A	B	C	C
Pacha Parkway	Signalized	-	-	-	B	-	A	-	A	A	A	A	-
Dubuque	Unsignalized	-	-	-	B	B	B	A	A	A	A	A	A
240th St	Unsignalized	C	B	B	C	B	B	A	A	A	A	A	A
230th St	Unsignalized	B	-	B	-	-	-	A	A	-	-	A	A



2035 5 Lane		Approach Levels of Service											
		Side Street			Side Street			Highway 965			Highway 965		
Street Name		EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Cedar Entrance	Unsignalized	-	-	-	-	-	B	-	A	A	A	A	-
Heartland Drive	Signalized	C	D	C	D	D	D	B	B	B	A	A	A
Oakdale Blvd	Signalized	D	D	D	D	D	D	B	B	A	C	A	A
University Parkway	Signalized	C	C	C	D	D	D	A	A	A	B	A	A
New Access	Signalized	E	D	D	D	D	D	C	B	B	D	B	B
Forevergreen Road	Signalized	D	C	C	C	C	C	B	B	A	D	B	A
Sara Court	Signalized	E	D	D	D	D	C	A	A	A	C	B	B
Ashley Court	Signalized	D	D	D	D	D	D	A	A	A	B	A	A
Lions Drive	Unsignalized	-	-	-	-	-	-	B	B	B	B	B	B
Hawkeye Drive	Unsignalized	-	-	-	-	-	C	B	B	B	B	B	B
Golfview Drive	Unsignalized	-	-	-	-	-	C	-	B	B	B	B	-
Fairview Lane	Unsignalized	-	C	C	F	B	B	B	B	B	B	B	B
Westwood Drive	Signalized	D	C	C	D	D	D	A	A	A	B	A	A
Zeller Street	Signalized	D	D	D	D	D	D	A	B	B	B	B	B
Commercial Drive	Unsignalized	D	D	D	D	D	D	A	A	A	B	B	B
Cherry Street	Signalized	D	D	D	D	D	D	A	A	A	A	A	A
Community Drive	Signalized	D	D	D	D	D	D	A	A	A	A	A	A
Penn Street	Signalized	C	D	C	C	C	C	B	B	B	B	C	C
Pacha Parkway	Signalized	-	-	-	B	-	B	-	A	A	A	A	-
Dubuque	Unsignalized	-	-	-	C	C	C	A	A	A	A	A	A
240th St	Unsignalized	C	B	B	C	B	B	A	A	A	A	A	A
230th St	Unsignalized	B	-	B	-	-	-	A	A	-	-	A	A

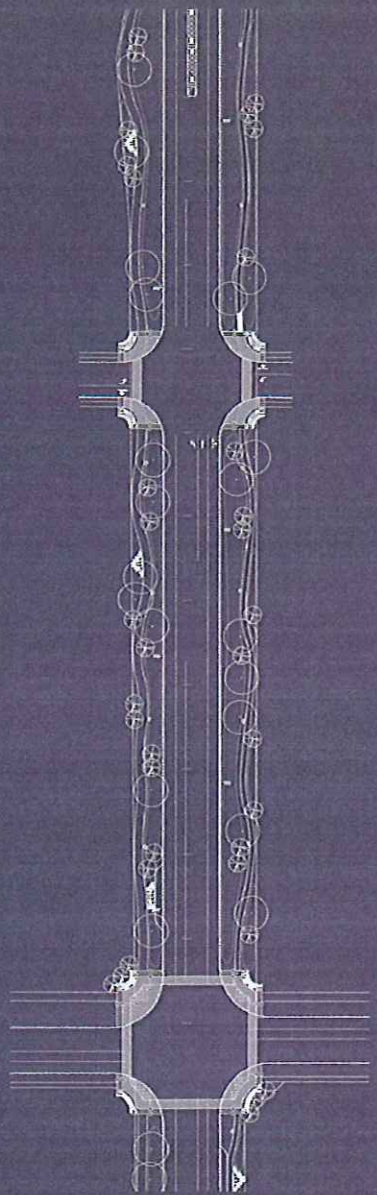
LANE LEVEL OF SERVICE COMPARISON

By comparing the 2007, 2035 3-lane, and 2035 5-lane Level of Service chart we can see that there are some intersections that are starting to experience higher delays on the side streets. They are highlighted by yellow for LOS E and red for LOS F. The 3-lane chart clearly shows more approaches operating at LOS F than the 2007 chart. The 5-lane chart shows fewer approaches operating at LOS F, even with greater traffic volumes than the 3-lane scenario.

Note, the lane Levels of Service come from the Highway Capacity Software reports generated by Synchro for both the signalized and unsignalized intersections. The levels of service are based on the delay measured at each intersection based on the volume of traffic projected to pass through the intersection. The calculations do not include interaction between intersections which can result in a lower level of service than is shown in this chart. Refer to the Arterial delay charts to see the corridor operation.



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Highway 965
Corridor Master Plan

November 2008



F. PROPOSED DESIGN CRITERIA

The standards and criteria chosen for the Highway 965 Corridor Master Plan reflect the current policies of the Iowa Department of Transportation Design Guides, the Statewide Urban Design and Specifications (SUDAS), AASHTO Policy on Geometric Design of Highways and Streets, and the 2005 Iowa Primary Road Access Management Policy.

Following are some of the design criteria used to develop the Corridor Master Plan;

Design Speed

The design speed chosen is typically 5 mph higher than the posted speed limit. This design speed is then used to determine the geometric requirements of the roadway.

Level of Service

Level of Service (LOS) is a measure of the operating conditions of a roadway. It is a measure of traffic performance, and is dependent upon speed, travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Level of Service ranges from A (least congested) to F (most congested).

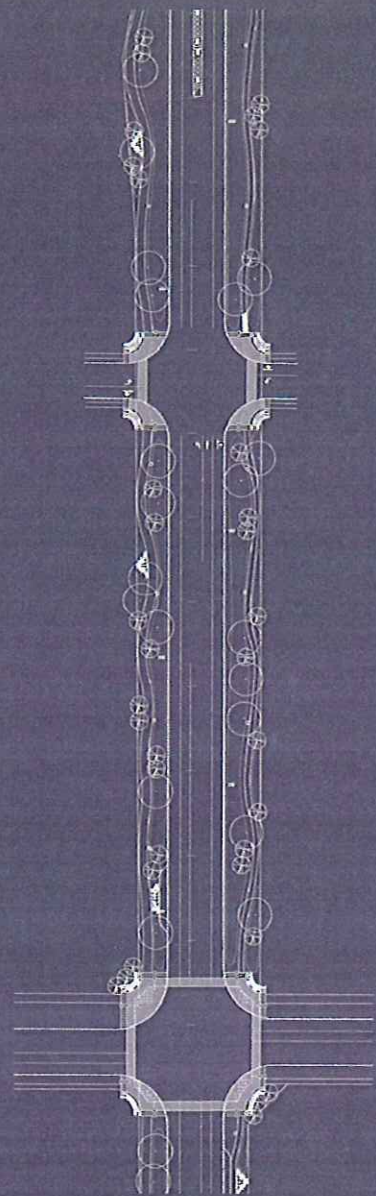
Access Management

Proper management of access along an arterial roadway is critical for maintaining traffic flow. Minimizing the number of access points along a roadway improves the safety and traffic flow of the roadway by reducing the number of decisions required by the motorist.

Recommended access spacing is dependent upon the design speed and classification of the roadway. The recommended access spacing for the Highway 965 Corridor is shown in the design criteria table on the following page. In addition, plan sheets F.03, F.04, and F.05 illustrate the recommended access management plan for the Highway 965 Corridor. The plan sheets show several existing driveways in the "restricted zones". Due to the proximity of these drives to the adjacent accesses, the recommendation is to eliminate these drives in the future when the land use changes, or as the City deems appropriate.

Clear Zone

The intent of the clear zone is to provide motorists with an unobstructed area outside of the roadway. The clear zone is the area adjacent to the roadway that must be free from all objects (light poles, traffic signals, sign posts, etc.) that could interfere with the motorists ability to regain control of the vehicle. Clear zone distance requirements are dependent upon several factors including; traffic volumes, vehicle speeds, and type of roadway.



Highway 965 Corridor Master Plan

November 2008



DESIGN ELEMENT	CHOSEN CRITERIA	COMMENT
Roadway Classification	Arterial	
Design Speed Holiday Road to Oakdale Blvd Oakdale Blvd to Forevergreen Rd Forevergreen Rd to Lions Dr Lions Dr. to 230 th St.	50 mph 50 mph 50 mph 40 mph	Posted Speed, 45 mph Posted Speed, 45 mph (now 55) Posted Speed, 45 mph Posted Speed, 35 mph
Level of Service Intersection & Arterial	C or above	IDM Section 1C-1
Access Management 40 mph 45-50 mph	300 ft. Spacing 600 ft. Spacing	SUDAS 5C-1, Priority IV-b SUDAS 5C-1, Priority IV-a
Curb Radii Minimum	30 ft.	SUDAS 5C-2
Stopping Sight Distance 40 mph 45 mph 50 mph	305 ft. 360 ft. 425 ft.	Varies by speed. Refer to IDM Section 1C-1
Horizontal Alignment Curve Radius 40 mph 45 mph 50 mph	565 ft. min. 730 ft. min. 930 ft. min.	IDM Section 1C-1
Vertical Alignment Maximum Grade Minimum Grade Crest Curve Minimum K 40 mph 45 mph 50 mph Sag Curve Minimum K 40 mph 45 mph 50 mph	6% 0.5% 44/70 61/100 84/140 64 79 96	IDM Section 1C-1 IDM Section 1C-1 IDM Section 1C-1 Minimum/Desirable IDM Section 1C-1
Lane Geometry Lane Width Through & Turning Lanes Bi-directional Turning Lanes Thru Lane Add Taper Rate Thru Lane Drop Taper Rate	12 ft. 14 ft. 15:1 30:1	IDM Section 1C-1 IDM Section 1C-1 IDM Section 6C-1 IDM Section 6C-1
Lateral Clearance (From Back of Curb) 40 mph 45 mph 50 mph	10 ft. 15 ft. 15 ft.	IDM Section 1C-2
Curb & Gutter Curb Size & Type 35 mph (Posted) 40 mph (Posted) 45 mph (Posted) Width	6 in. Standard 6 in. Sloped 6-in. Sloped 2.5 ft.	IDM Section 3C-2
Pedestrian Accommodations Multi-Use Path Width Sidewalk Width	10 ft. 5 ft. 4 ft.	Minimum, IDM Section 11A-1 Preferred, IDM Section 11A-2 Minimum, IDM Section 11A-2 (Requires 5 ft. by 5 ft. passing space every 200 ft.) Comment

Sources

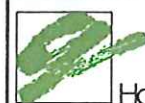
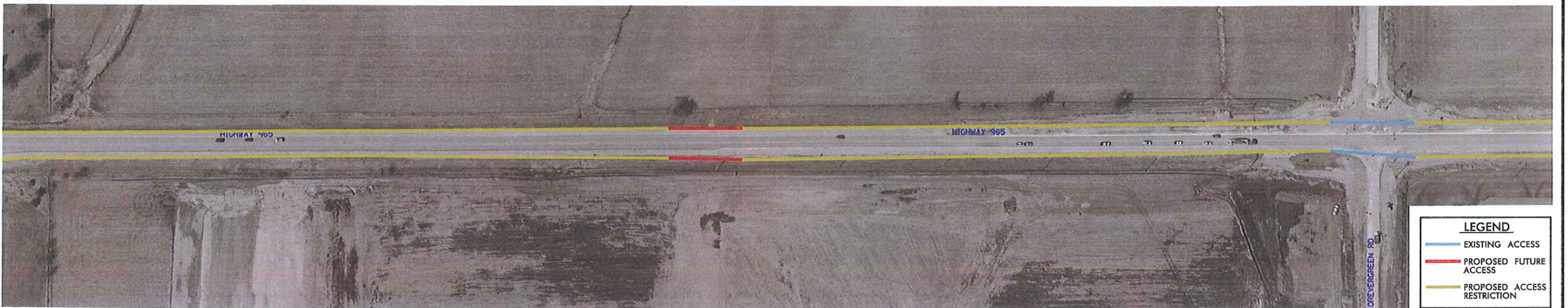
1. Iowa DOT Design Manual (IDM)
2. Iowa Statewide Urban Design and Specifications (SUDAS)
3. AASHTO Policy on Geometric Design of Highways and Streets
4. 2005 Iowa Primary Road Access Management Policy

PROPOSED DESIGN CRITERIA

SHEET NO.

F.02

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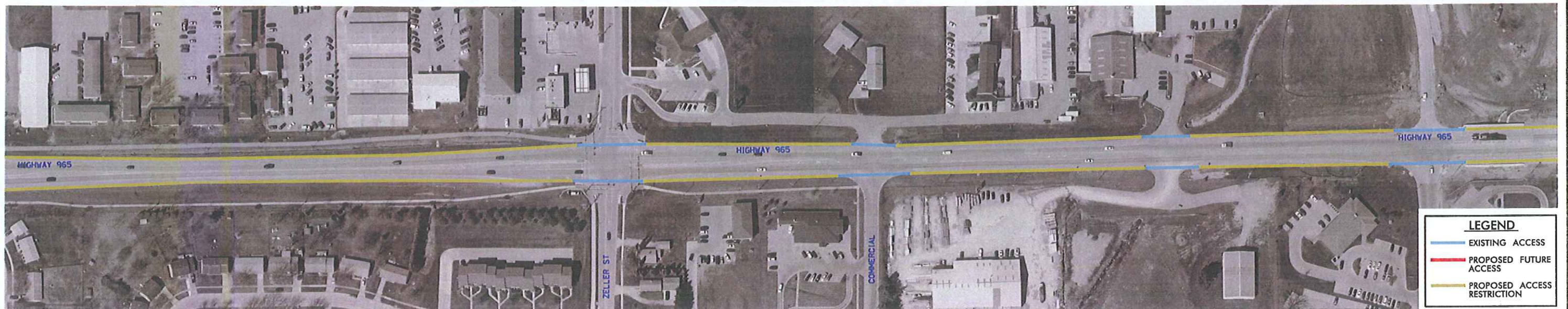
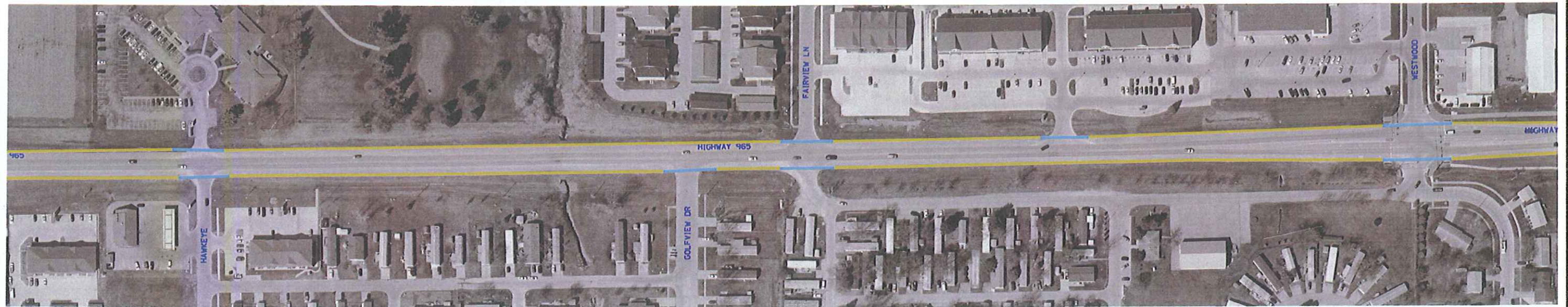


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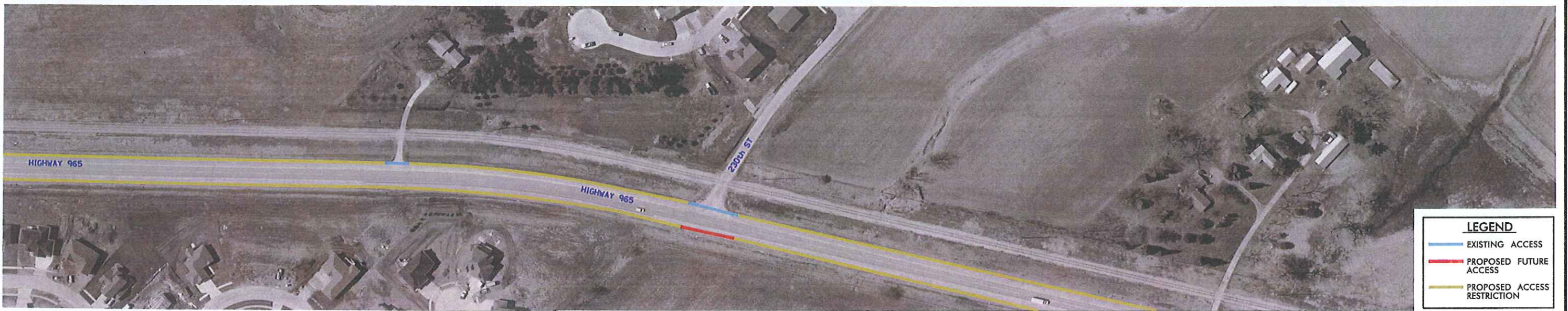
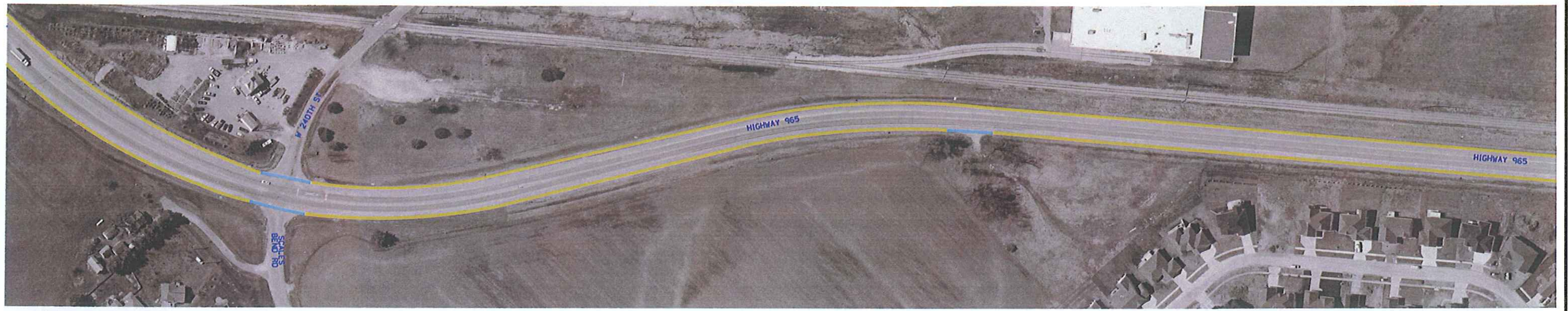
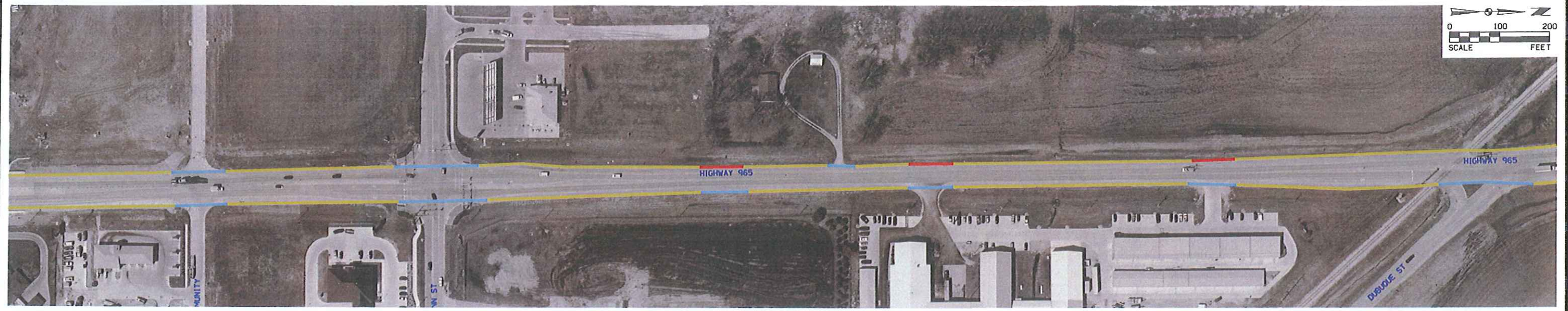
HIGHWAY 965 CORRIDOR MASTER PLAN
NORTH LIBERTY/CORALVILLE
IOWA 2008

ACCESS MANAGEMENT PLAN

SHEET NO.
F.03



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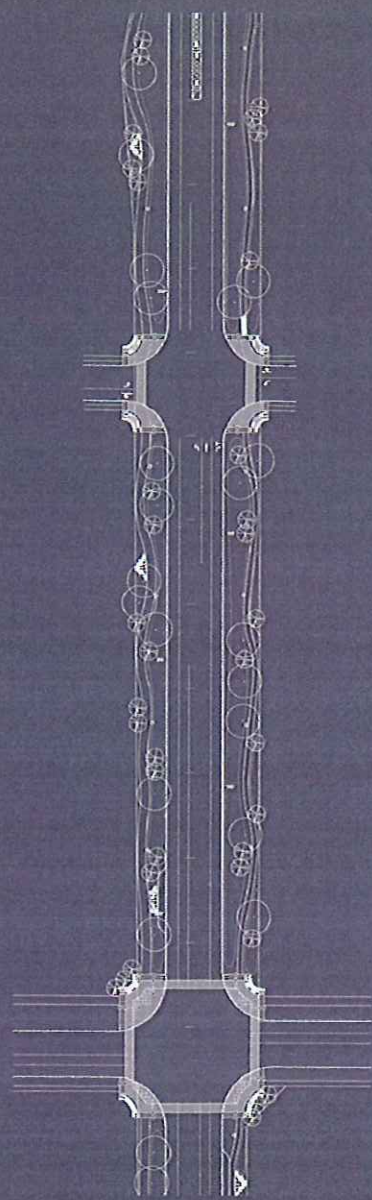
- EXISTING ACCESS
- PROPOSED FUTURE ACCESS
- PROPOSED ACCESS RESTRICTION

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NORTH LIBERTY/CORALVILLE
IOWA 2008

ACCESS MANAGEMENT PLAN

SHEET NO.
F.05



Highway 965 Corridor Master Plan

November 2008



G. PROPOSED TYPICAL PLANS AND SECTIONS

The proposed design criteria and the results of the traffic analysis were the basis for creating the typical sections. Several alternative sections were considered during the study to try and best meet the main goal of the project a balanced solution for all users. The study addressed multiple objectives to satisfy including;

- Overall Corridor Functionality
- Improved Traffic Flow and Capacity
- Improved Pedestrian Safety and Accessibility
- Enhanced Corridor Aesthetics
- A Distinct Image for North Liberty and Coralville
- Design for the Environment

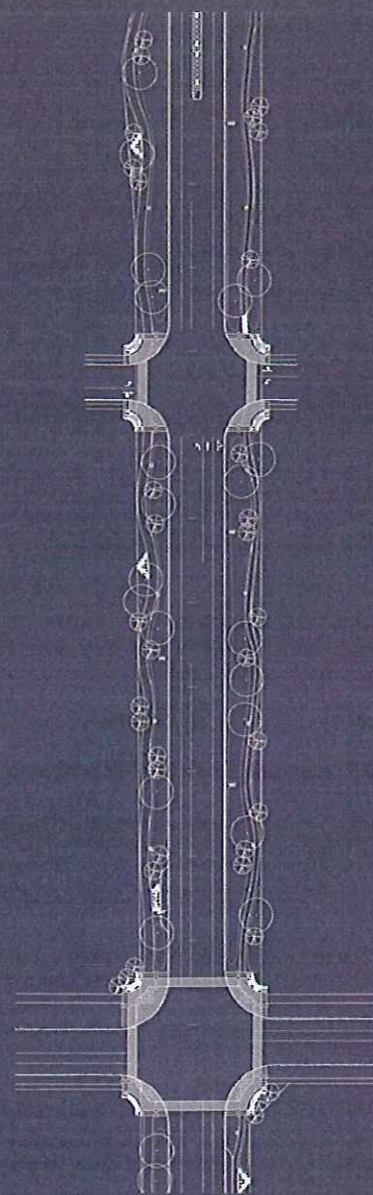
Urban and Rural Sections

Both urban and rural sections were analyzed during the study. The recommendation is to construct a modified urban section for the majority of the Corridor. Curb and gutter will be added to the roadway to allow for the aesthetic enhancements behind the curb, which will increase the visual appearance of the Corridor and, along with the curb and gutter, will act as a natural traffic calming device. The urban concept will include a combination of storm sewer, open ditches, and bioswales to accommodate storm water runoff and design for the environment. At 240th Street the Corridor transitions back to a rural section, while maintaining pedestrian facilities to the northern project limits.

Roadway Width

The study also considered several lane configurations to satisfy the project objectives. As discussed in the traffic analysis, the two main alternatives were a 3-Lane Section and a 5-Lane Section. The recommendation of the Corridor Master Plan is to construct a 5-Lane Section for the majority of the Corridor. In areas between major intersections where there are no turn lanes, and where the two way left turn lane is not required, the center lane will be a raised median, allowing for additional aesthetic enhancements and traffic calming.

The following drawings illustrate the typical roadway characteristics of the Highway 965 Corridor.



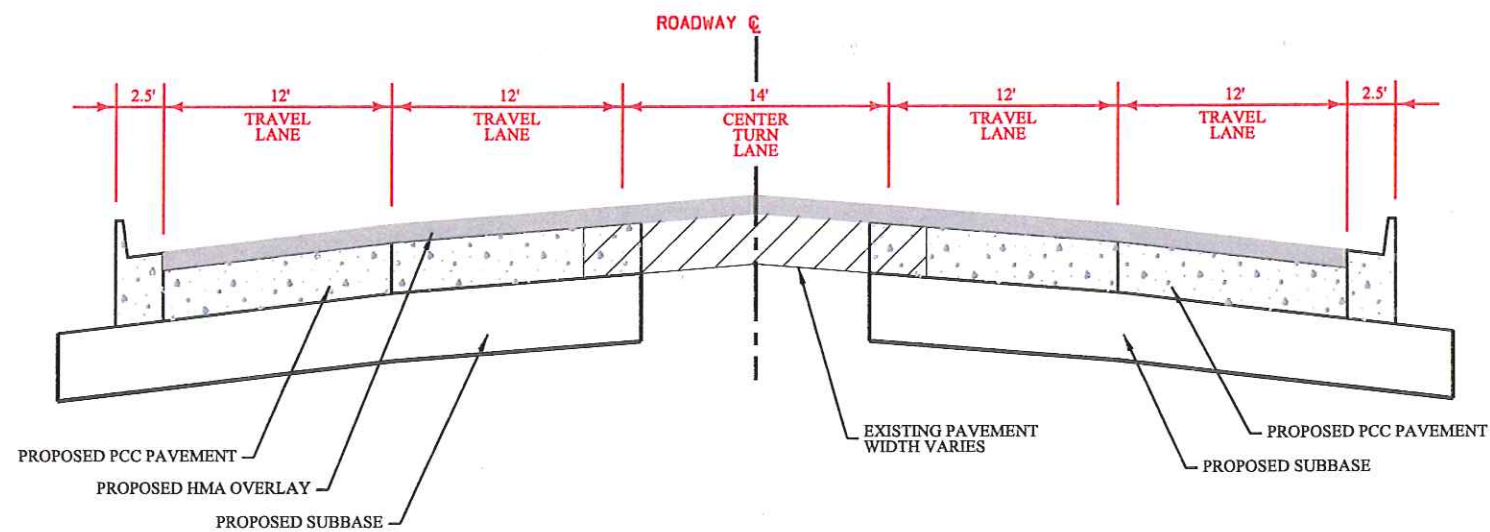
Highway 965 Corridor Master Plan

November 2008



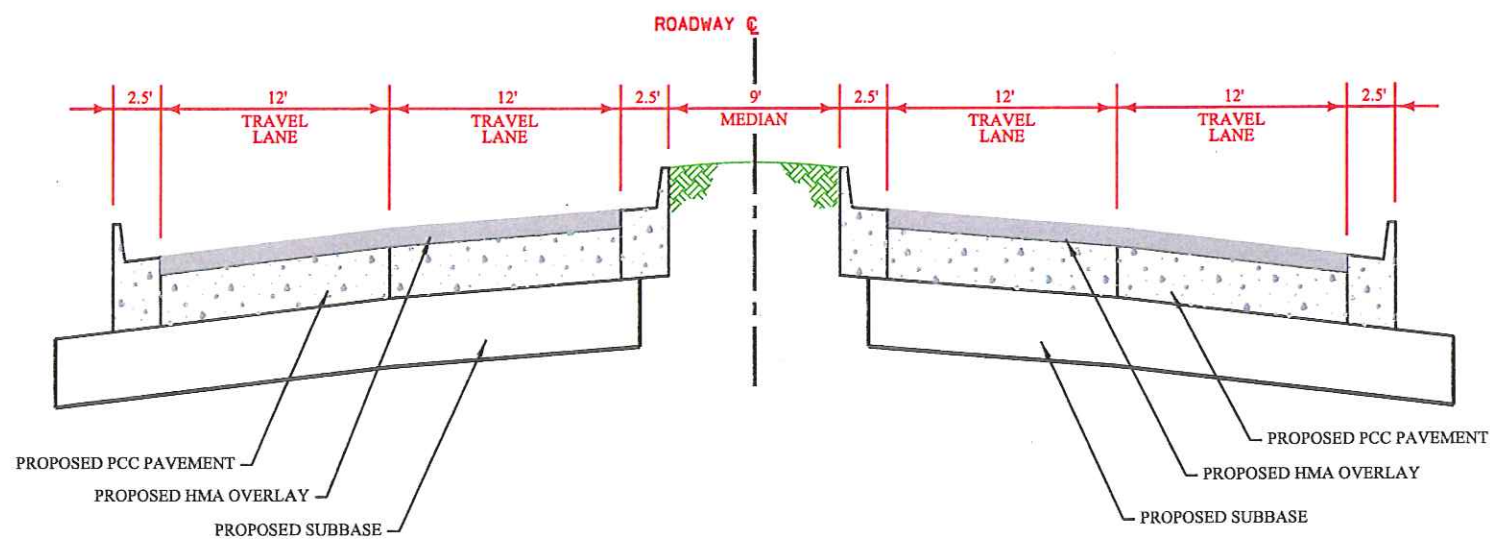
G. PROPOSED TYPICAL SECTIONS

The following drawings illustrate the typical roadway characteristics of the Highway 965 Corridor.



TYPICAL ROADWAY SECTION

5-LANE WITH CENTER TURN LANE



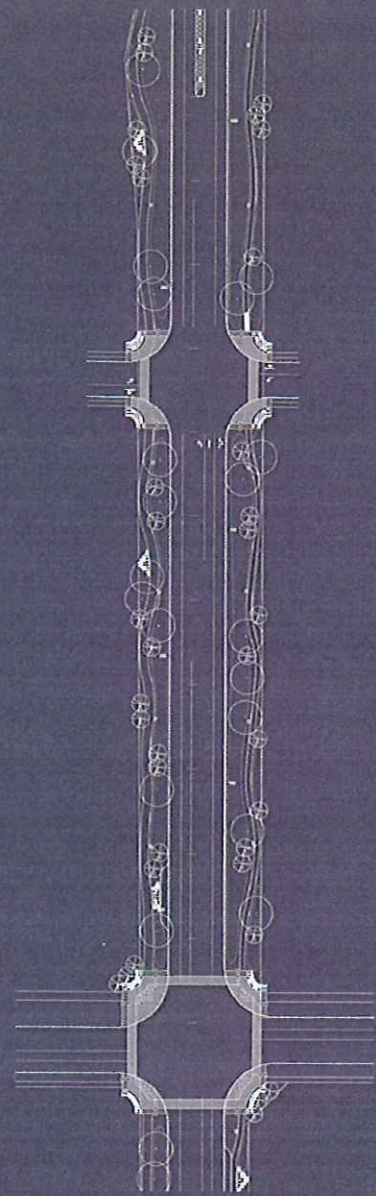
TYPICAL ROADWAY SECTION

5-LANE WITH MEDIAN

TYPICAL SECTIONS

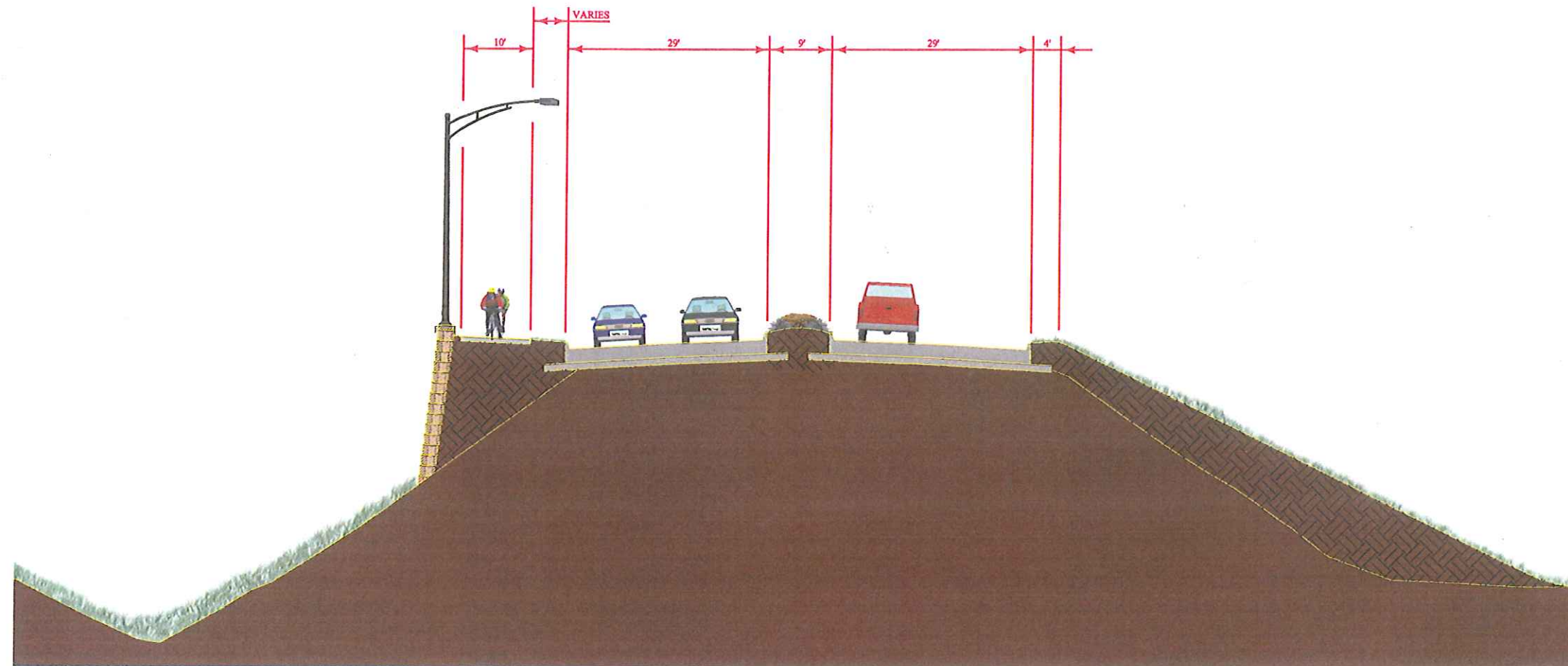
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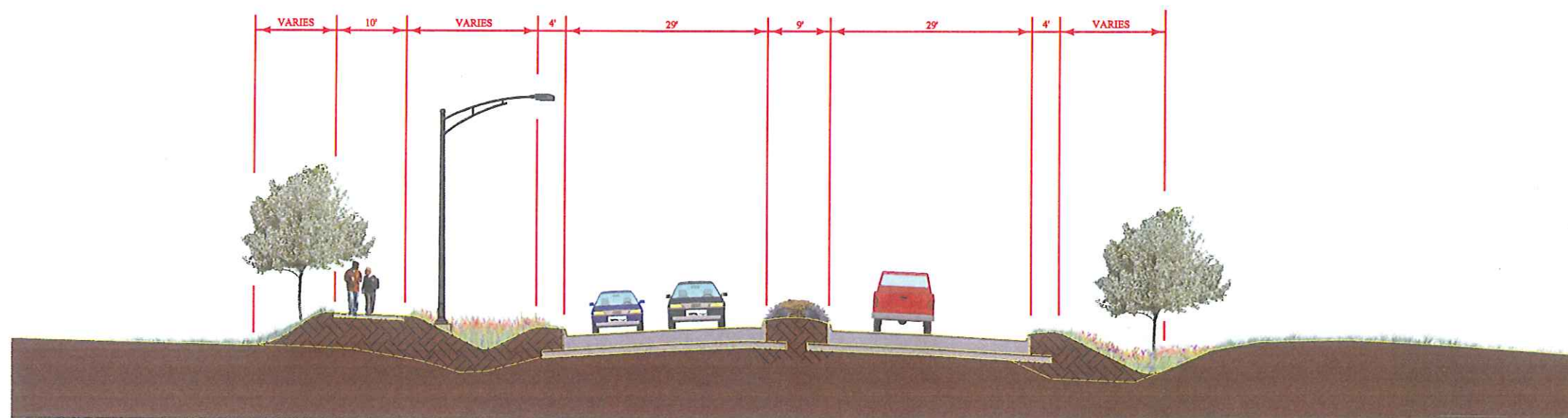


Highway 965 Corridor Master Plan

November 2008



TYPICAL SECTION
HOLIDAY ROAD TO OAKDALE BLVD.



TYPICAL SECTION
OAKDALE BLVD. TO UNIVERSITY PKWY.

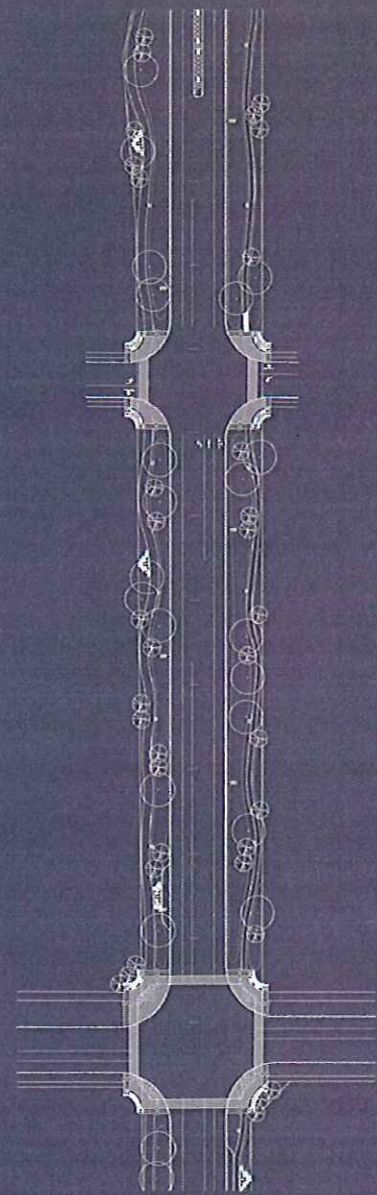


PROPOSED FILL

TYPICAL SECTIONS

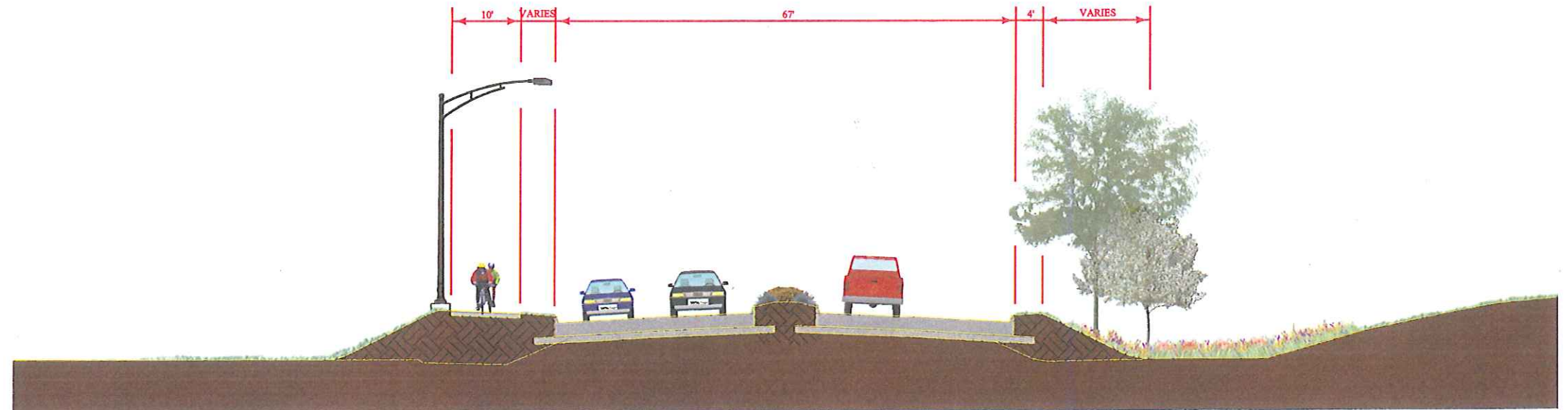
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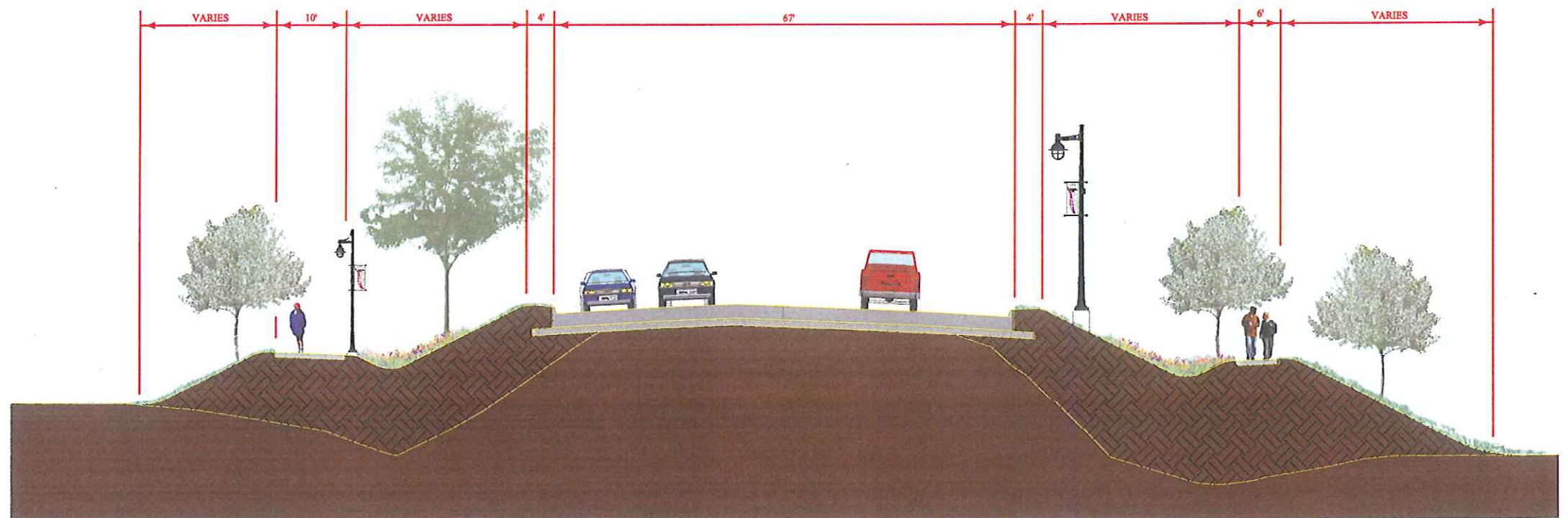
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November 2008



TYPICAL SECTION

UNIVERSITY PARKWAY TO FOREVERGREEN ROAD



TYPICAL SECTION

FOREVERGREEN ROAD TO SARA COURT

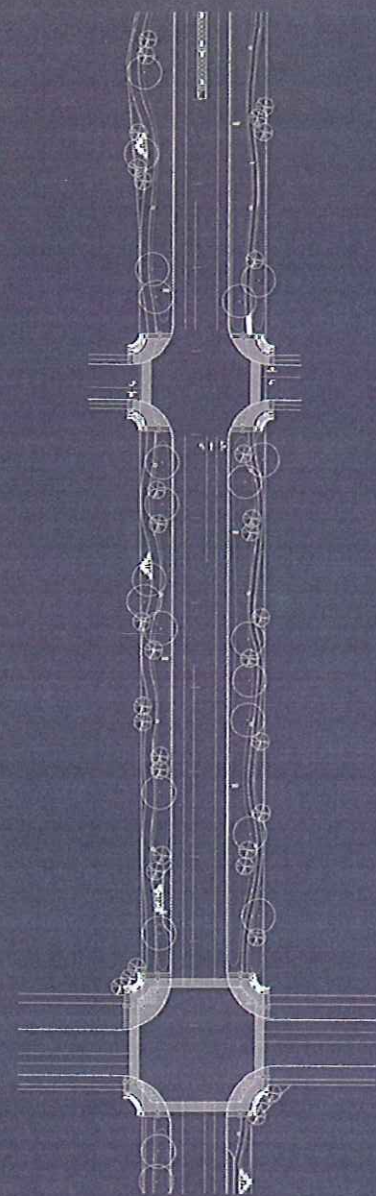


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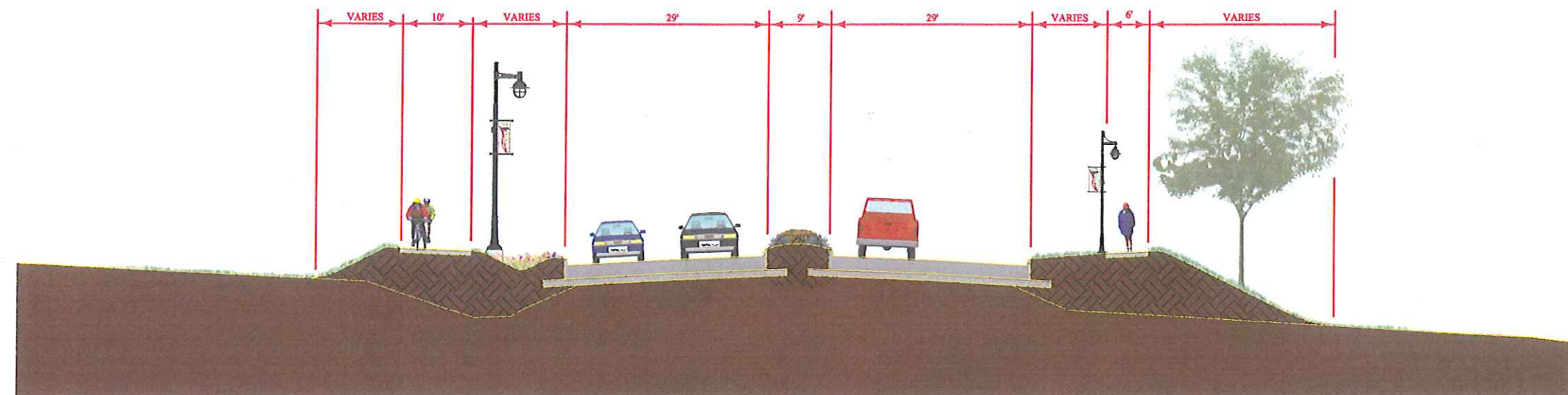
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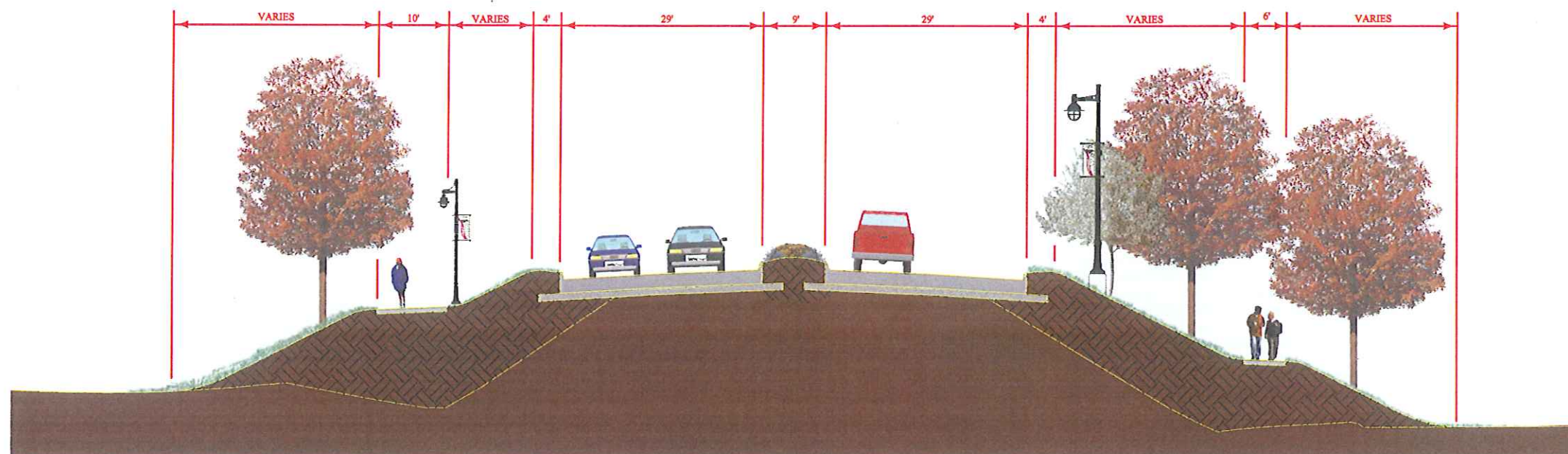


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November 2008



TYPICAL SECTION
ASHLEY COURT TO LIONS DRIVE/CLUBHOUSE ROAD
SARA COURT TO ASHLEY COURT

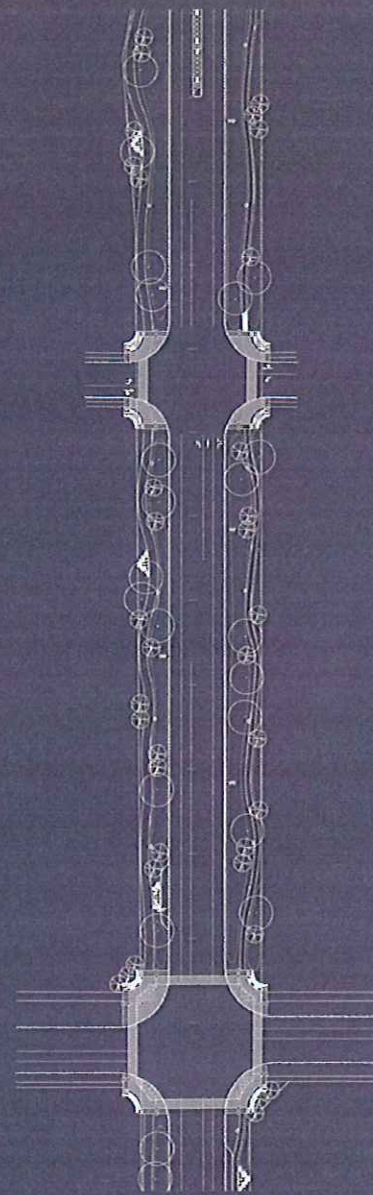


TYPICAL SECTION
LIONS DRIVE/CLUBHOUSE ROAD TO HAWKEYE DRIVE



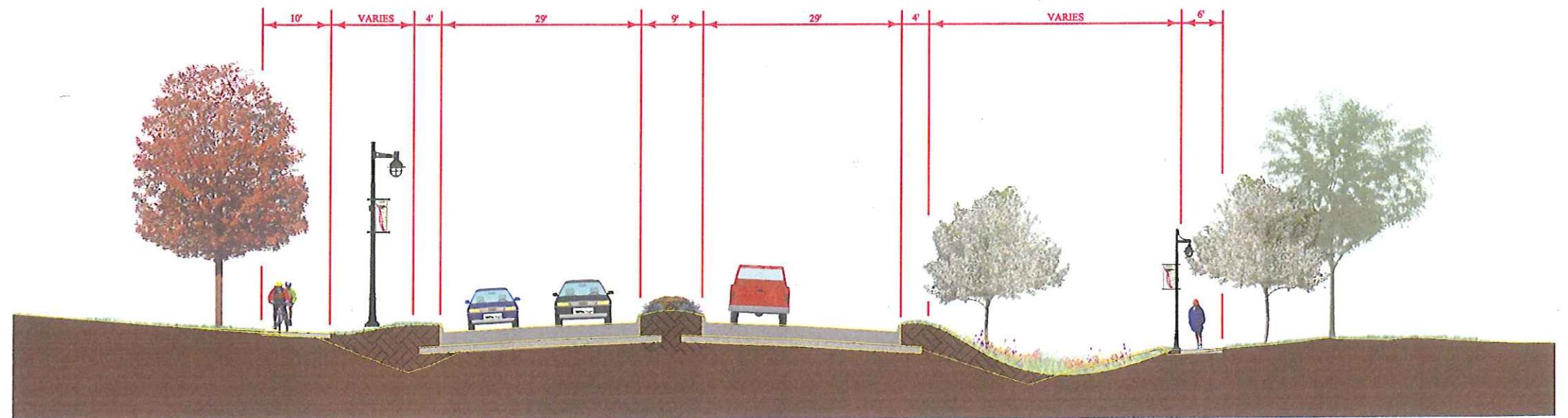
TYPICAL SECTIONS

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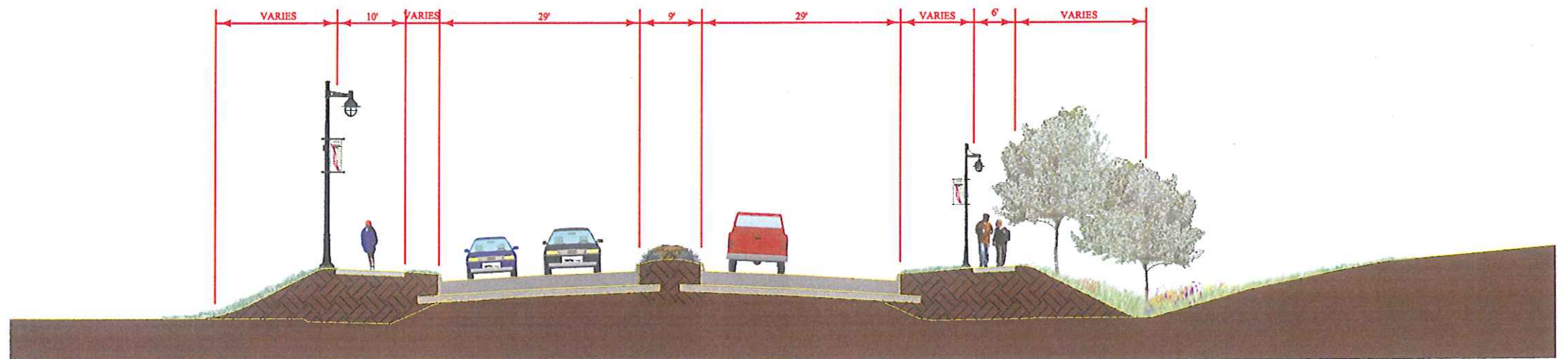


Highway 965 Corridor Master Plan

November 2008



TYPICAL SECTION
FAIRVIEW LANE TO WESTWOOD DRIVE
HAWKEYE DRIVE TO FAIRVIEW LANE



TYPICAL SECTION
WESTWOOD DRIVE TO ZELLER STREET

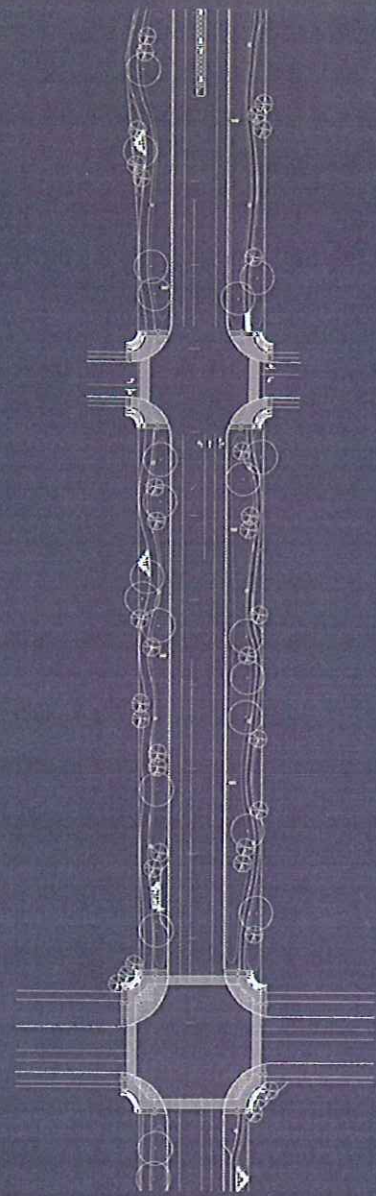
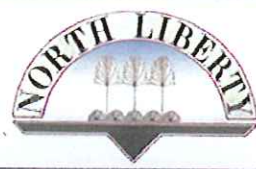


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TYPICAL SECTIONS

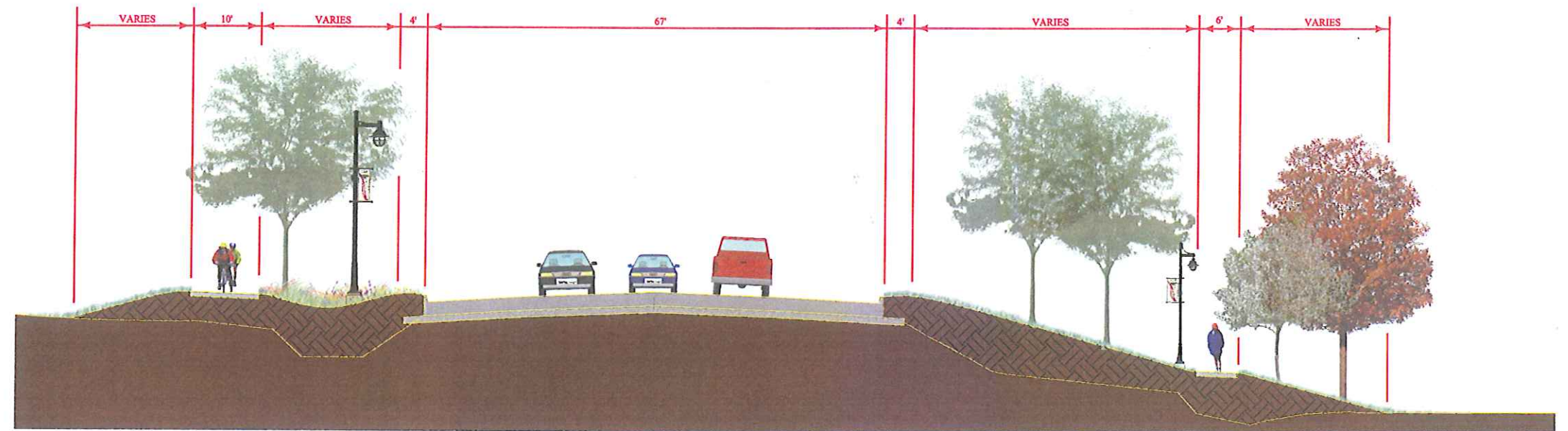
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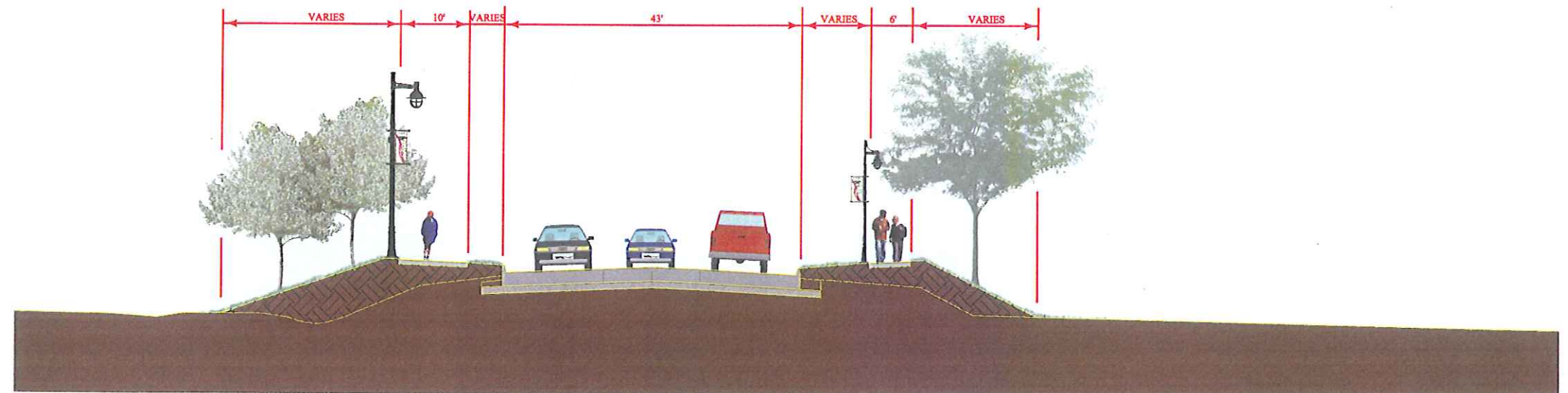
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November 2008



TYPICAL SECTION

ZELLER STREET TO COMMERCIAL DRIVE
COMMERCIAL DRIVE TO CHERRY STREET
CHERRY STREET TO COMMUNITY DRIVE
COMMUNITY DRIVE TO PENN STREET
PENN STREET TO PACHA PARKWAY



TYPICAL SECTION

PACHA PARKWAY TO 240TH STREET

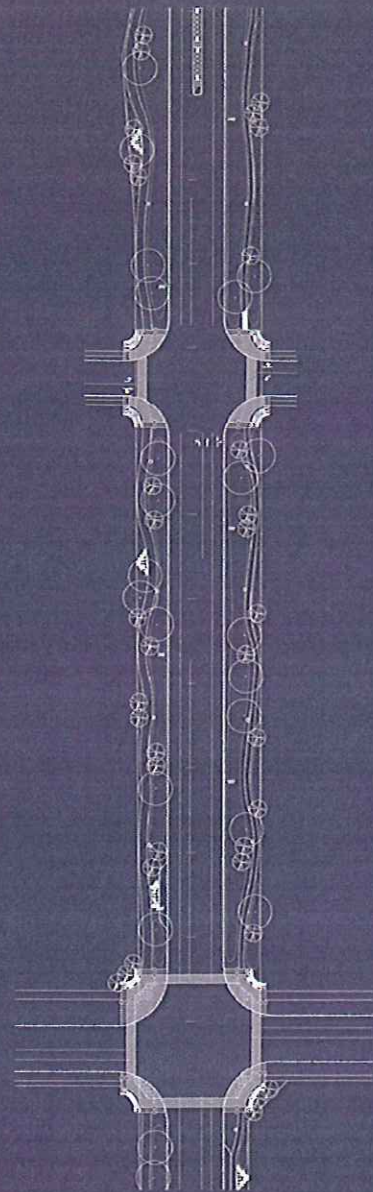


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TYPICAL SECTIONS

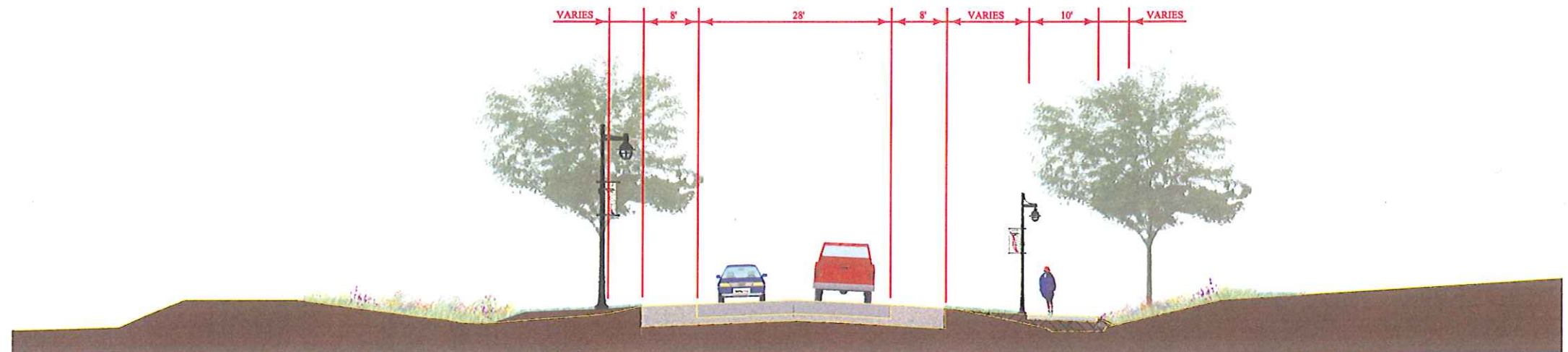
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Highway 965 Corridor Master Plan

November 2008

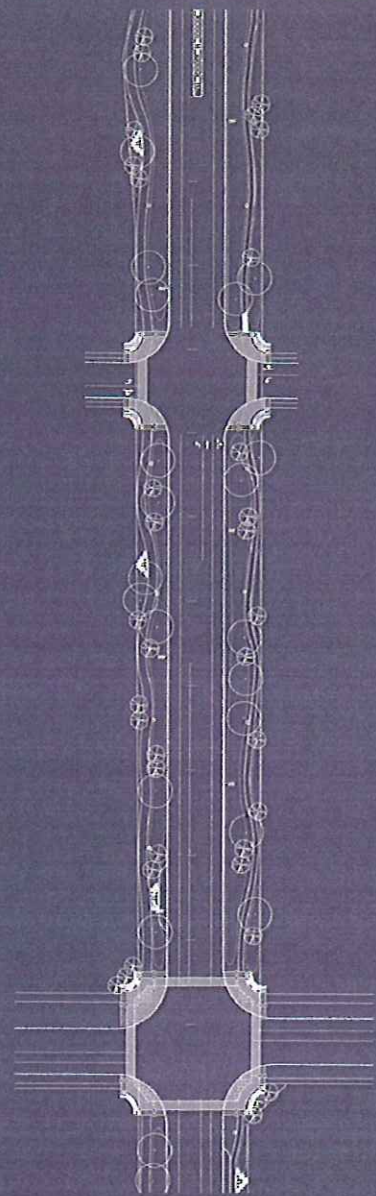


TYPICAL SECTION
240TH ST TO 230TH ST



TYPICAL SECTIONS

SHEET NO.
G.07



Highway 965 Corridor Master Plan

November 2008

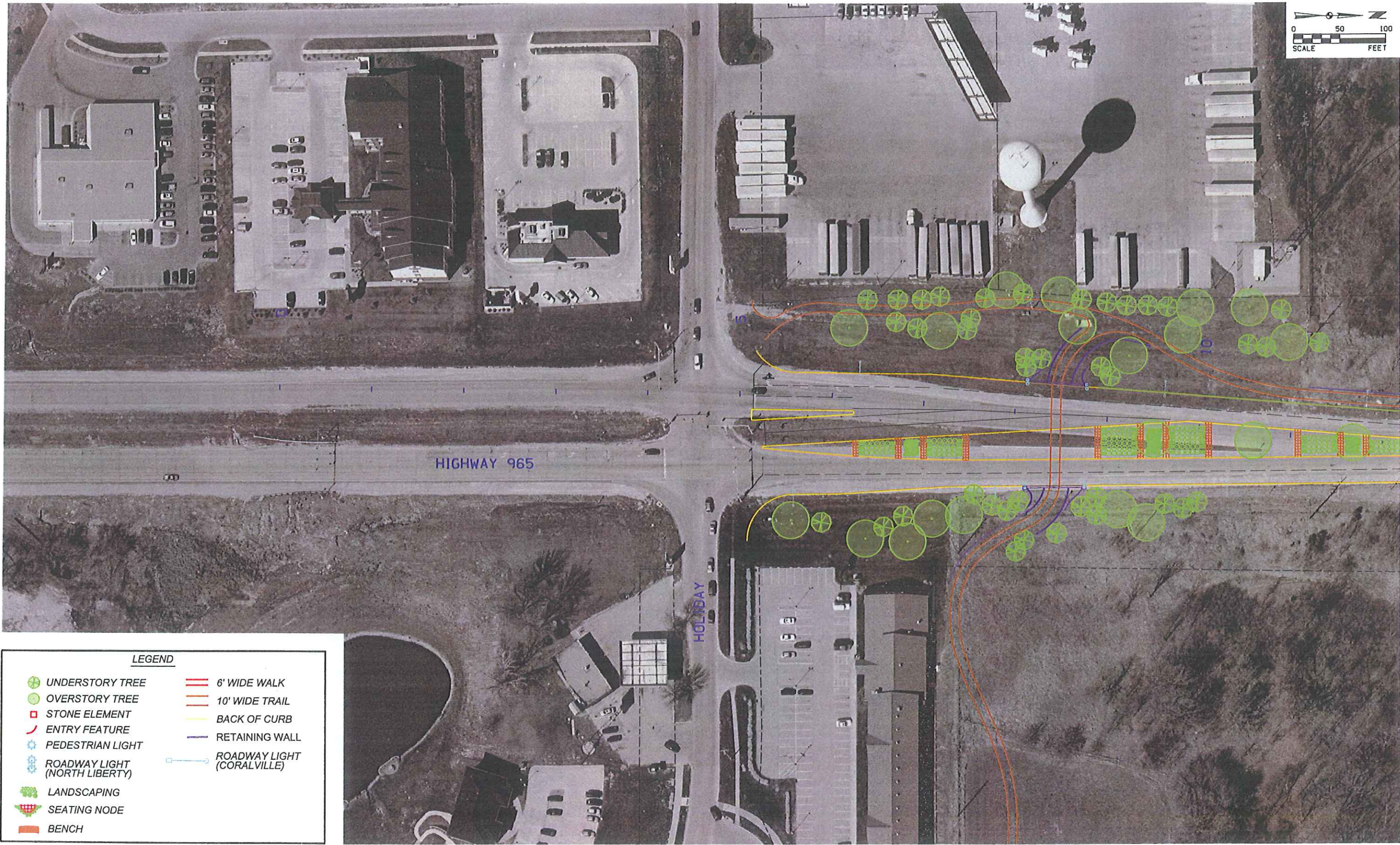


H. CONCEPTUAL ROADWAY DRAWINGS

Based on the typical sections, conceptual plan drawings were developed to determine the feasibility of the proposed improvements. These drawings may be used as a first step towards the development of final design plans, which would be needed for the construction of the proposed improvements.

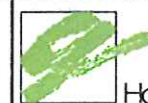
The Highway 965 Task Force identified a need for landscaping, streetscaping, and increased bicycle and pedestrian facilities along the corridor. Several concepts were developed early in the project, and based on comments received from City staff and the public, a final concept was developed. The following conceptual drawings indicate the roadway and streetscape treatments to be applied to the Highway 965 Corridor as recommended by this master plan. The section following these drawings will go into more detail regarding the streetscape and landscape recommendations for this corridor.

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LEGEND

- | | |
|----------------------------|-------------------------------|
| UNDERSTORY TREE | 6' WIDE WALK |
| OVERSTORY TREE | 10' WIDE TRAIL |
| STONE ELEMENT | BACK OF CURB |
| ENTRY FEATURE | RETAINING WALL |
| PEDESTRIAN LIGHT | ROADWAY LIGHT (NORTH LIBERTY) |
| ROADWAY LIGHT (CORALVILLE) | |
| LANDSCAPING | |
| SEATING NODE | |
| BENCH | |



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NORTH LIBERTY/CORALVILLE
IOWA 2008

CONCEPTUAL ROADWAY PLAN

SHEET NO.
H.01

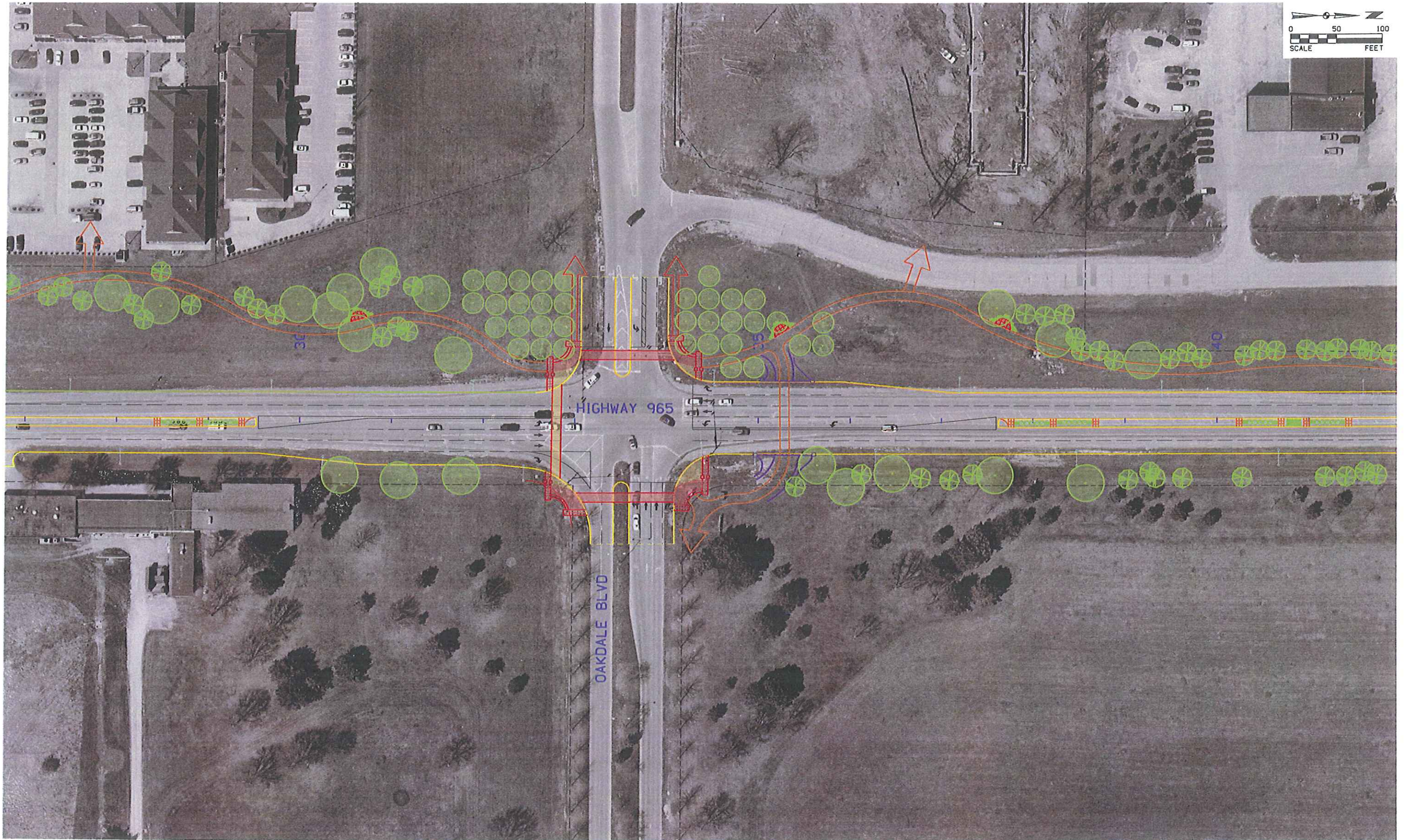


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CONCEPTUAL ROADWAY PLAN

SHEET NO.
H.02



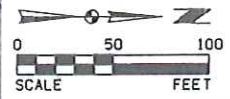
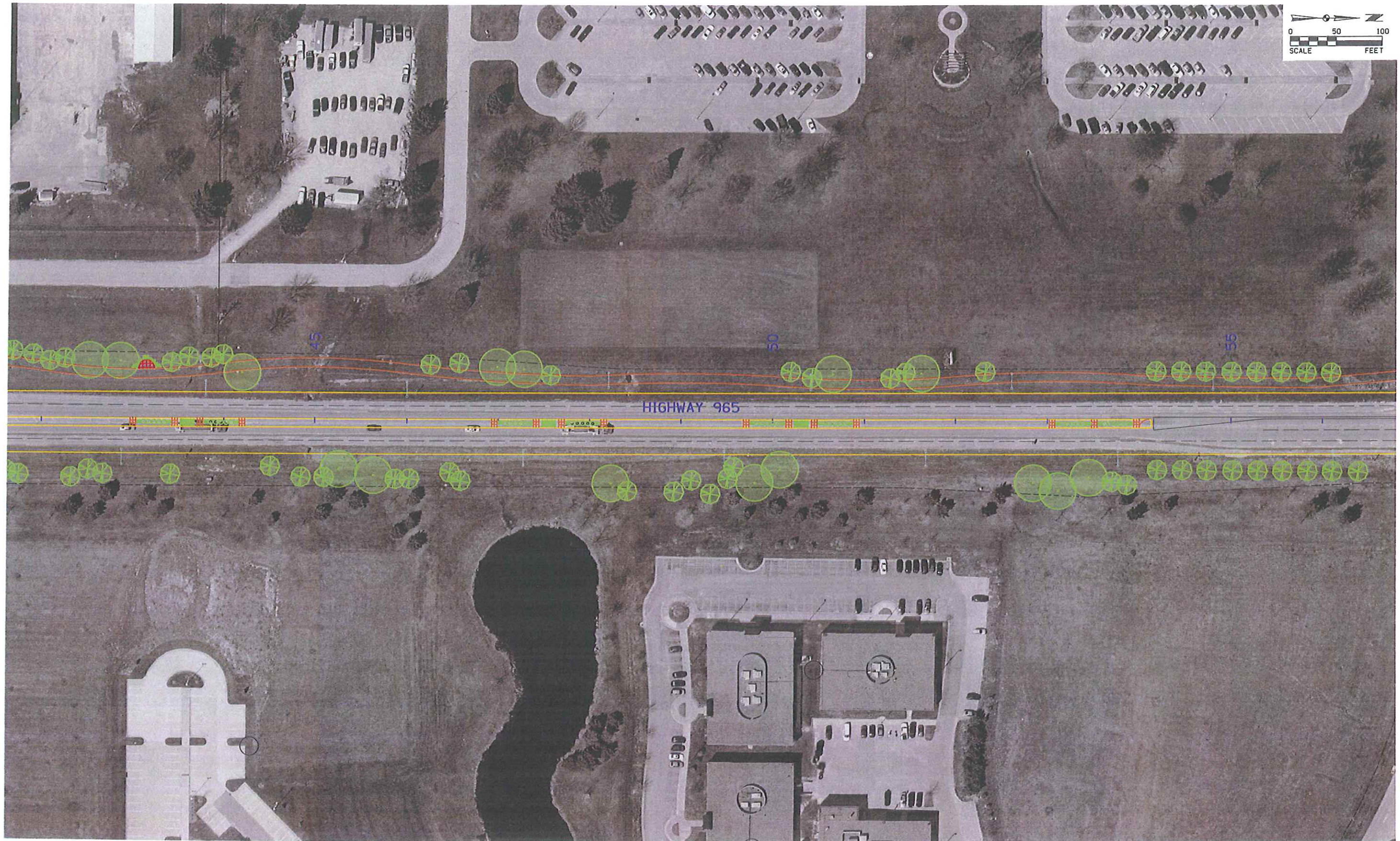
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IOWA 2008

CONCEPTUAL ROADWAY PLAN

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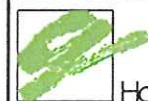


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CONCEPTUAL ROADWAY PLAN

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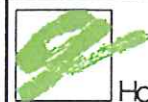
HIGHWAY 965 CORRIDOR MASTER PLAN
NORTH LIBERTY/CORALVILLE
IOWA 2008

CONCEPTUAL ROADWAY PLAN

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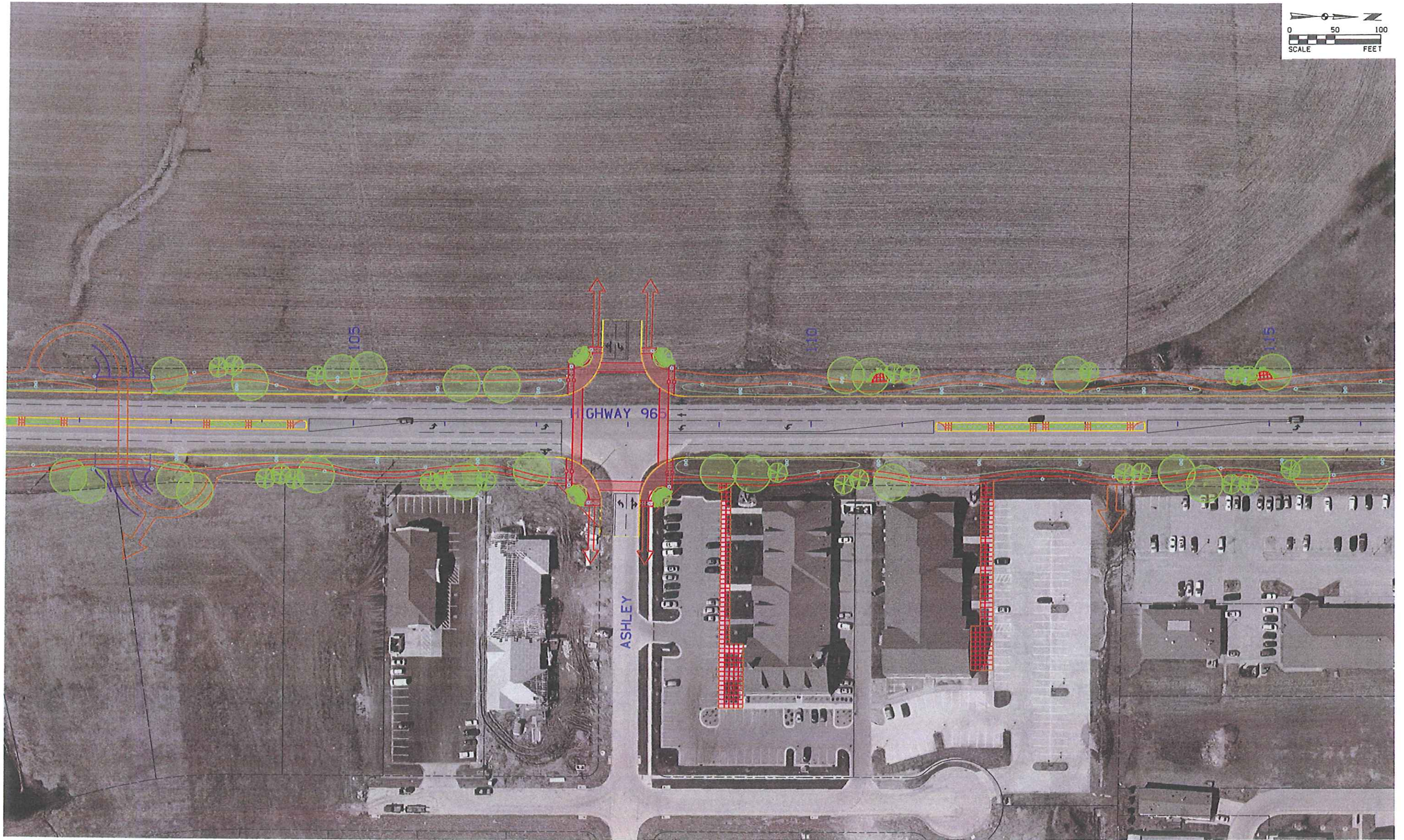


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NORTH LIBERTY/CORALVILLE
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CONCEPTUAL ROADWAY PLAN

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H.06



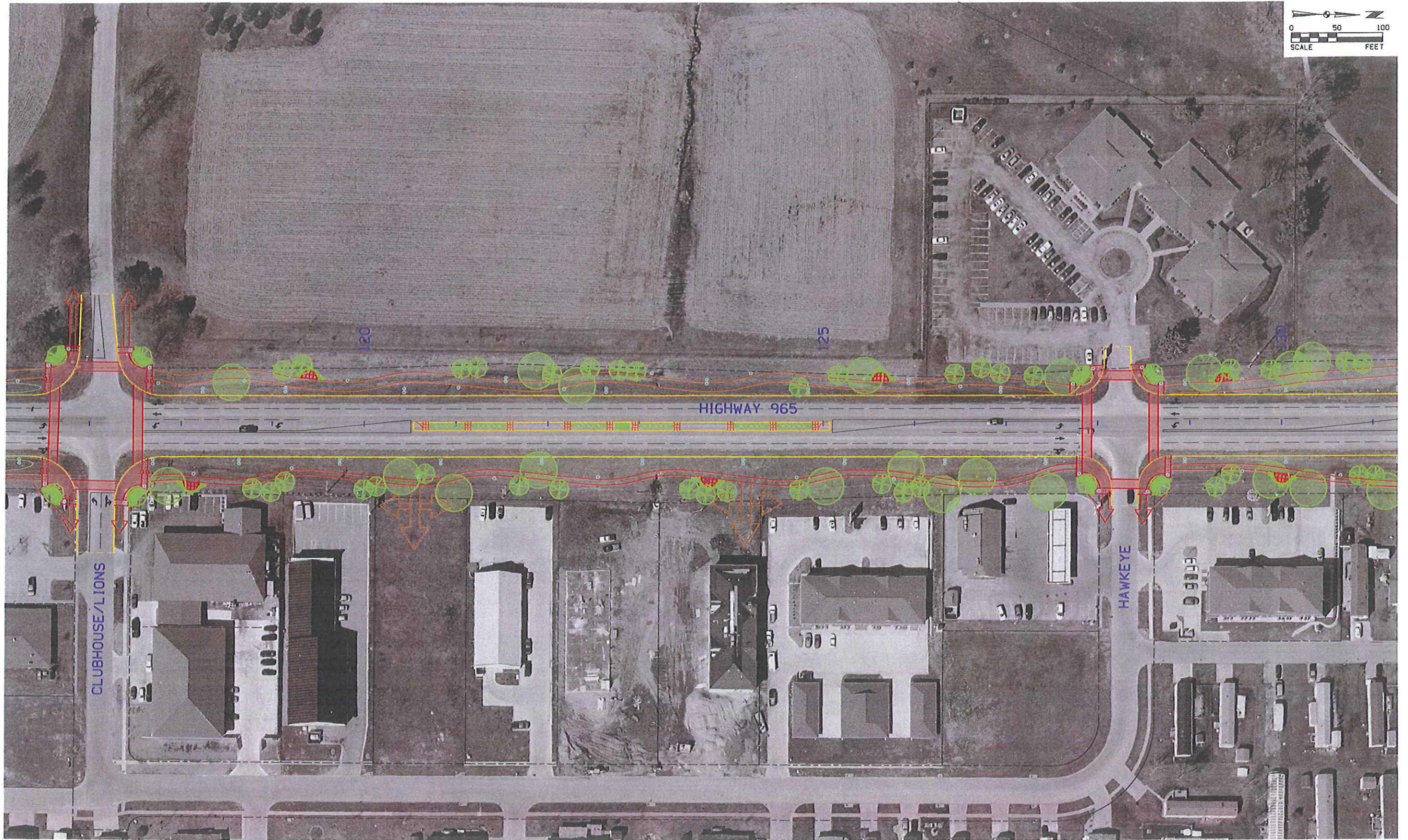
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NORTH LIBERTY/CORALVILLE
IOWA 2008

CONCEPTUAL ROADWAY PLAN

SHEET NO.

H.08



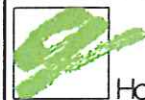
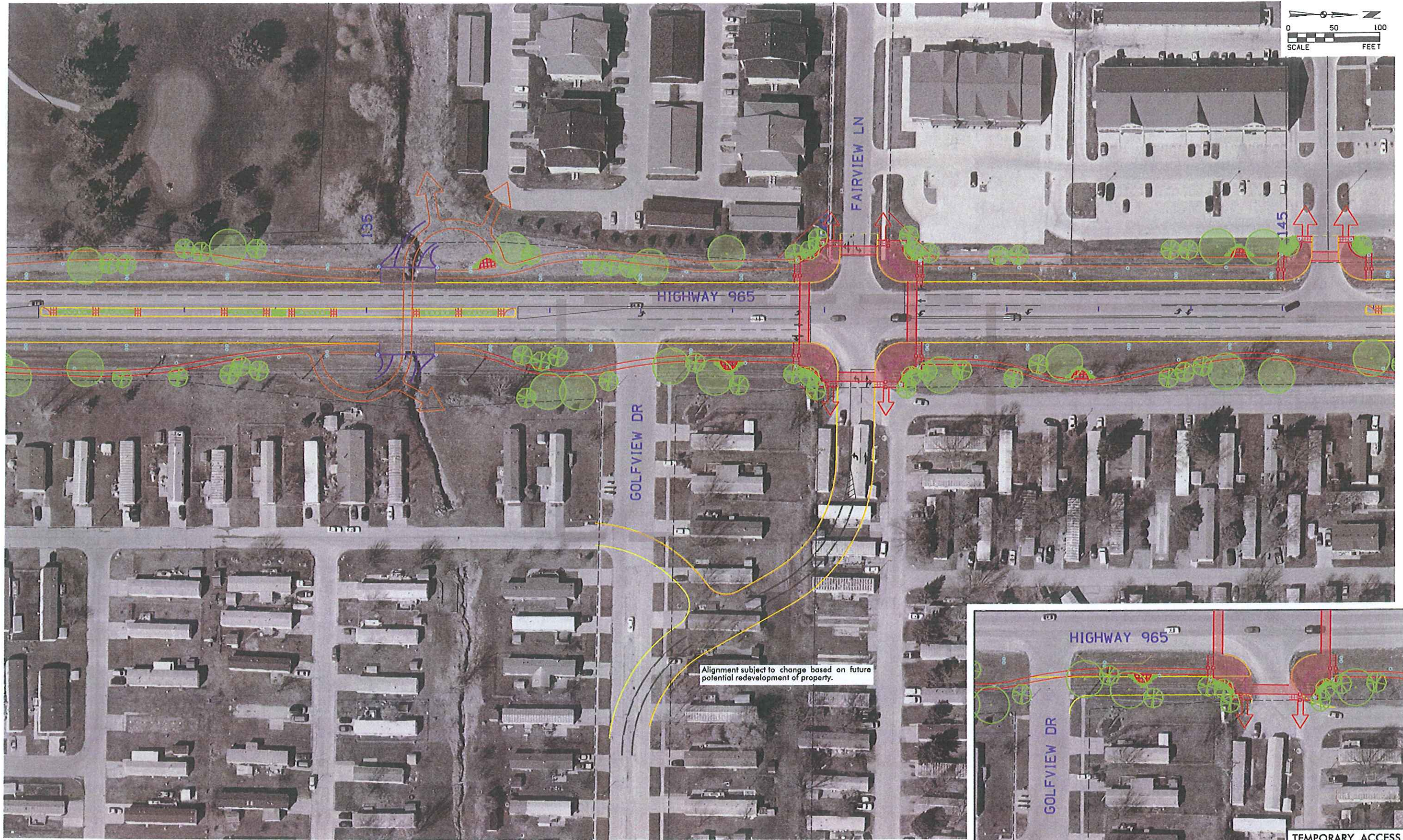
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CONCEPTUAL ROADWAY PLAN

SHEET NO.

H.09



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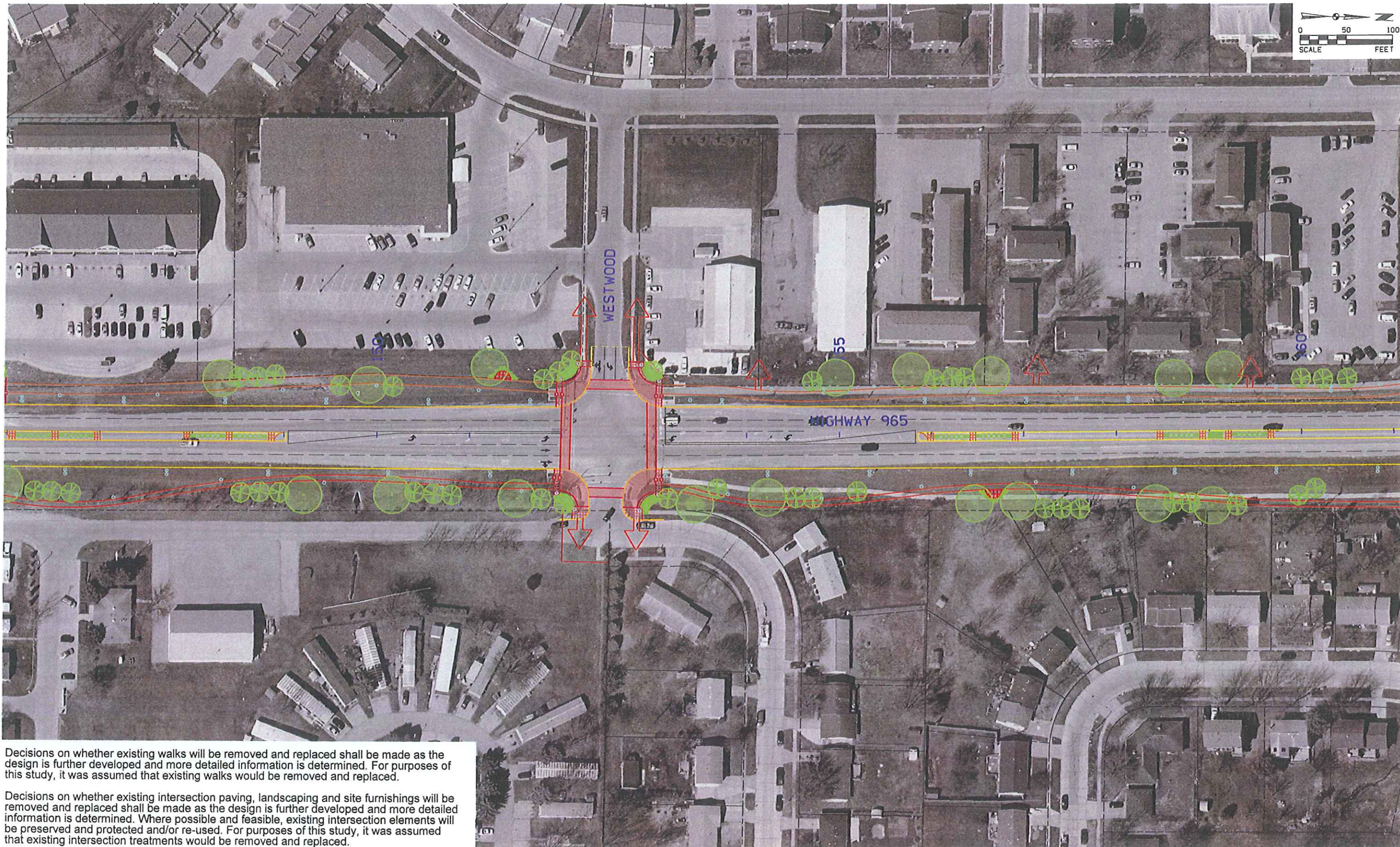
HIGHWAY 965 CORRIDOR MASTER PLAN
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IOWA 2008

CONCEPTUAL ROADWAY PLAN

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Decisions on whether existing walks will be removed and replaced shall be made as the design is further developed and more detailed information is determined. For purposes of this study, it was assumed that existing walks would be removed and replaced.

Decisions on whether existing intersection paving, landscaping and site furnishings will be removed and replaced shall be made as the design is further developed and more detailed information is determined. Where possible and feasible, existing intersection elements will be preserved and protected and/or re-used. For purposes of this study, it was assumed that existing intersection treatments would be removed and replaced.



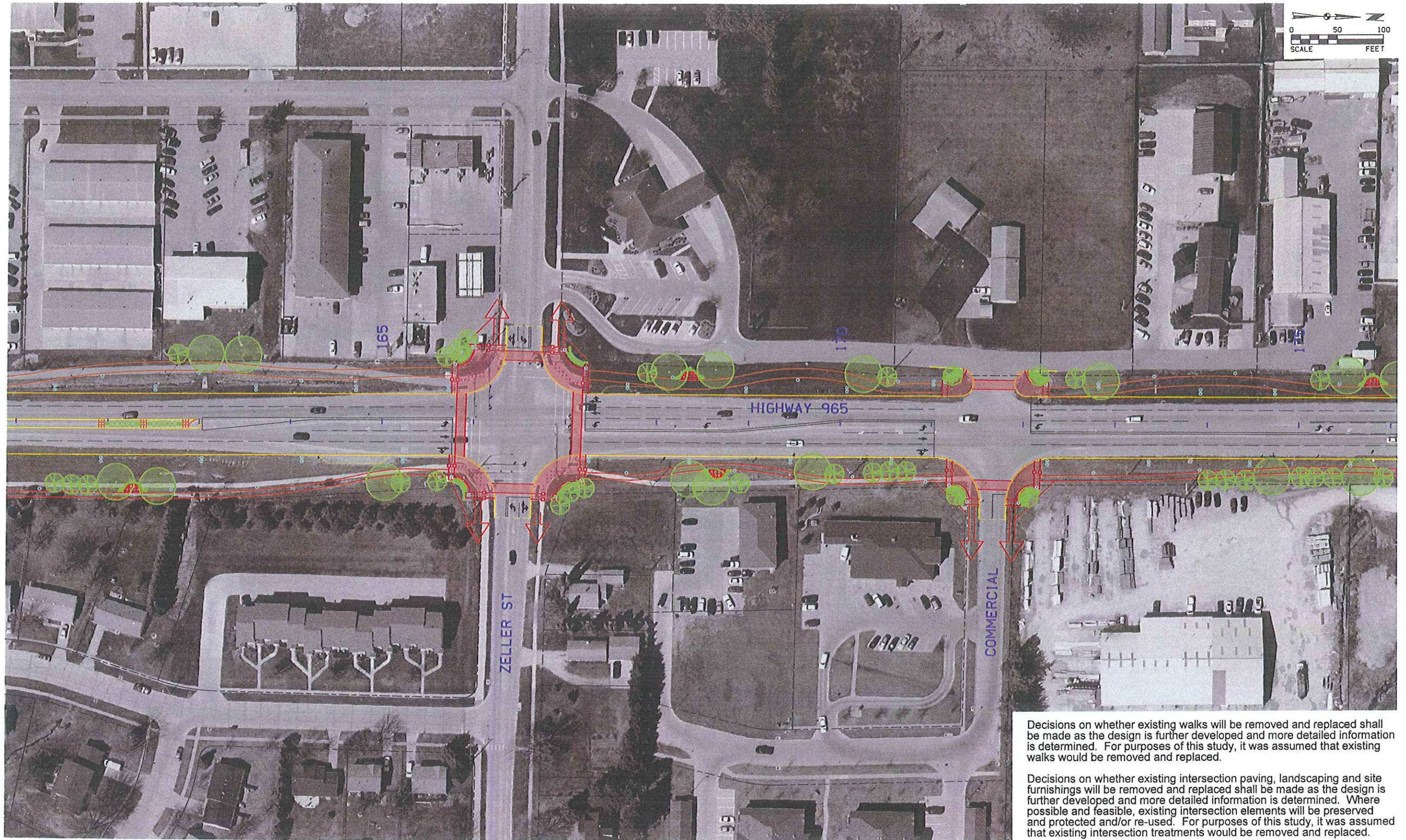
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HIGHWAY 965 CORRIDOR MASTER PLAN
NORTH LIBERTY/CORALVILLE
IOWA 2008

CONCEPTUAL ROADWAY PLAN

SHEET NO.

H.11



Decisions on whether existing walks will be removed and replaced shall be made as the design is further developed and more detailed information is determined. For purposes of this study, it was assumed that existing walks would be removed and replaced.

Decisions on whether existing intersection paving, landscaping and site furnishings will be removed and replaced shall be made as the design is further developed and more detailed information is determined. Where possible and feasible, existing intersection elements will be preserved and protected and/or re-used. For purposes of this study, it was assumed that existing intersection treatments would be removed and replaced.



Howard R. Green Company

HIGHWAY 965 CORRIDOR MASTER PLAN
 NORTH LIBERTY/CORALVILLE
 IOWA 2008

CONCEPTUAL ROADWAY PLAN

SHEET NO.

H.12



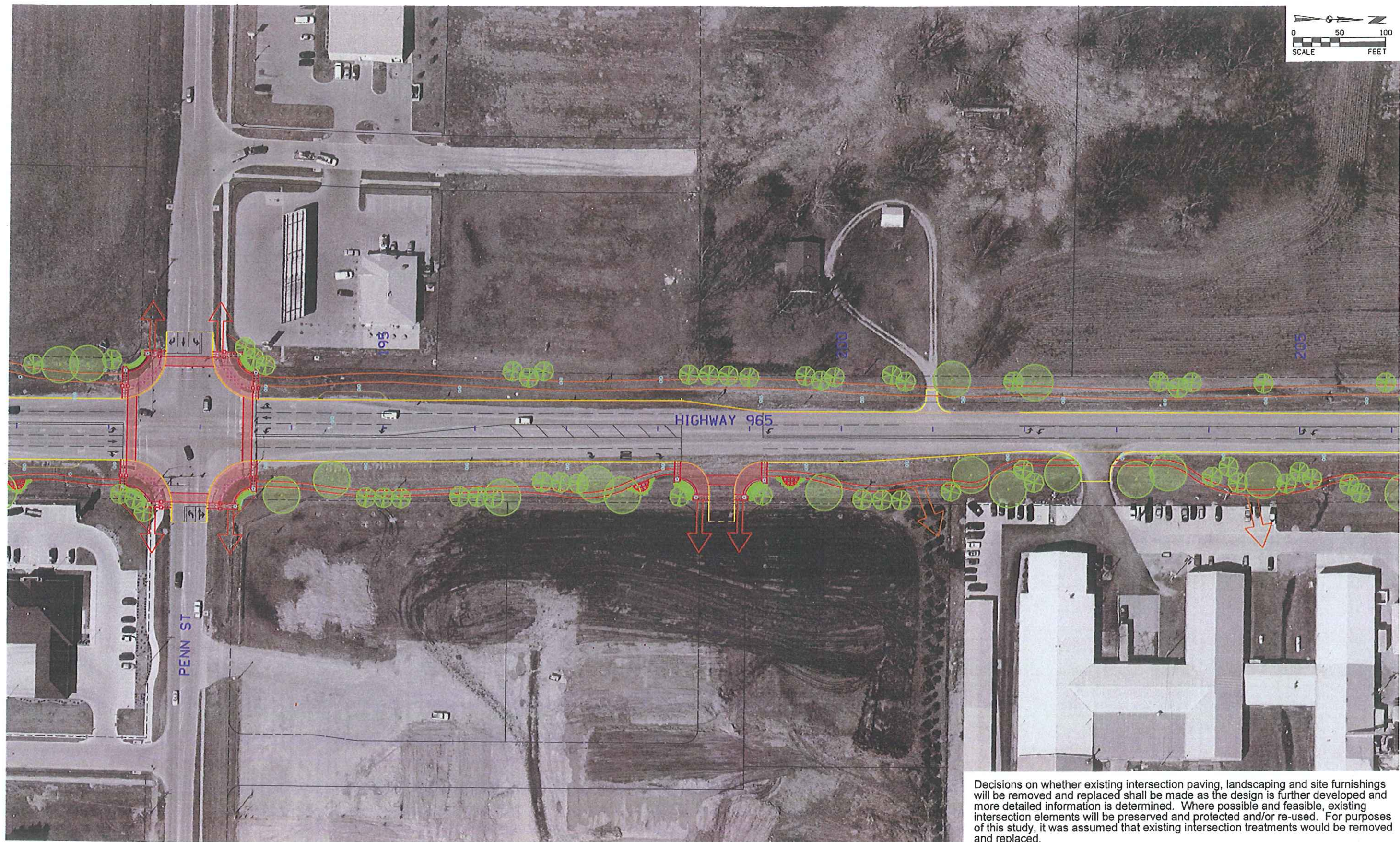
Howard R. Green Company

HIGHWAY 965 CORRIDOR MASTER PLAN
NORTH LIBERTY/CORALVILLE
IOWA 2008

CONCEPTUAL ROADWAY PLAN

SHEET NO.
H.13

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Decisions on whether existing intersection paving, landscaping and site furnishings will be removed and replaced shall be made as the design is further developed and more detailed information is determined. Where possible and feasible, existing intersection elements will be preserved and protected and/or re-used. For purposes of this study, it was assumed that existing intersection treatments would be removed and replaced.



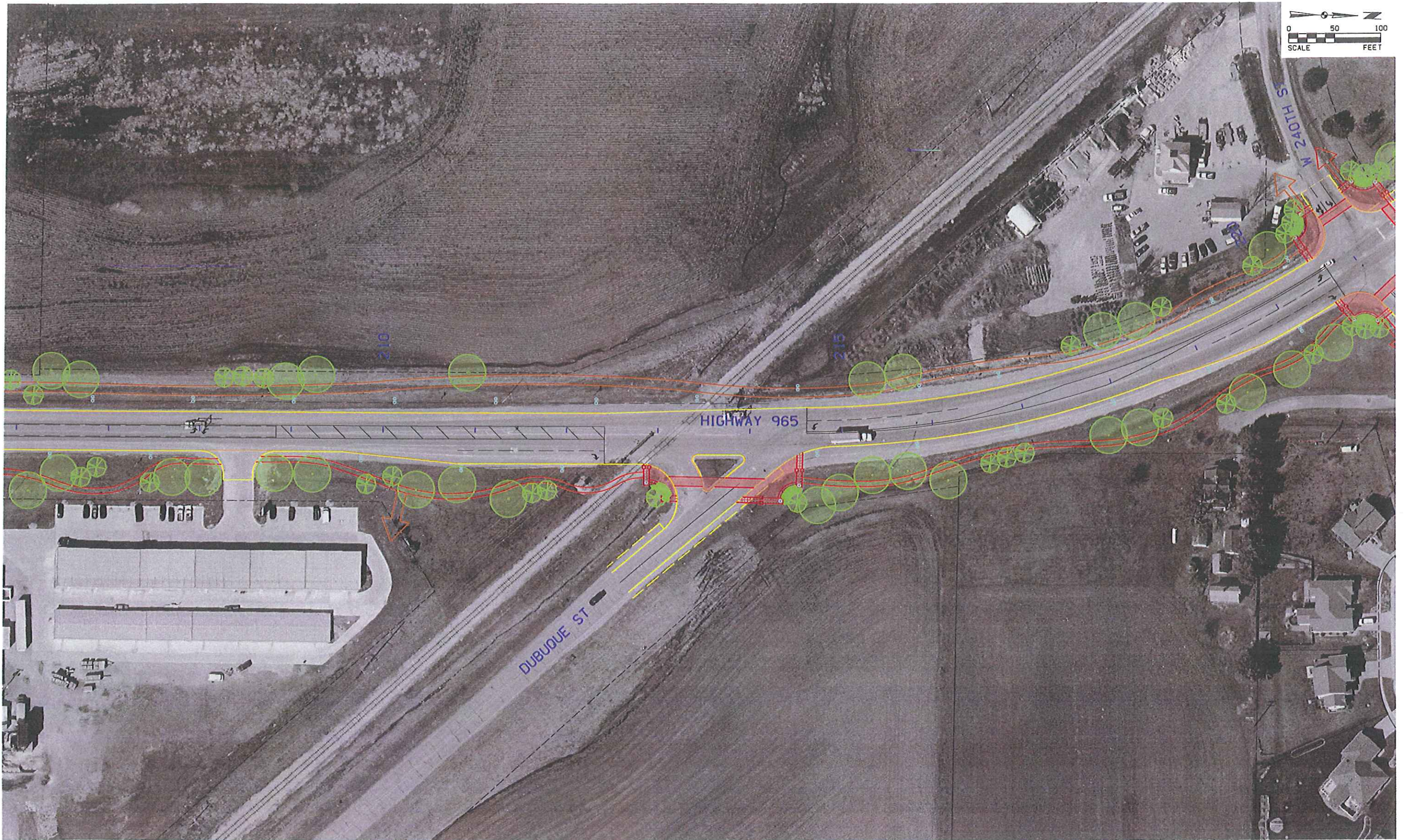
Howard R. Green Company

HIGHWAY 965 CORRIDOR MASTER PLAN
NORTH LIBERTY/CORALVILLE
IOWA 2008

CONCEPTUAL ROADWAY PLAN

SHEET NO.
H.14

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HIGHWAY 965 CORRIDOR MASTER PLAN
NORTH LIBERTY/CORALVILLE
IOWA 2008

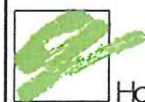
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SHEET NO.

H.15



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Howard R. Green Company

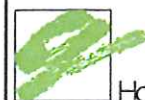
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NORTH LIBERTY/CORALVILLE
IOWA 2008

CONCEPTUAL ROADWAY PLAN

SHEET NO.

H.16

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Howard R. Green Company

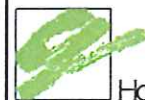
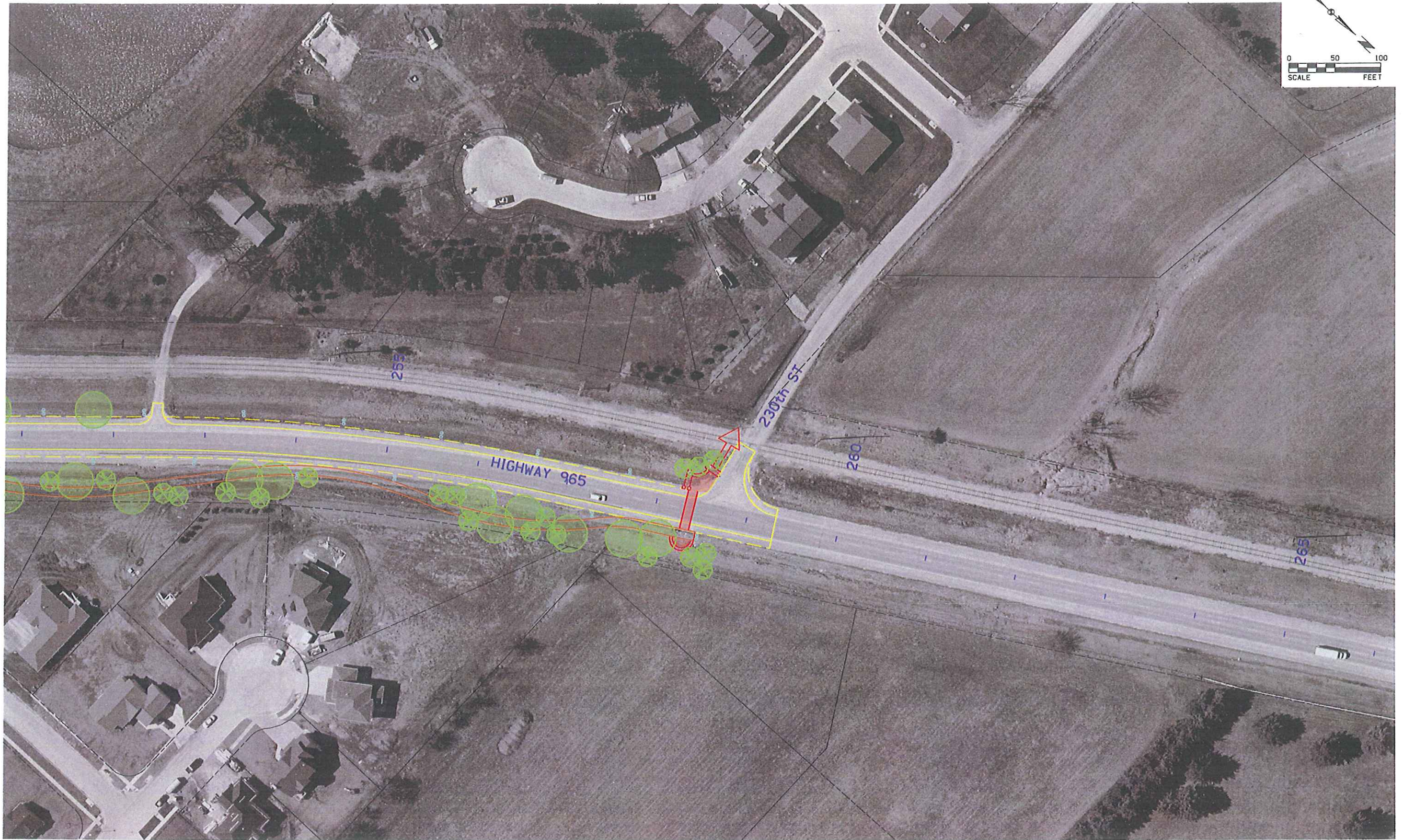
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NORTH LIBERTY/CORALVILLE
IOWA 2008

CONCEPTUAL ROADWAY PLAN

SHEET NO.

H.17

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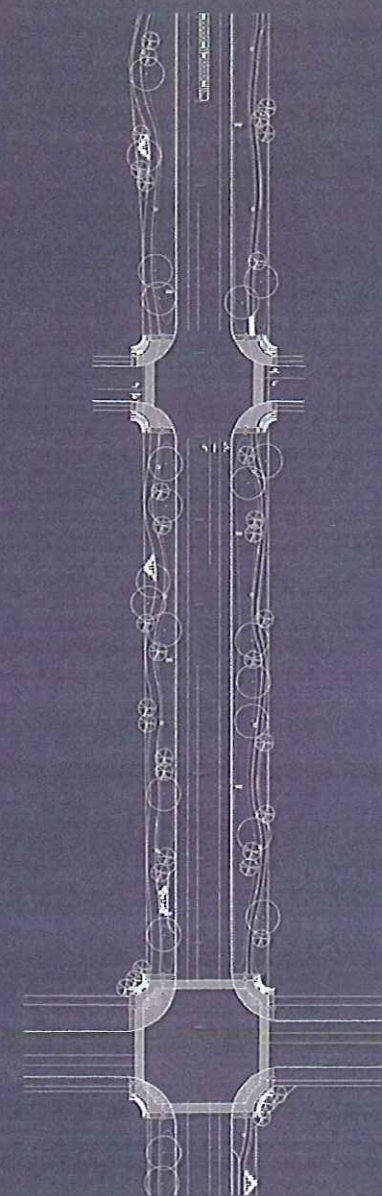
Howard R. Green Company

HIGHWAY 965 CORRIDOR MASTER PLAN
NORTH LIBERTY/CORALVILLE
IOWA 2008

CONCEPTUAL ROADWAY PLAN

SHEET NO.

H.18



Highway 965 Corridor Master Plan

November 2008



I. CONCEPTUAL STREETSCAPE/LANDSCAPE DRAWINGS

One of the primary objectives for the streetscape along Highway 965 is to calm the traffic throughout the corridor. Traffic Calming is a term used frequently in designing multi-user traffic corridors. In simple terms, it means including physical forms and measures in the street design to slow traffic and improve environmental and safety conditions for the community. The existing 965 corridor is a wide, rural road cross section, giving priority to the vehicle user and encouraging traffic to roll along at higher speeds. The recommendations in the Highway 965 Corridor study incorporate several traffic calming measures to assist in enforcing appropriate traffic speeds and to give pedestrians, cyclists, and vehicles all a greater sense of safety. These traffic calming measures are divided into three layers or zones.

Street Level/ Vehicle Zone

One of the first measures recommended to give a more urban feel to the roadway and to begin calming the traffic is to convert most the 965 Corridor to an urban road cross section, incorporating curb and gutter along each side. Another physical element recommended for the corridor is a landscaped median surrounded by curb and gutter throughout a good portion of the corridor. Together, these curbed edges will give structure to the roadway and keep vehicular speeds in check.

Pedestrian Zone

Incorporation of sidewalks and trails along both sides of the 965 Corridor in North Liberty, and along the west side in Coralville add another traffic calming element- people. Walkers, bikers, roller-bladers, etc. are elements that tend to give the corridor pedestrian scale and encourage vehicles to slow down and take notice of their surroundings. The facilities that come along with these users will further aid in calming traffic along the corridor. Signalized cross walks, will bring pause to vehicles as they travel the corridor, encouraging slower, more cautious speeds. Crosswalks, using special pavement, will be a threshold that vehicles must cross as they travel the corridor. This rhythm of textural change will be yet another traffic calming device.

Streetscape Zone

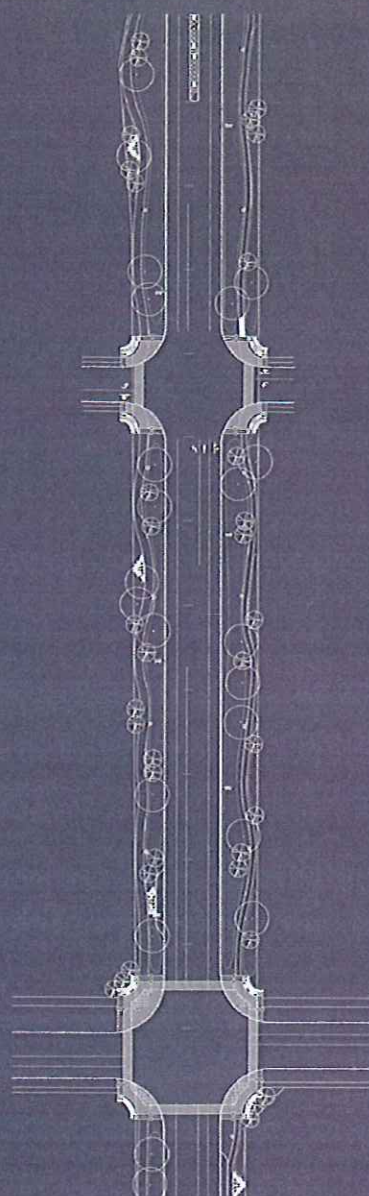
Streetscape materials, elements, and ideas are included within this corridor plan to further calm the traffic by defining the street edge and giving priority to the pedestrians and non-motorized users. Street lights and pedestrian lights have been incorporated not only to light the corridor to appropriate levels, but also to become a repetitive, vertical streetscape element. In the case of North Liberty, a decorative street light has been recommended to bring the scale of the fixture closer to a pedestrian scale light, and to pull the spacing closer together to be a constant reminder to vehicles of the speeds at which they are travelling. Landscaping is another streetscape element that defines the edge of the roadway and in many cases, acts as a buffer between the vehicles and the non-motorized users. Informal plant groupings have been recommended along the corridor to provide vegetation, color, texture, and shade. The tree canopy will tend to give vehicles pause as they visually narrow the roadway width.

Several key areas along the Highway 965 Corridor were identified and discussed during the development of the conceptual streetscape plan. These areas, when integrated into the 'spine' of the proposed Highway 965 roadway improvements, will represent each of the communities individually as well as unify the corridor as an important connection between the two. It is recommended that these areas be developed in conjunction with roadway development and implementation so that the project can improve not only the functionality of traffic and circulation, but also highlight the character of the two communities and promote their commitment to their citizens and the environment around them.

Major Intersection/ Community Gateway

Several intersections were designated as major gateway intersections throughout the Highway 965 Corridor. These intersections are Forevergreen Road, Fairview/Golfview, Zeller and Penn. One of the primary goals of these intersections is to reinforce a transition from one community to another and create a sense of entry within each community, to alert users of the corridor that they have arrived in North Liberty or Coralville. These intersections also provide opportunities to incorporate public art and/or community entry signage within the corridor landscape- further reinforcing community character and pride. Another role that the Major Intersections play is that of safety. These intersections are designated as the primary east/west community crossing points. It is the recommendation of this study that they include signalized pedestrian crosswalks connecting all four corners of the intersection. Elements that were considered in developing major intersection concepts are:

- Special Paving
- Landscaping
- Lighting •Site Furnishings
- Art/Sculpture
- Entry Signage



Highway 965 Corridor Master Plan

November 2008



I. CONCEPTUAL STREETSCAPE/LANDSCAPE DRAWINGS CONT.

Minor Intersection

Minor intersections were identified in both Coralville and North Liberty at all streets crossing Highway 965 (existing and proposed except for those identified above as Major Intersections. Minor intersection treatments are similar in nature to major intersections, but at a scaled back level. For example while it is recommended to include lighting, landscaping, and special pavement similar to those found at the major intersections; other site furnishings such as benches, trash receptacles and bollards shall be incorporated into the minor intersections as well, but a reduced quantity is recommended. The public art component would not be included at minor intersections. Pedestrian crossing facilities at minor intersections include signalized north/south and east/west pedestrian crosswalks at the following intersections:

- Highway 965 and Oakdale Blvd. (2 north/south and 1 east/west)
- Highway 965 and University Parkway
- Highway 965 and New Access point at Station 73+50 (south of Forevergreen Road)
- Highway 965 and Sara Court
- Highway 965 and Ashley Court
- Highway 965 and Clubhouse/Lions
- Highway 965 and Hawkeye
- Highway 965 and Westwood
- Highway 965 and W240th/Scales Bend Road ((2 north south and 1 east/west)

Pedestrian crossing facilities at minor intersections include signalized north/south crosswalks at the following intersections:

- Highway 965 and University Boulevard (west side only)
- Highway 965 and Commercial Drive
- Highway 965 and Cherry Street
- Highway 965 and Community Drive
- Highway 965 and Dubuque Street

The role of the minor intersections is to reinforce the corridor's streetscape character while providing for the needs of vehicles, pedestrians, bicycles, and other users within the corridor. Elements that were considered in developing the minor intersection concept are:

- Special paving
- Landscaping
- Lighting
- Site Furnishings

Roadway Median

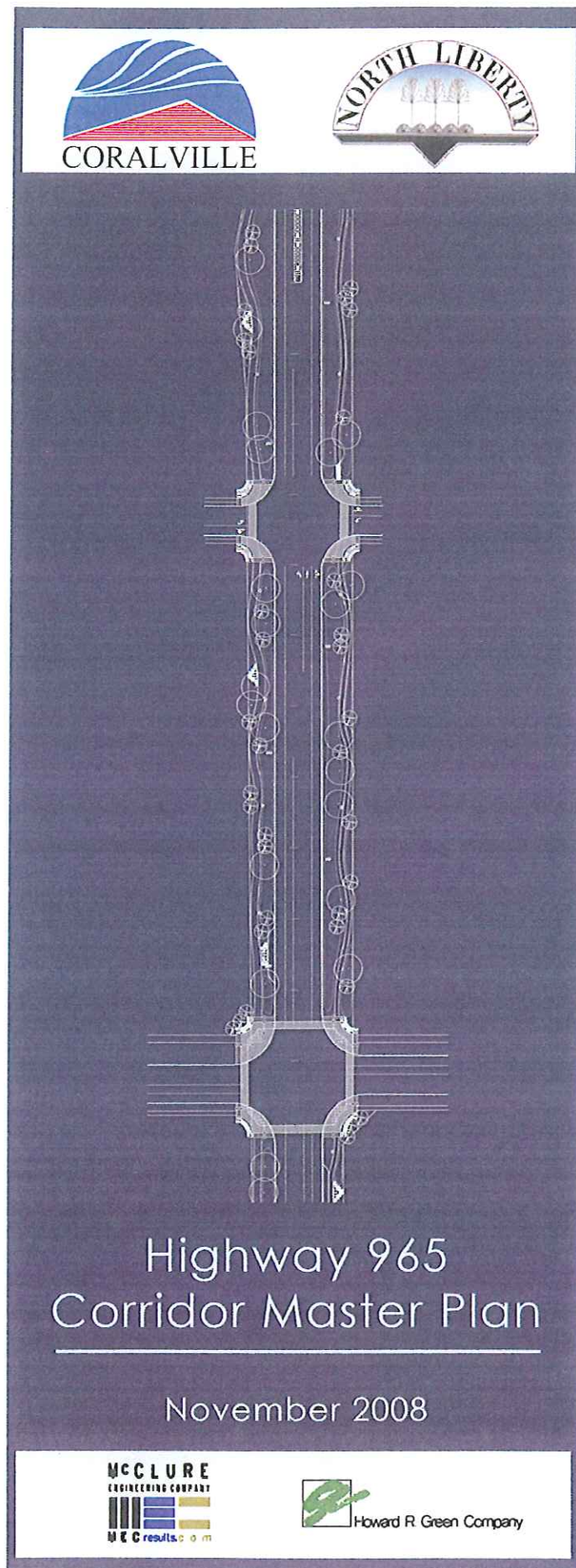
Primarily introduced as a means of traffic calming, the development of a landscaped median is recommended to be incorporated within the current pattern of ingress/egress and access points. This median, filled with a mixture of native and hardy plant material such as hardy daylily species, native and ornamental grasses, hardy catmint species, and low growing shrubs such as gro-low sumac, miniature lilac, or spiraea and decorative pavement, is recommended as an additional streetscape layer to give a defined form and structure to this once open rural highway corridor. It is recommended that plant material and other median elements meet standard clear zone and setback requirements and be thoroughly studied with respect to the maintenance practices and capabilities within each community.

Pedestrian/Non-Motorized Facilities

Other than those mentioned previously, the Highway 965 Corridor Master Plan recommends the following pedestrian facilities be incorporated into the roadway development

Pedestrian Underpasses, similar in nature to the existing underpass at Cherry Street in North Liberty, have been identified at two locations in the Coralville section (approximate stations: 8+50 and 35+00) of the corridor, and at two locations in the North Liberty section (approximate stations: 102+50 and 135+50). These underpasses would provide safe access to both sides of the highway and would reinforce the character and commitment of North Liberty and Coralville toward creating more walkable communities. It is recommended that pedestrian underpasses be located to maximize the existing topography as well as access potential for businesses and residences alike.

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I. CONCEPTUAL STREETSCAPE/LANDSCAPE DRAWINGS CONT.

Recreational Trail and Pedestrian Sidewalk alignments, along the west and east sides of the corridor, are recommended to provide a non-motorized link between the two communities. They are also recommended as secondary loops, connecting to the existing trail along the railroad R.O.W. and to future trails as they are implemented. It is recommended that the trail identified along the west side of the highway, be a minimum of 10' in width and provide an accessible route to and through the businesses and residences along the corridor. It is also recommended that where feasible and appropriate, trail connections be made to existing sidewalk systems, school routes, development access, and other existing and proposed pedestrian facilities to provide linkages throughout the communities. It is recommended that the pedestrian sidewalk identified along the east side of the highway in the City of North Liberty only, be a minimum of 6' in width and provide accessible pedestrian access to and through the businesses and residences along the highway corridor. Finally, based on public comment and feedback, it is recommended that both the recreational trail and pedestrian sidewalk alignments be curvilinear in form and follow the natural meandering of the topography and proposed stormwater management areas as they are developed.

Trail and Sidewalk Nodes, or small paved seating areas are recommended at intervals along the trail/sidewalk. These small areas are recommended as locations for benches and/or trash receptacles, community signage, and bike parking, where appropriate based on adjacent development and land uses. They will also reinforce the streetscape character by adding repetition in streetscape elements and form and becoming a recognizable feature along the 965 Parkway.

Streetscape Character

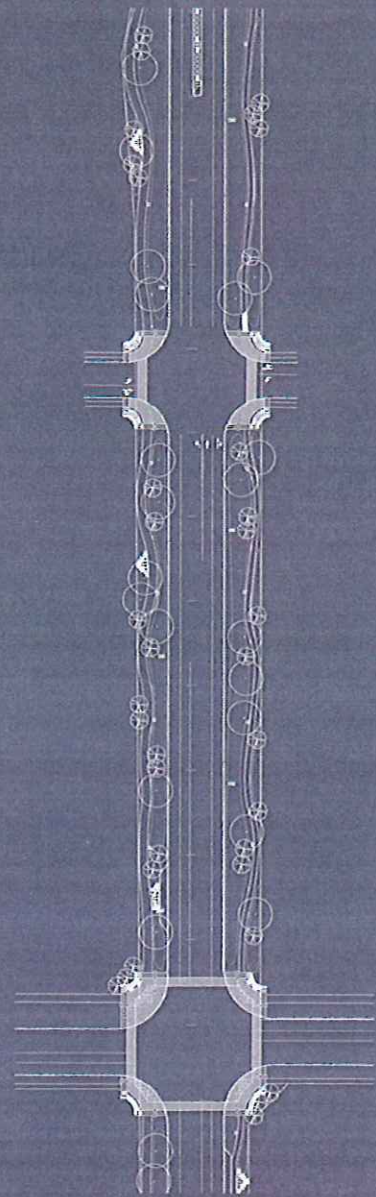
For the entire length of the Highway 965 Corridor, there are several elements that are recommended to be incorporated into intersections and along the roadway to create a unity within the corridor between the two communities. Some of these elements have been mentioned previously: Major/Minor intersections, median treatment, and recreational trail/pedestrian sidewalk alignments. The images that follow this section demonstrate a typical portion of the roadway and its associated streetscape. You will note the common elements listed above and how they set a baseline for the corridor by repeating these common elements at intersections as well as along the length of the roadway in the pedestrian 'zone'.

Several other streetscape elements have been selected to represent the individuality of each of the communities. The images that follow demonstrate the streetscape concept for both Coralville and North Liberty.

For Coralville, it is recommended that development of the 965 Corridor follow the recommendations proposed in the City's 2007 Coral Ridge Avenue Heartland Drive Master Plan. It is also recommended that intersection treatments, roadway median, and pedestrian facilities, as proposed in this corridor master plan, be integrated into the previous recommendations. Streetscape components, site furnishings, lighting and other streetscape features, as recommended by the 2007 plan, can be implemented and should dovetail nicely with elements recommended in this corridor plan. It is also recommended that the community consider elements used in the Highway 6 Corridor, such as pedestrian lighting, site furnishings, and stanchion/bollard lighting as appropriate elements for this corridor as well.

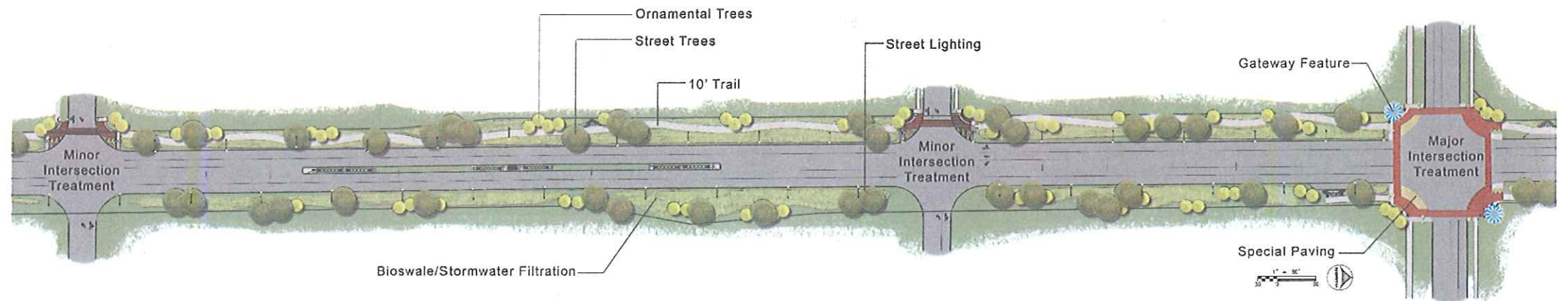
For North Liberty, it is recommended, based on public and City Staff comment and feedback, to select site furnishings that are classic in nature so as to support the variety of existing styles and forms used throughout the community and along the corridor, as well as to create a standard and consistent family of site furnishings along the Highway 965 Parkway. A recommended palette of styles for bench seating, trash receptacles, bollards, lighting, transit stops, and other elements are shown in the following images. It is recommended that these site furnishings have a durable, preferably powder-coated finish in black to create a uniform look to the elements of the 965 Parkway while at the same time, supporting the forms and colors of existing streetscape projects that are adjacent to the corridor. At the City's discretion, other color choices may be considered that tie to existing North Liberty logos, icons, or other community branding.

The following drawings show the final streetscape concept.

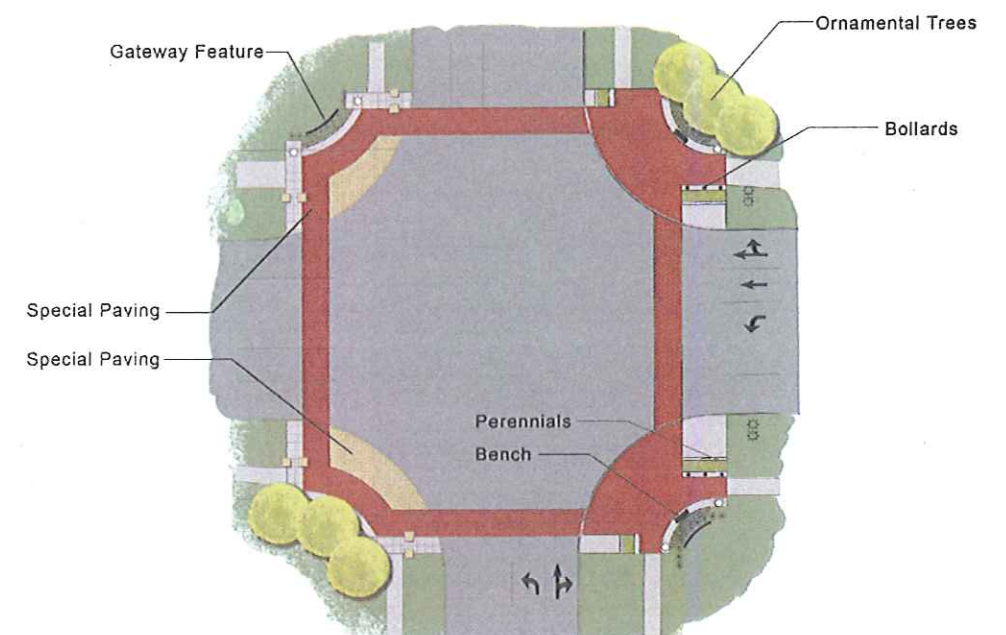


Highway 965 Corridor Master Plan

November 2008

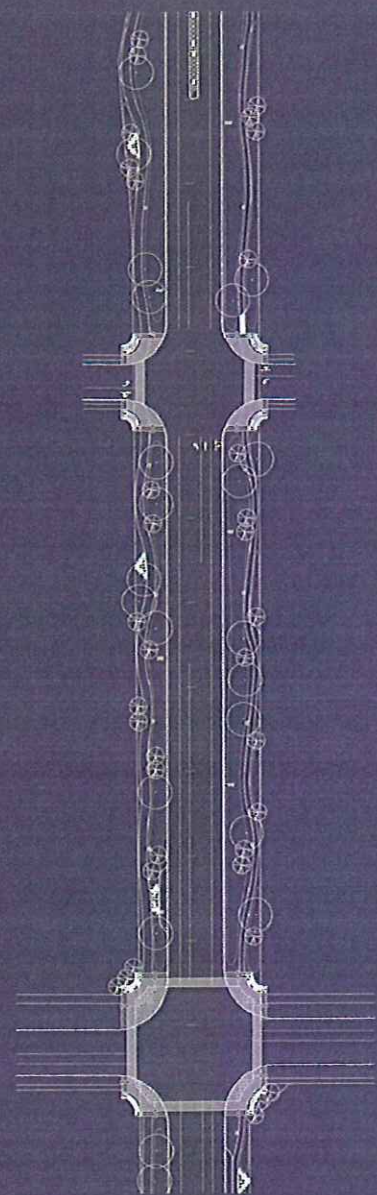


Typical Corridor Treatment



Major Intersection Treatment

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Highway 965 Corridor Master Plan

November 2008

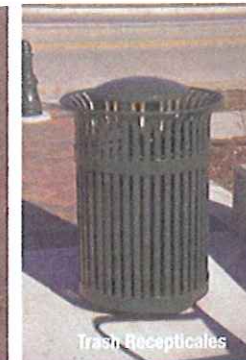


site furnishings

coral ridge ave master plan



Site Bollards



Trash Receptacles

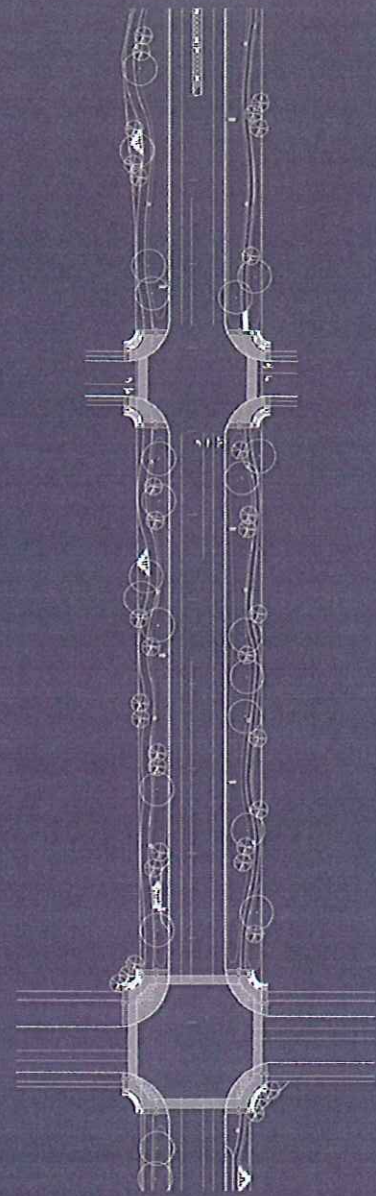


Site Planters



Landscape Character

Note: Images Taken from the Final Draft of the Coral Ridge Avenue Heartland Drive Master Plan
Prepared for the City of Coralville, Iowa
August 5, 2007



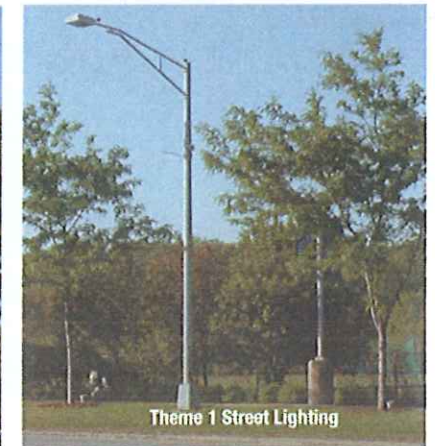
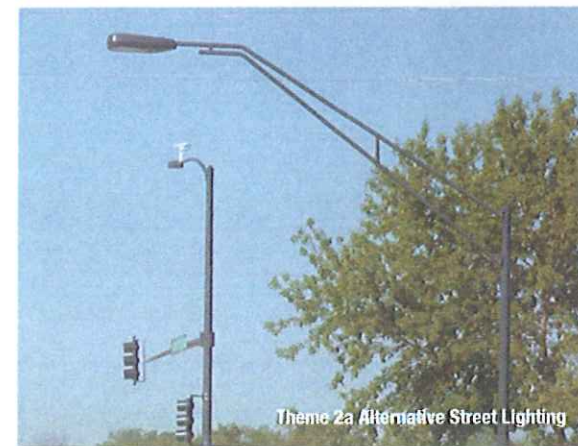
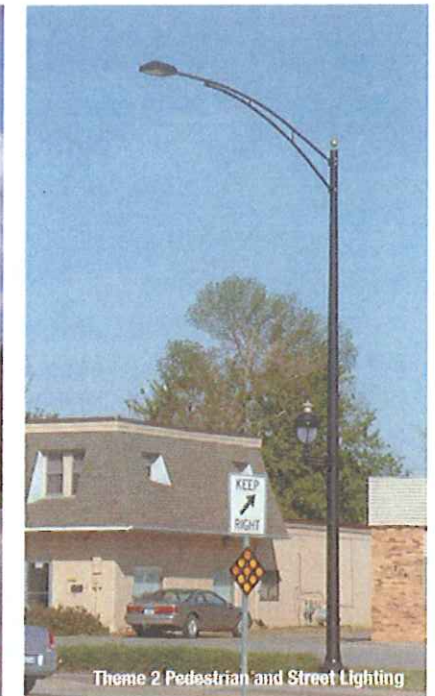
Highway 965 Corridor Master Plan

November 2008



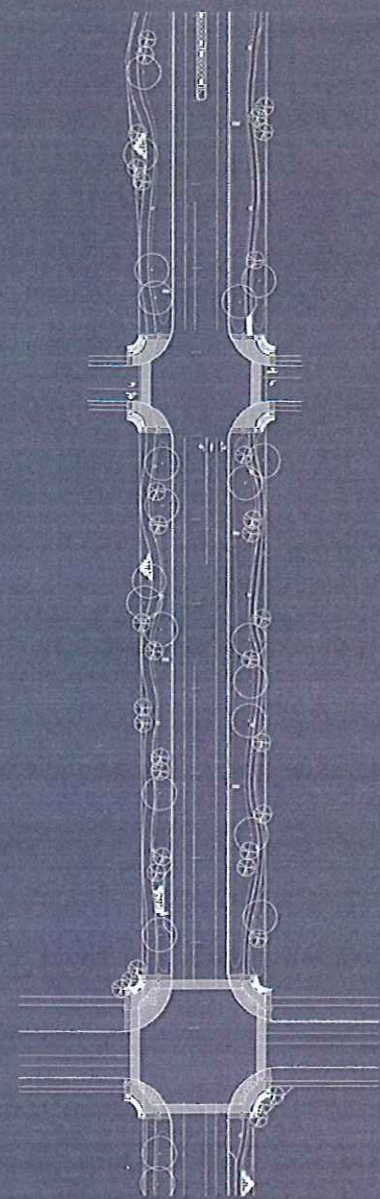
roadway and pedestrian lighting

coral ridge ave master plan



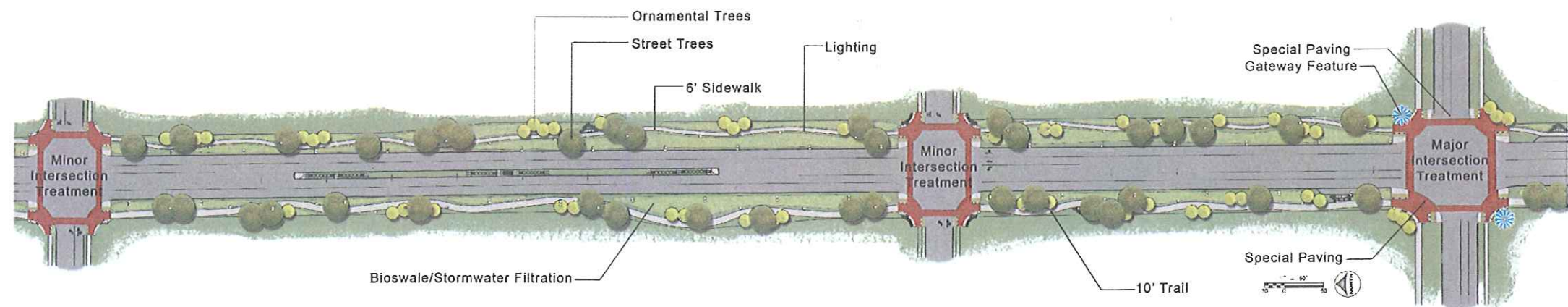
Note: Images Taken from the Final Draft of the Coral Ridge Avenue Heartland Drive Master Plan
Prepared for the City of Coralville, Iowa
August 5, 2007

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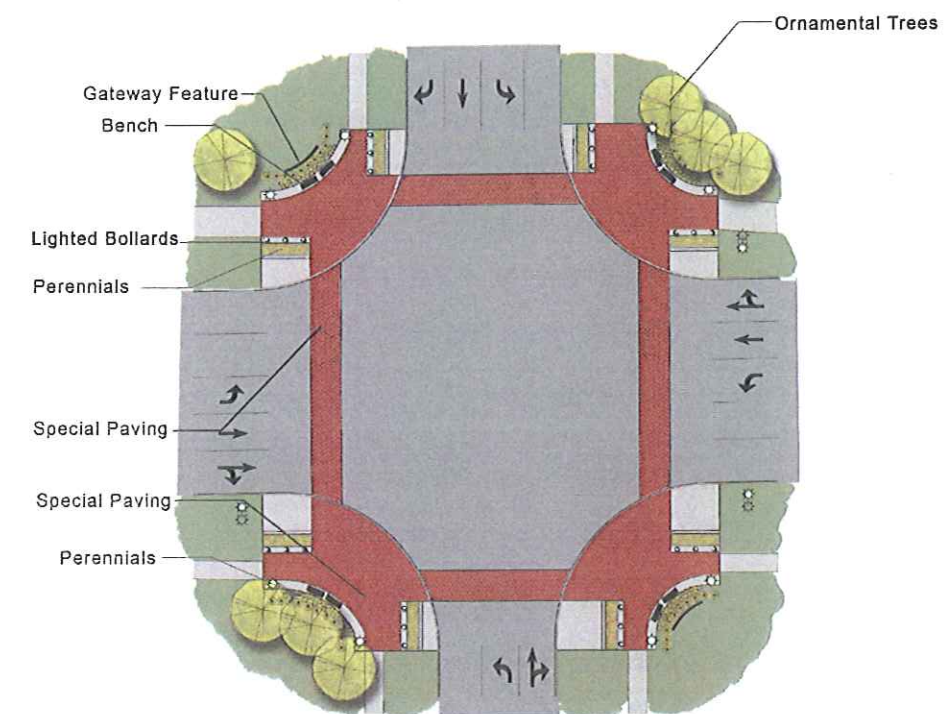


Highway 965 Corridor Master Plan

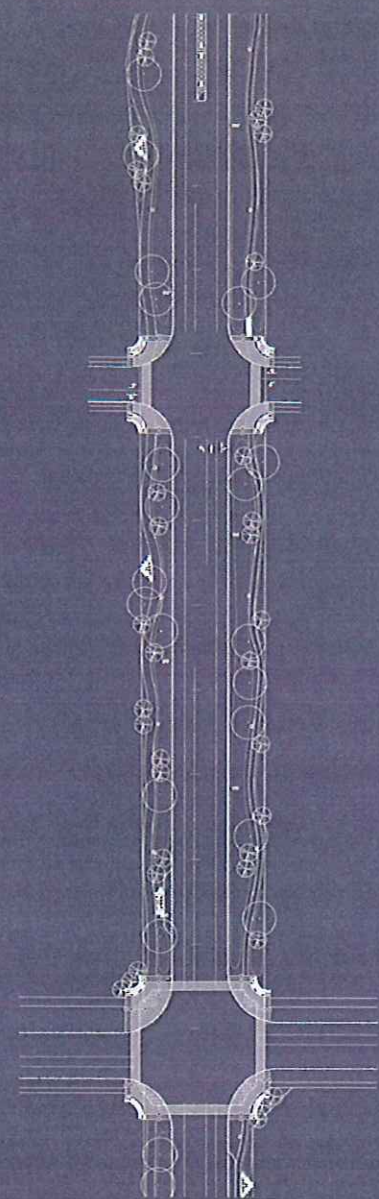
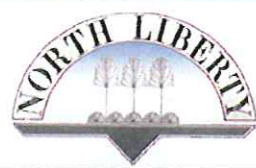
November 2008



Typical Corridor Treatment



Major Intersection Treatment



Highway 965 Corridor Master Plan

November 2008



Backless Bench



Bollards



Trash Receptacle



Seating



Bike Rack



Transit Stop



Texture

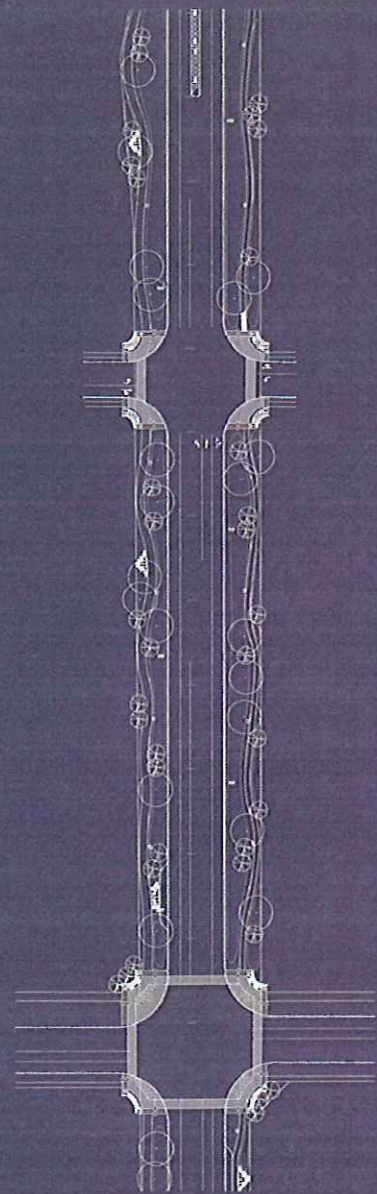


Color



Contrast

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Highway 965 Corridor Master Plan

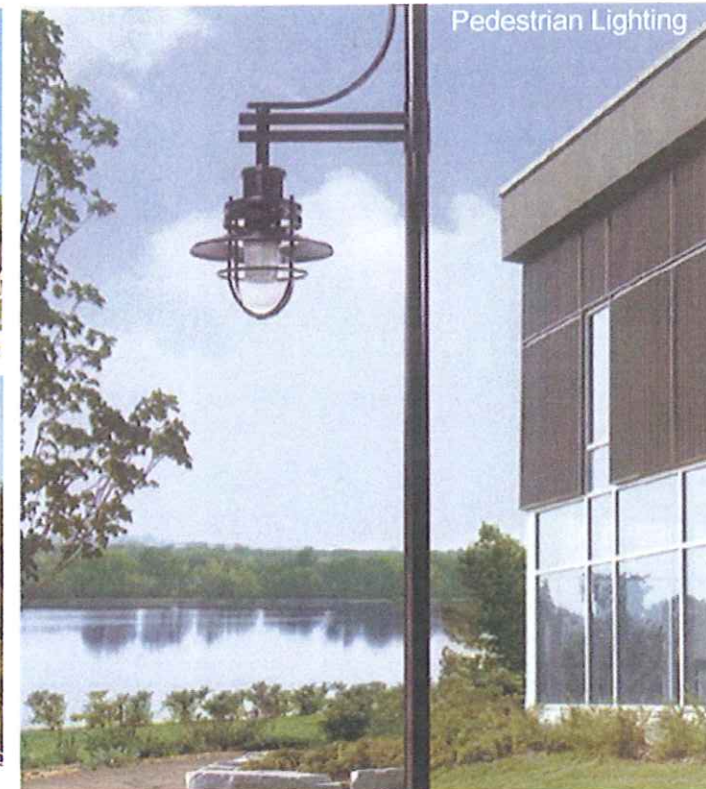
November 2008



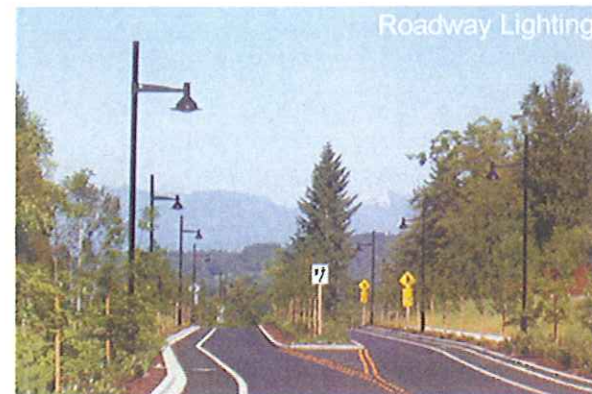
Pedestrian Lighting



Pedestrian Lighting



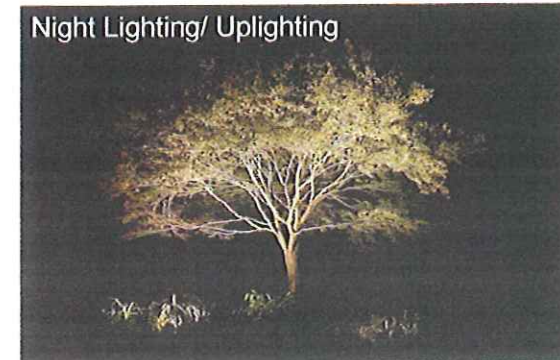
Roadway Lighting

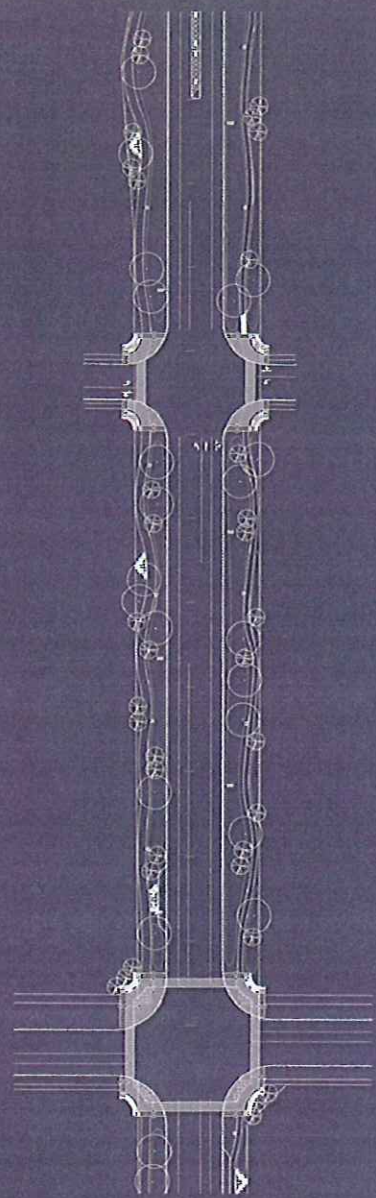


Roadway Lighting



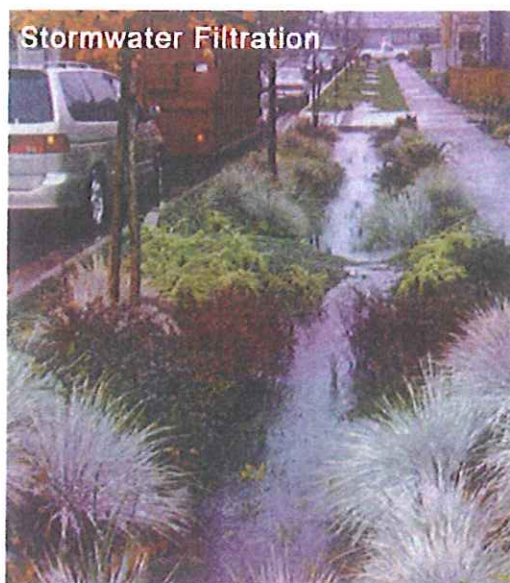
Night Lighting/ Uplighting



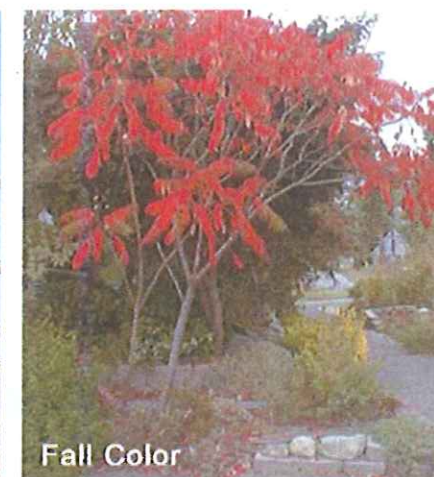
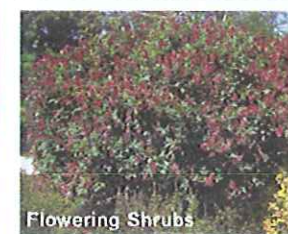
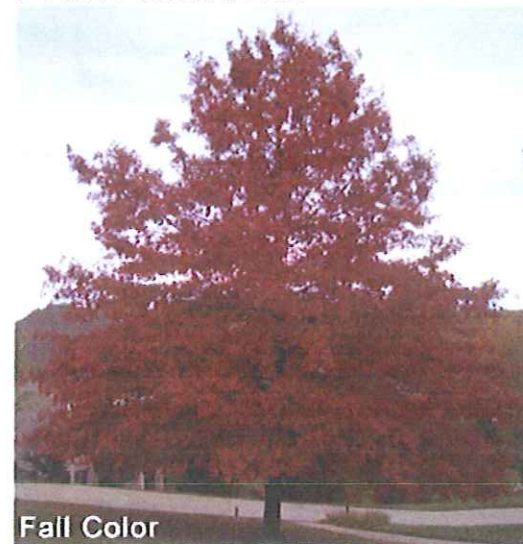


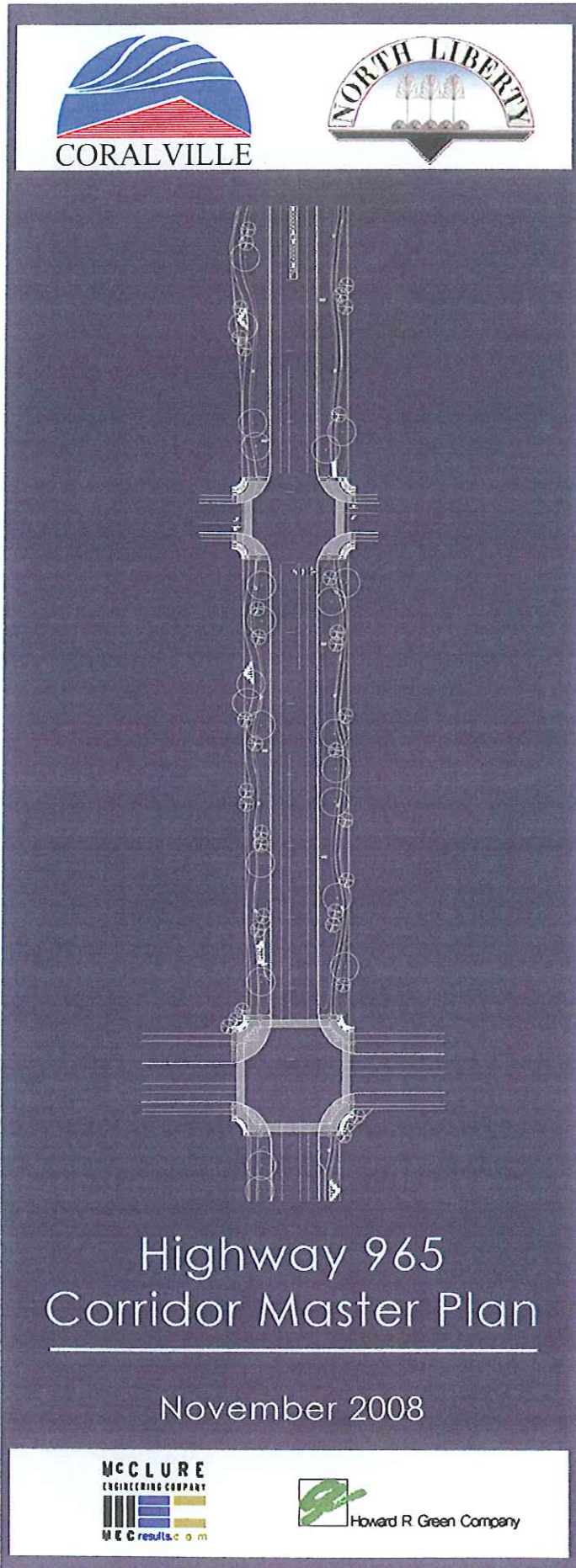
Highway 965 Corridor Master Plan

November 2008



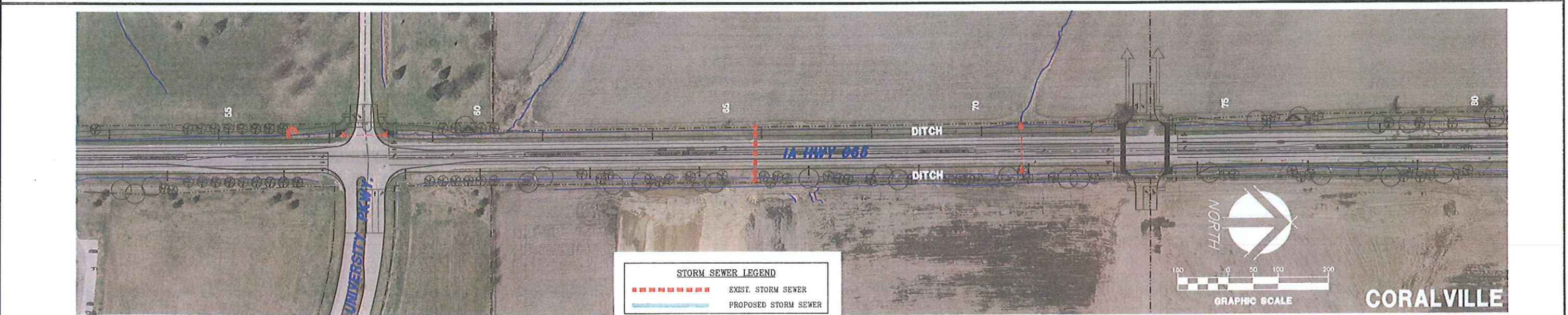
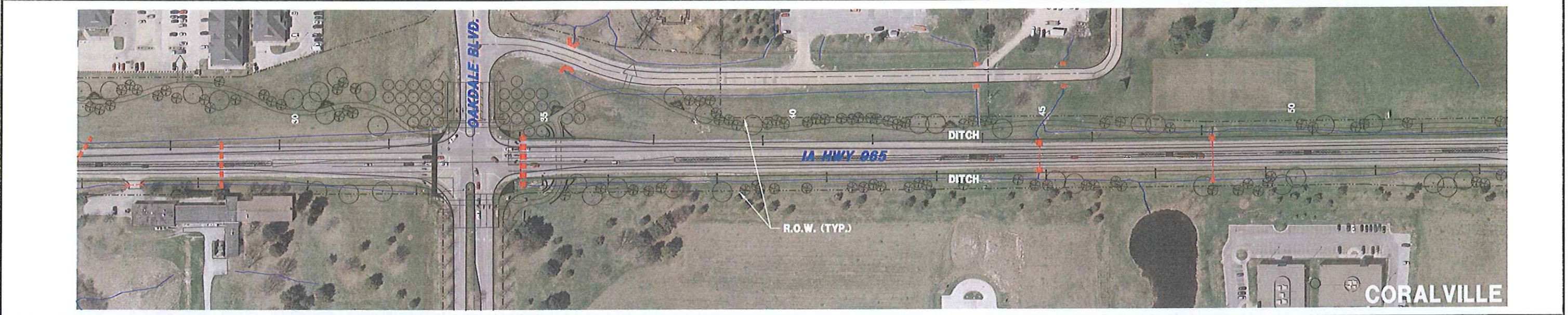
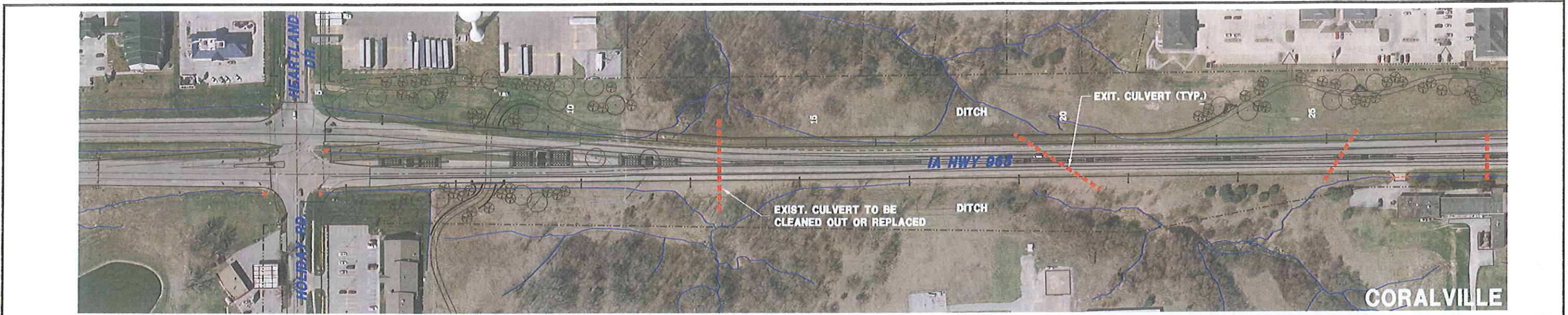
Plant Material





J. STORMWATER MANAGEMENT

A storm water analysis was performed to provide recommendations for addressing the storm water runoff and water quality of the runoff. The analysis concluded the best alternative is to use a combination of storm sewer, open ditches, and small detention areas or bioswales to collect the storm water runoff. The following pages show the conceptual storm water plan.



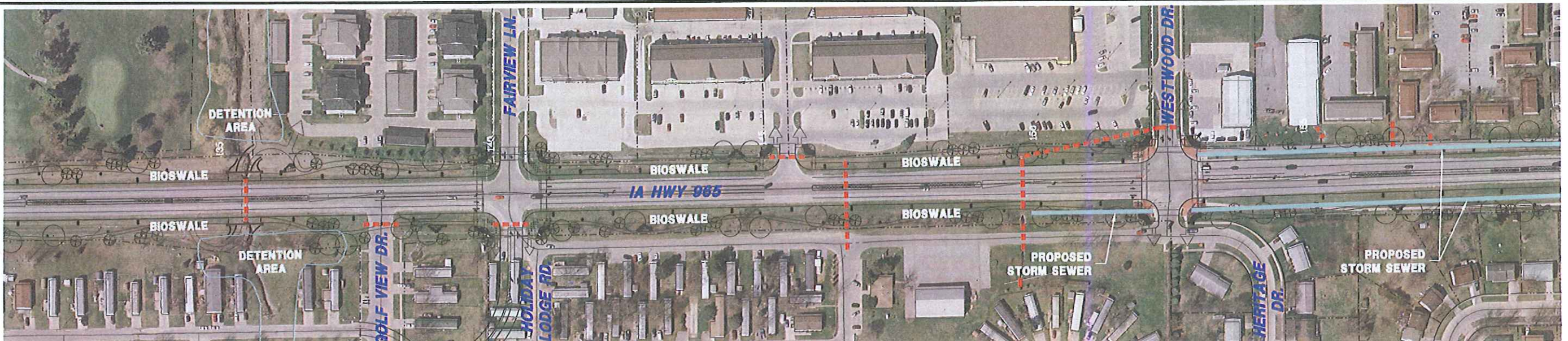
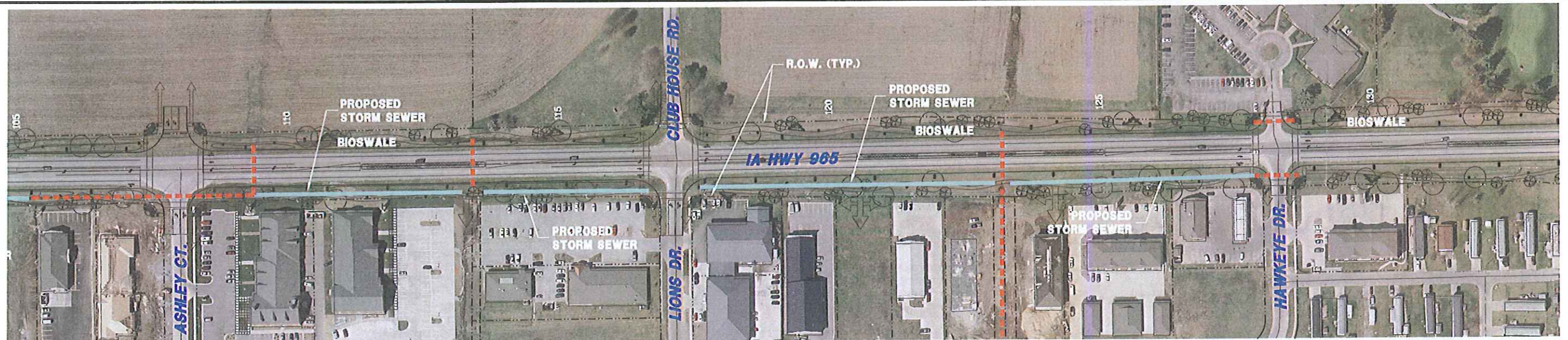
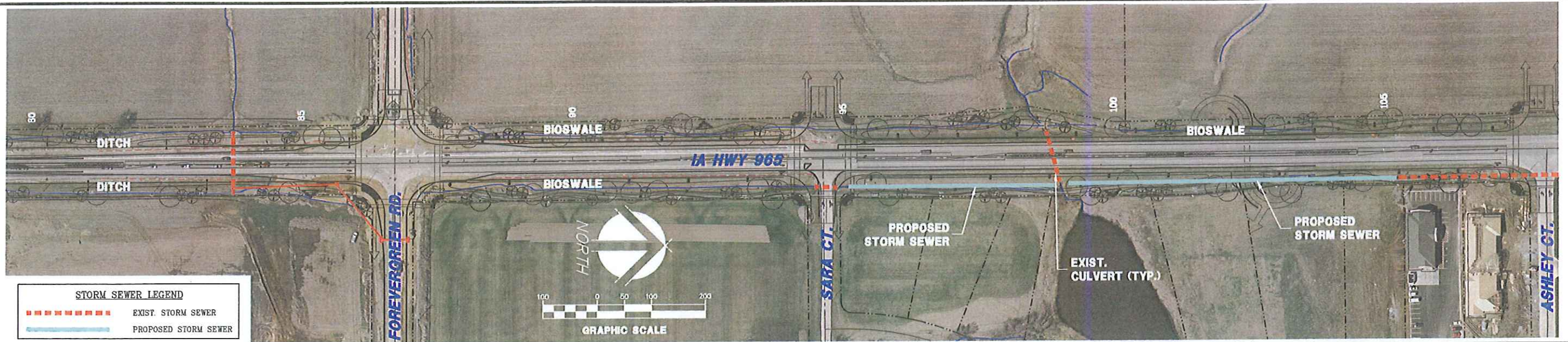
STORM SEWER LEGEND	
	EXIST. STORM SEWER
	PROPOSED STORM SEWER

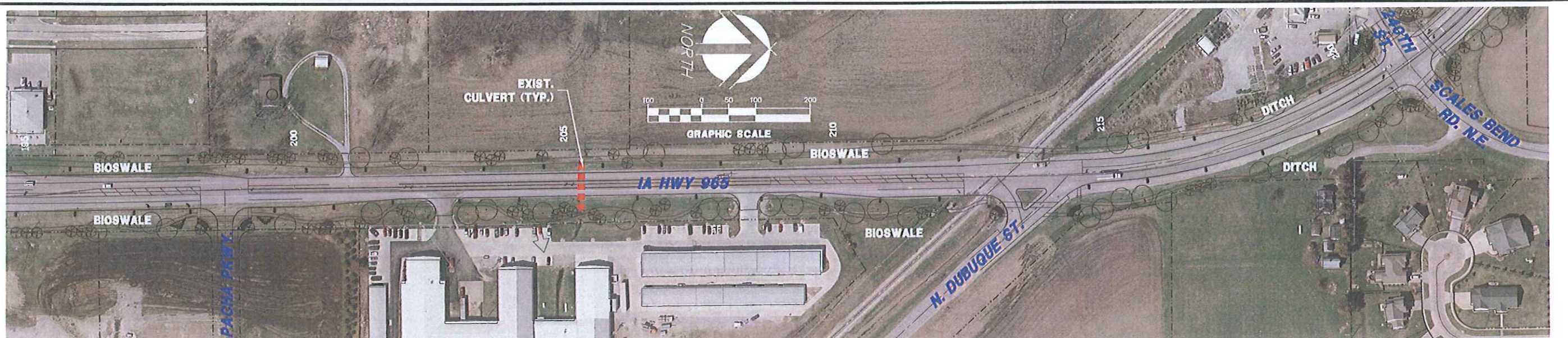
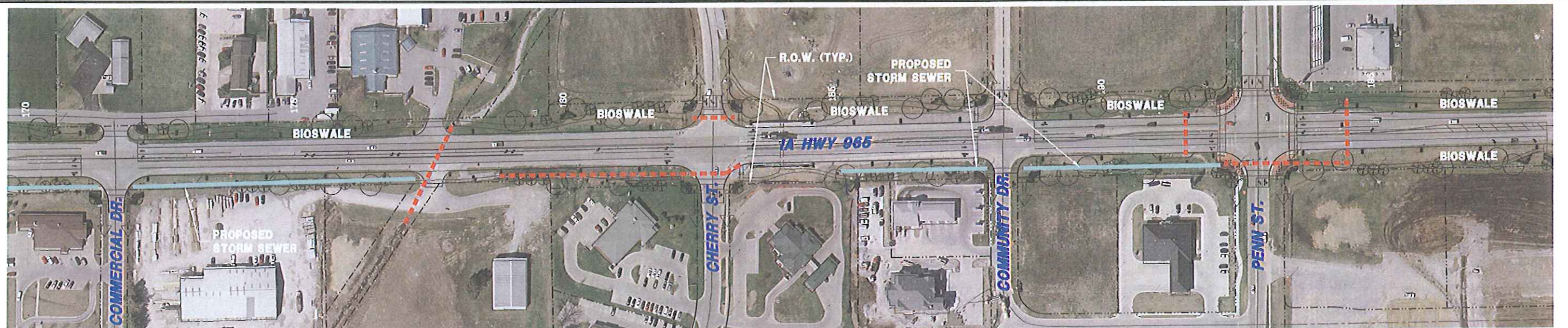
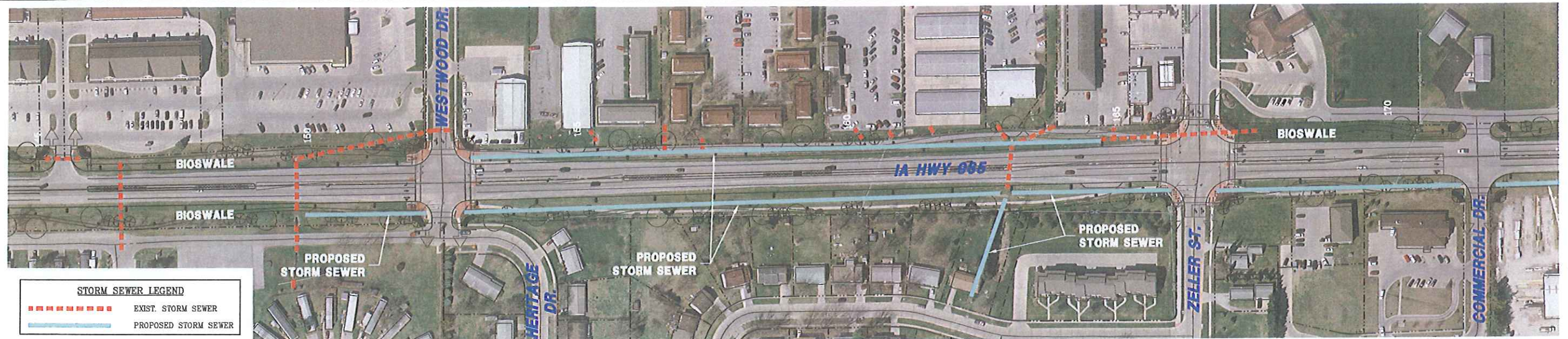


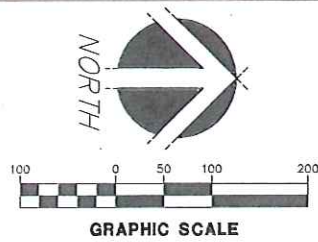
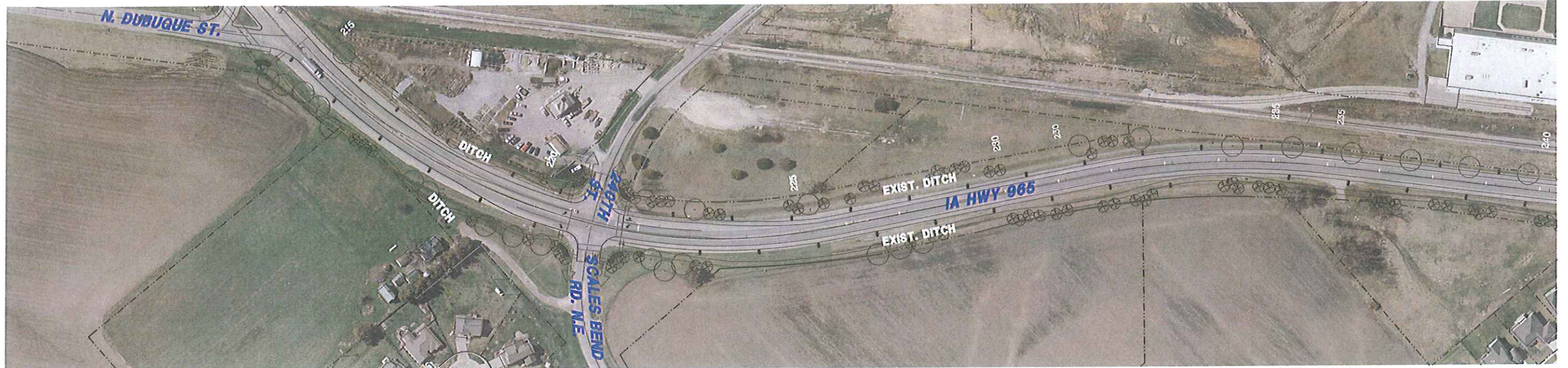
HIGHWAY 965 CORRIDOR STUDY
NORTH LIBERTY/CORALVILLE
IOWA 2008

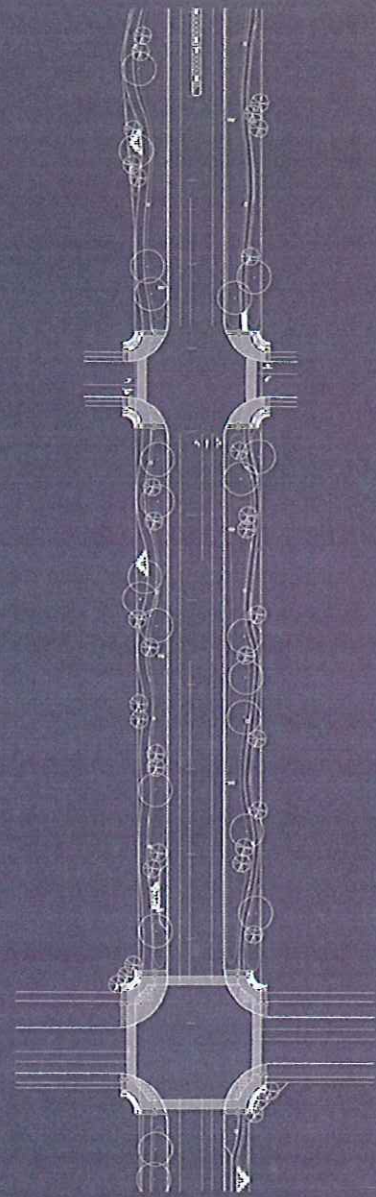
STORM SEWER IMPROVEMENTS

SHEET NO.
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Highway 965 Corridor Master Plan

November 2008



K. PROJECT PHASING

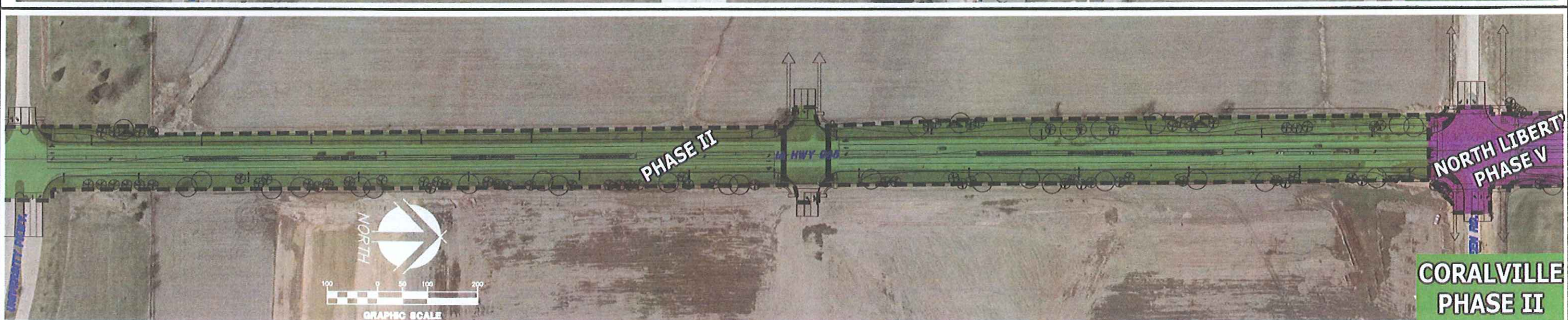
Project phasing was prepared for both communities. In order to determine the optimal phasing for the project, several criteria were used to evaluate each section including;

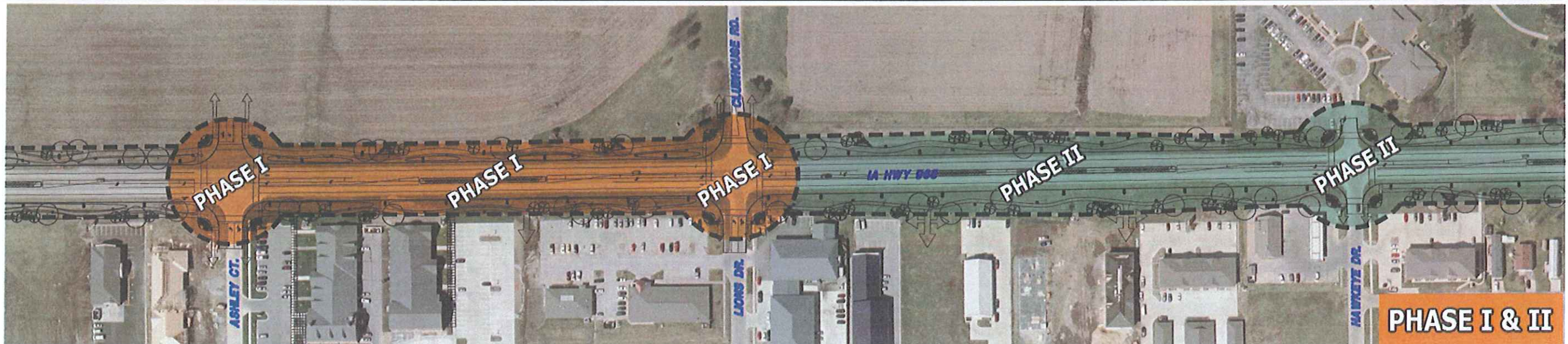
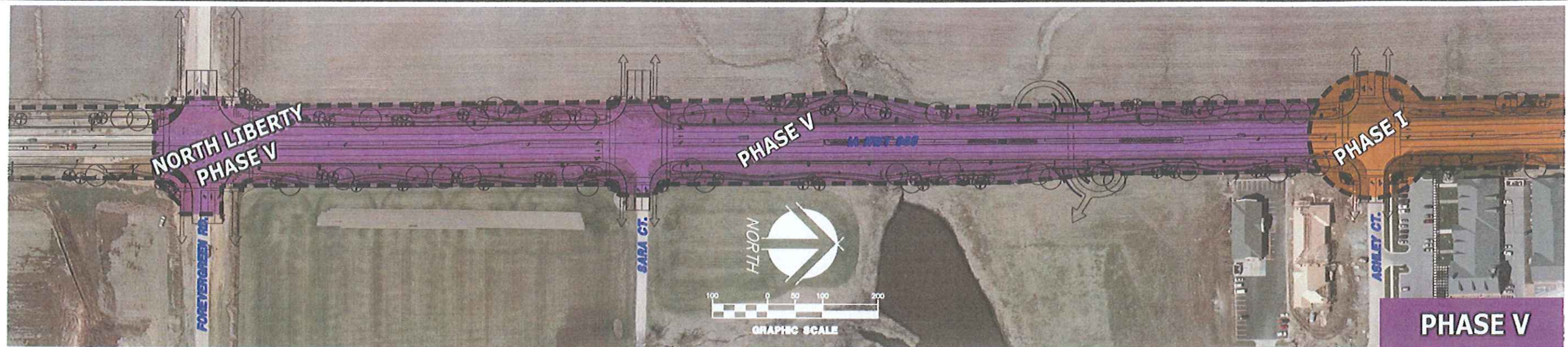
- Visual Character,
- Operational Deficiencies,
- Safety, and
- Community Image

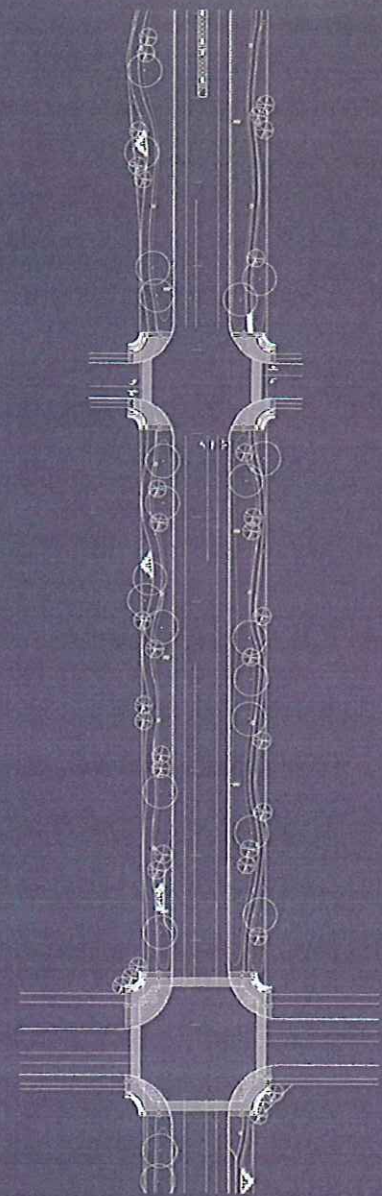
The Coralville project has been divided into two phases. The first phase begins at Holiday Road and continues north through the Oakdale Boulevard intersection. The second phase will begin north of Oakdale Boulevard and continue north to the south side of Forevergreen Road.

The North Liberty project has been divided into seven phases. Since the area from Penn Street to the south has already been improved by the addition of turn lanes and landscape and streetscape treatments, the recommended phasing for the project begins near the south end. The first phase begins at the Ashley Court intersection and continues north through the Lions Drive intersection. This area has been rapidly developing over the last several years and is in need of additional capacity. This area is also where much of the commercial development along Highway 965 begins, and by adding landscape and streetscape amenities these improvements will serve as the gateway to the commercial district in North Liberty. Phase 1 will also include capacity improvements to the Fairview Lane intersection to help alleviate the traffic congestion at this intersection. From here, the recommended phasing continues north to Penn Street for Phase 2, 3, and 4 before returning to the southern end for Phase 5 to complete the improvements along the main commercial section of Highway 965. The final Phases 6 and 7 will complete the improvements from north of the Penn Street intersection north to the City limits.

The recommended phasing plan for each community is illustrated on the following pages.







Highway 965 Corridor Master Plan

November 2008



L. OPINION OF PROBABLE CONSTRUCTION COST AND FUNDING MATRIX

An Engineer's Opinion of Probable Construction Cost was prepared for both communities. These costs were broken down by phase for each community.

These cost opinions were utilized to create the funding sources and uses matrix that associates targeted funding sources with proposed uses of funds

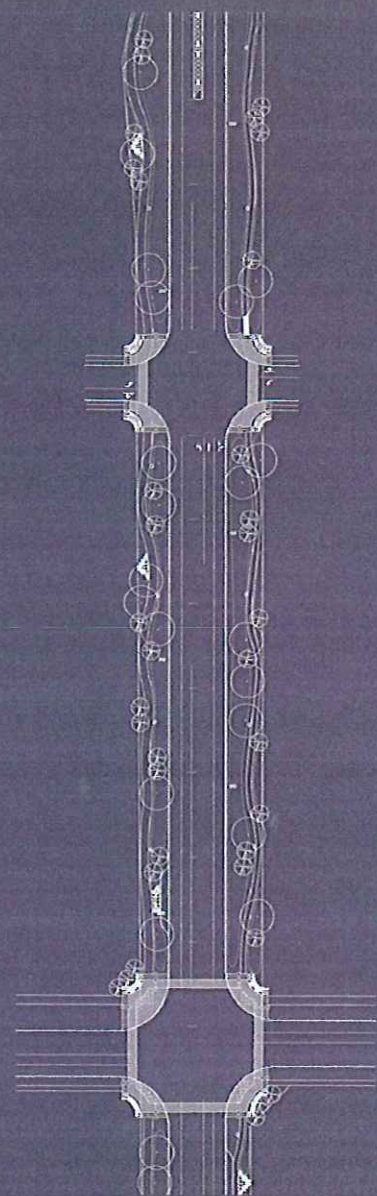
PLANNING LEVEL OPINION OF PROBABLE PROJECT COST HIGHWAY 965 CORRIDOR STUDY October 2008 Prepared by Howard R. Green Company					
ITEM	UNIT	PHASE 1 CORALVILLE		PHASE 2 CORALVILLE	
		N OF HOLIDAY TO N OF OAKDALE	N OF OAKDALE TO S OF FOREVERGREEN	N OF OAKDALE TO S OF FOREVERGREEN	
		QUANTITY	COST	QUANTITY	COST
1.1 Demolition			\$229,500.00		\$87,500.00
1.1.1 Pavement Removal	SY	20,150	\$201,500	3100	\$31,000
1.1.2 Clearing and Grubbing	AC	5.8	\$28,000	11.3	\$56,500
1.2 Excavation and Grading			\$513,450.00		\$543,152.50
1.2.1 Excavation and Grading Class 10	CY	35,250	\$352,500	42,810	\$428,100
1.2.2 Excavation and Grading, Unknown	% of 1.1.1 & 1.3.1.2	10%	\$160,950	10%	\$115,053
1.3 Pavement			\$1,737,000.00		\$1,747,775.00
1.3.1 Concrete Pavement	SY	25,600	\$1,408,000	20,355	\$1,119,525
1.3.2 Granular Base	CY	9,400	\$329,000	7,950	\$278,250
1.3.3 HMA Intermediate Course, 1.5"	TONS	0	\$0	3,500	\$175,000
1.3.4 HMA Surface Course, 1.5"	TONS	0	\$0	3,500	\$175,000
1.3.5 Recreation Trail - 10'	SY	0	\$0	0	\$0
1.3.6 Sidewalk - 6'	SY	0	\$0	0	\$0
1.4 Drainage			\$361,950.00		\$237,252.50
1.4.1 Storm Sewer	LF	150	\$9,000	520	\$31,200
1.4.2 Storm Sewer Structures	EA	12	\$42,000	28	\$91,000
1.4.3 Culvert Replacement Sta 13+00	LF	300	\$150,000	0	\$0
1.4.4 Drainage, Unknown	% of 1.1.1 & 1.3.1.2	10%	\$180,950	10%	\$115,053
1.5 Streetscape/Landscape			\$559,885.00		\$596,825.00
1.5.1 Major Intersection	EA	0.0	\$0.00	0.0	\$0.00
Sculpture	LS				
Gateway Signage	LS				
Gateway Lighting	LS				
Decorative Lighting (includes footc)	EA				
Benches	EA				
Trash Receptacles	EA				
Bollards (not lighted)	EA				
Limestone cubes	EA				
Special Pavement (includes subbase)	SY				
Overstory Trees	EA				
Understory Trees	EA				
Shrubs	EA				
Perennials	SF				
Sodding	SQ				
1.5.2 Minor Intersection	EA	1.75	\$308,875	1.0	\$176,500
Decorative Lighting (includes footc)	EA				
Benches	EA				
Trash Receptacles	EA				
Bollards (not lighted)	EA				
Limestone cubes	EA				
Special Pavement (includes subbase)	SY				
Overstory Trees	EA				
Understory Trees	EA				
Shrubs	EA				
Perennials	SF				
Sodding	SQ				
1.5.3 Roadway Section without Median (per station)	STA				
Site Furnishings (seating, trash, signage, stone, bollards, bike rack)	STA	3.0	\$10,500	18.7	\$65,450
Special Pavement (bike nodes)	STA	3.0	\$1,950	18.7	\$12,165
1.5.4 Roadway Section with Median (per station)	STA				
Site Furnishings (seating, trash, signage, stone, bollards, bike rack)	STA	21.3	\$74,550	30.6	\$107,100
Landscaping (irrigated median trees, shrubs, perennials, and seeding)	STA	21.3	\$127,800	30.6	\$183,800
Special Pavement (bike nodes and median paving)	STA	21.3	\$36,210	30.6	\$52,020
1.6 Special Construction			\$2,674,969.00		\$1,078,733.50
1.6.1 Trail Underpass	EA	2	\$1,350,000	0	\$0
1.6.2 Traffic Signals	EA	1	\$175,000	1	\$175,000
1.6.3 Erosion Control	% of 1.1.1 & 1.3.1.2	2%	\$32,190	2%	\$23,011
1.6.4 Retaining Wall (avg. 5' hgt. assumed)	SF	8050	\$211,750		
1.6.5 Intersection Enhancement as Per RDG Master Plan (Ph.1)	LS	1	\$934,951		
1.6.6 Intersection Enhancement as Per RDG Master Plan (Ph.4)	LS			1	\$255,415
1.6.7 Roadway Enhancement as per RDG (Ph. 5)	LS	1	\$271,173		
1.6.8 Roadway Enhancement as per RDG (Ph. 6)	LS			1.0	\$625,308
1.7 Traffic Control			\$98,370.00		\$49,031.50
1.7.1 Traffic Control	% of 1.1.1 & 1.3.1.2	6%	\$58,570	6%	\$29,032
1.8 Miscellaneous			\$1,225,338.71		\$830,954.28
1.8.1 Pavement Marking and Signing	% of 1.1.1 & 1.3.1.2	2%	\$32,190	2%	\$23,011
1.8.2 Incidentals	% of 1.1.1 & 1.3.1.2	10%	\$180,950	10%	\$115,053
1.8.3 Mobilization	% of Above	4%	\$248,933	4%	\$174,411
1.8.4 Contingency (Note: No contingency on RDG items)	% of Above	16%	\$785,265	15%	\$518,480
Subtotal Construction (Current Year)			\$7,398,663		\$5,191,224
Engineering, Legal, Administration	% of Above	20%	\$1,479,733	20%	\$1,038,245
Opinion of Probable Costs			\$8,878,395		\$6,229,469
Permanent Right of Way	AC	0.1	\$1,000	0.0	
Total			\$8,879,395		\$6,229,469

Howard R. Green Company

OPINION OF PROBABLE
CONSTRUCTION COSTS

SHEET NO.

L



Highway 965 Corridor Master Plan

November 2008



PLANNING LEVEL OPINION OF PROBABLE PROJECT COST HIGHWAY 965 CORRIDOR STUDY August 2008

Prepared by Howard R. Green Company

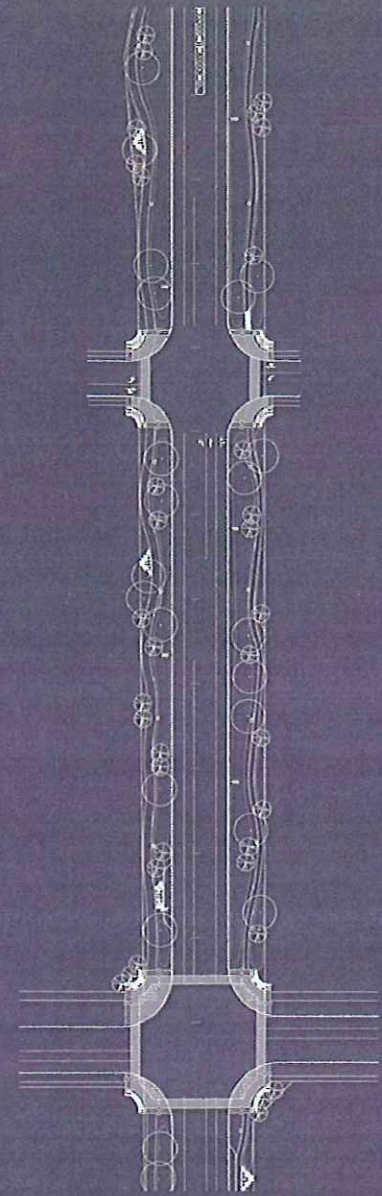
ITEM	UNIT	PHASE 1 NORTH LIBERTY		PHASE 2 NORTH LIBERTY		PHASE 3 NORTH LIBERTY		PHASE 4 NORTH LIBERTY		PHASE 5 NORTH LIBERTY		PHASE 6 NORTH LIBERTY		PHASE 7 NORTH LIBERTY	
		ASHLEY TO LIONS & FAIRVIEW INT		LIONS TO FAIRVIEW		FAIRVIEW TO ZELLER		ZELLER TO PENN		FOREVERGREEN TO ASHLEY		PENN TO DUBUQUE		DUBUQUE TO 230TH	
		QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST	QUANTITY	COST
1.1 Demolition			\$10,000.00		\$22,500.00		\$36,826.45		\$30,000.00		\$31,500.00		\$29,104.68		\$37,503.00
1.1.1 Pavement Removal	SY	250.0	\$2,500	500	\$5,000	1100	\$11,000	500	\$5,000	900	\$9,000	500	\$5,000	500	\$5,000
1.1.2 Clearing and Grubbing	AC	1.5	\$7,500	3.5	\$17,500	5.2	\$25,826	5.0	\$25,000	4.5	\$22,500	4.8	\$24,105	6.3	\$32,500
1.2 Excavation and Grading			\$152,092.50		\$214,905.00		\$159,405.00		\$183,405.00		\$292,517.50		\$188,077.50		\$270,200.00
1.2.1 Excavation and Grading Class 10	CY	10,800	\$108,000	16,100	\$161,000	10,800	\$108,000	12,950	\$129,500	23,450	\$234,500	15,365	\$153,650	24,990	\$249,900
1.2.2 Excavation and Grading, Unknown	% of 1.1.1 & 1.3.1.2	10%	\$48,093	10%	\$53,905	10%	\$53,405	10%	\$53,905	10%	\$58,018	10%	\$32,428	10%	\$20,300
1.3 Pavement			\$716,975.00		\$951,975.00		\$1,030,800.00		\$847,500.00		\$1,017,775.00		\$651,625.00		\$894,700.00
1.3.1 Concrete Pavement	SY	8,335	\$48,425	9,710	\$53,405	9,510	\$52,305	7,040	\$37,200	10,385	\$57,175	5,805	\$319,275	3,800	\$198,000
1.3.2 Granular Base	CY	2,985	\$104,475	3,875	\$128,825	3,700	\$129,500	2,900	\$101,500	3,900	\$136,500	2,325	\$31,375	5,585	\$195,475
1.3.3 HMA Intermediate Course, 1.5"	TONS	850	\$60,500	1,210	\$80,500	1,940	\$97,000	1,815	\$90,750	1,400	\$70,000	1,000	\$50,000	1,600	\$75,000
1.3.4 HMA Surface Course, 1.5"	TONS	850	\$42,500	1,210	\$60,500	1,840	\$97,000	1,815	\$90,750	1,400	\$70,000	1,000	\$50,000	1,500	\$75,000
1.3.5 Recreation Trail - 10'	SY	895.0	\$40,275	2,330	\$104,850	2,510	\$112,950	2,495	\$112,275	2,070	\$93,150	2,145	\$95,525	4,905	\$220,725
1.3.6 Sidewalk - 8'	SY	640.0	\$28,800	1,410	\$63,450	1,580	\$71,100	1,445	\$65,025	1,710	\$76,950	1,210	\$54,450	2,900	\$130,500
1.4 Drainage			\$133,492.50		\$159,305.00		\$291,805.00		\$218,605.00		\$170,417.50		\$90,227.50		\$46,309.00
1.4.1 Storm Sewer	LF	990	\$59,400	1290	\$77,400	3270	\$196,200	2045	\$122,700	1290	\$77,400	330	\$22,800	200	\$12,000
1.4.2 Storm Sewer Structures	EA	8	\$28,000	8	\$28,000	12	\$42,000	12	\$42,000	10	\$35,000	10	\$35,000	4	\$14,000
1.4.3 Drainage, Unknown	% of 1.1.1 & 1.3.1.2	10%	\$48,093	10%	\$53,905	10%	\$53,405	10%	\$53,905	10%	\$58,018	10%	\$32,428	10%	\$20,300
1.5 Streetscape/Landscape			\$634,085.00		\$1,097,900.00		\$1,464,065.00		\$1,785,250.00		\$1,053,975.00		\$828,600.00		\$1,520,900.00
1.5.1 Major Intersection	EA	0.0	\$0.00	0.0	\$0.00	1.0	\$548,600.00	1.0	\$548,600.00	0.5	\$274,300.00	0.0	\$0.00	0.0	\$0.00
Sculpture	LS														
Gateway Signage	LS														
Gateway Lighting	LS														
Decorative Lighting (includes footings)	EA														
Benches	EA														
Trash Receptacles	EA														
Bollards (not lighted)	EA														
Limestone cubes	EA														
Special Pavement (includes subbase)	SY														
Overstory Trees	EA														
Understory Trees	EA														
Shrubs	EA														
Perennials	SF														
Sodding	SQ														
1.5.2 Minor Intersection	EA	2.0	\$393,000	2.0	\$393,000	1.0	\$198,500	3.0	\$595,500	1.0	\$198,500	1.0	\$198,500	1.0	\$198,500
Decorative Lighting (includes footings)	EA														
Benches	EA														
Trash Receptacles	EA														
Bollards (not lighted)	EA														
Limestone cubes	EA														
Special Pavement (includes subbase)	SY														
Overstory Trees	EA														
Understory Trees	EA														
Shrubs	EA														
Perennials	SF														
Sodding	SQ														
1.5.3 Roadway Section without Median (per station)	STA	5.4	\$162,540	12.3	\$370,230	12.2	\$367,220	21.5	\$847,150	12.0	\$381,200	21.0	\$632,100	44.0	\$1,324,400
Decorative Lighting (includes footings)	STA														
Street Lighting (includes footings)	STA														
Site Furnishings (seating, trash, signage, stone, bollards, bike)	STA														
Landscaping (trees, shrubs, perennials, and seeding)	STA														
Special Pavement (bike nodes)	STA														
1.5.4 Roadway Section with Median (per station)	STA	2.3	\$78,545	9.8	\$334,870	10.3	\$351,745	0.0	\$0	8.5	\$321,975	0.0	\$0	0.0	\$0
Decorative Lighting (includes footings)	STA														
Street Lighting (includes footings)	STA														
Site Furnishings (seating, trash, signage, stone, bollards, bike)	STA														
Landscaping (irrigated median trees, shrubs, perennials, seedli)	STA														
Special Pavement (bike nodes, median paving)	STA														
1.6 Special Construction			\$534,218.50		\$860,781.00		\$185,881.00		\$448,281.00		\$949,103.50		\$93,985.50		\$4,080.00
1.6.1 Trail Underpass	EA	0.0	\$0	1	\$675,000	0	\$0	0	\$0	1.0	\$375,000	0	\$0	0	\$0
1.6.2 Traffic Signals	EA	3	\$525,000	1	\$175,000	1	\$175,000	2.5	\$437,500	1.5	\$262,500	0.5	\$87,500	0	\$0
1.6.3 Erosion Control	% of 1.1.1 & 1.3.1.2	2%	\$9,219	2%	\$10,781	2%	\$10,881	2%	\$10,781	2%	\$11,804	2%	\$8,488	2%	\$4,050
1.7 Traffic Control			\$27,655.50		\$32,343.00		\$32,043.00		\$32,343.00		\$34,810.50		\$19,456.50		\$12,180.00
1.7.1 Traffic Control	% of 1.1.1 & 1.3.1.2	6%	\$27,655	6%	\$32,343	6%	\$32,043	6%	\$32,343	6%	\$34,811	6%	\$19,457	6%	\$12,180
1.8 Miscellaneous			\$474,929.51		\$699,230.71		\$672,128.93		\$738,308.96		\$744,139.91		\$399,737.37		\$553,889.80
1.8.1 Pavement Marking and Signing	% of 1.1.1 & 1.3.1.2	2%	\$9,219	2%	\$10,781	2%	\$10,881	2%	\$10,781	2%	\$11,804	2%	\$8,488	2%	\$4,050
1.8.2 Incidentals	% of 1.1.1 & 1.3.1.2	10%	\$48,093	10%	\$53,905	10%	\$53,405	10%	\$53,905	10%	\$58,018	10%	\$32,428	10%	\$20,300
1.8.3 Mobilization	% of Above	4%	\$89,341	4%	\$133,583	4%	\$129,009	4%	\$141,815	4%	\$142,204	4%	\$75,993	4%	\$111,434
1.8.4 Contingency	% of Above	15%	\$331,278	15%	\$500,958	15%	\$480,334	15%	\$553,303	15%	\$532,515	15%	\$284,362	15%	\$417,379
Subtotal Construction (Current Year)			\$2,683,449		\$4,038,940		\$3,972,354		\$4,283,693		\$4,294,239		\$2,298,314		\$3,339,510
Engineering, Legal, Administration	% of Above	20%	\$536,890	20%	\$807,788	20%	\$774,471	20%	\$856,739	20%	\$858,348	20%	\$459,763	20%	\$667,902
Opinion of Probable Costs			\$3,220,338		\$4,846,728		\$4,746,825		\$5,140,432		\$5,153,087		\$2,758,077		\$4,007,412
Permanent ROW / Easements	AC		\$37,500		\$0		\$14,500		\$89,000		\$3,800		\$0		\$0
Total			\$3,257,838		\$4,846,728		\$4,761,325		\$5,229,432		\$5,156,887		\$2,758,077		\$4,007,412

Howard R. Green Company

OPINION OF PROBABLE
CONSTRUCTION COSTS

SHEET NO.

L



Highway 965 Corridor Master Plan

November 2008



Federal, State, Regional, Local Source	Source	Administrative Agency/Department	Applications Due	Review Period	Match Requirement	Low Awards	High Awards	Average Awards	Payment Method	Common Project Improvements	Funding Categories
Federal	STAG Grant	U.S. EPA	First Quarter	6+ months	45%	N/A	N/A	N/A	Reimbursement	Water/Wastewater facility improvements	Discretionary - funds often used for land acquisition, conduct facility planning, design and construction
Federal	TCSP	FHWA	First Quarter	6+ months	20%	N/A	N/A	N/A	Reimbursement	Transportation studies, improvements associated that integrate transportation, community and system preservation	Improve transportation efficiency; reduce impacts of transportation on the environment; reduce the need for costly future investments in public infrastructure; provide efficient access to jobs, services, and centers of trade; and examine community development patterns and identify strategies to encourage private sector investment.
Federal	High Priority Projects	FHWA	First Quarter	6+ months	20%	N/A	N/A	N/A	Reimbursement	Roads & bridges	Discretionary
Federal	Transportation Improvements	FHWA	First Quarter	6+ months	20%	N/A	N/A	N/A	Reimbursement	Roads & bridges	Discretionary
Federal	Bus and Bus Facilities	FTA	First Quarter	6+ months	20%	N/A	N/A	N/A	Reimbursement	Purchase buses and/or construct transit related facilities	Discretionary - bus purchase and/or replacement of buses; related transit facilities.
State	Community Attraction & Tourism	Department of Econ. Dev	Quarterly	Approx. 3 months	Varies - 50% max.	\$200,000	\$750,000	N/A	Reimbursement	Streetscape improvements - specifically aesthetic features	Vertical infrastructure associated with community attractions and tourism
State/Regional	Federal Transportation Enhancement	Department of Transportation	October 1; MPO/RPA Schedules may differ	Approx. 4-5 months	70% State Program & 80% Regional Programs	Projected Budget Amount: \$137,357			Reimbursement	Trails, roadside beautification, visitor center.	Numerous - Categories specific to the Ingersoll Project: Landscaping and scenic beautification; facilities for pedestrians and bicycles; preservation of abandoned railway corridors for pedestrian or bicycle trails.
State	Federal Recreational Trails Program	Department of Transportation	October 1	3 - 4 months	20%	\$18,150	\$288,185	\$136,237	Reimbursement	Trail construction, widening and resurfacing, maintenance, etc.	Education, Trail maintenance; retire trails, provide access to those with disabilities, trailside and trailhead facilities; purchase or lease equipment for trail construction, maintenance, acquiring easements, constructing new trails.
State	State Recreational Trails Program	Department of Transportation	January 2 & July 1	3 - 4 months	25%	\$50,000	\$350,000	N/A	Reimbursement	Trail construction	Generally all costs associate with trail design, construction or upgrade.
State	RISE - Local Development Projects	Department of Transportation	February 1 & September 1	3 - 4 months	50%	\$62,500	\$1,258,574	\$306,319	Reimbursement	Design and construction of roads and/or upgrade in roadways serving economic development projects.	Immediate Opportunity (80% IDOT/20% Local Match) and Local Development Projects (50%/50%)
State	ICAAP	Department of Transportation	October 1	3 - 4 months	20%	\$62,000	\$880,000	\$427,273	Reimbursement	Signalization, Grade-separations, bridges, roadway extensions, roadway capacity improvements.	Traffic flow improvements; Shared-ride services; transit improvements; travel demand management strategies; pedestrian and bicycle programs; vehicle inspection and maintenance programs; other (to include promising technologies to reduce emissions, conversion of fleets to alternative fuels, etc.; transportation control measures; transportation activities consistent with the STIP.
State	Iowa Traffic Safety Improvement Program	Department of Transportation	August 15	3 - 4 months	None; however the program has a cap of \$500,000	\$4,000	\$500,000	\$131,236	Reimbursement	Site improvements, studies, traffic control devices.	Site Specific Improvements; Traffic Control Devices; Research
State	SRF	IDNR	Rolling Enrollment	6+ months	Loan Program	\$75,000 (planning & design)	\$6.5 million	N/A	Loan	Financing for planning and design, construction, replacement or rehabilitation of public water and wastewater systems	Planning and Design; Construction
State	Urban-State Traffic Engineering Program	Department of Transportation	Rolling Enrollment	3 months	45%	\$200,000 - spot improvements	\$400,000 - linear improvements	N/A	Reimbursement	Solve traffic operation and safety problems on primary roads	Spot improvements involving a single location; or linear improvements involving two or more intersections.
Regional	Surface Transportation Program	JCCOG	December	Approx. 4-5 months	70% State Program & 80% Regional Programs	Projected Budget Amount: \$1,785,930			Reimbursement	Trails, roadside beautification, visitor center.	Numerous - Categories specific to the Ingersoll Project: Landscaping and scenic beautification; facilities for pedestrians and bicycles; preservation of abandoned railway corridors for pedestrian or bicycle trails.
Local	General Fund	City Council	Budget/Bonding	N/A	Bonding cap imposed by state statute (5% of assessed value)	N/A	N/A	N/A	Bonding	Virtually everything included in this scope of work	Essential and General Corporate purposes
Local	Tax Increment Financing	City Council	Budget/Bonding	N/A	Bonding cap imposed by state statute (5% of assessed value)	N/A	N/A	N/A	Bonding	Virtually everything included in this scope of work	Economic development and blight elimination
Local	Local Option Sales Tax	City Council/Board of Supervisors	Subject to Referendum	Subject to vote and effective date of tax collections	Subject to what the referendum authorizes	N/A	N/A	N/A	Collections	Dependant upon activities authorized in the referendum	Dependant upon what is authorized in the referendum
Local	Special Assessment	City Council	Specific procedures	Effective date when the assessment is authorized	Cannot exceed 25% of assessed value	Assessment cannot exceed 25% of the assessed value of the property			Bonding	Design and construction costs associated with some form of metric that assigns cost with benefit.	Typically linear improvements associated with a street or utility improvement project.
Local	Self-Supported Municipal Improvement District (SSMID)	City Council	Specific procedures	Effective date when the assessment is authorized	Levy rate set by the City Council	Levy rate largely based on the consensus of affected tax payers			Bonding	Costs that are authorized by the resolution approved by the City Council	Capital improvements, offsets for the parking utility; promotion and marketing, etc.

SAFTEA-LU Project Number	Demo ID	Projects Listed in Section 134 - "Transportation Improvements"	Amount Authorized (over 5 years)
90	IA 160	Downtown Improvement Project, DeWitt	\$1,700,000
119	IA 189	Phase III - Main Street Project Amana [1]	\$220,000
125	IA 195	Construct Principal River walk, Des Moines [2]	\$1,100,000

[1] This project also received \$300,000 in High Priority Project funding (Section 1702).
[2] This project also received \$4 million in High Priority Project funding (Section 1702).

OPINION OF PROBABLE
CONSTRUCTION COSTS

SHEET NO.

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