

Traffic Analysis Geometric Alternatives

**Mississippi Drive Corridor
Phase 1 Environmental Assessment & Preliminary
Design**

City of Muscatine
Muscatine, Iowa

Draft
July 2011



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Engineering, Environmental and Construction Services - Worldwide

July 15, 2011

Ms. Christy VanBuskirk, P.E.
Iowa Department of Transportation
District 5 Local Systems Engineer
307 West Briggs Street
P.O. Box 587
Fairfield, IA 52556

Dear Ms. VanBuskirk:

Reference: Mississippi Drive Corridor
Phase 1 Environmental Assessment & Preliminary Design
STP-U-5330(614)--27-70
City of Muscatine

Subject: Preliminary Submittal

We are pleased to submit preliminary traffic, crash, and geometric studies for your review and comment for the referenced project. The geometric alternatives presented in this submittal are conceptual and a final alternative will be selected after further public coordination scheduled in September 2011. Three copies of the documents are included.

The City of Muscatine desires to improve the Mississippi Drive Corridor from the Norbert F. Beckey bridge, through the downtown area, the high sidewalk area, to Main Street – approximately 1.6 miles long. Improvement objectives are to make the corridor more pedestrian friendly by possibly narrowing the number of lanes from 5 to 3 in some areas, and connecting the riverfront to the downtown. The project is following the NEPA process for an environmental assessment.

The following items are included for your review:

- Project Location Map
- Existing Lane Configuration Map
- Sidewalk, Bike path, and Bus Route Map
- ADT Map
- 2011 DHV Map
- 2040 DHV Map
- Signal Warrant Analysis
- Capacity Analysis Summary
- Proposed Improvements: Hershey/Green Options
- Proposed Improvements: 3-lane Option



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- Proposed Improvements: 5-lane Option
- Proposed Truck Turning Movements

Appendix
Traffic Counts
Capacity Analysis Results

The Crash Analysis is being submitted as a separate document. A crash analysis was conducted for crashes over the five year period between the years 2005 and 2009.

Traffic counts were conducted in 2011 at eleven intersections along the corridor including the intersections of 120th Ave, Oak St, Mulberry Ave, Walnut St, Cedar St, Sycamore St, Iowa Ave, Chestnut St, Pine St, Green St, and Main St. The intersections and driveways at Broadway St, Ash St, and Elm St were not counted since they are not through streets.

Traffic projections were developed for the year 2040 using a yearly growth rate of 0.5 percent to accommodate potential growth in the area. Traffic trends, population growth, and employment growth were reviewed for the period from 1970 to 2010. A review of the data indicated that the population and employment in the area has been stable and the traffic has decreased along the corridor. It should be noted that the City of Muscatine is outside the jurisdiction of the Bi-State Regional Commission. Traffic analyses were conducted using the Synchro/SimTraffic software in order to evaluate the entire corridor as a single system. The traffic data and capacity analyses results are included for your review.

We are considering a 5-lane and a 3-lane option in the downtown section of the corridor. It is recommended to remove the existing on-street parking within the downtown area of the study corridor. The 5-lane option maintains the existing number of lanes within the downtown area. The proposed improvements in the 5-lane option encroach upon the railroad Right-of-Way on the south side of the corridor.

The intersection of Mississippi Drive\Hershey Avenue and Green Street at the west end of the project has unique challenges due to the offset nature of the intersection, the predominant traffic movement, and the severe grade along Green Street. Three concepts are being proposed for this intersection:

The following items are included for your review:

- **Roundabout concept:** The roundabout concept eliminates the traffic signal at the intersection and is the safest alternative. Two options are presented.
- **Turning roadway concept:** The roadway alignment is modified to facilitate the predominant traffic movement. A cul-de-sac is shown for Green Street to avoid two closely spaced intersections.
- **Conventional intersection concept:** A conventional intersection is created by realigning the south approach. This option impacts a key historic building.



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The corridor intersections operate at a Level-of-Service C or better under 2011 and 2040 traffic conditions for both the 3-lane and 5-lane options. The traffic and crash analyses do not indicate any significant capacity and safety concerns along the corridor.

AutoTurn truck turning evaluation is included for review. A combination of a Single Unit (SU) truck and a WB-65 was used for the evaluation. The design vehicle was based on the actual needs of the corridor and its intersections.

Additional access management strategies are being pursued to consolidate driveways along the corridor.

Please let me know if you need additional information or if you have any questions.

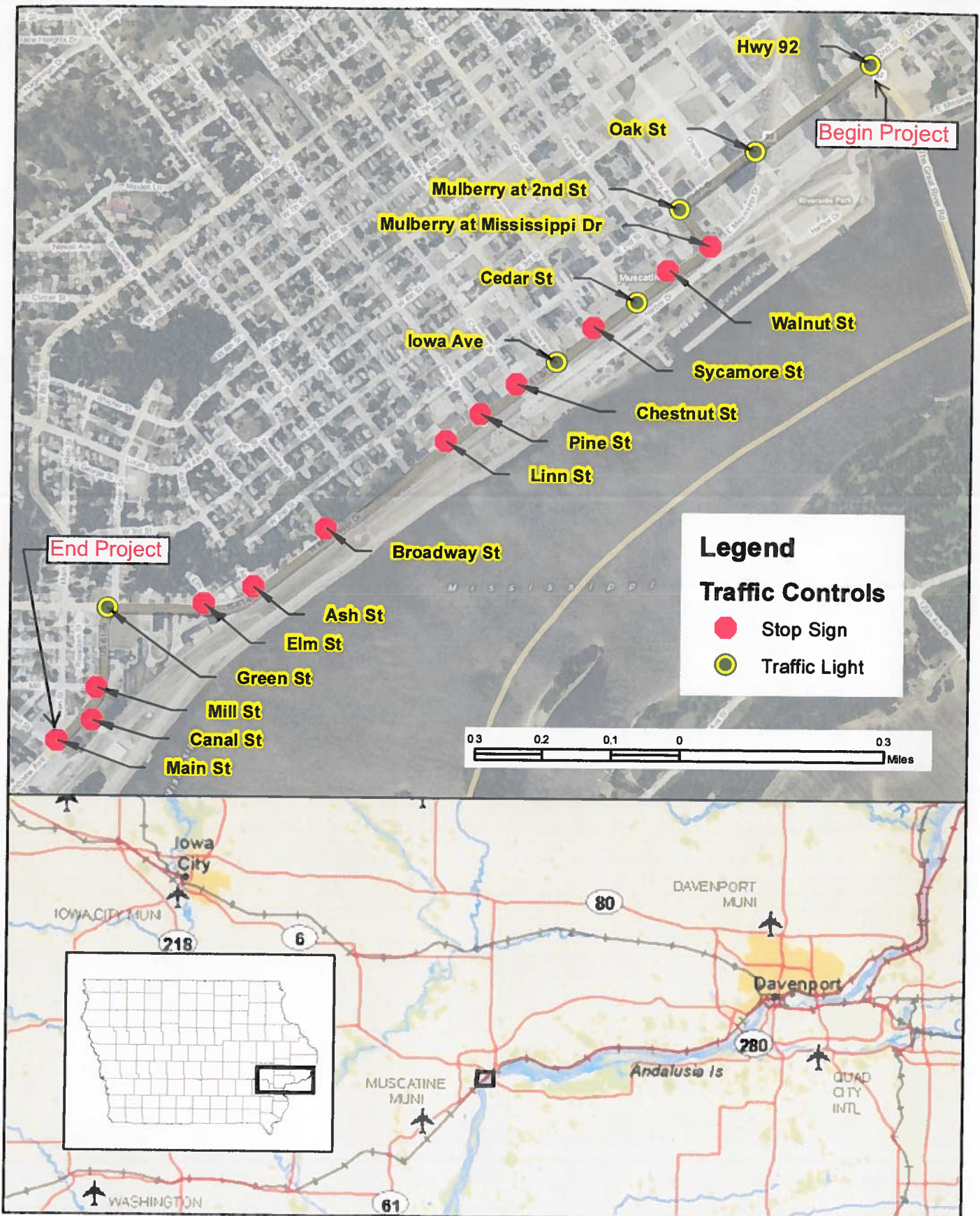
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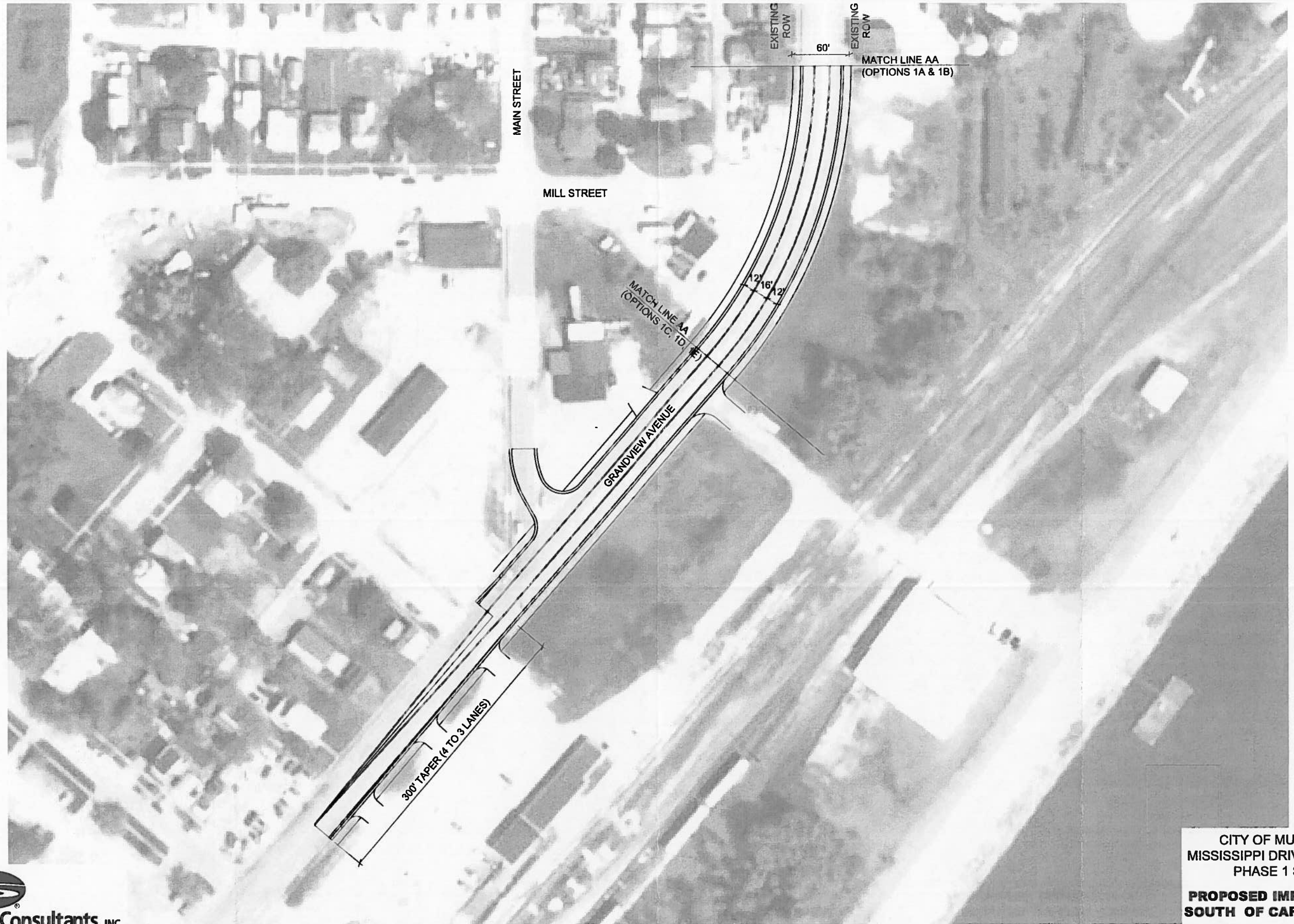
Stanley Consultants, Inc.

Michael R. Helms, P.E.
Project Manager

cc: Steve Boka, City of Muscatine
Files 23103

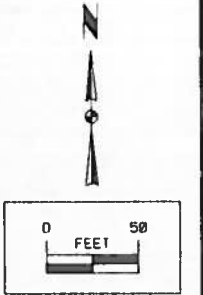
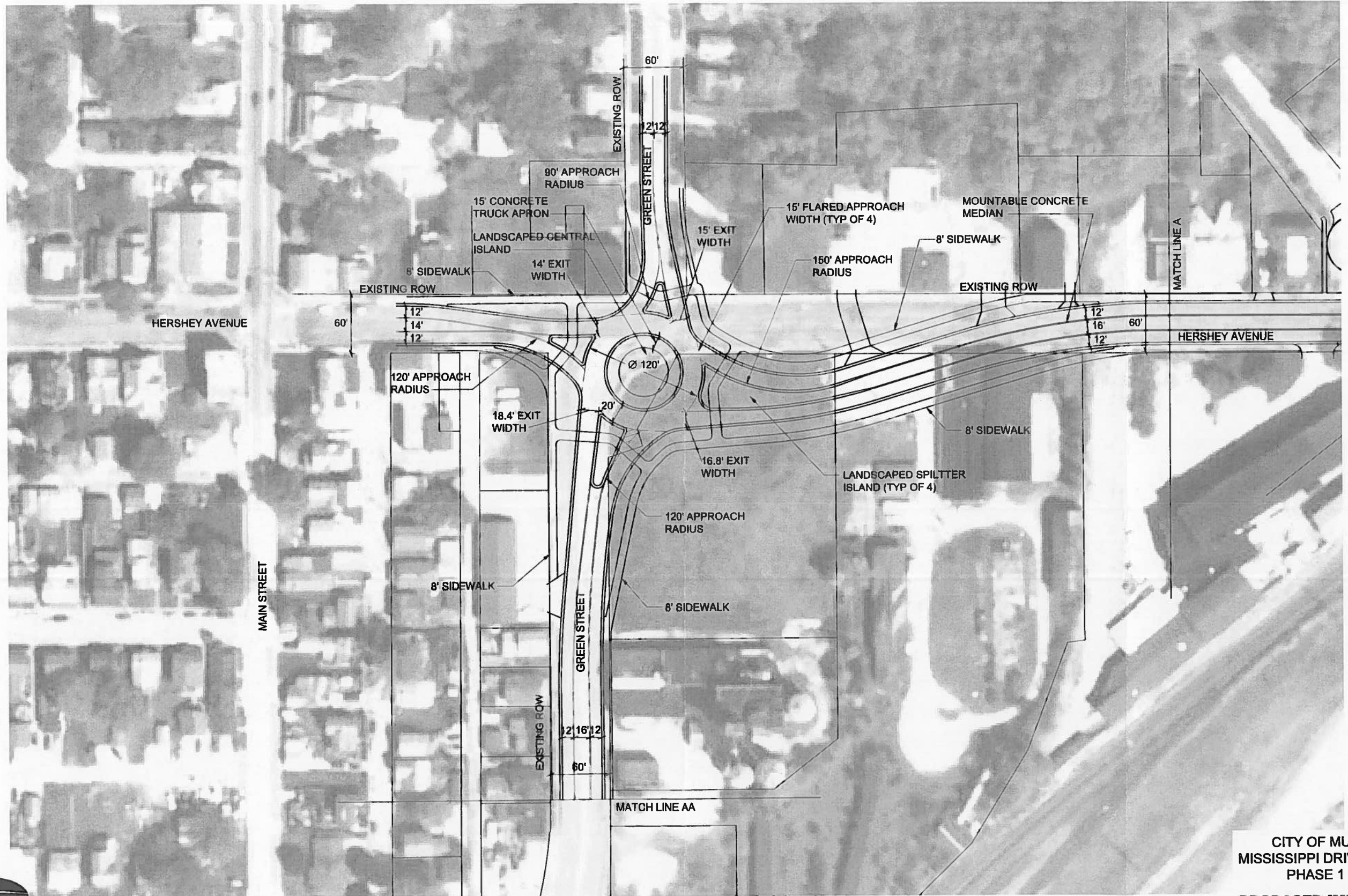
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CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
SOUTH OF CARVER CORNER**





CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
CARVER CORNER
OPTION 1A**

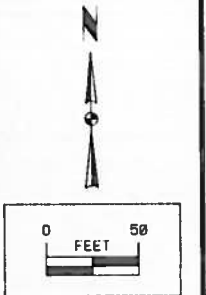
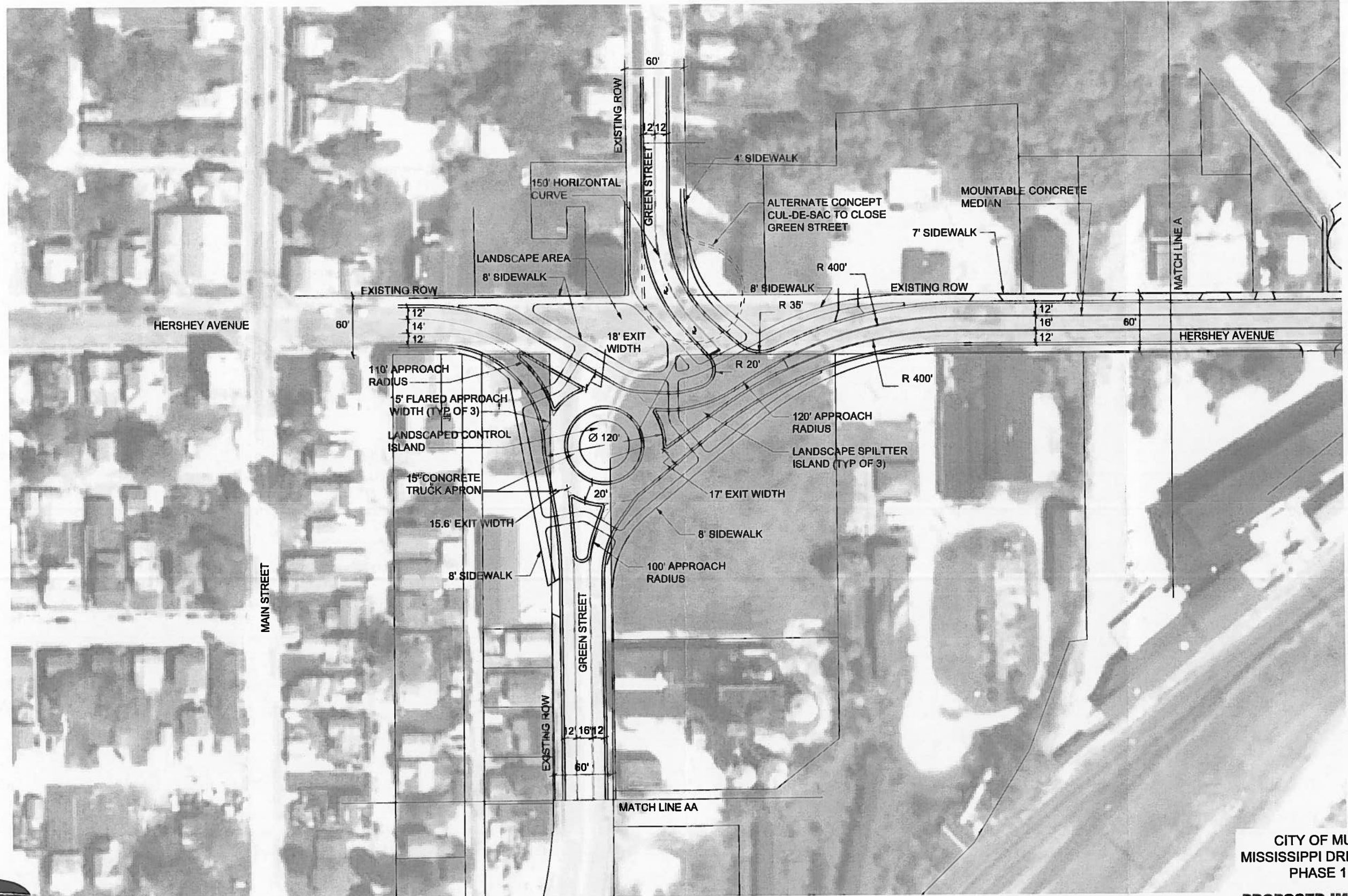


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COUNTY PROJECT NUMBER

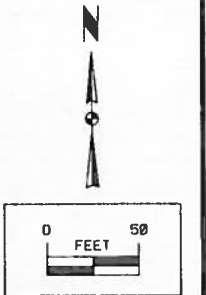
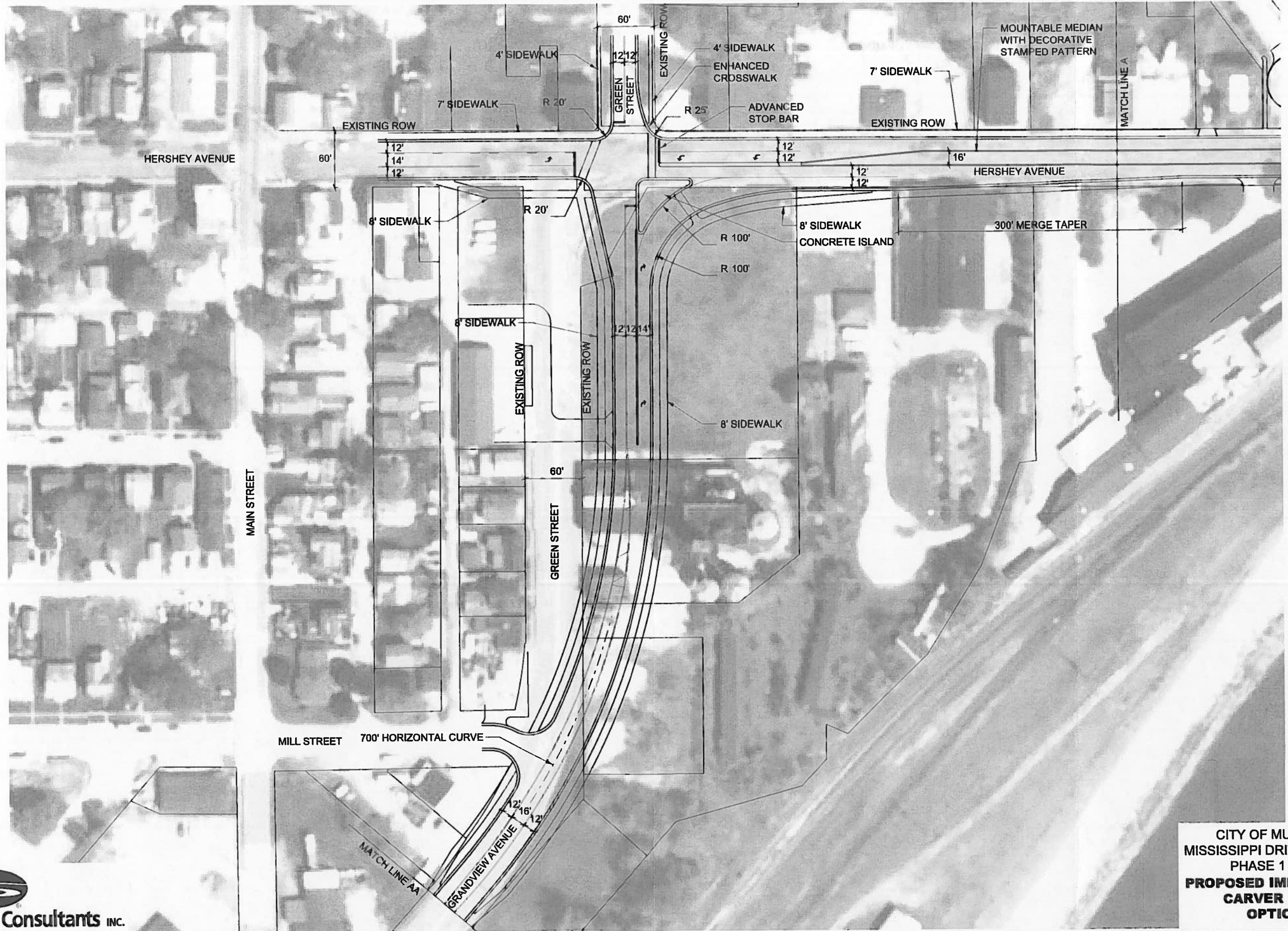
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CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY

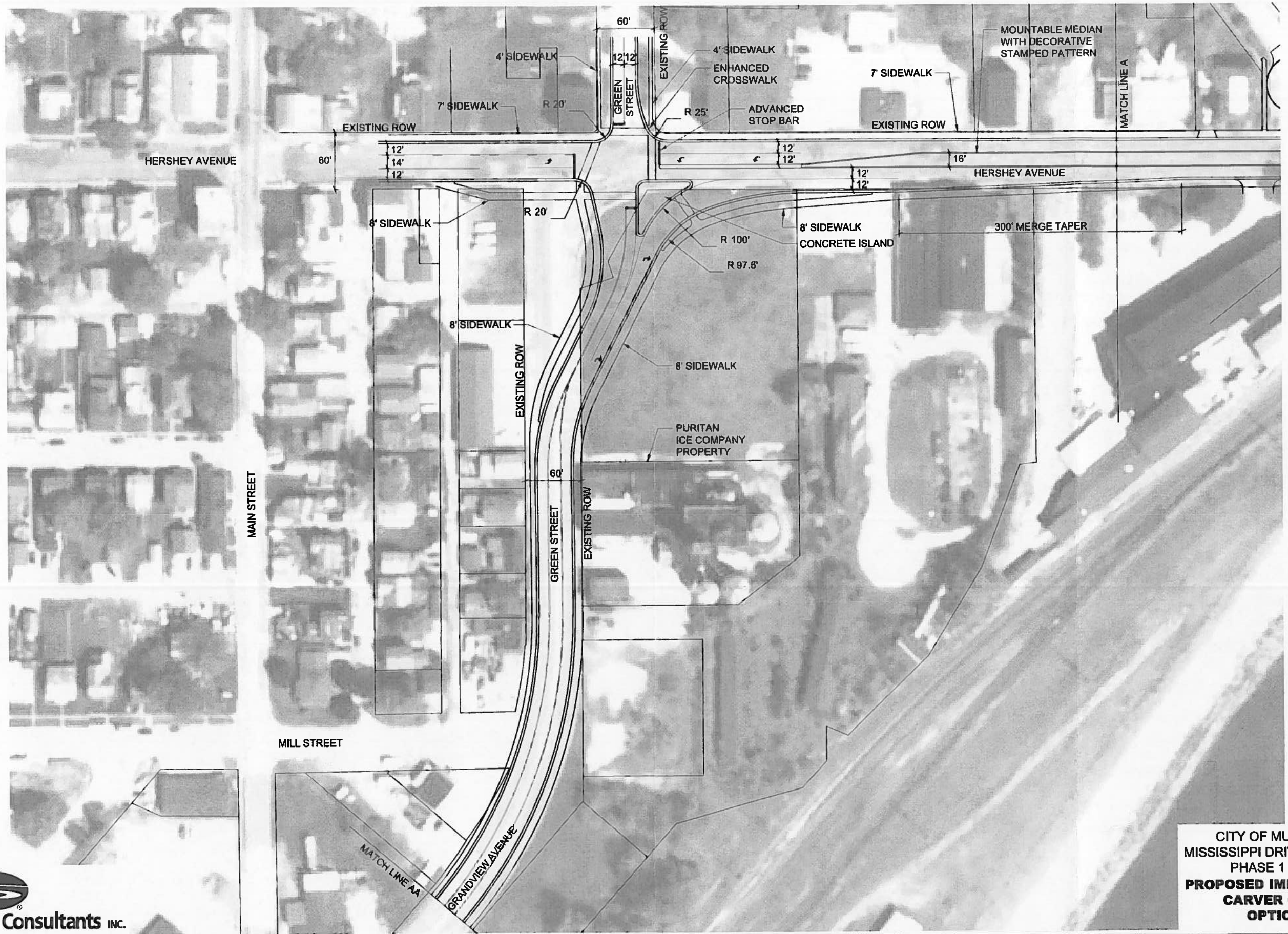
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CARVER CORNER
OPTION 1B**



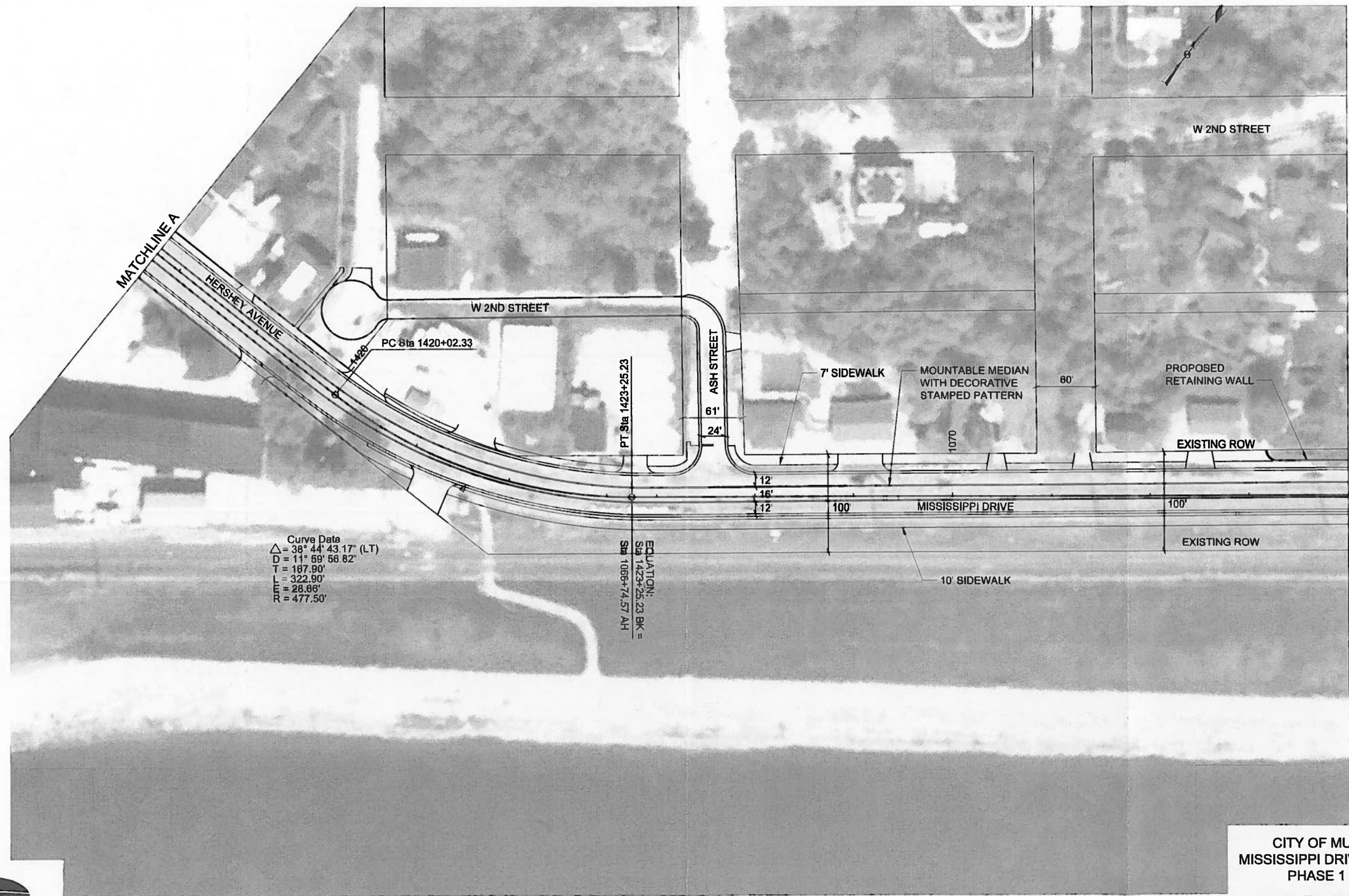


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PHASE 1 STUDY
PROPOSED IMPROVEMENTS
CARVER CORNER
OPTION 1D





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MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED IMPROVEMENTS
CARVER CORNER
OPTION 1E

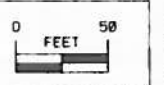
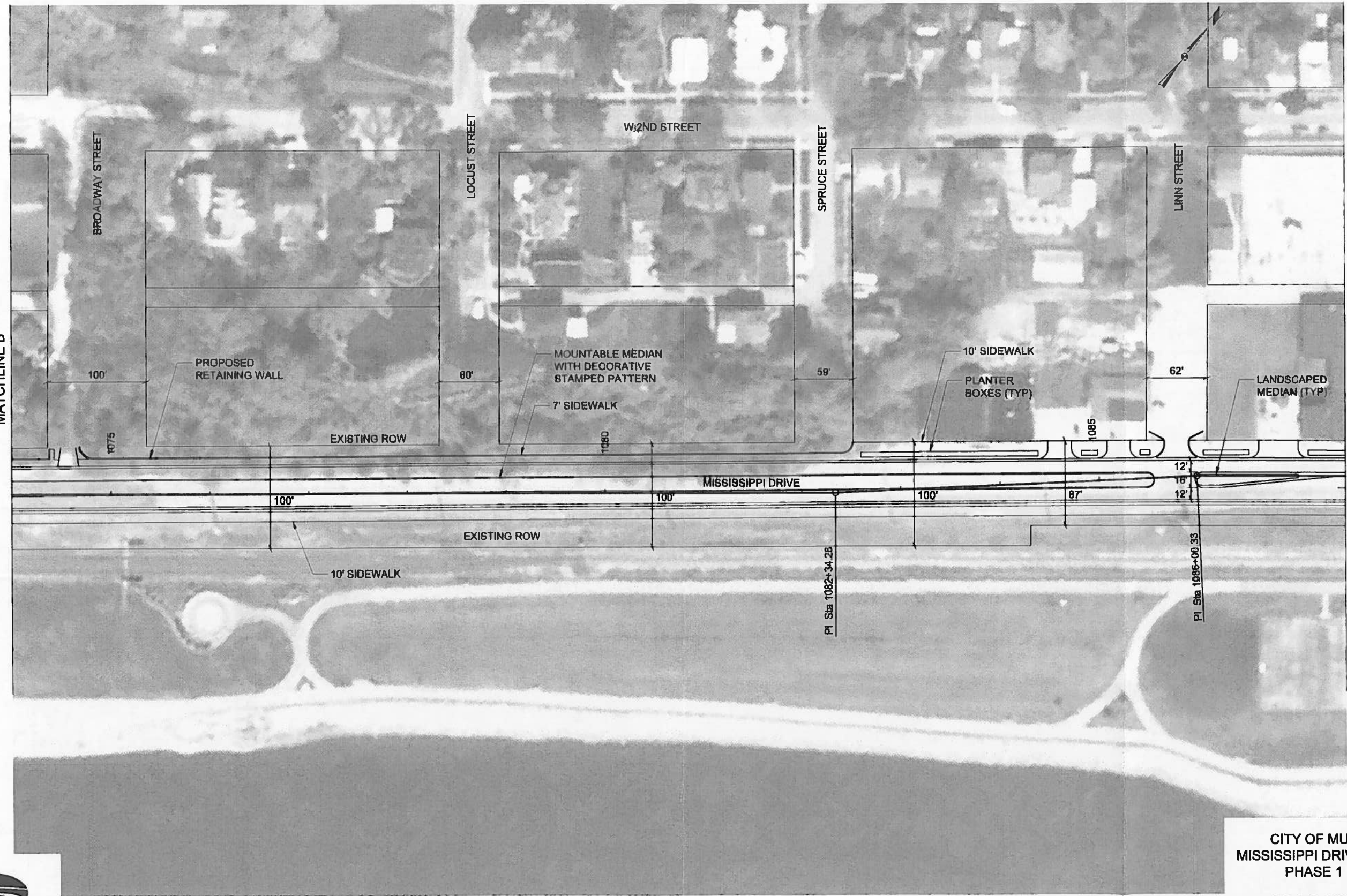


Curve Data
 $\Delta = 38^\circ 44' 43.17''$ (LT)
 $D = 11^\circ 59' 56.82''$
 $T = 167.90'$
 $L = 322.90'$
 $E = 28.66'$
 $R = 477.50'$

EQUATION:
 Sta 1423+25.23 BK =
 Sta 1066+74.57 AH

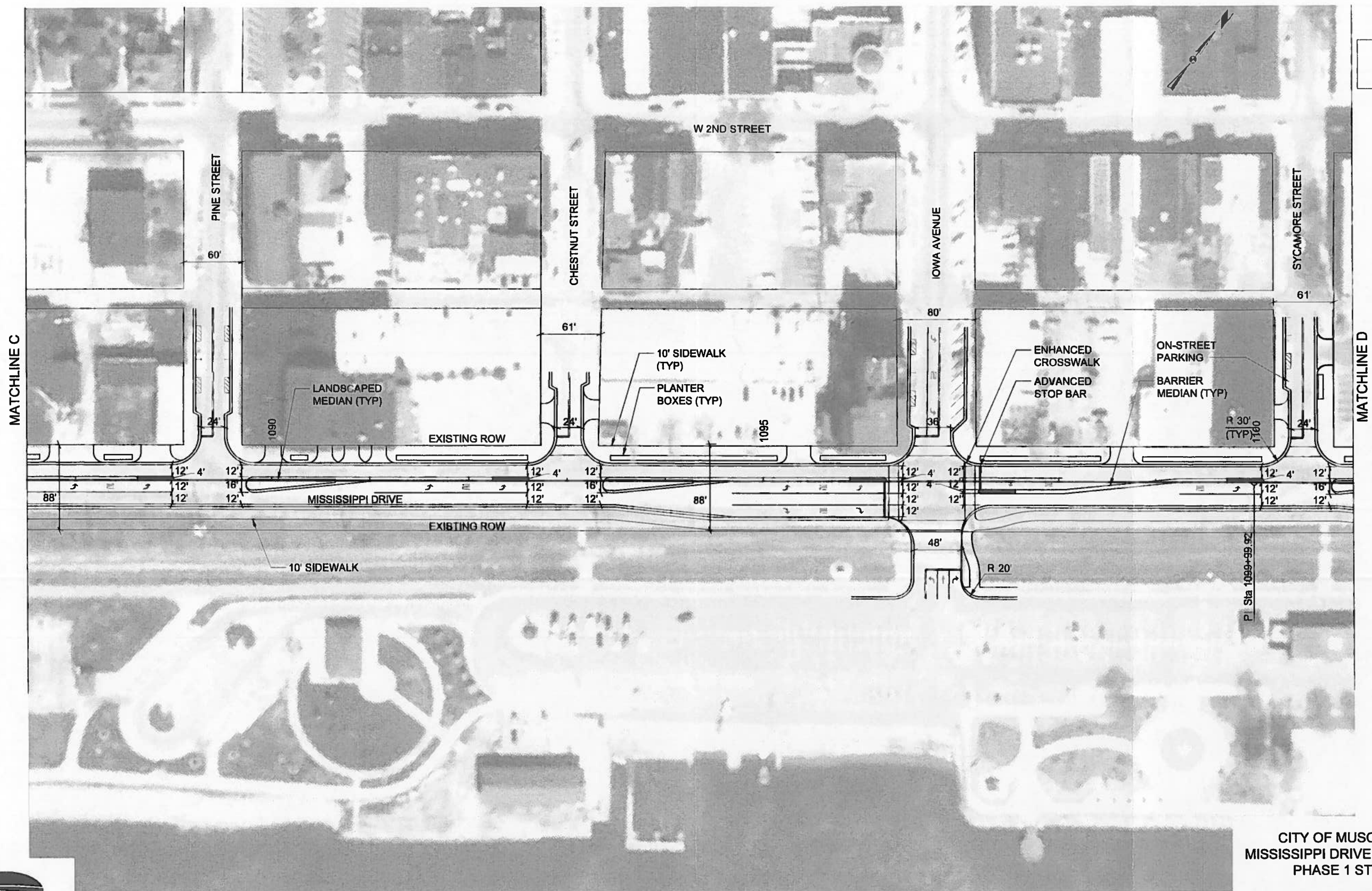
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 PHASE 1 STUDY
PROPOSED IMPROVEMENTS
3-LANE OPTION





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**PROPOSED IMPROVEMENTS
3-LANE OPTION**





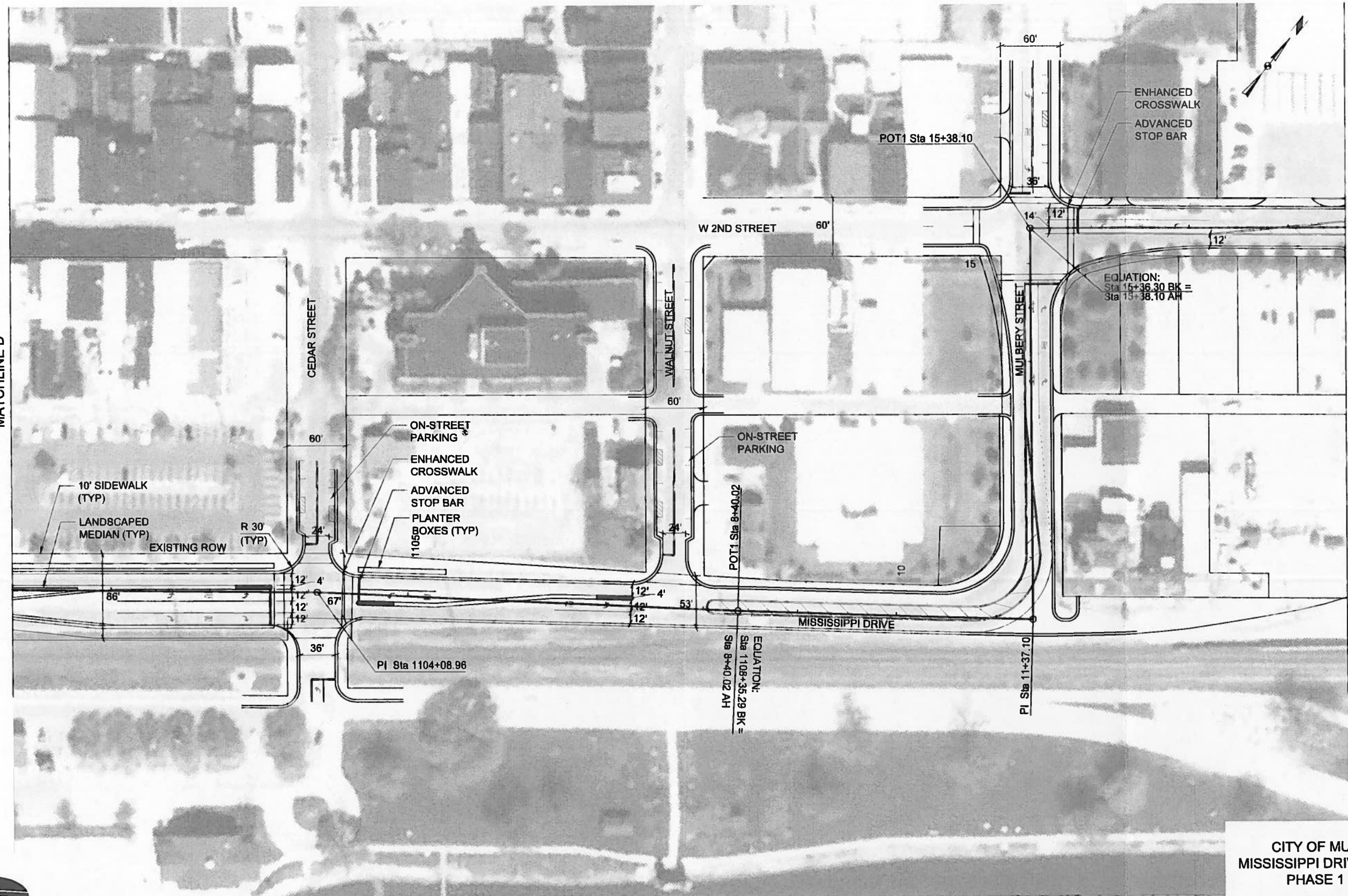
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PHASE 1 STUDY

**PROPOSED IMPROVEMENTS
3-LANE OPTION**



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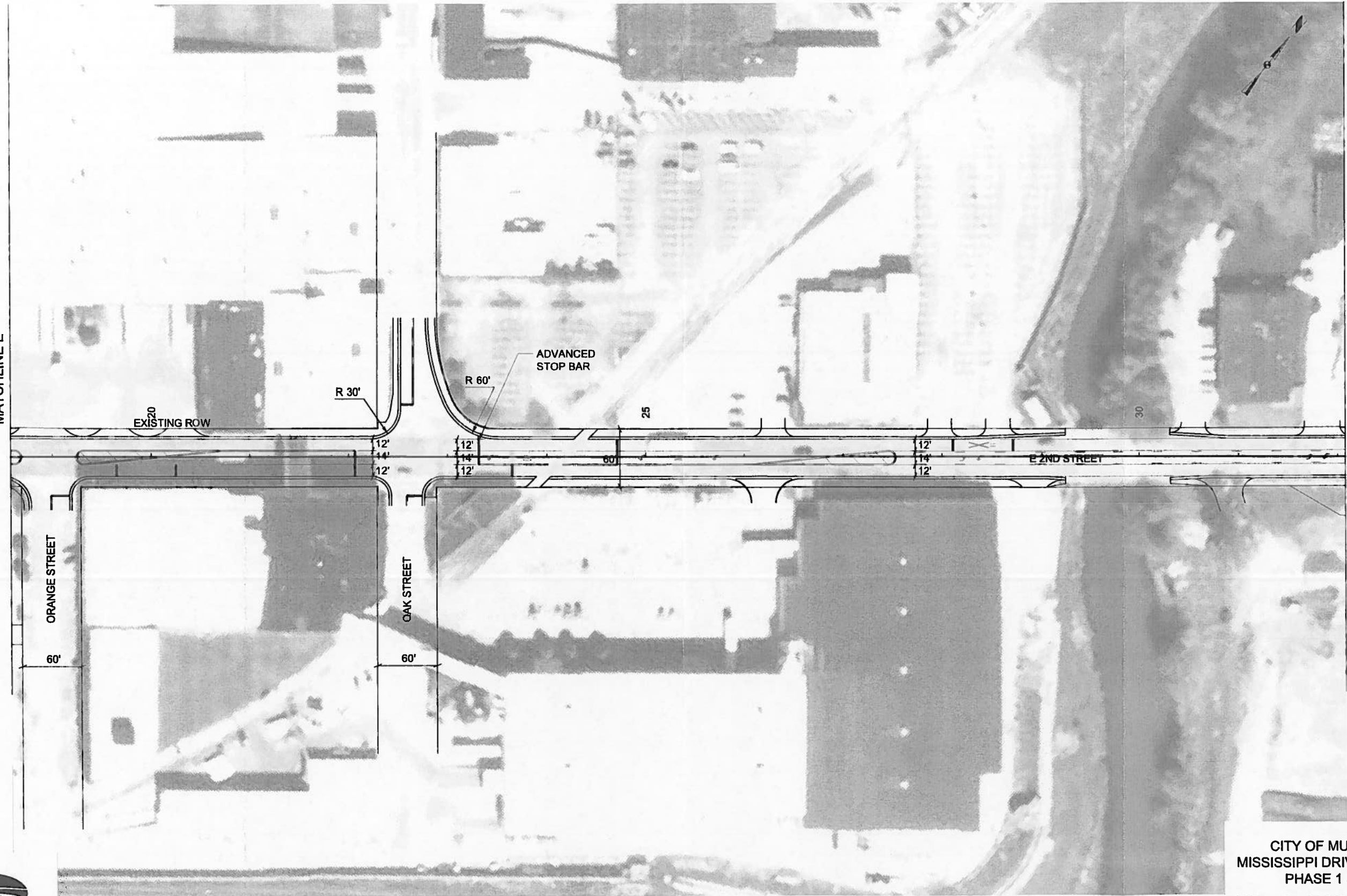
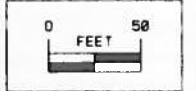


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PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
3-LANE OPTION**

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SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					

MATCHLINE E

MATCHLINE F



CITY OF MUSCATINE
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PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
3-LANE OPTION**

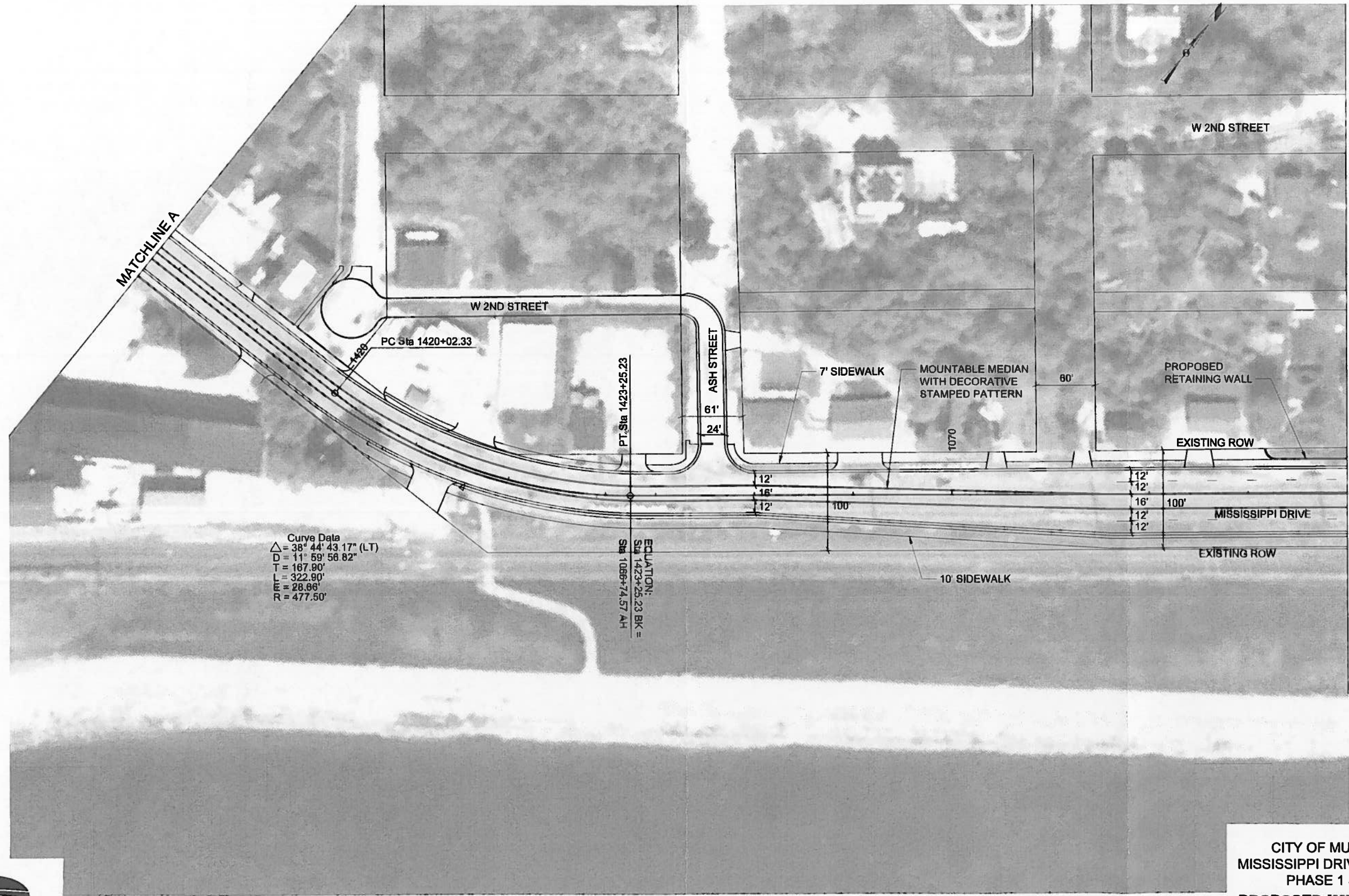




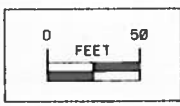
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
3-LANE OPTION**


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SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					

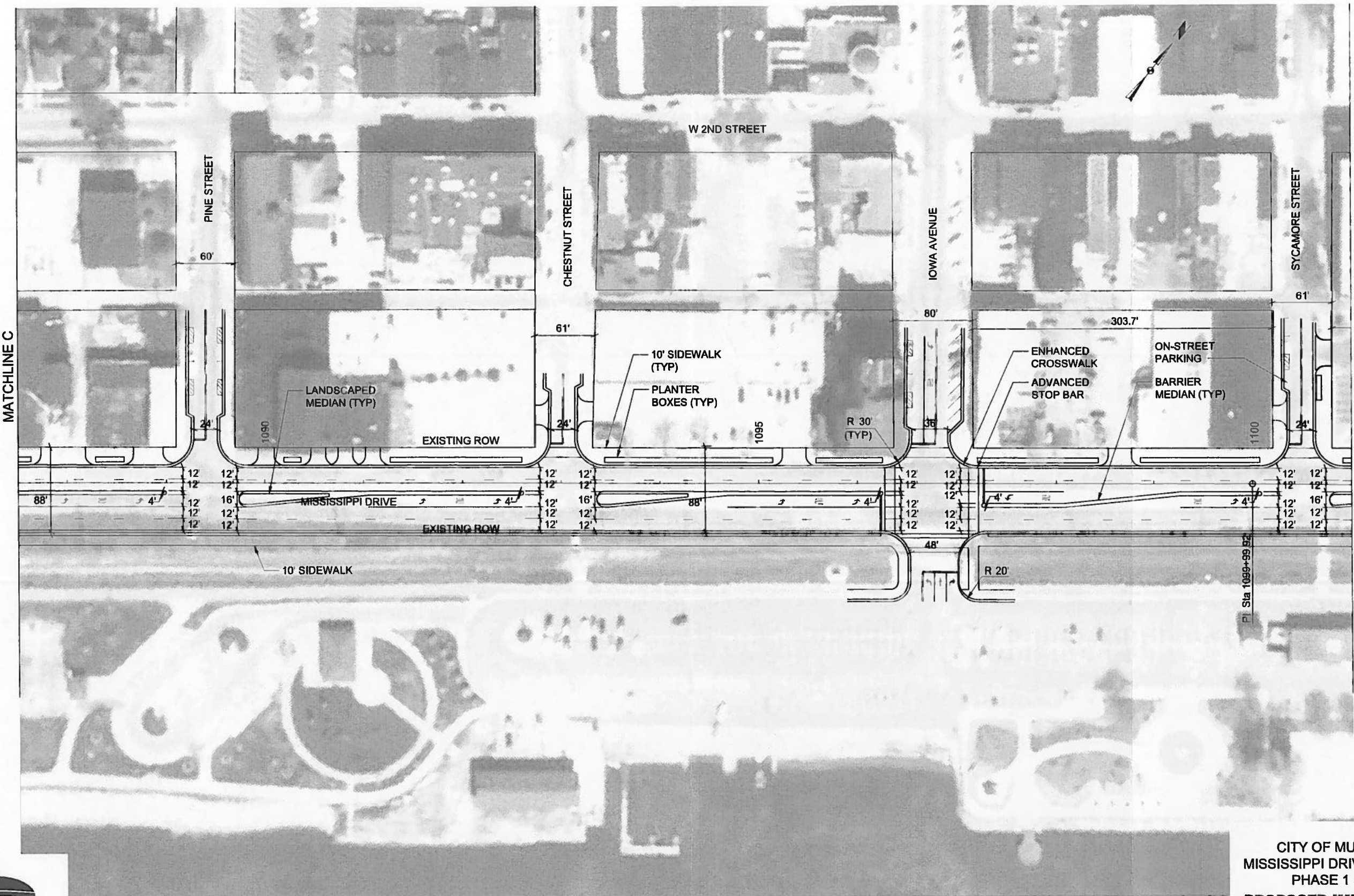


**CITY OF MUSCATINE
 MISSISSIPPI DRIVE CORRIDOR
 PHASE 1 STUDY
 PROPOSED IMPROVEMENTS
 5-LANE OPTION**



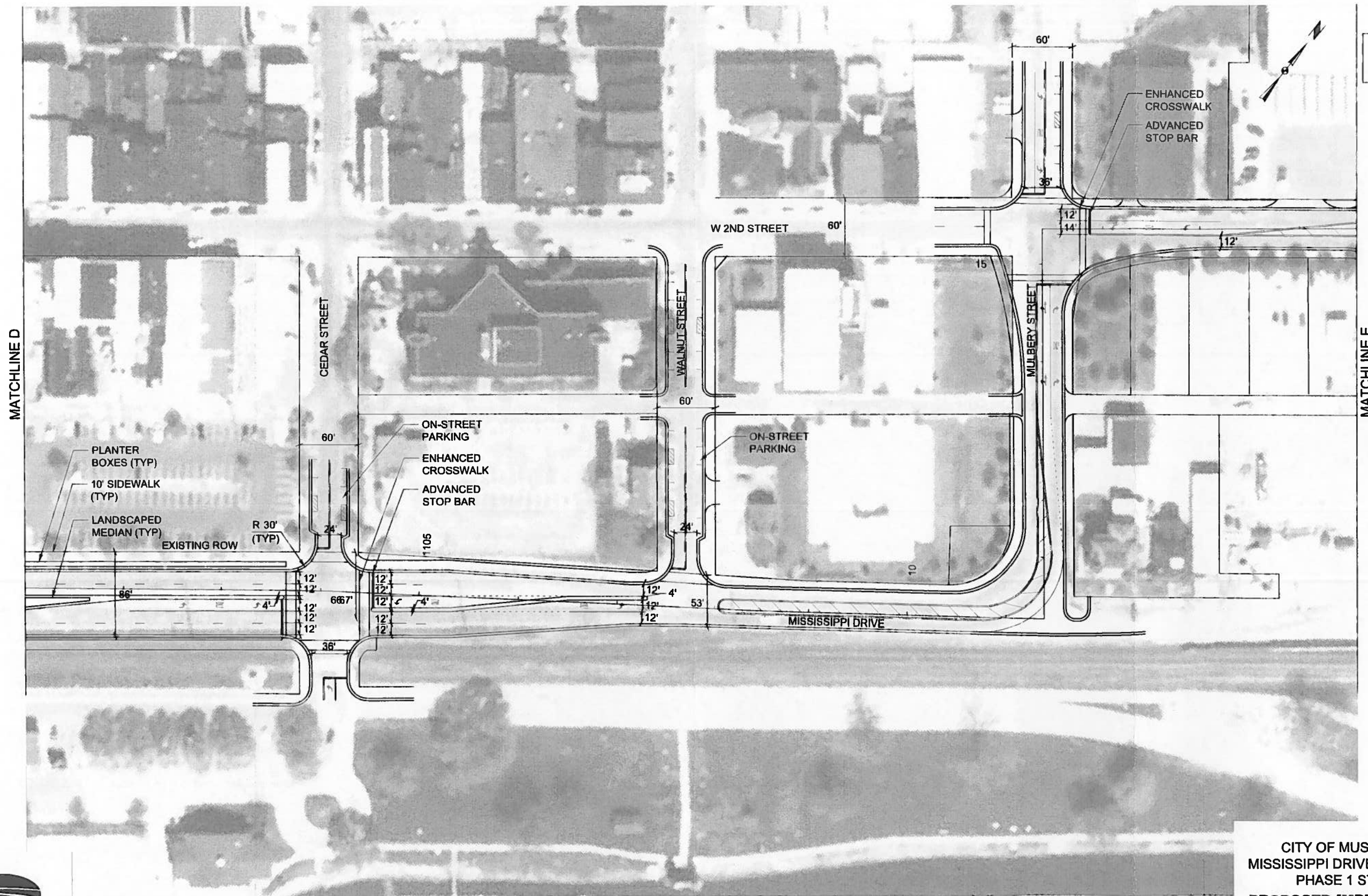
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED IMPROVEMENTS
5-LANE OPTION



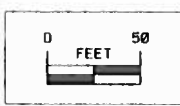
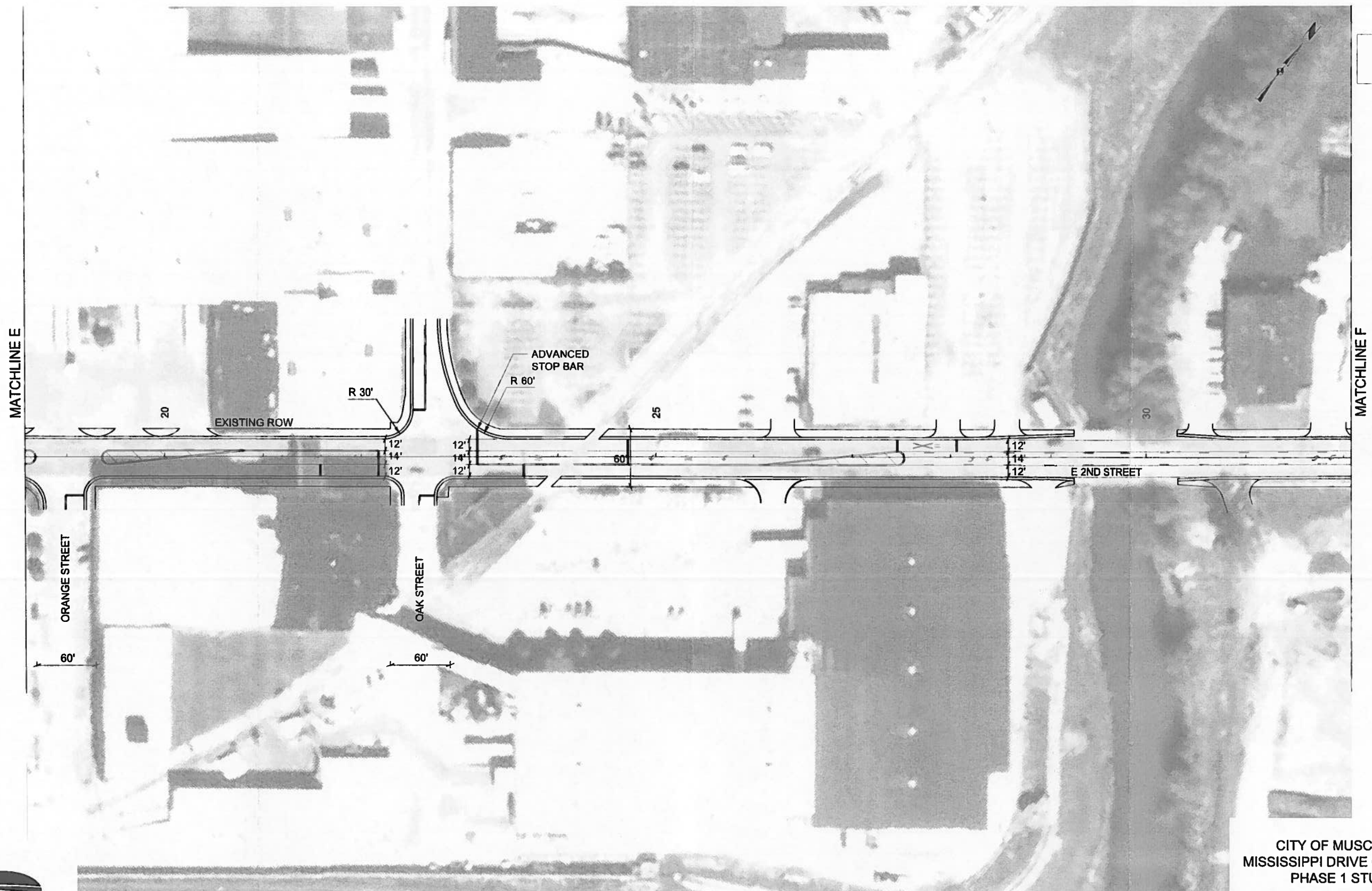


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 PHASE 1 STUDY
PROPOSED IMPROVEMENTS
5-LANE OPTION

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SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					



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PHASE 1 STUDY
PROPOSED IMPROVEMENTS
5-LANE OPTION



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PHASE 1 STUDY
PROPOSED IMPROVEMENTS
5-LANE OPTION

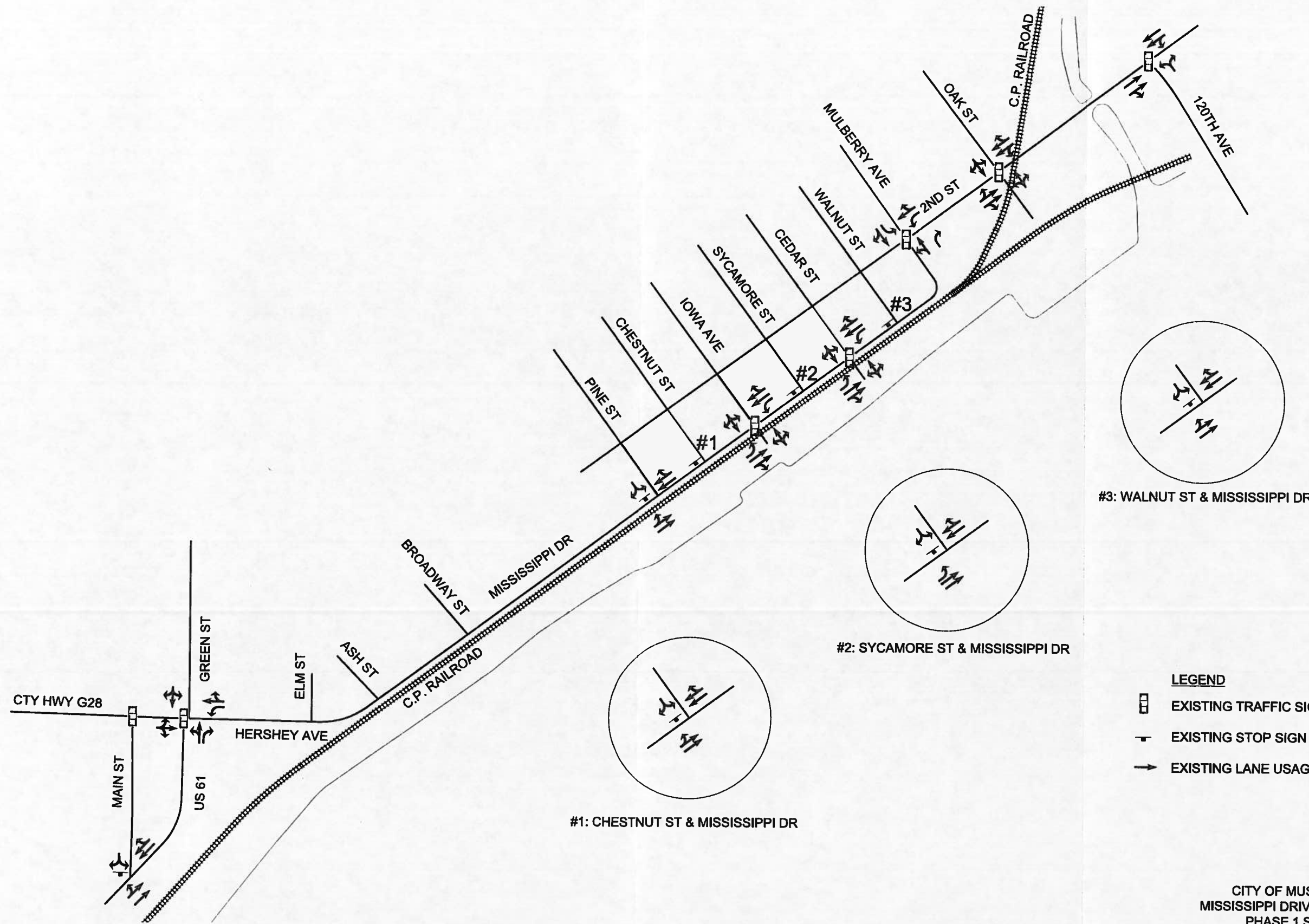
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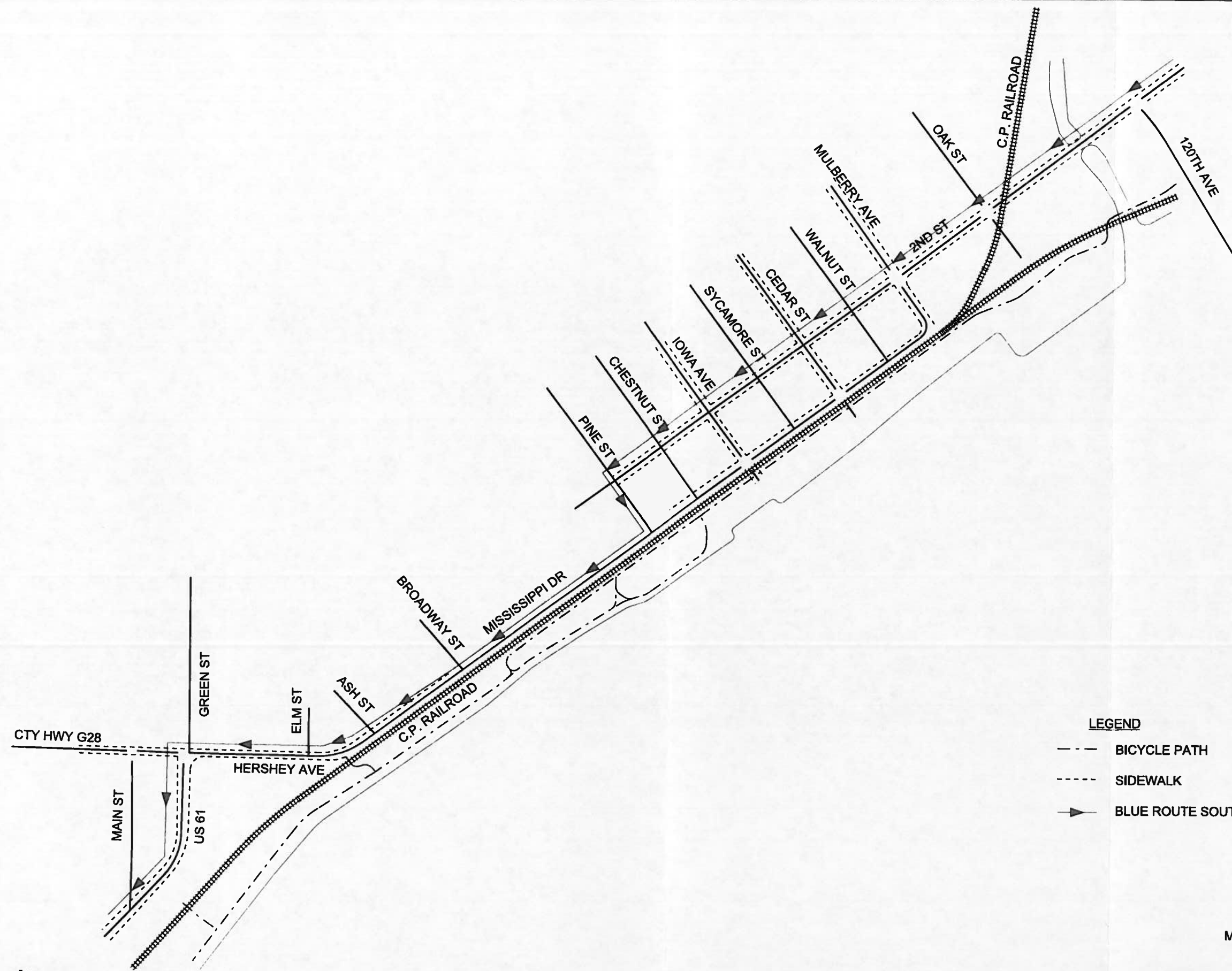


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PROPOSED IMPROVEMENTS
5-LANE OPTION



C	ENGLISH	IOWA DOT	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	8 OF 8	DATE: FEB 8, 2012
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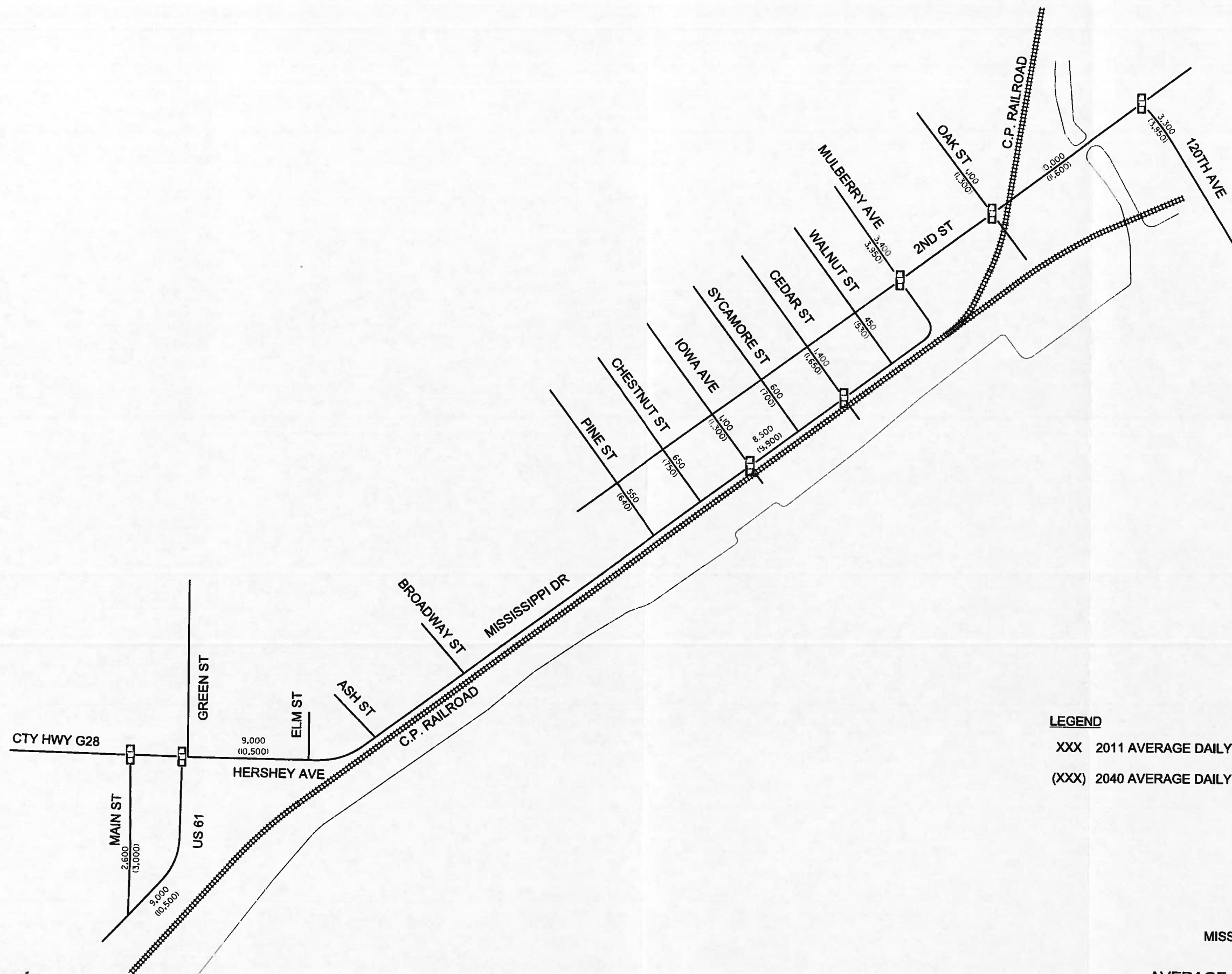
- BICYCLE PATH
- SIDEWALK
- ➔ BLUE ROUTE SOUTH (MUSCATINE BUS)

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MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY

SIDEWALK, BIKE PATH AND BUS ROUTE MAP



C	ENGLISH	IOWA DOT	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	DATE: JUNE 7, 2011
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC				



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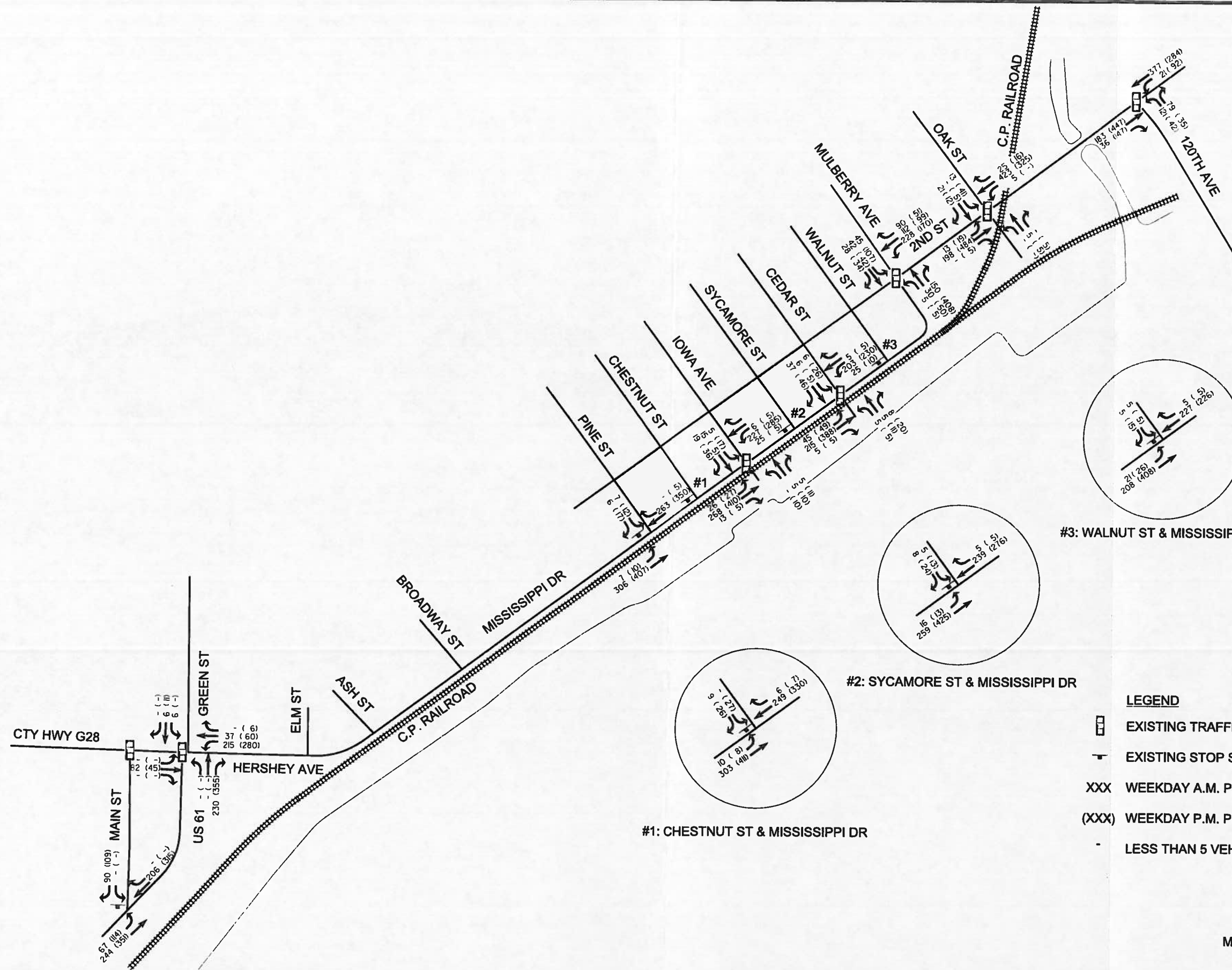
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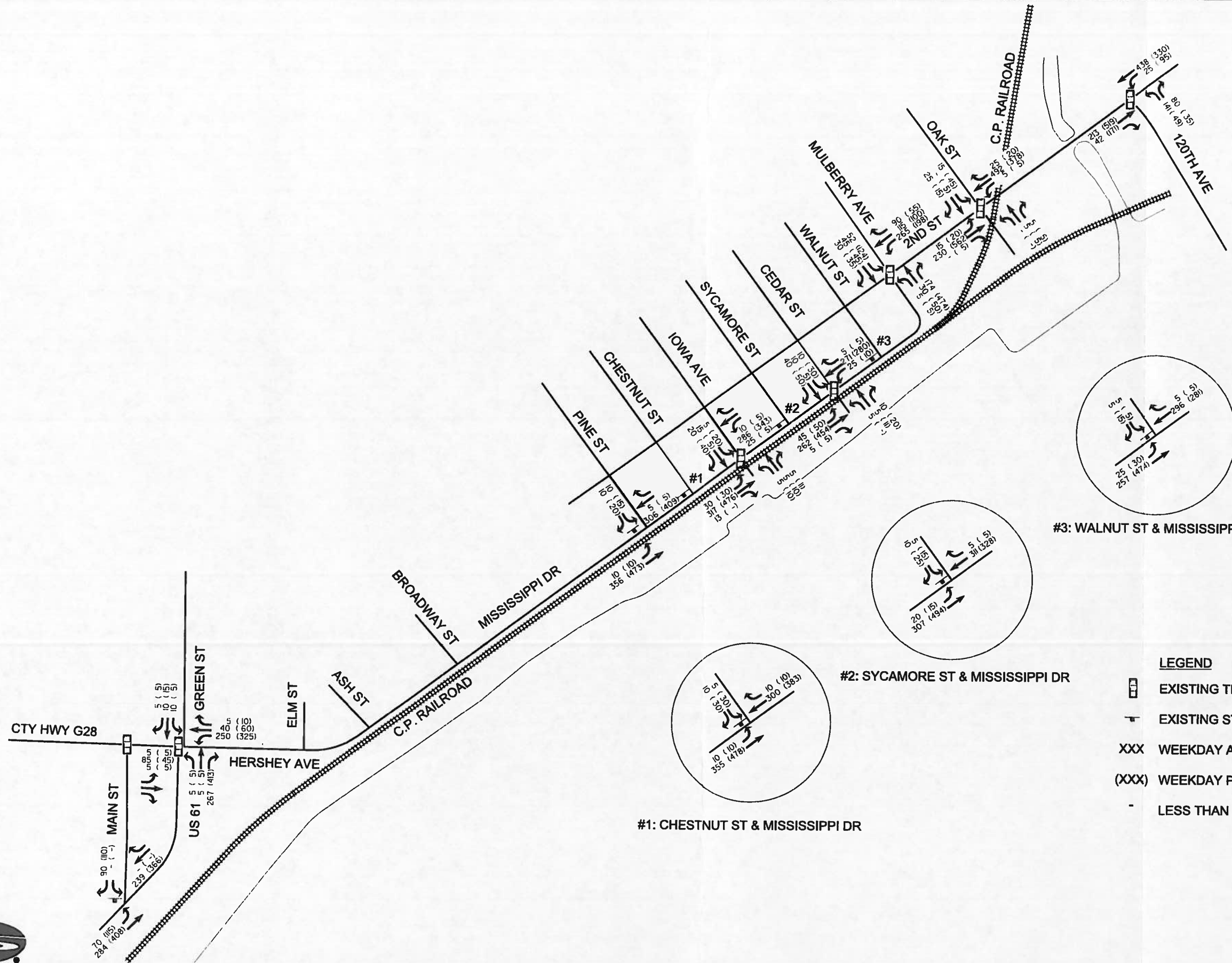
(XXX) 2040 AVERAGE DAILY TRAFFIC

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AVERAGE DAILY TRAFFIC MAP







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2040 DAILY HOURLY VOLUME MAP

C	ENGLISH	IOWA DOT	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	DATE: JUNE 7, 2011
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC				

Signal Warrant Analysis

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Dr & 120th Ave
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	120th Avenue
File Name	120th Street.xhy	Major Street	East-West

Project Description

General		Roadway Network	
Major Street Speed (mph)	30	☐ Population < 10,000	Two Major Routes ☐
Nearest Signal (ft)	1130	☐ Coordinated Signal System	Weekend Count ☐
Crashes (per year)	0	☐ Adequate Trials of Alternatives	5-yr Growth Factor 0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	2	0	0	2	0	0	0	0	0	0	0
Lane usage		TR			LT			LR				
Vehicle Volume Averages (vph)	0	188	41	41	189	0	37	0	31	0	0	0
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
--	--------------------------

Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
--	--------------------------

Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information

Analyst	THG	Intersection	Mississippi Dr & Oak St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	Oak Street
File Name	Oak Street.xhy	Major Street	East-West

Project Description

General

Major Street Speed (mph)	25	☐	Population < 10,000	Two Major Routes	☐
Nearest Signal (ft)	700	☐	Coordinated Signal System	Weekend Count	☐
Crashes (per year)	0	☐	Adequate Trials of Alternatives	5-yr Growth Factor	0

Roadway Network

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	2	0	0	2	0	0	1	0	0	1	0
Lane usage		LTR			LTR			LTR			LTR	
Vehicle Volume Averages (vph)	9	207	0	0	211	13	1	1	0	16	0	8
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
--	--------------------------

Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
--	--------------------------

Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Dr & Mulberry St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	Mulberry Street
File Name	Mulberry Street.xhy	Major Street	East-West

Project Description

General		Roadway Network	
Major Street Speed (mph)	25	☐ Population < 10,000	Two Major Routes ☐
Nearest Signal (ft)	700	☐ Coordinated Signal System	Weekend Count ☐
Crashes (per year)	0	☐ Adequate Trials of Alternatives	5-yr Growth Factor 0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	0	0	1	1	0	0	1	1	1	1	0
Lane usage				L	TR			LT	R	L	TR	
Vehicle Volume Averages (vph)	0	0	0	116	67	37	2	26	165	42	24	21
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	1 / 0	--	--	0 / 0	--	--	2 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
--	--------------------------

Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
--	--------------------------

Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Dr & Walnut St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	Walnut Street
File Name	Walnut Street.xhy	Major Street	East-West

Project Description

General				Roadway Network			
Major Street Speed (mph)	25	☐	Population < 10,000	Two Major Routes		☐	
Nearest Signal (ft)	365	☐	Coordinated Signal System	Weekend Count		☐	
Crashes (per year)	0	☐	Adequate Trials of Alternatives	5-yr Growth Factor		0	

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	2	0	0	2	0	0	0	0	0	0	0
Lane usage		LT			TR						LR	
Vehicle Volume Averages (vph)	9	164	0	0	129	0	0	0	0	4	0	5
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
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Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
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Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Dr & Cedar St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	Cedar Street
File Name	Cedar Street.xhy	Major Street	East-West

Project Description

General		Roadway Network	
Major Street Speed (mph)	25	Population < 10,000	☐
Nearest Signal (ft)	730	Coordinated Signal System	☐
Crashes (per year)	0	Adequate Trials of Alternatives	☐
		Two Major Routes	☐
		Weekend Count	☐
		5-yr Growth Factor	0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	1	2	0	1	2	0	0	1	0	0	1	0
Lane usage	L	TR		L	TR			LTR			LTR	
Vehicle Volume Averages (vph)	25	189	1	9	144	1	1	5	8	8	3	23
Peds (ped/h) / Gaps (gaps/h)	--	3 / 0	--	--	3 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
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Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
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Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Dr & Sycamore St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	Sycamore Street
File Name	Sycamore Street.xhy	Major Street	East-West

Project Description

General				Roadway Network			
Major Street Speed (mph)	25	☐	Population < 10,000	Two Major Routes		☐	
Nearest Signal (ft)	365	☐	Coordinated Signal System	Weekend Count		☐	
Crashes (per year)	0	☐	Adequate Trials of Alternatives	5-yr Growth Factor		0	

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	1	2	0	0	2	0	0	0	0	0	0	0
Lane usage	L	T			TR						LR	
Vehicle Volume Averages (vph)	8	183	0	0	144	2	0	0	0	7	0	9
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	1 / 0	--	--	1 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
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Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
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Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Dr & Iowa St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	Iowa Street
File Name	Iowa Street.xhy	Major Street	East-West

Project Description

General		Roadway Network	
Major Street Speed (mph)	25	Population < 10,000	Two Major Routes
Nearest Signal (ft)	730	Coordinated Signal System	Weekend Count
Crashes (per year)	0	Adequate Trials of Alternatives	5-yr Growth Factor
			0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	1	2	0	1	2	0	0	1	0	0	1	0
Lane usage	L	TR		L	TR			LTR			LTR	
Vehicle Volume Averages (vph)	15	187	3	3	151	5	2	3	2	8	3	15
Peds (ped/h) / Gaps (gaps/h)	--	1 / 0	--	--	7 / 0	--	--	6 / 0	--	--	1 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
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Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
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Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Dr & Chestnut St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	Chestnut Street
File Name	Chestnut Street.xhy	Major Street	East-West

Project Description

General		Roadway Network	
Major Street Speed (mph)	25	☐ Population < 10,000	☐ Two Major Routes
Nearest Signal (ft)	365	☐ Coordinated Signal System	☐ Weekend Count
Crashes (per year)	0	☐ Adequate Trials of Alternatives	☐ 5-yr Growth Factor

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	2	0	0	2	0	0	0	0	0	0	0
Lane usage		LT			TR						LR	
Vehicle Volume Averages (vph)	7	212	0	0	170	5	0	0	0	8	0	9
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	1 / 0	--	--	0 / 0	--	--	1 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
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Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
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Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Drive & Pine St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	Pine Street
File Name	Pine Street.xhy	Major Street	East-West

Project Description

General		Roadway Network	
Major Street Speed (mph)	25	Population < 10,000	☐
Nearest Signal (ft)	725	Coordinated Signal System	☐
Crashes (per year)	0	Adequate Trials of Alternatives	☐
		Two Major Routes	☐
		Weekend Count	☐
		5-yr Growth Factor	0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	2	0	0	2	0	0	0	0	0	0	0
Lane usage		LT			TR						LR	
Vehicle Volume Averages (vph)	4	218	0	0	188	2	0	0	0	8	0	9
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
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Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
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Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Drive & Green St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7-9, 11-1, 3-7
East/West Street	Mississippi Drive	North/South Street	Green Street
File Name	Green Street.xhy	Major Street	East-West

Project Description

General		Roadway Network	
Major Street Speed (mph)	30	Population < 10,000	☐
Nearest Signal (ft)	320	Coordinated Signal System	☐
Crashes (per year)	0	Adequate Trials of Alternatives	☐
		Two Major Routes	☐
		Weekend Count	☐
		5-yr Growth Factor	0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	1	1	1	1	0	0	1	1	0	1	0
Lane usage		LT	R	L	TR			LT	R		LTR	
Vehicle Volume Averages (vph)	0	29	0	145	32	2	1	1	167	1	4	1
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
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Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
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Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Warrants Summary

Information			
Analyst	THG	Intersection	Mississippi Drive & Main St
Agency/Co	Stanley Consultants	Jurisdiction	Iowa DOT
Date Performed	6/15/2011	Units	U.S. Customary
Project ID		Time Period Analyzed	7:15 AM - 8:15 AM
East/West Street	Mississippi Drive	North/South Street	Main Street
File Name	Main Street.xhy	Major Street	East-West

Project Description

General		Roadway Network	
Major Street Speed (mph)	30	Population < 10,000	☐
Nearest Signal (ft)	1130	Coordinated Signal System	☐
Crashes (per year)	0	Adequate Trials of Alternatives	☐
		Two Major Routes	☐
		Weekend Count	☐
		5-yr Growth Factor	0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	2	0	0	2	0	0	0	0	0	0	0
Lane usage		LT			TR						LR	
Vehicle Volume Averages (vph)	62	187	0	0	157	0	0	0	0	0	0	64
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume

1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☐
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 2: Four-Hour Vehicular Volume

2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐
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Warrant 3: Peak Hour

3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☐

Warrant 4: Pedestrian Volume

4 A. Pedestrian Volumes (Four hours --or-- one hour) --and--	☐
4 B. Gaps Same Period (Four hours --or-- one hour)	☐

Warrant 5: School Crossing

5. Student Volumes --and--	☐
5. Gaps Same Period	☐

Warrant 6: Coordinated Signal System

6. Degree of Platooning (Predominant direction or both directions)	☐
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Warrant 7: Crash Experience

7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☐

Warrant 8: Roadway Network

8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐

Mississippi Drive Corridor
Phase I Study
City of Muscatine

Capacity Analysis Summary - 2011 Traffic Volumes, Five Lane Configuration

Intersection	Eastbound								Westbound								Northbound								Southbound								Overall	
	L		T		R		Approach		L		T		R		Approach		L		T		R		Approach		L		T		R		Approach			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Mississippi Dr at 120th Ave	-	-	6.5	4.6	-	-	6.5	4.6	8.2	5.8	11	4.1	-	-	11	4.5	41	25	-	-	-	-	41	25	-	-	-	-	-	-	-	-	17.5	6.0
	-	-	A	A	-	-	A	A	A	A	B	A	-	-	B	A	D	C	-	-	-	-	D	C	-	-	-	-	-	-	-	-	B	A
Mississippi Dr at Oak St	1.9	2.7	1.8	3.5	-	-	1.8	3.5	2	-	3	4.7	-	-	3	4.7	-	-	37	24	-	-	37	24	-	-	30	31	-	-	30	31	4.2	5.9
	A	A	A	A	-	-	A	A	A	-	A	A	-	-	A	A	-	-	D	C	-	-	D	C	-	-	C	C	-	-	C	C	A	A
Mississippi Dr at Mulberry Ave	-	-	-	-	-	-	-	-	17	17	12	11	-	-	14	14	-	-	18	15	3.4	2.2	6.2	3.9	43	12	9	7.4	-	-	22	10	13.5	8.6
	-	-	-	-	-	-	-	-	B	B	B	B	-	-	B	B	-	-	B	B	A	A	A	A	D	B	A	A	-	-	C	A	B	A
Mississippi Dr at Cedar St	1	3.6	1.7	4.9	-	-	1.6	4.7	1.3	1.7	2.3	3.4	-	-	2.2	3.3	1	28	1.7	17	-	-	1.6	18	-	-	26	29	-	-	26	29	5.1	8.6
	A	A	A	A	-	-	A	A	A	A	A	A	-	-	A	A	A	C	A	B	-	-	A	B	-	-	C	C	-	-	C	C	A	A
Mississippi Dr at Iowa Ave	2.7	2.9	5.4	4.9	-	-	5.2	4.7	2.4	1.7	4.5	4.1	-	-	4.2	4	-	35	36	35	23	17	29	30	37	37	28	18	-	-	29	25	7.7	7.6
	A	A	A	A	-	-	A	A	A	A	A	A	-	-	A	A	-	C	D	C	C	B	C	C	D	D	C	B	-	-	C	C	A	A
Mississippi Dr at Green St	-	-	17	26	-	16	17	25	5.3	5.8	3.1	2.8	-	-	5	5.2	-	-	29	25	0.3	0.4	1	0.9	-	-	27	23	-	-	27	23	5.7	4.9
	-	-	B	C	-	B	B	C	A	A	A	A	-	-	A	A	-	-	C	C	A	A	A	A	-	-	C	C	-	-	C	C	A	A

Capacity Analysis Summary - 2011 Traffic Volumes, Three Lane Configuration

Intersection	Eastbound								Westbound								Northbound								Southbound								Overall	
	L		T		R		Approach		L		T		R		Approach		L		T		R		Approach		L		T		R		Approach			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Mississippi Dr at 120th Ave	-	-	7	3.4	-	-	7	3.4	8.2	5.2	11	3.7	-	-	11	4.1	41	28	-	-	-	-	41	28	-	-	-	-	-	-	-	-	17.6	5.4
	-	-	A	A	-	-	A	A	A	A	B	A	-	-	B	A	D	C	-	-	-	-	D	C	-	-	-	-	-	-	-	-	B	A
Mississippi Dr at Oak St	1.9	2.2	1.8	2.8	-	-	1.8	2.8	2	-	3	4.3	-	-	3	4.3	-	-	37	37	-	-	37	37	-	-	30	35	-	-	30	35	4.1	5.8
	A	A	A	A	-	-	A	A	A	-	A	A	-	-	A	A	-	-	D	D	-	-	D	D	-	-	C	D	-	-	C	D	A	A
Mississippi Dr at Mulberry Ave	-	-	-	-	-	-	-	-	17	21	12	15	-	-	14	18	-	-	17	17	2.9	2.6	5.6	4.4	43	11	9	7.1	-	-	22	9.7	13.4	10
	-	-	-	-	-	-	-	-	B	C	B	B	-	-	B	B	-	-	B	B	A	A	A	A	D	B	A	A	-	-	C	A	B	A
Mississippi Dr at Cedar St	1	2.6	2.3	5.1	0.2	3	2	4.8	1.3	1.6	3.3	3.5	-	-	3.1	3.4	36	31	22	18	-	-	25	19	-	-	26	36	-	-	26	36	5.7	9.7
	A	A	A	A	A	A	A	A	A	A	A	A	-	-	A	A	D	C	C	B	-	-	C	B	-	-	C	D	-	-	C	D	A	A
Mississippi Dr at Iowa Ave	2.7	2.5	6.5	5.1	2.8	4	6	4.9	2.4	2.3	5.1	5.6	-	-	4.7	5.5	-	41	35	40	23	19	29	35	37	43	28	21	-	-	29	29	8.3	8.8
	A	A	A	A	A	A	A	A	A	A	A	A	-	-	A	A	-	D	C	D	C	B	C	C	D	D	C	C	-	-	C	C	A	A
Mississippi Dr at Green St	-	-	17	18	-	12	17	17	5.1	5.6	3.2	2.8	-	-	4.8	5	-	-	29	29	0.3	0.4	1	0.9	-	-	27	26	-	-	27	26	5.6	4.5
	-	-	B	B	-	B	B	B	A	A	A	A	-	-	A	A	-	-	C	C	A	A	A	A	-	-	C	C	-	-	C	C	A	A

Mississippi Drive Corridor
Phase I Study
City of Muscatine

Capacity Analysis Summary - 2040 Traffic Volumes, Five Lane Configuration

Intersection	Eastbound								Westbound								Northbound								Southbound								Overall	
	L		T		R		Approach		L		T		R		Approach		L		T		R		Approach		L		T		R		Approach			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Mississippi Dr at 120th Ave	-	-	10	4.4	-	-	10	4.4	8.5	6.9	13	4.1	-	-	13	4.8	38	31	-	-	-	-	38	31	-	-	-	-	-	-	-	-	18.5	6.3
	-	-	B	A	-	-	B	A	A	A	B	A	-	-	B	A	D	C	-	-	-	-	D	C	-	-	-	-	-	-	-	-	B	A
Mississippi Dr at Oak St	2.6	2.4	2.3	3.3	-	-	2.4	3.3	2.6	4.2	3.7	5.1	-	-	3.6	5.1	-	-	26	27	-	-	26	27	-	-	27	37	-	-	27	37	5.1	6.9
	A	A	A	A	-	-	A	A	A	A	A	A	-	-	A	A	-	-	C	C	-	-	C	C	-	-	C	D	-	-	C	D	A	A
Mississippi Dr at Mulberry Ave	-	-	-	-	-	-	-	-	17	21	11	15	-	-	14	18	-	-	16	16	2.7	3.8	5.2	5.2	38	12	7.9	7.2	-	-	20	10	12.9	10.4
	-	-	-	-	-	-	-	-	B	C	B	B	-	-	B	B	-	-	B	B	A	A	A	A	D	B	A	A	-	-	C	A	B	B
Mississippi Dr at Cedar St	1.2	3.2	2.3	4.5	-	-	2.1	4.4	1.7	2.1	3.6	3.8	-	-	3.4	3.7	32	30	23	18	-	-	26	19	-	-	25	36	-	-	25	36	6.6	9.3
	A	A	A	A	-	-	A	A	A	A	A	A	-	-	A	A	C	C	C	B	-	-	C	B	-	-	C	D	-	-	C	D	A	A
Mississippi Dr at Iowa Ave	2.8	2.7	5.7	4.3	-	-	5.5	4.1	2.5	2.6	4.8	4.8	-	-	4.5	4.7	34	40	31	40	17	18	29	34	32	43	24	20	-	-	25	29	7.8	7.8
	A	A	A	A	-	-	A	A	A	A	A	A	-	-	A	A	C	D	C	D	B	B	C	C	C	D	C	B	-	-	C	C	A	A
Mississippi Dr at Green St	-	-	19	18	12	10	19	17	9.7	5.9	3.7	2	-	-	8.7	5.2	-	-	26	30	0.3	0.5	1.7	1.6	-	-	23	28	-	-	23	28	8.0	5.1
	-	-	B	B	B	A	B	B	A	A	A	A	-	-	A	A	-	-	C	C	A	A	A	A	-	-	C	C	-	-	C	C	A	A

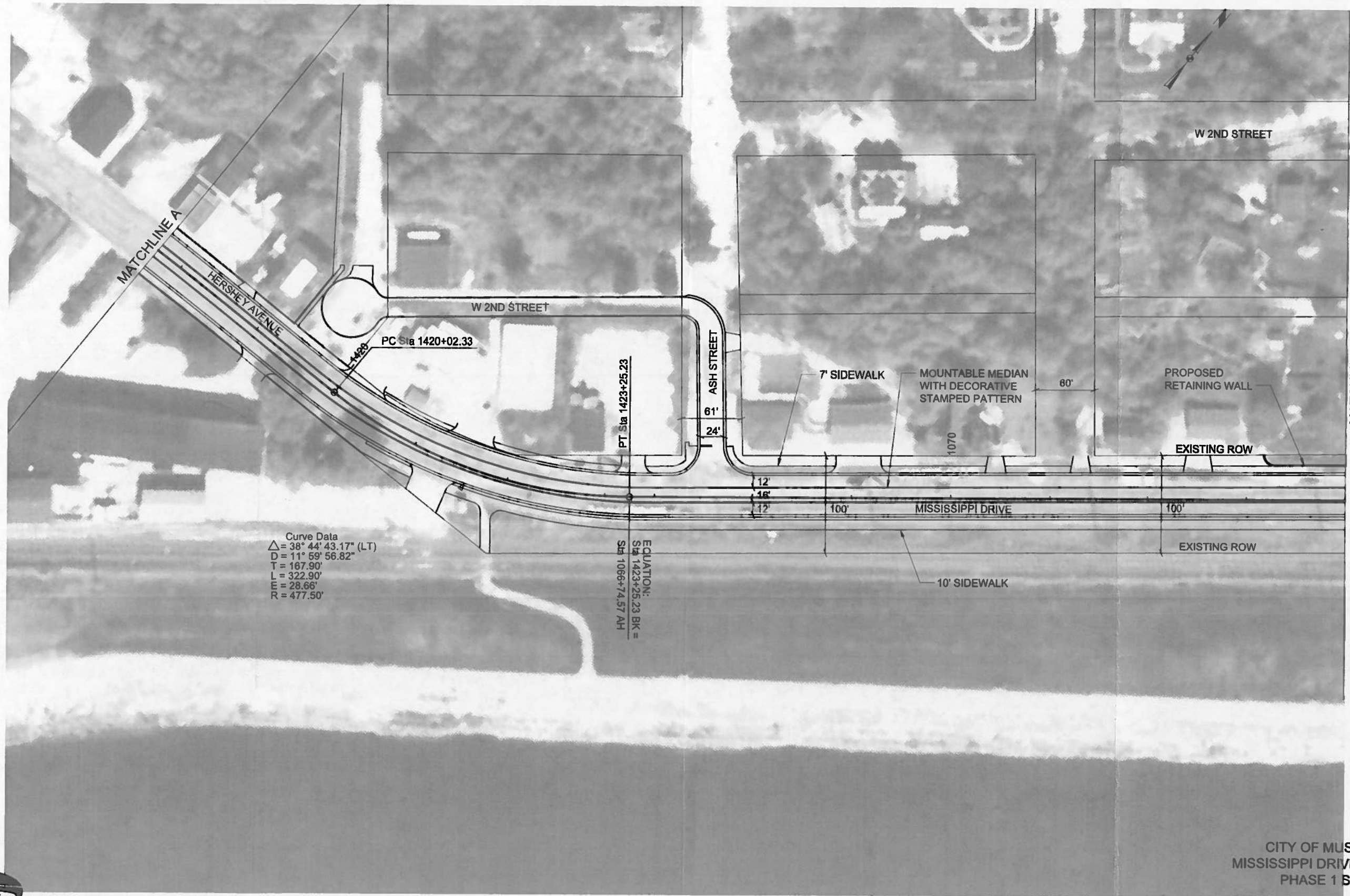
Capacity Analysis Summary - 2040 Traffic Volumes, Three Lane Configuration

Intersection	Eastbound								Westbound								Northbound								Southbound								Overall	
	L		T		R		Approach		L		T		R		Approach		L		T		R		Approach		L		T		R		Approach			
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Mississippi Dr at 120th Ave	-	-	10	4.2	-	-	10	4.2	8.5	6.9	13	4.1	-	-	13	4.8	38	31	-	-	-	-	38	31	-	-	-	-	-	-	-	-	18.5	6.1
	-	-	B	A	-	-	B	A	A	A	B	A	-	-	B	A	D	C	-	-	-	-	D	C	-	-	-	-	-	-	-	-	B	A
Mississippi Dr at Oak St	2.6	2.4	2.3	3.4	-	-	2.4	3.4	2.6	4.2	3.7	5.1	-	-	3.6	5.1	-	-	26	27	-	-	26	27	-	-	27	37	-	-	27	37	5.1	6.9
	A	A	A	A	-	-	A	A	A	A	A	A	-	-	A	A	-	-	C	C	-	-	C	C	-	-	C	D	-	-	C	D	A	A
Mississippi Dr at Mulberry Ave	-	-	-	-	-	-	-	-	17	21	11	15	-	-	14	18	-	-	16	15	2.7	2.4	5.2	3.8	38	12	7.9	7.2	-	-	20	10	12.9	9.7
	-	-	-	-	-	-	-	-	B	C	B	B	-	-	B	B	-	-	B	B	A	A	A	A	D	B	A	A	-	-	C	A	B	A
Mississippi Dr at Cedar St	1.2	4.4	2.3	7.2	-	4	2.1	6.7	1.7	2.2	3.6	5	-	-	3.4	4.9	32	30	23	17	-	-	26	18	-	-	25	38	-	-	25	38	6.6	11.1
	A	A	A	A	-	A	A	A	A	A	A	A	-	-	A	A	C	C	C	B	-	-	C	B	-	-	C	D	-	-	C	D	A	B
Mississippi Dr at Iowa Ave	2.8	2.7	5.7	5.8	-	4	5.5	5.5	2.5	1.6	4.8	4.4	-	-	4.5	4.4	34	40	31	40	17	18	29	34	32	43	24	20	-	-	25	29	7.8	8.4
	A	A	A	A	-	A	A	A	A	A	A	A	-	-	A	A	C	D	C	D	B	B	C	C	C	D	C	C	-	-	C	C	A	A
Mississippi Dr at Green St	-	-	19	18	12	10	19	17	9.7	5.1	3.7	2	-	-	8.7	4.5	-	-	26	30	0.3	0.5	1.7	1.6	-	-	23	28	-	-	23	28	8.0	4.8
	-	-	B	B	B	A	B	B	A	A	A	A	-	-	A	A	-	-	C	C	A	A	A	A	-	-	C	C	-	-	C	C	A	A

Proposed Improvements

3-Lane Option

Proposed Improvements **5-Lane Option**



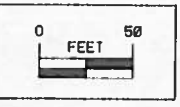
Curve Data
 $\Delta = 38^\circ 44' 43.17''$ (LT)
 $D = 11^\circ 59' 56.82''$
 $T = 167.90'$
 $L = 322.90'$
 $E = 28.66'$
 $R = 477.50'$

EQUATION:
Sta 1423+25.23 BK =
Sta 1066+74.57 AH

CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY

**PROPOSED IMPROVEMENTS
3-LANE OPTION**



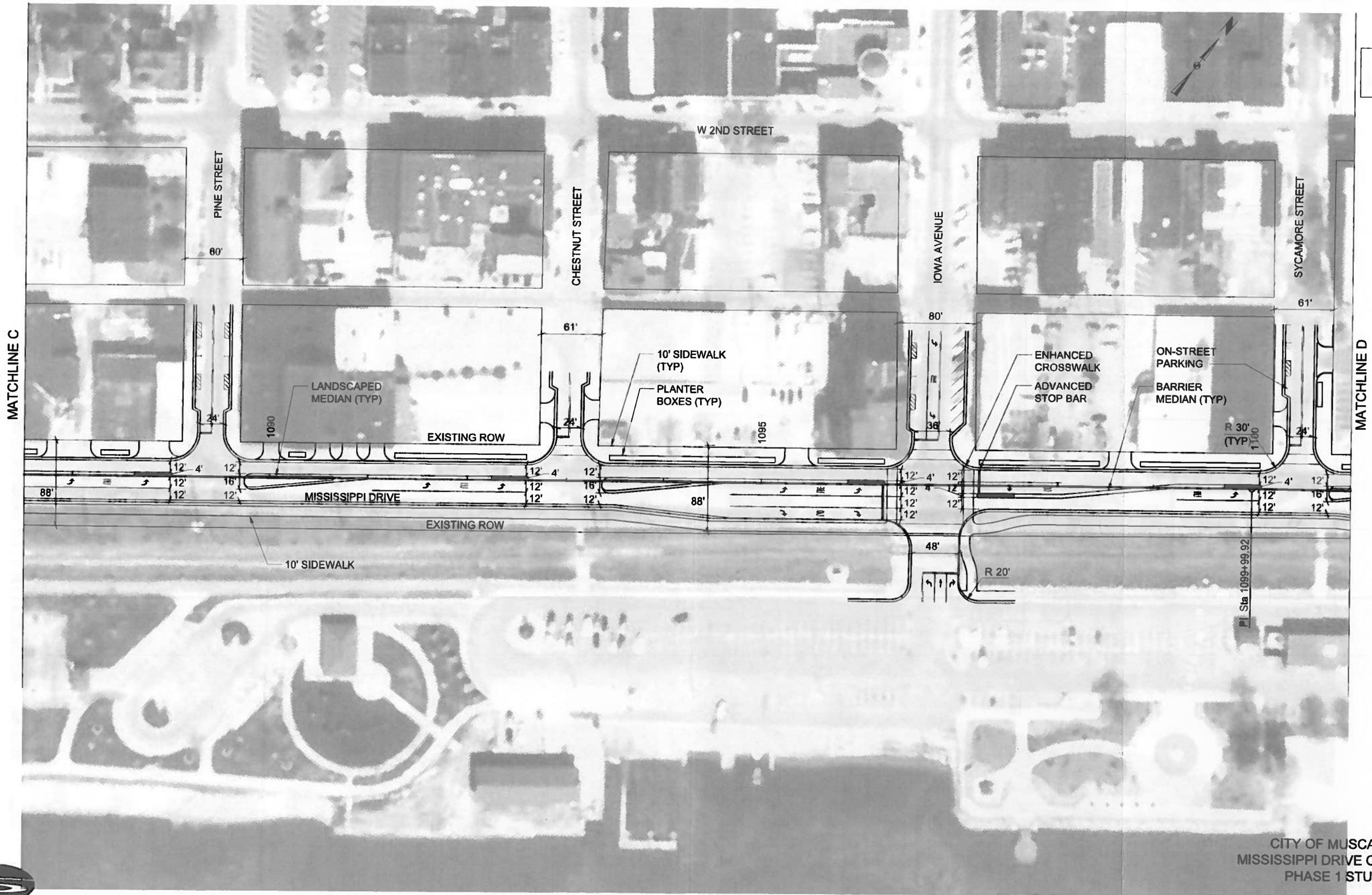


CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY

**PROPOSED IMPROVEMENTS
3-LANE OPTION**



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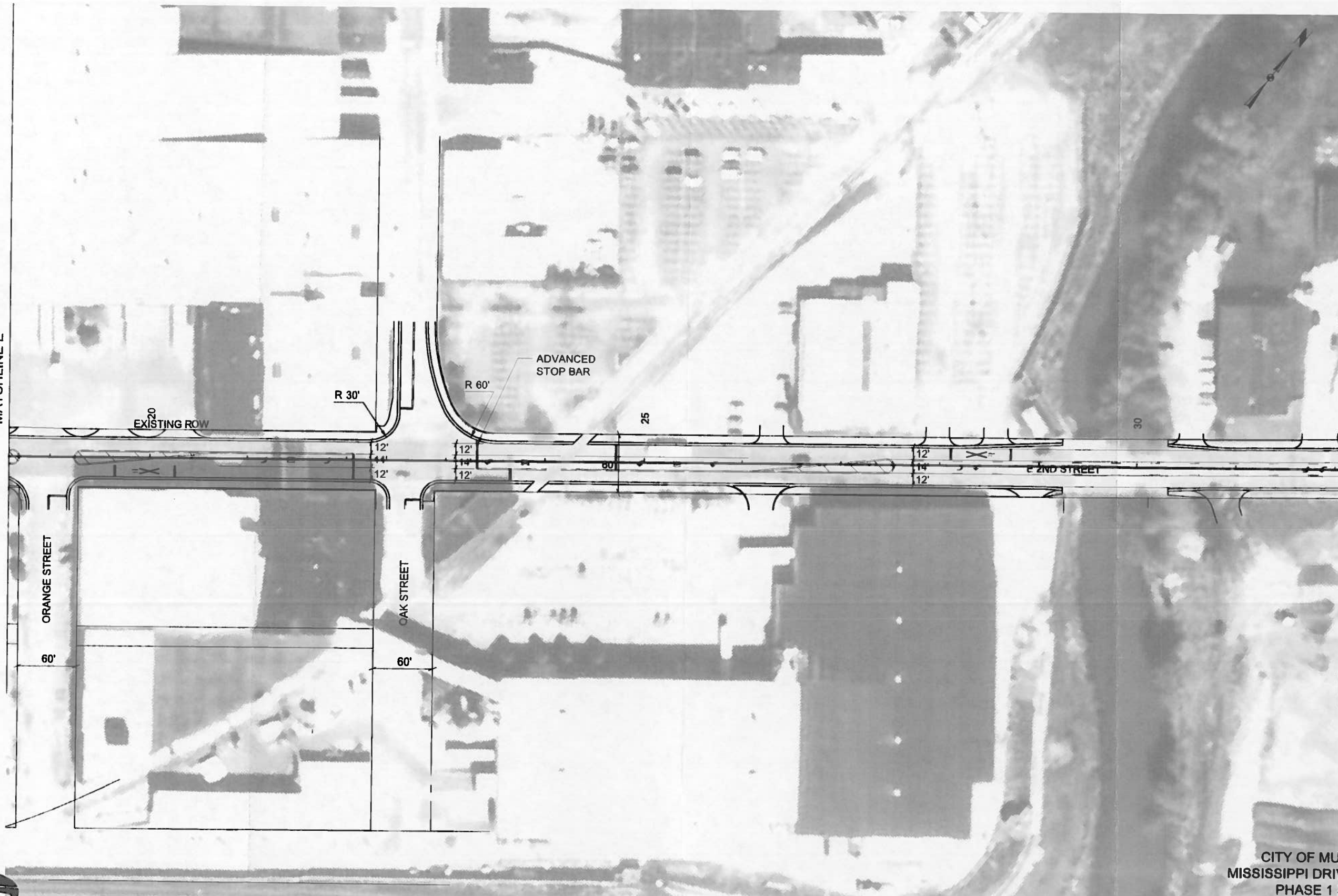
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY

**PROPOSED IMPROVEMENTS
3-LANE OPTION**



MATCHLINE E

MATCHLINE F



Stanley Consultants INC.

CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY

**PROPOSED IMPROVEMENTS
3-LANE OPTION**

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CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY

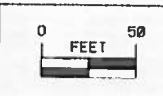
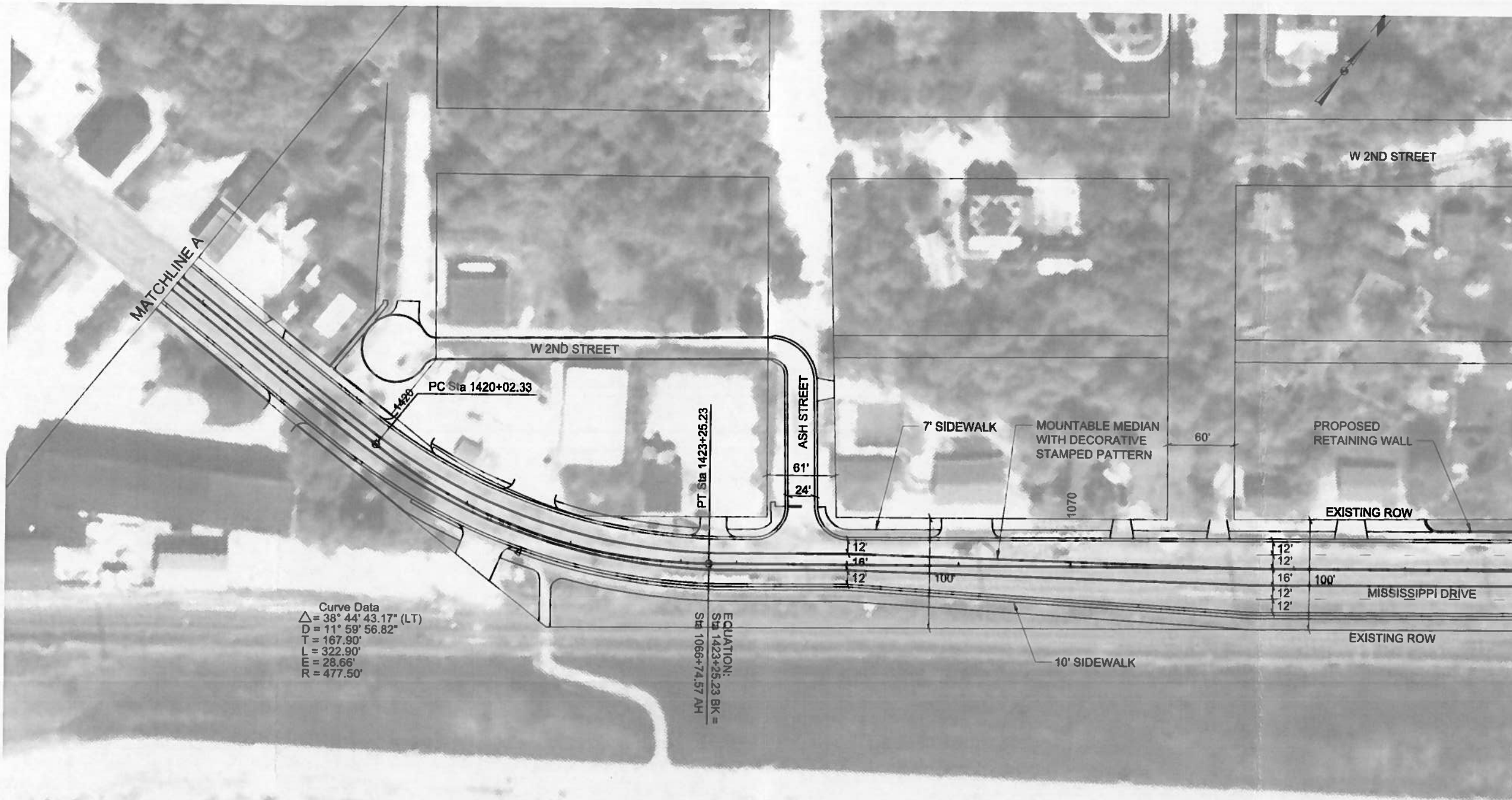
**PROPOSED IMPROVEMENTS
3-LANE OPTION**



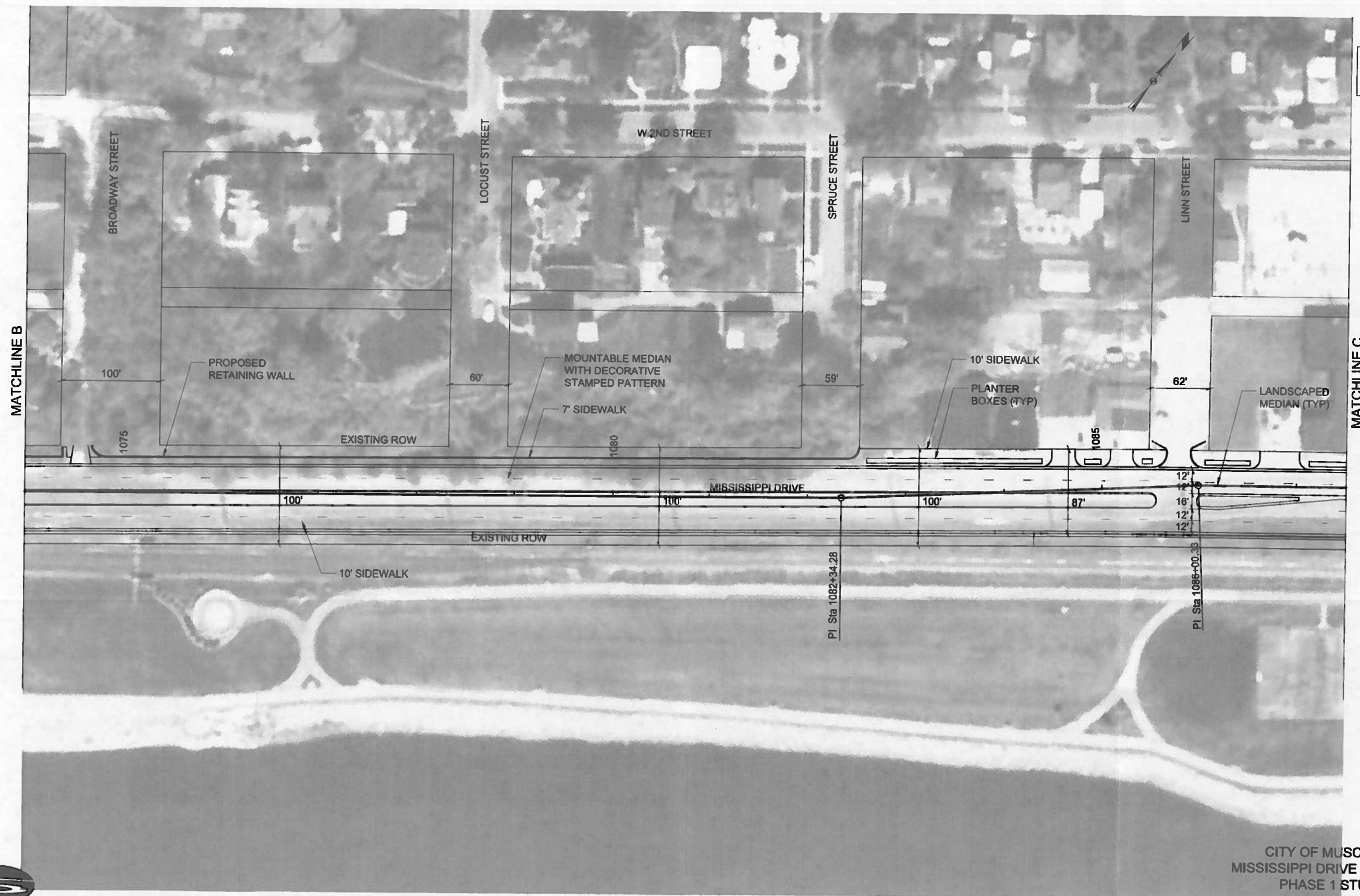
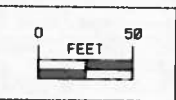
Stanley Consultants INC.

C	ENGLISH	IOWA DOT	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	7 OF 7	DATE: JULY 15, 2011
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Proposed Improvements:
Hershey Ave/Green St Options



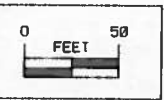
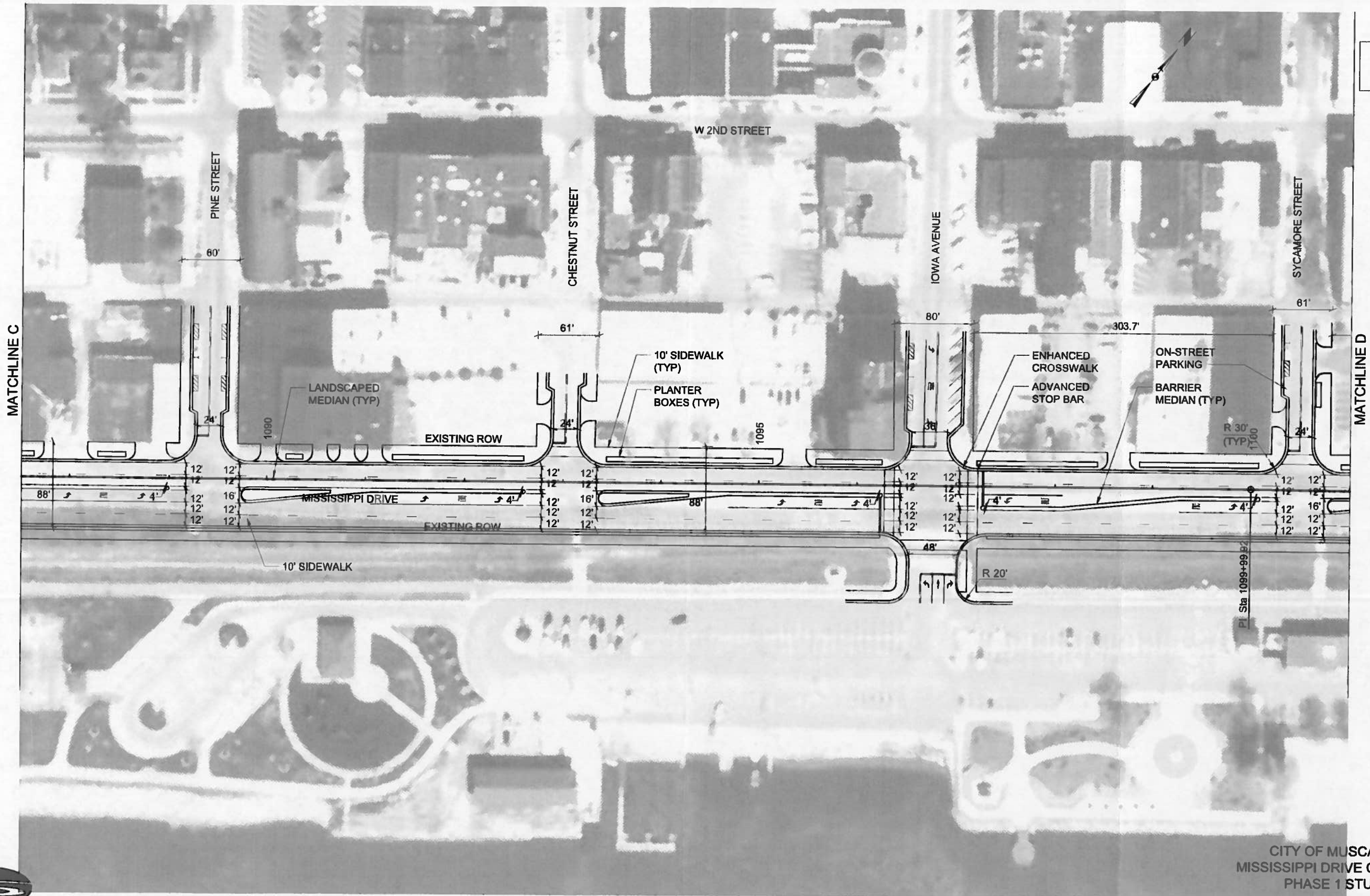
CITY OF MUSCATINE
 MISSISSIPPI DRIVE CORRIDOR
 PHASE 1 STUDY
PROPOSED IMPROVEMENTS
5-LANE OPTION



CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
5-LANE OPTION**

C	ENGLISH	IOWA DOT	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	2 OF 6	DATE: JUNE 7, 2011
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CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
5-LANE OPTION**

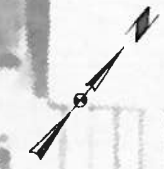
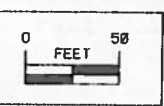
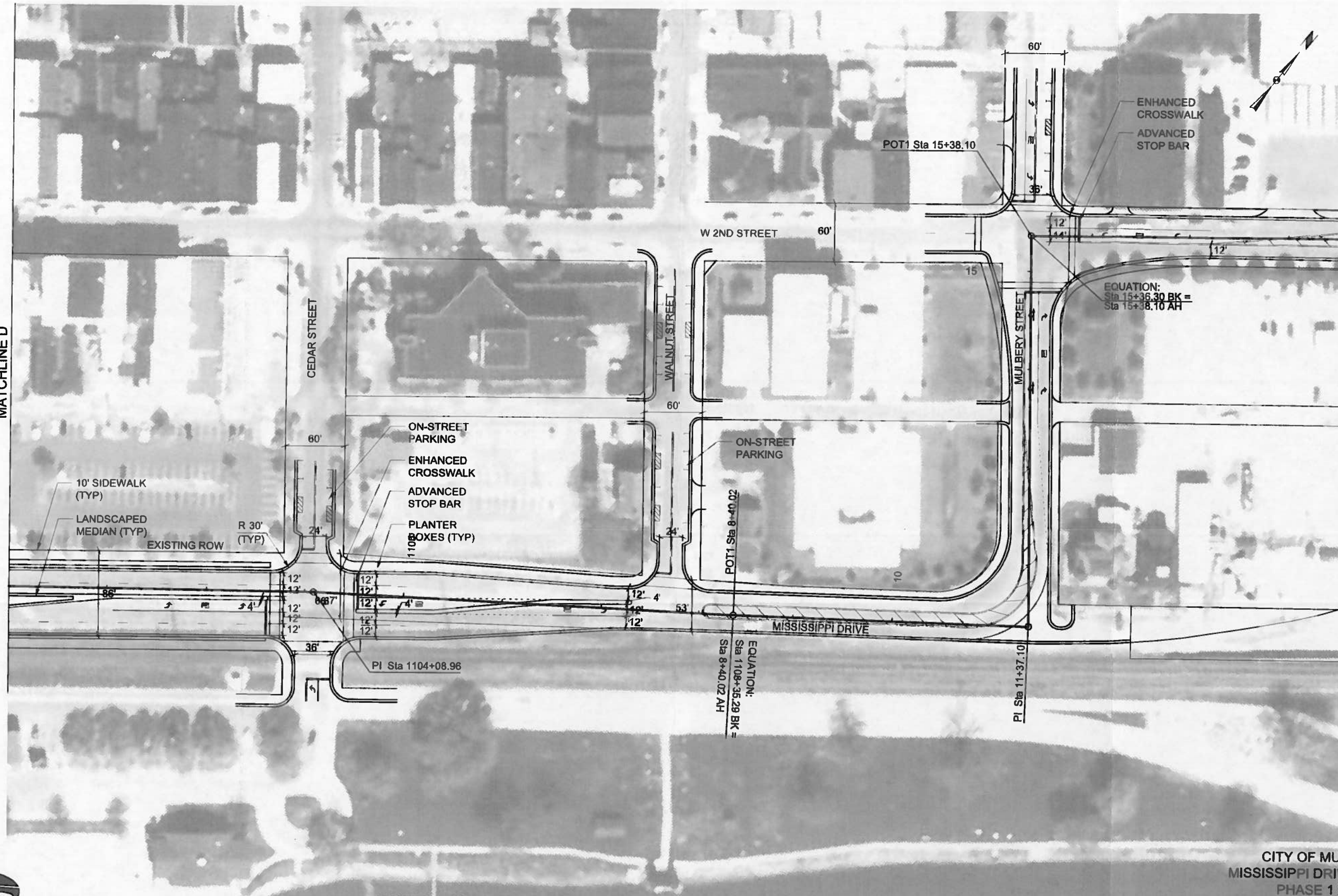


Stanley Consultants INC.

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MATCHLINE D

MATCHLINE E

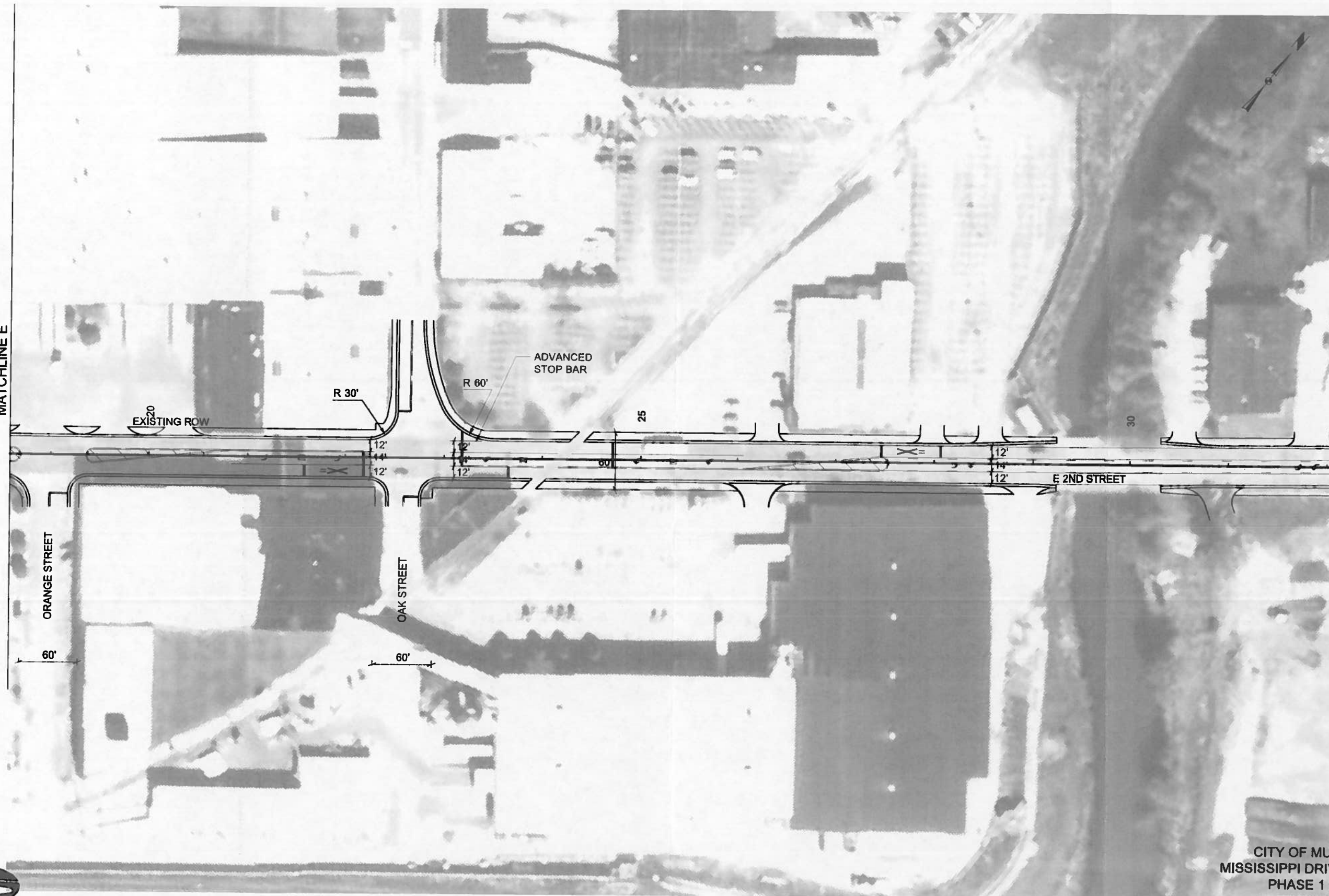


CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
5-LANE OPTION**

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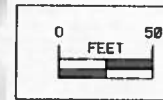
MATCHLINE F



Stanley Consultants INC.

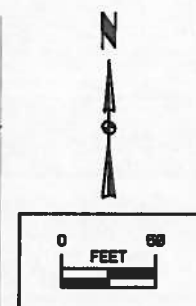
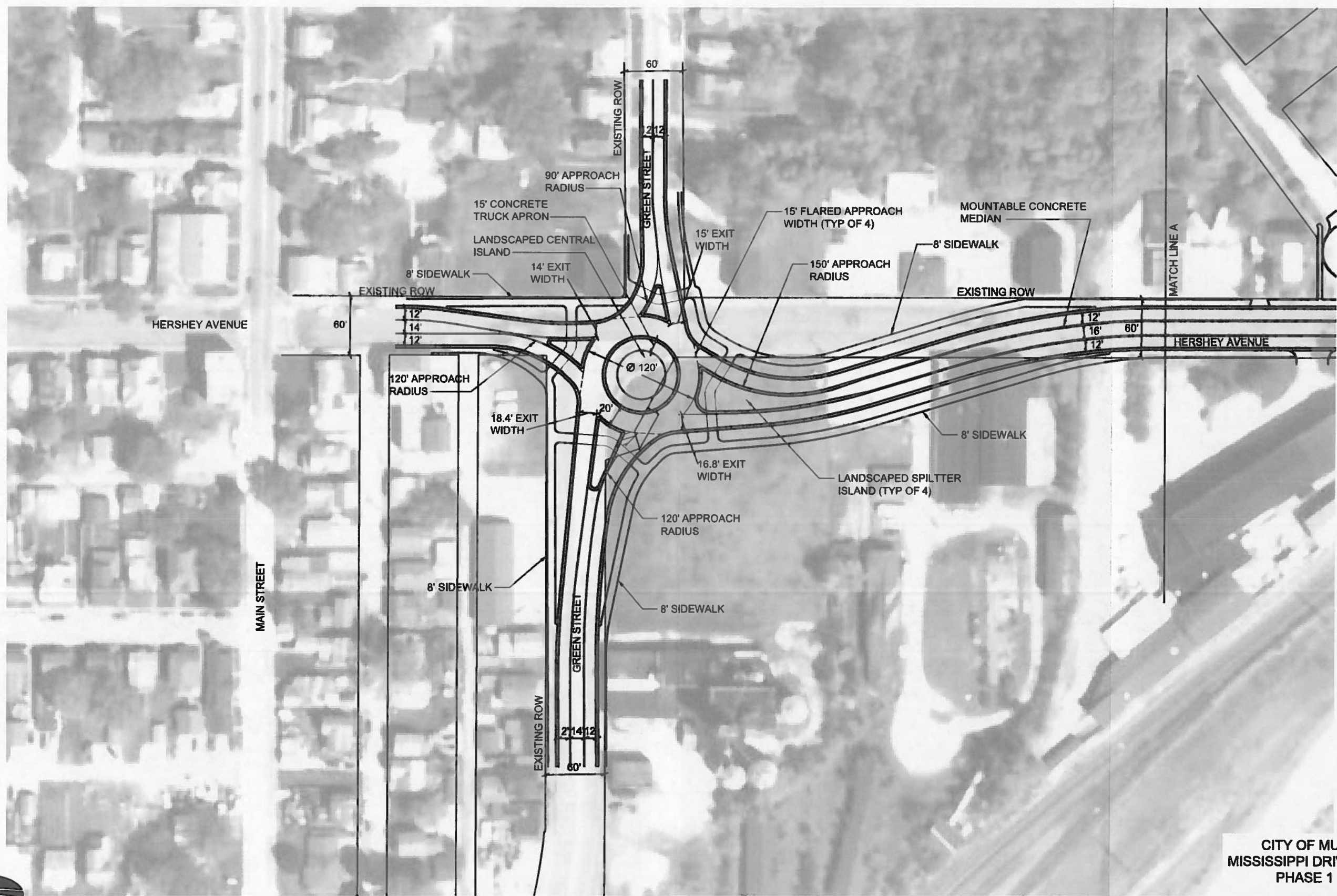
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
5-LANE OPTION**

MATCHLINE F

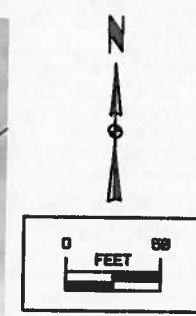
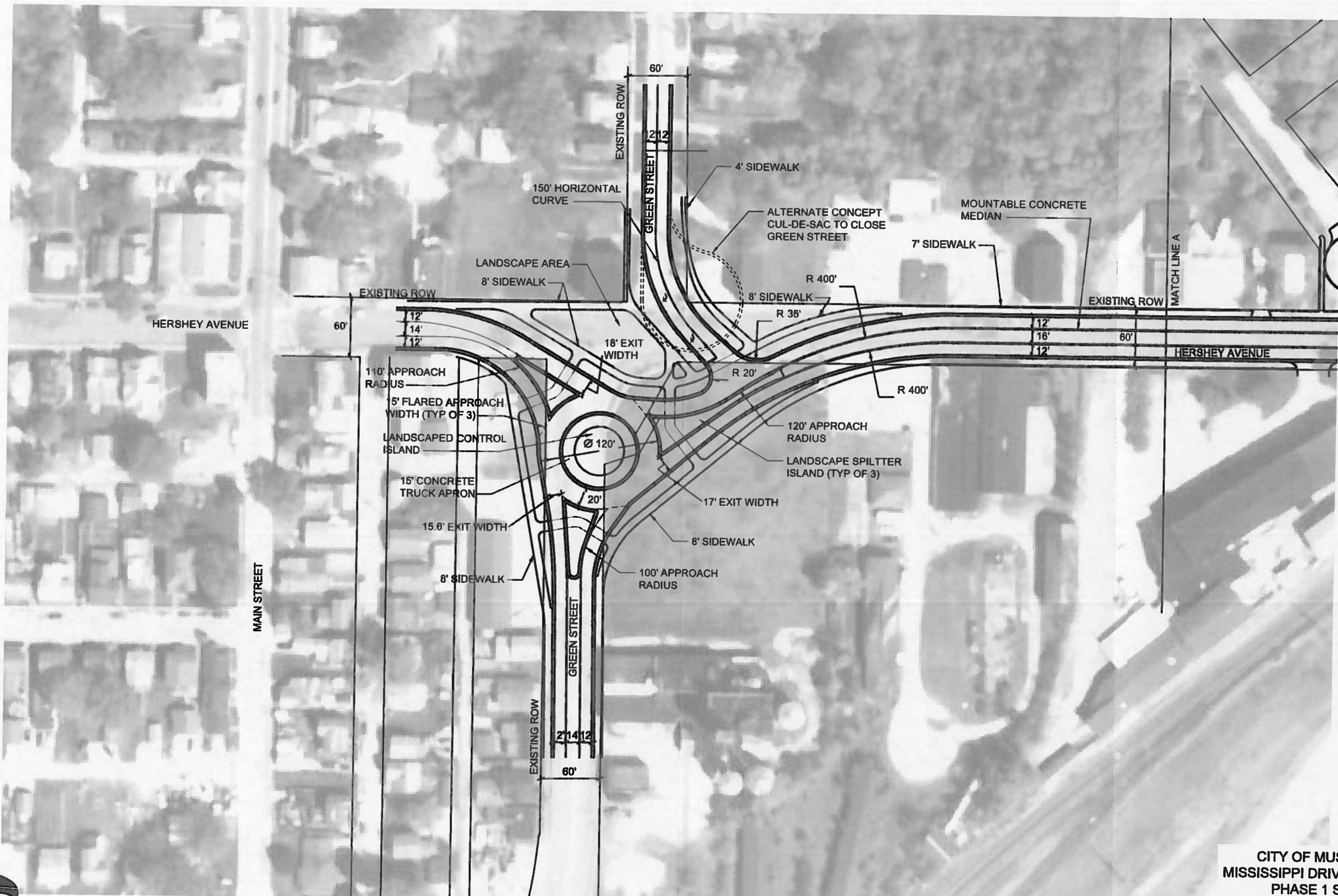


CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
5-LANE OPTION**

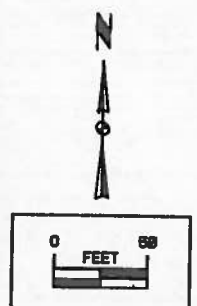
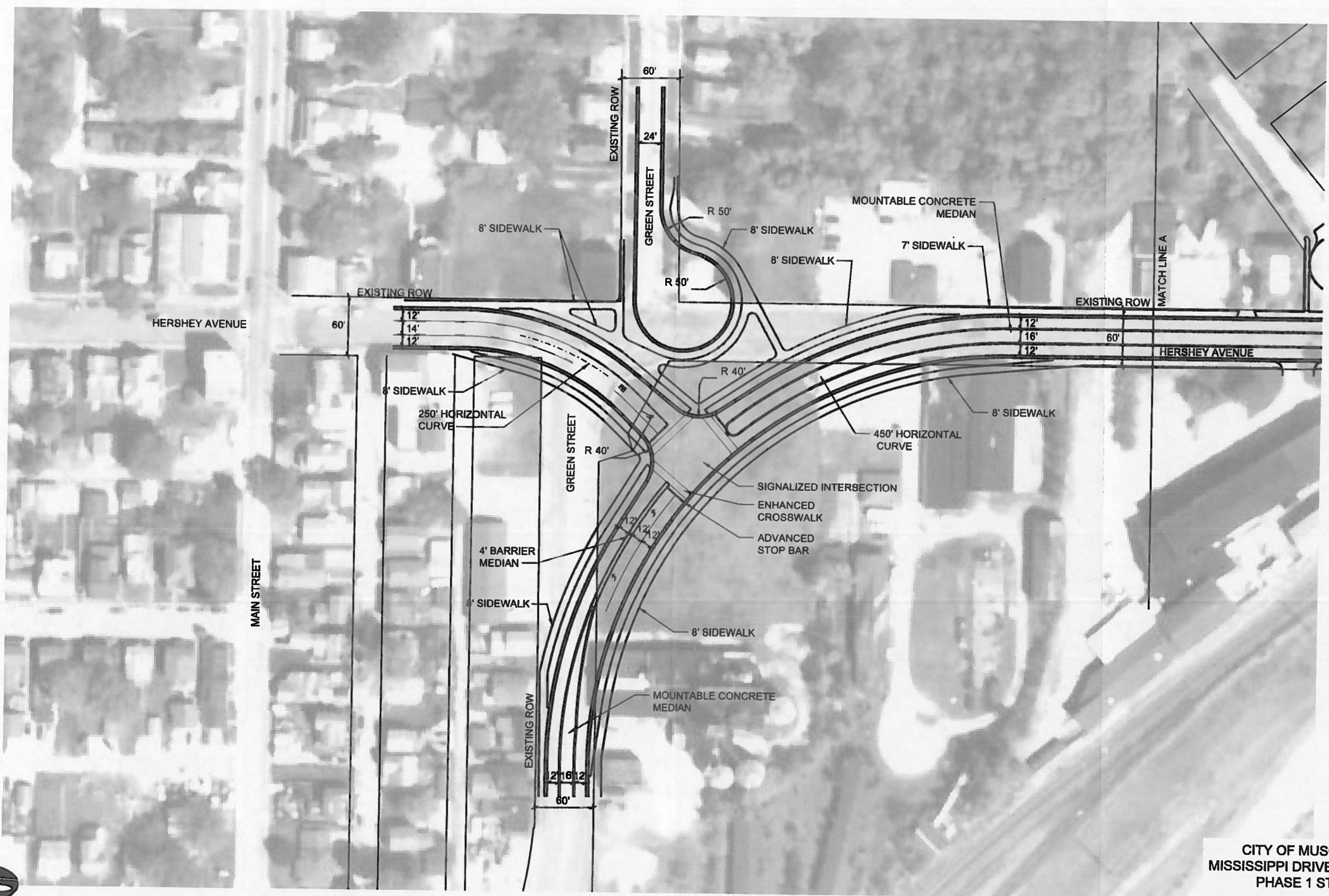
Proposed Truck Turning Movements



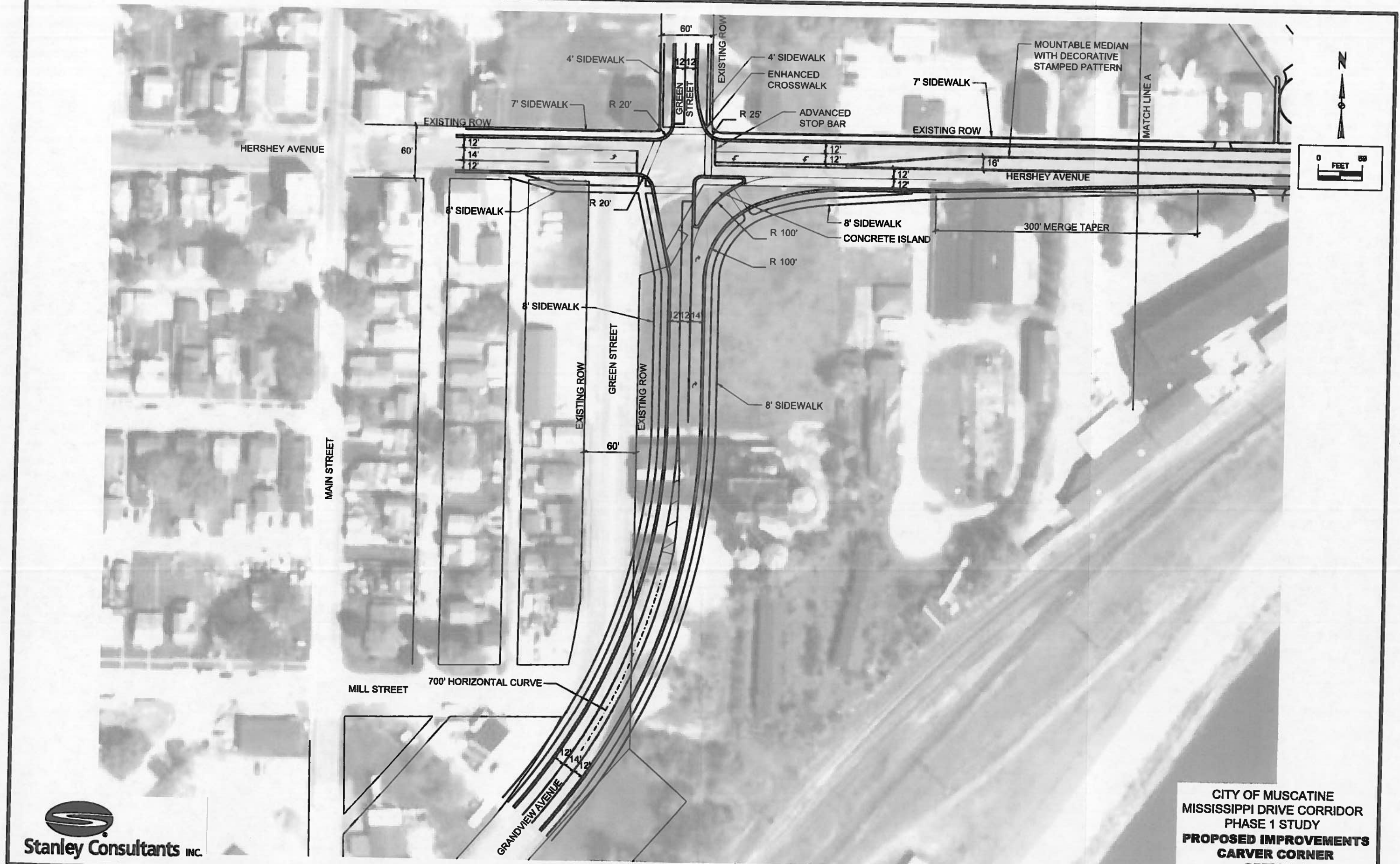
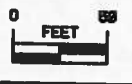
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
CARVER CORNER
OPTION 1**



CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED IMPROVEMENTS
CARVER CORNER
OPTION 2

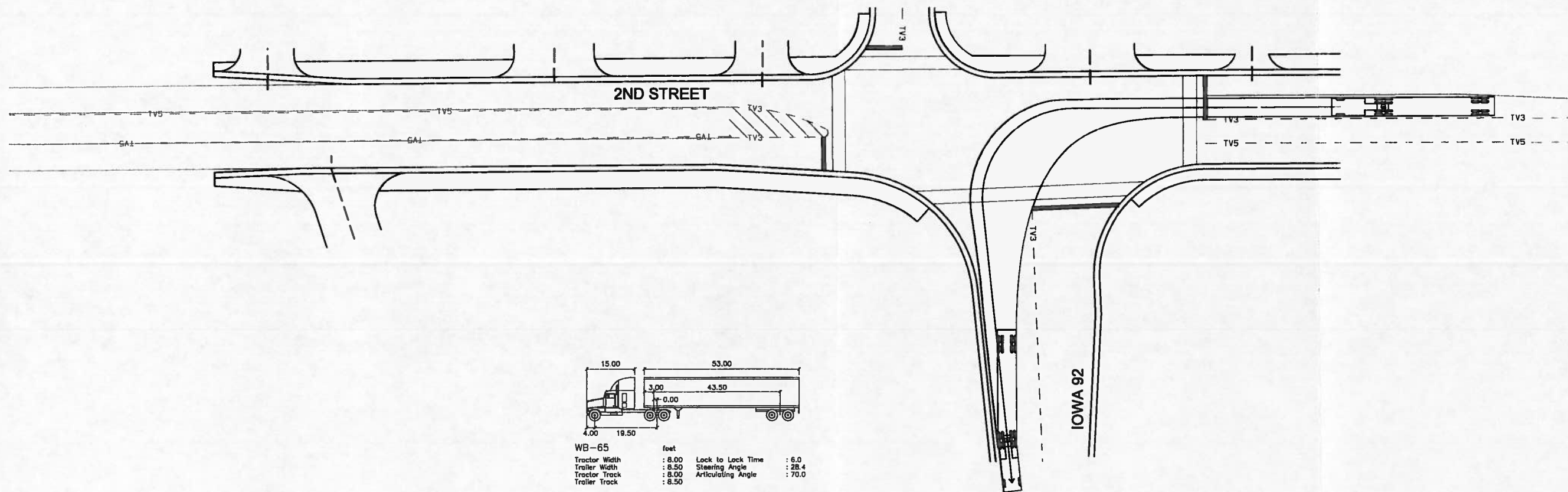


CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED IMPROVEMENTS
CARVER CORNER
OPTION 3



CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED IMPROVEMENTS
CARVER CORNER
OPTION 4**

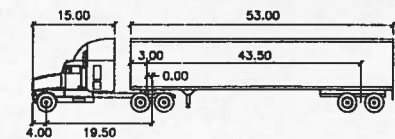
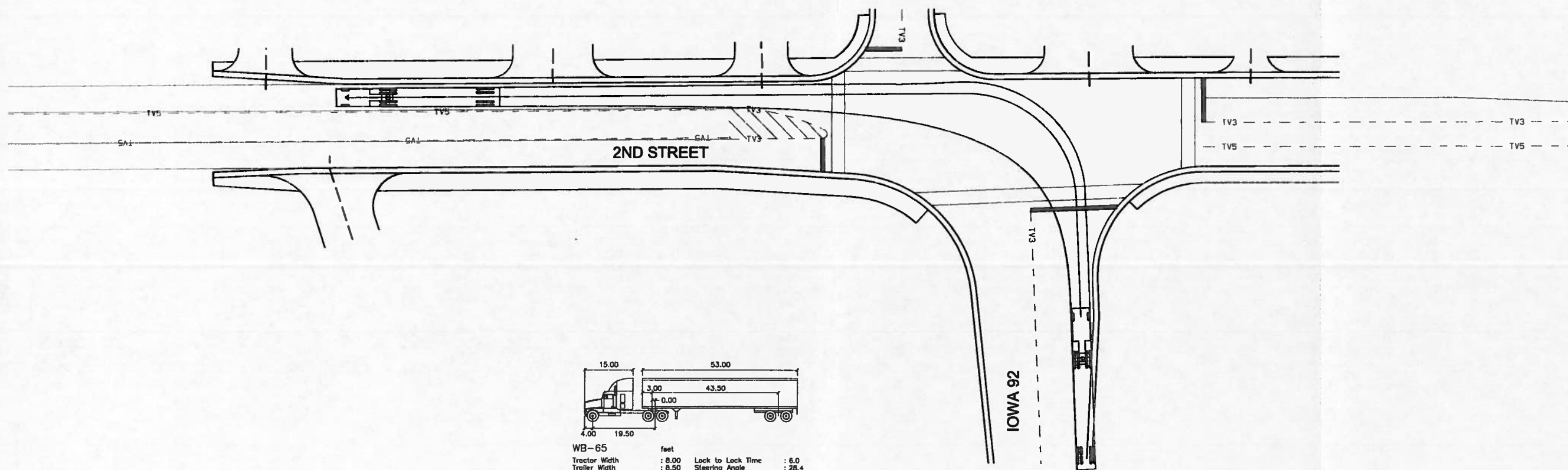
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SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					



WB-65
Tractor Width : 8.00
Trailer Width : 8.50
Tractor Track : 8.00
Trailer Track : 8.50
feet
Lock to Lock Time : 6.0
Steering Angle : 28.4
Articulating Angle : 70.0



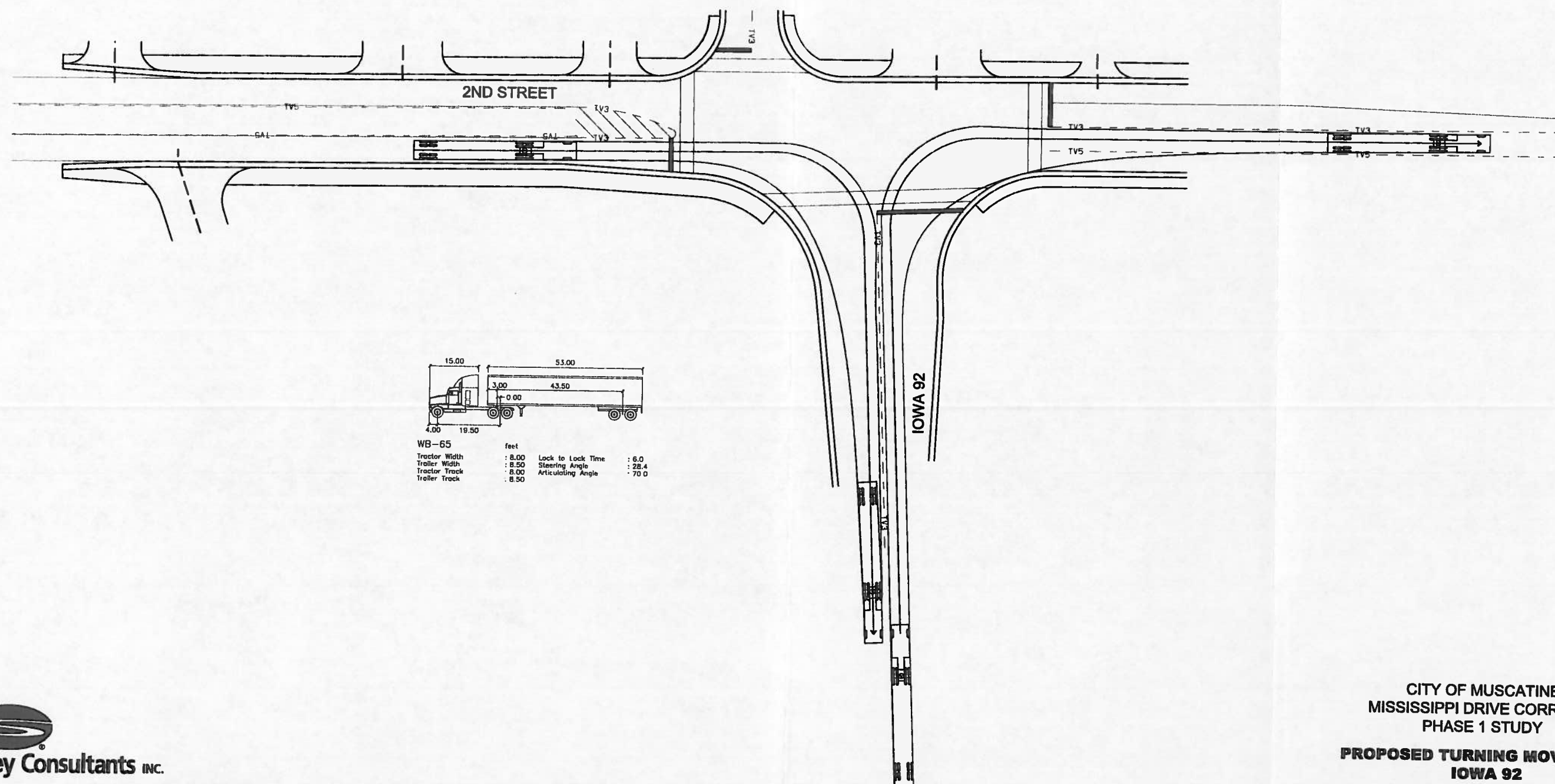
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
IOWA 92**



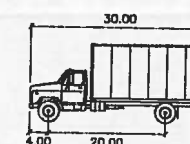
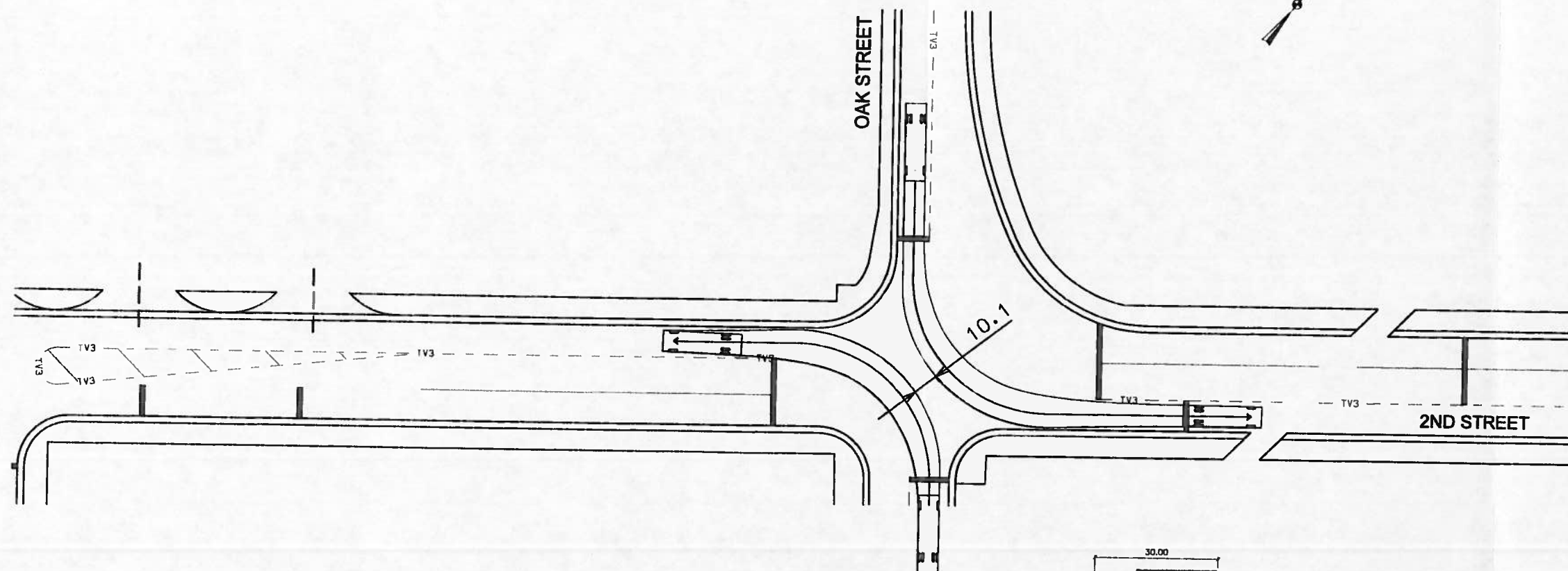
WB-65	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Tractor Length	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 70.0
Tractor Track	: 8.50		



CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED TURNING MOVEMENTS
IOWA 92



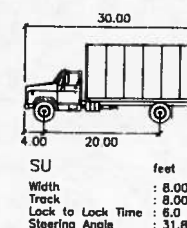
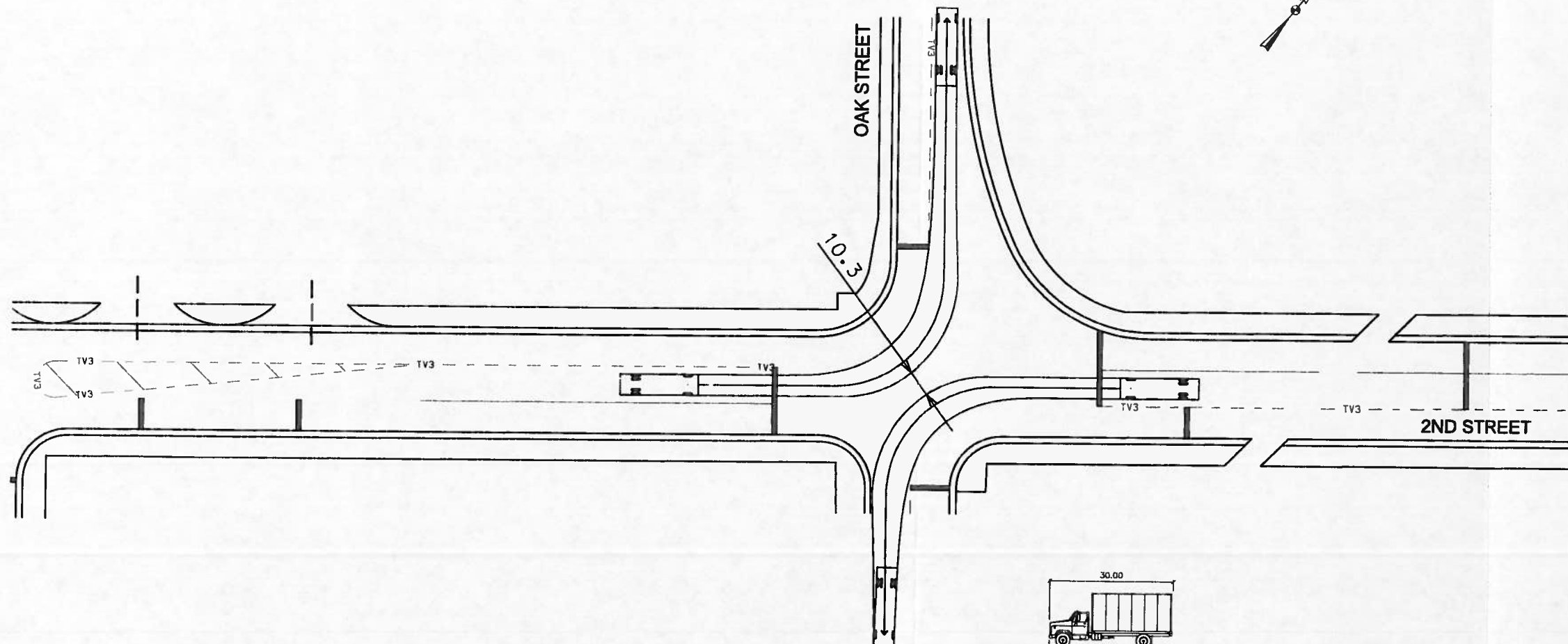
**CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED TURNING MOVEMENTS
IOWA 92**



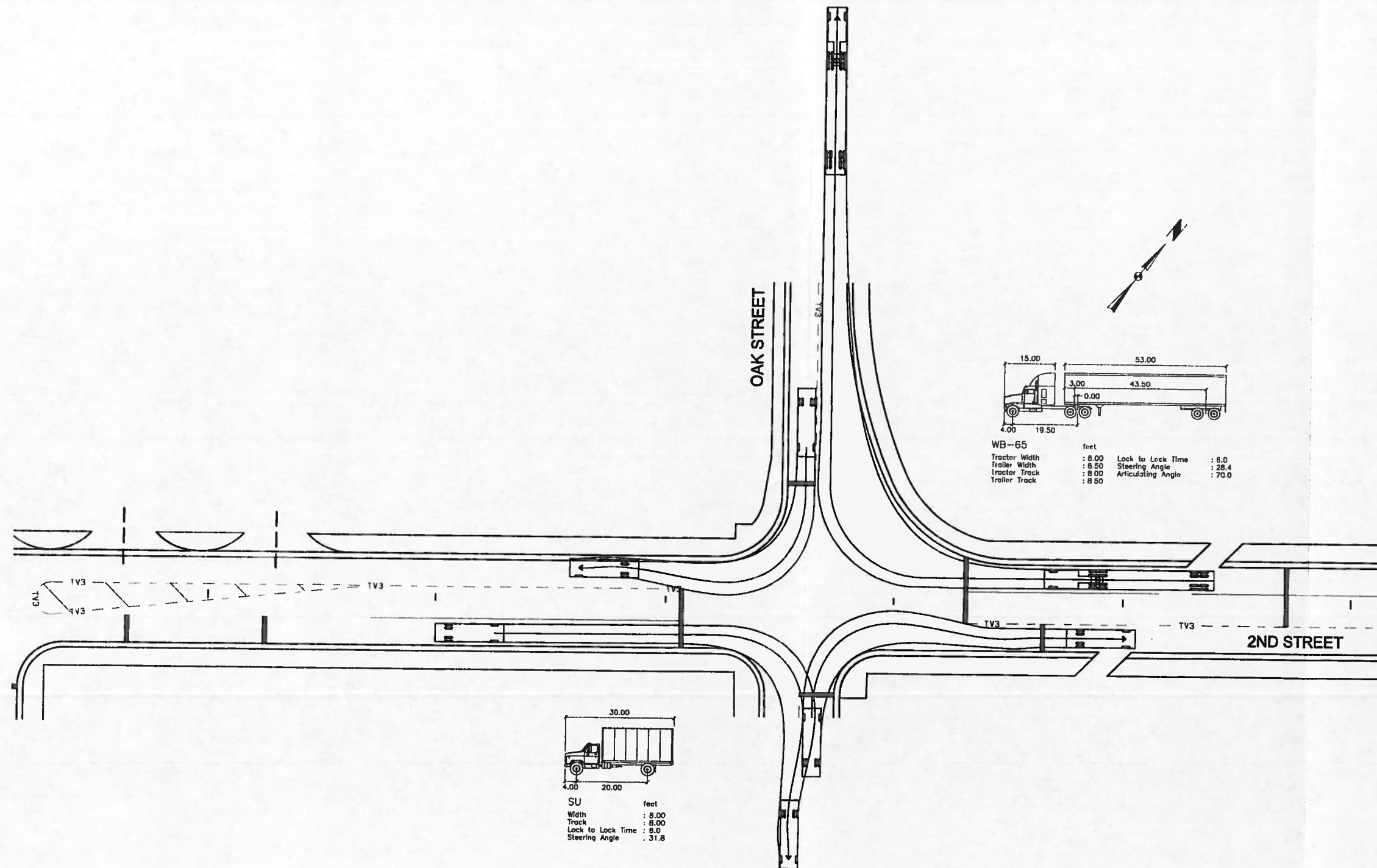
SU feet
 Width : 8.00
 Track : 8.00
 Lock to Lock Time : 6.0
 Steering Angle : 31.8



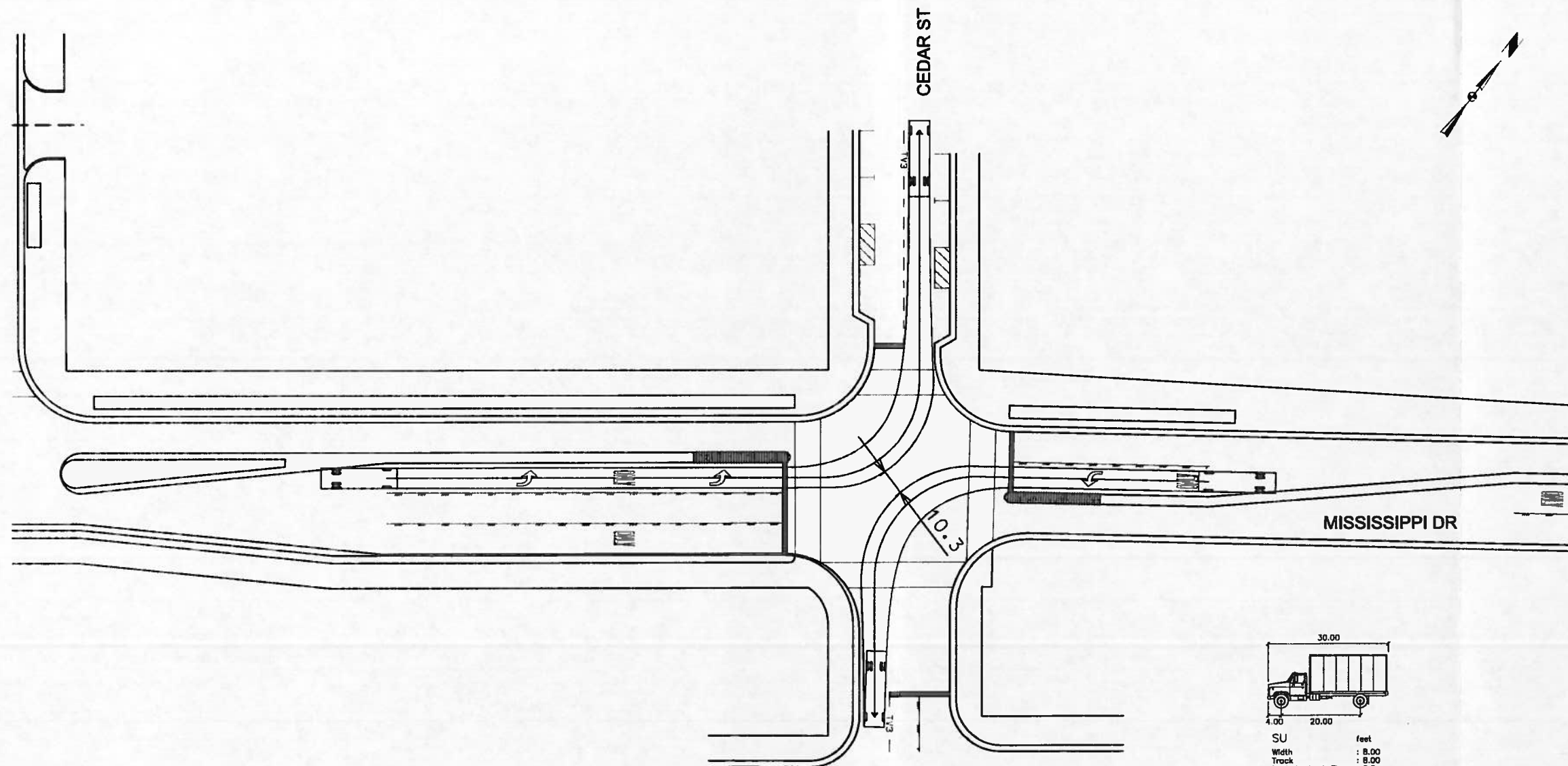
CITY OF MUSCATINE
 MISSISSIPPI DRIVE CORRIDOR
 PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
 OAK STREET**



CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
OAK STREET**



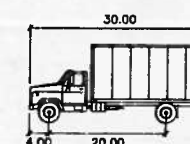
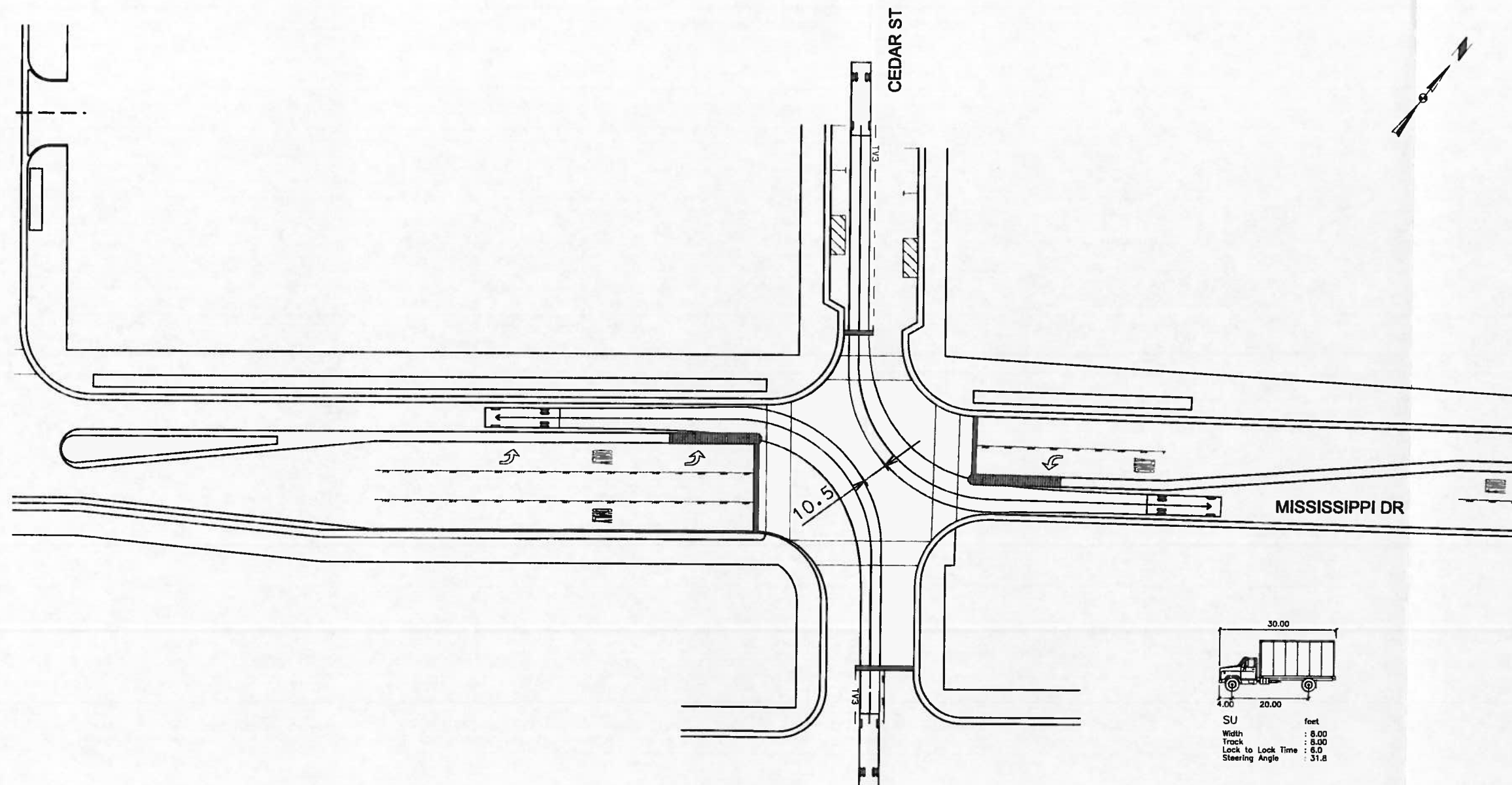
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
OAK STREET**



30.00
4.00 20.00
SU feet
Width : 8.00
Track : 8.00
Lock to Lock Time : 6.0
Steering Angle : 31.8

CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
CEDAR STREET**

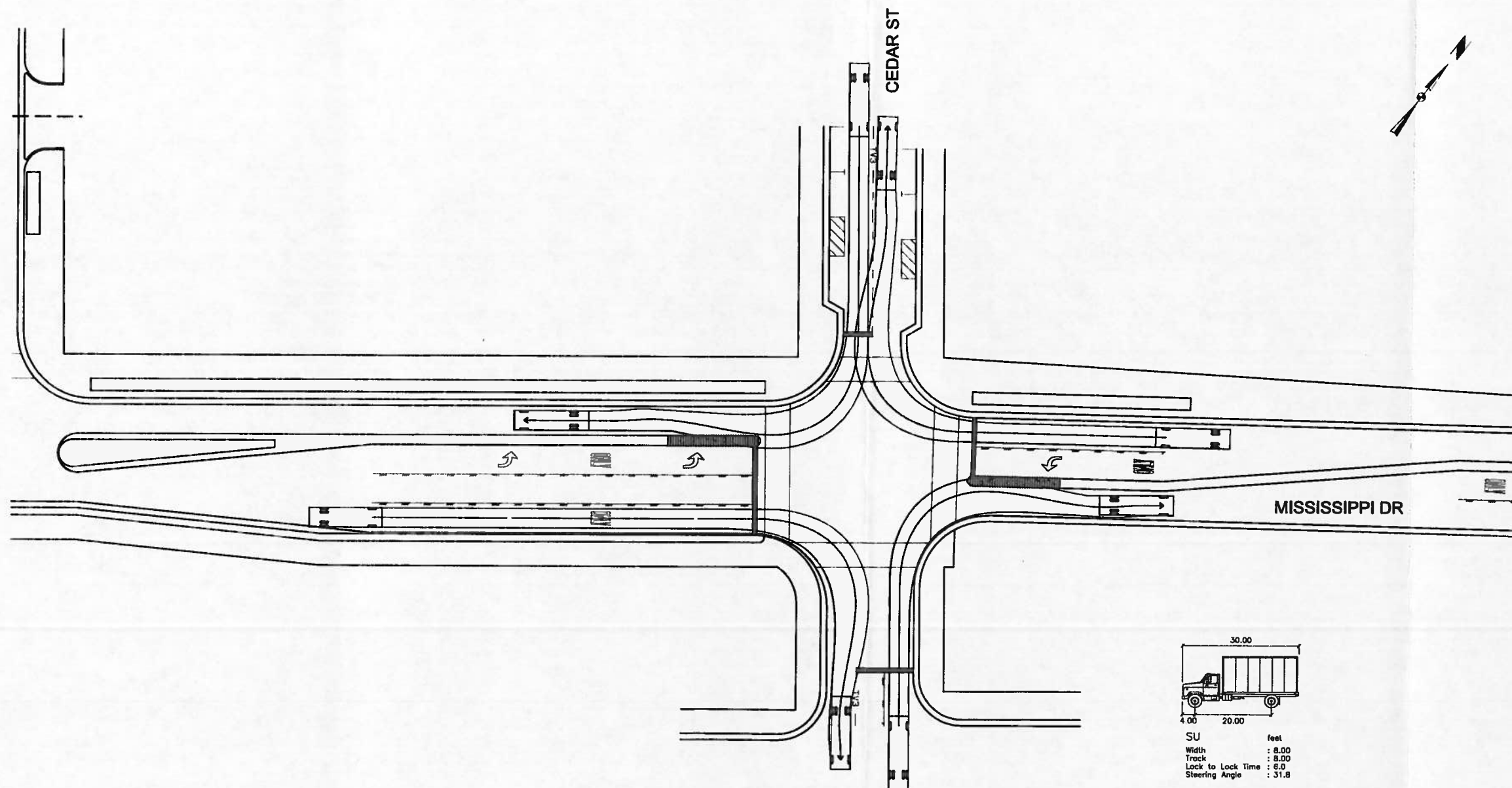




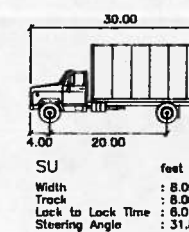
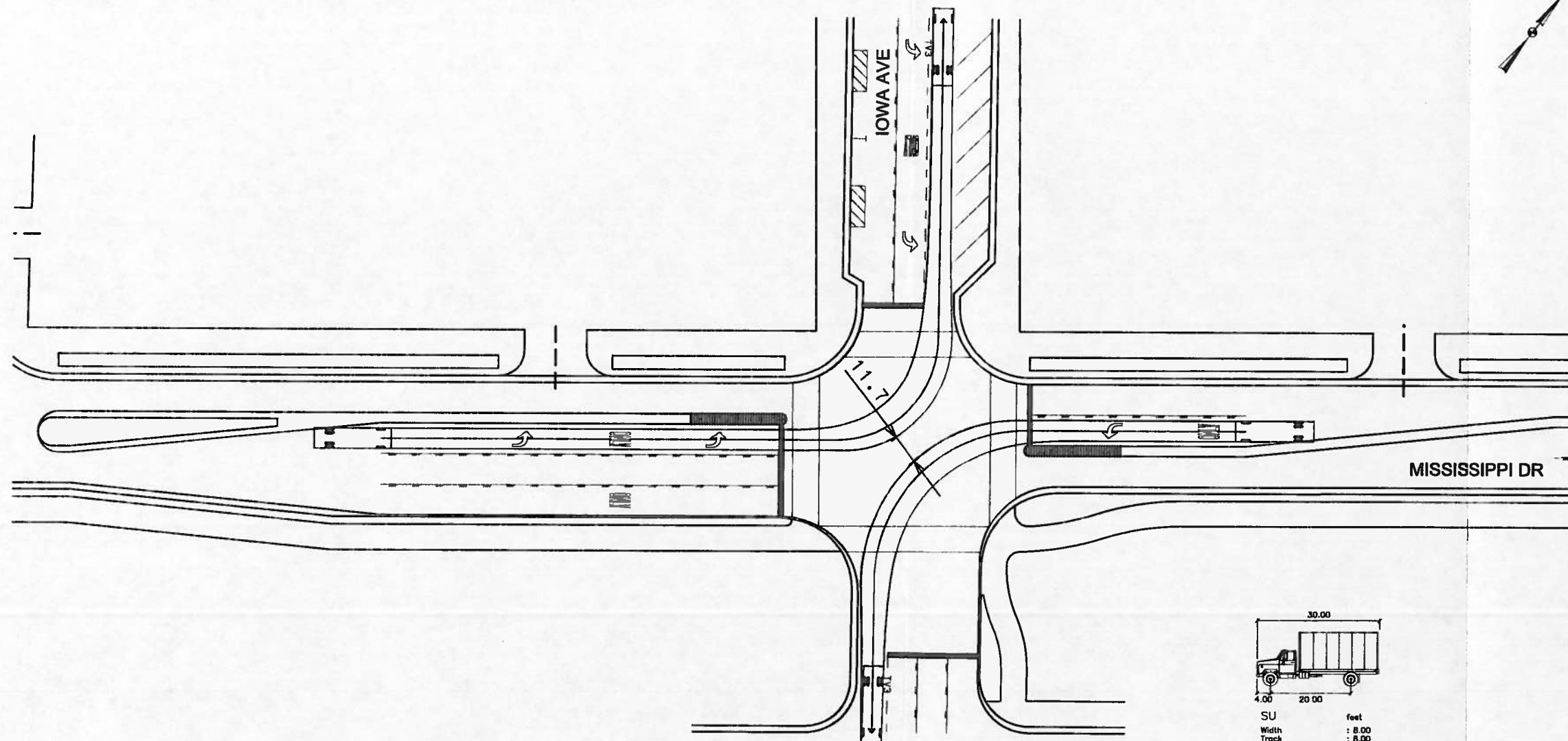
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 Track : 8.00
 Lock to Lock Time : 6.0
 Steering Angle : 31.8



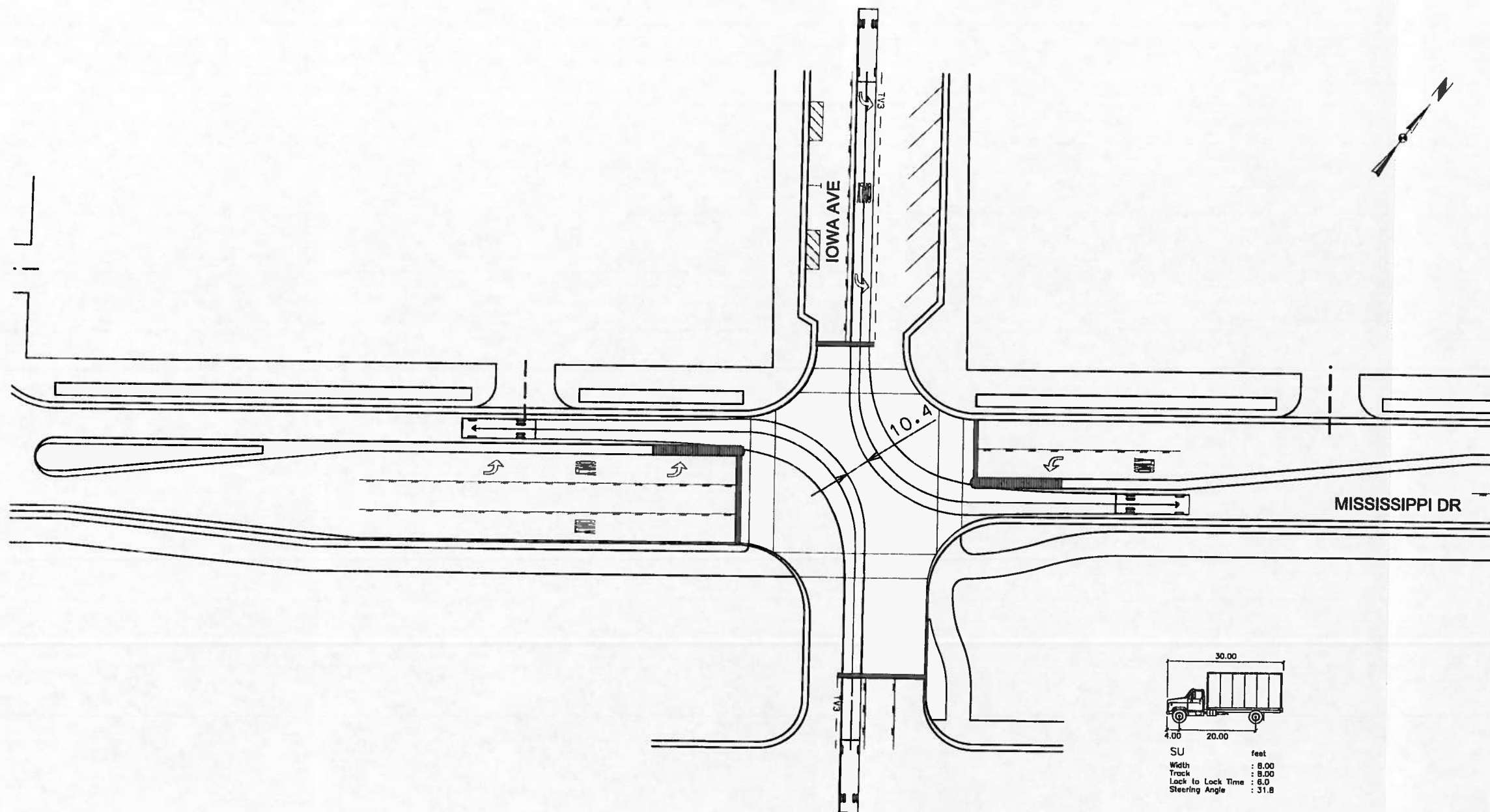
CITY OF MUSCATINE
 MISSISSIPPI DRIVE CORRIDOR
 PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
 CEDAR STREET**



CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
CEDAR STREET**



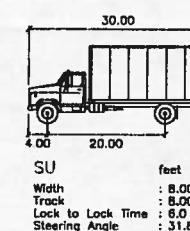
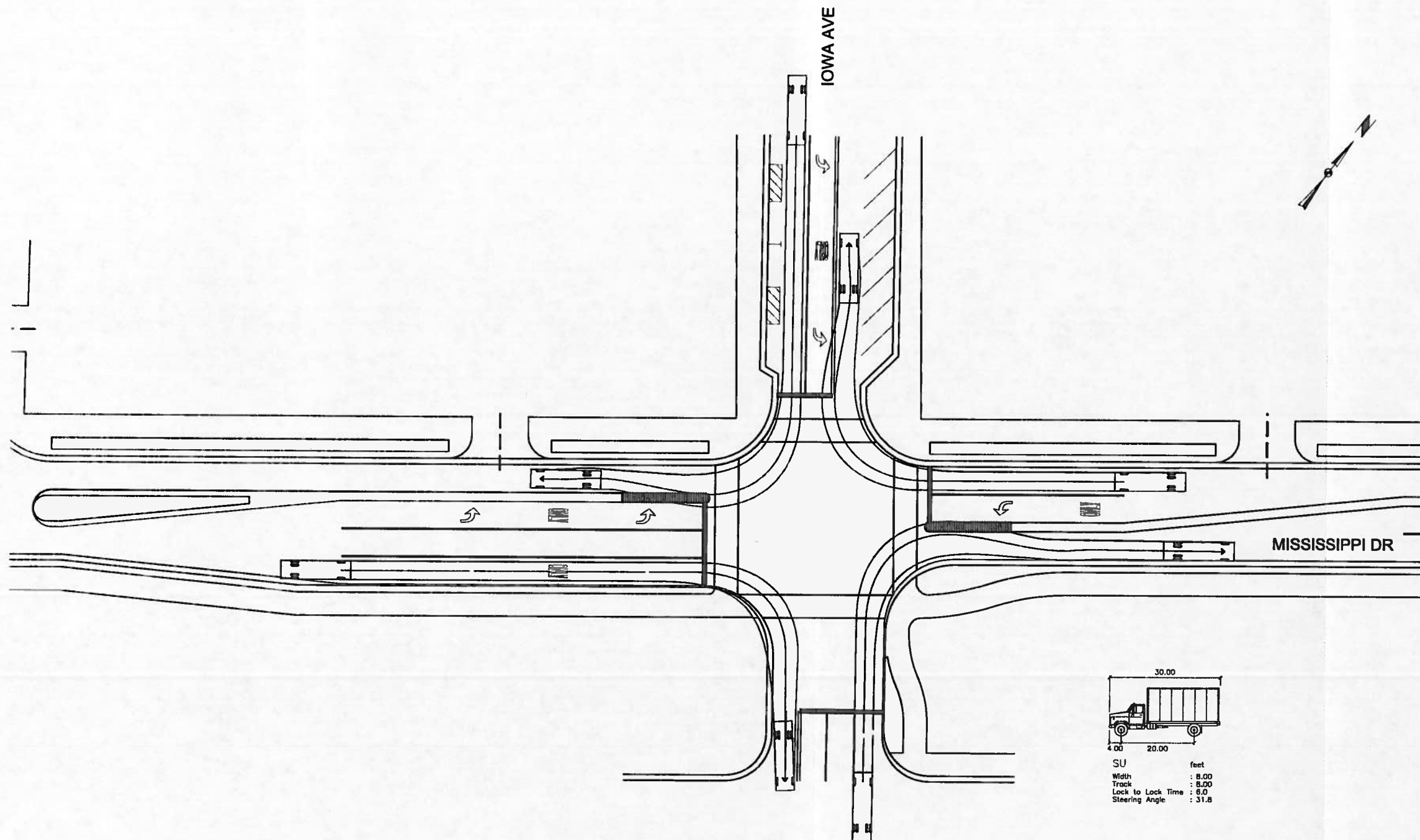
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
IOWA AVENUE**



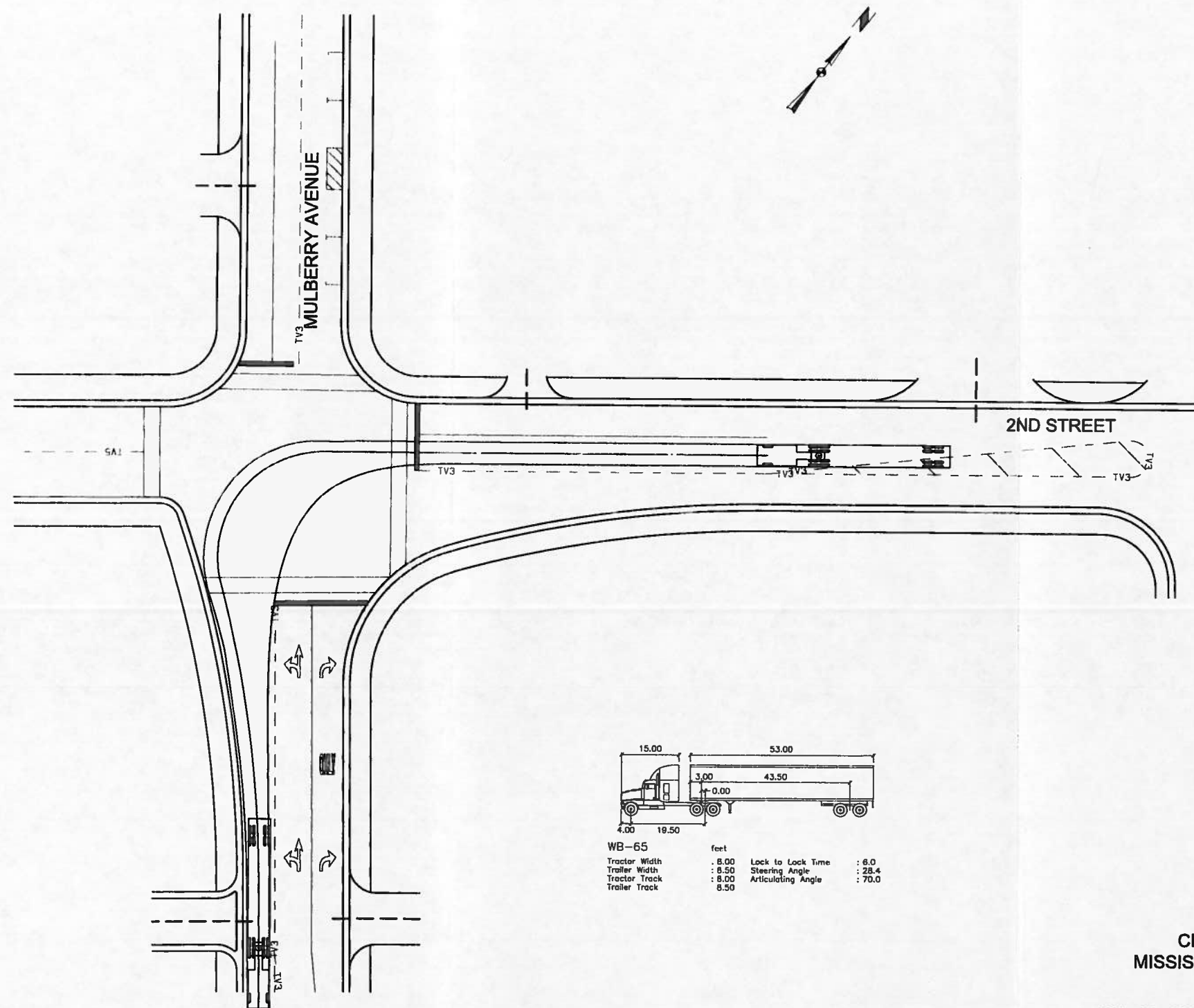
SU		feet
Width	:	8.00
Track	:	8.00
Lock to Lock Time	:	6.0
Steering Angle	:	31.8



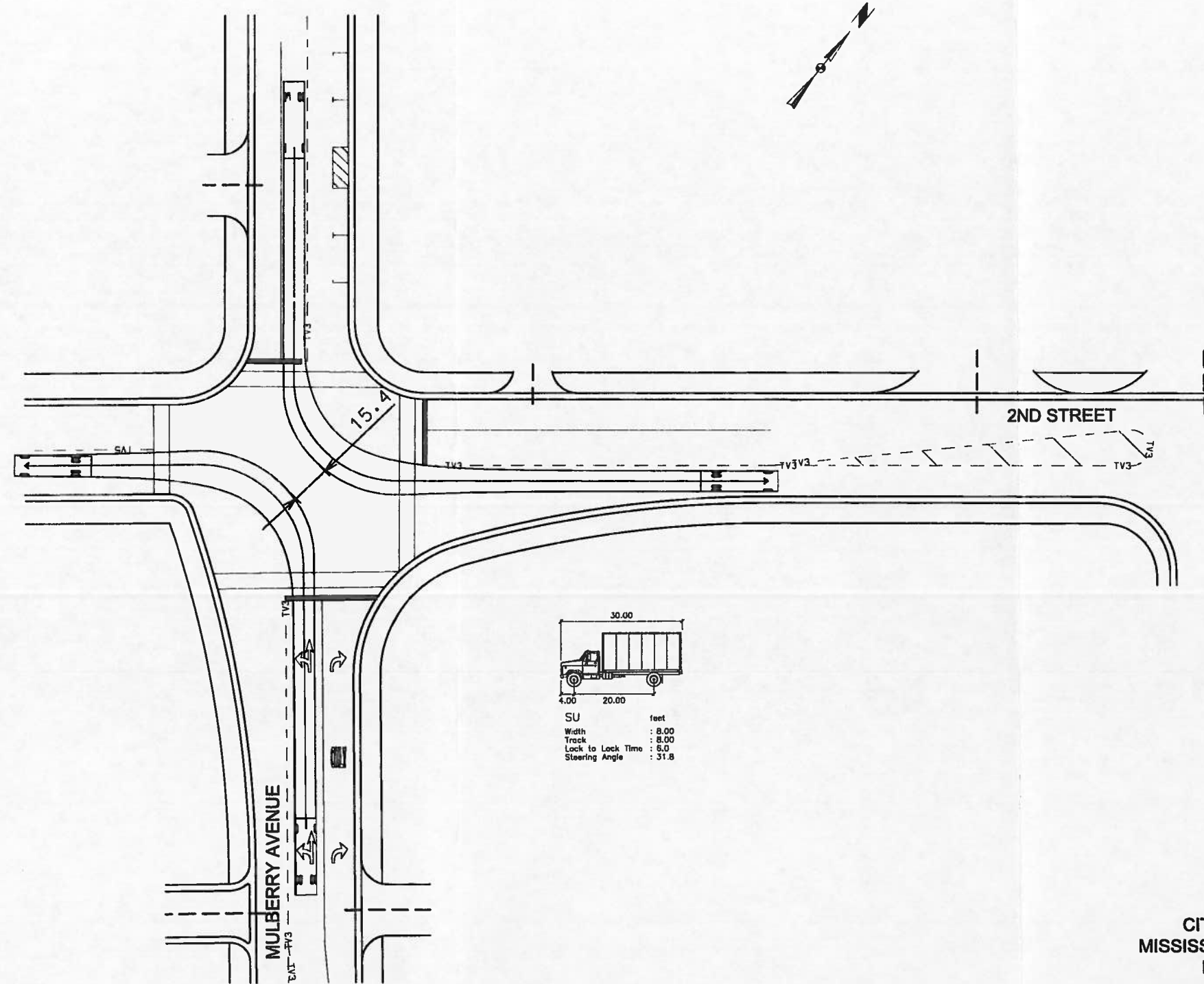
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
IOWA AVENUE**



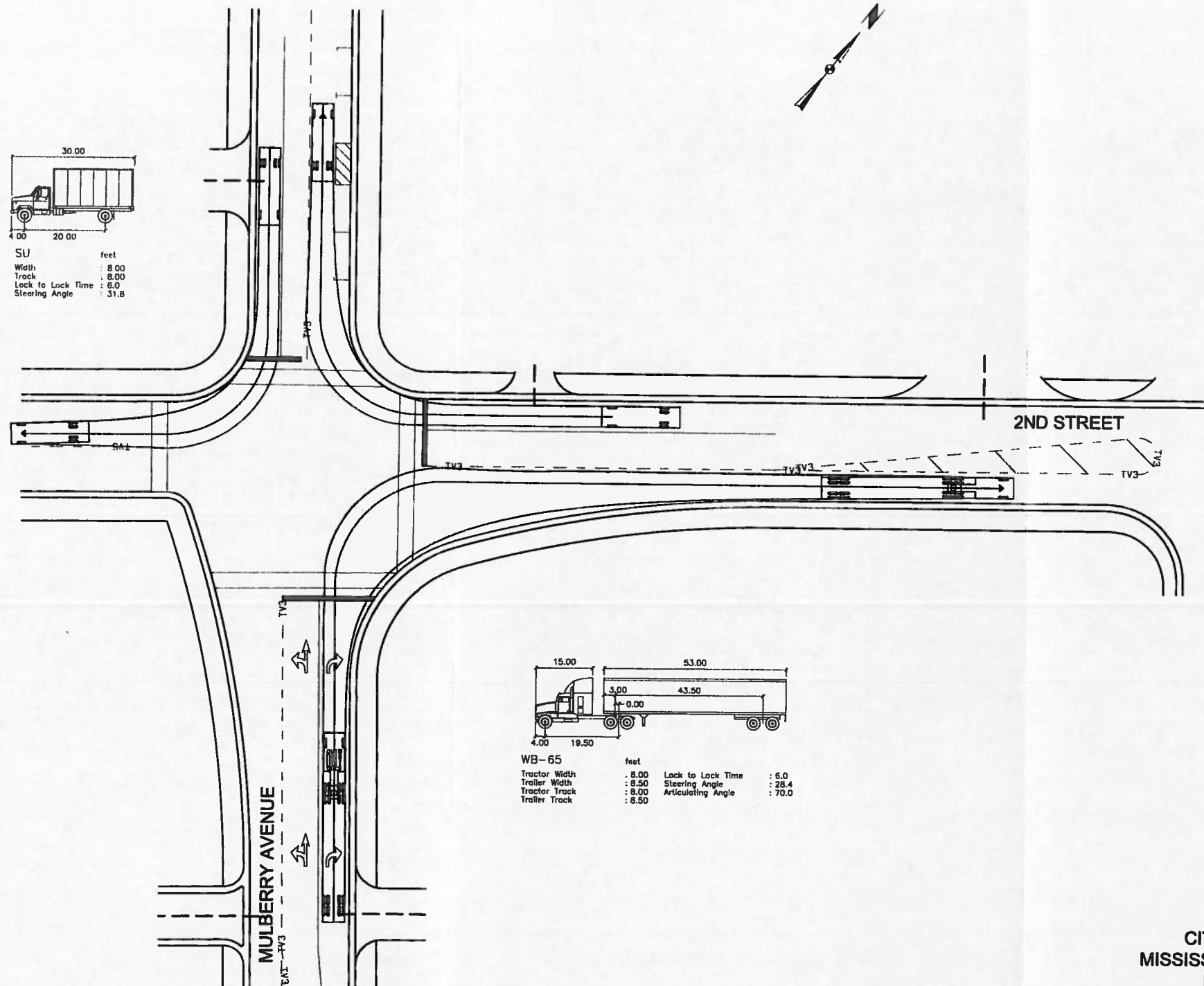
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
IOWA AVENUE**

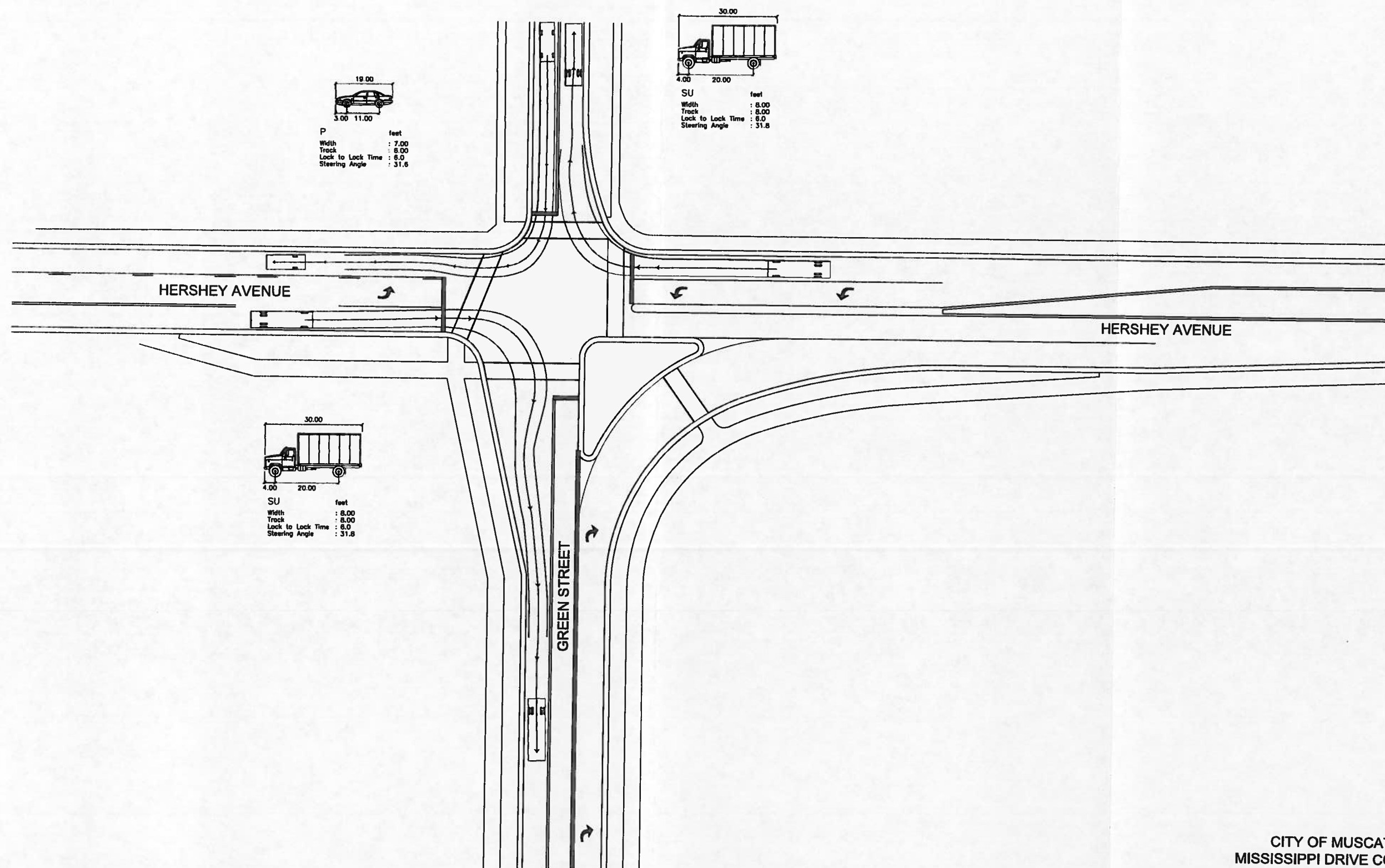


CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
MULBERRY AVENUE**



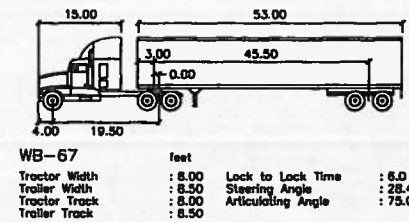
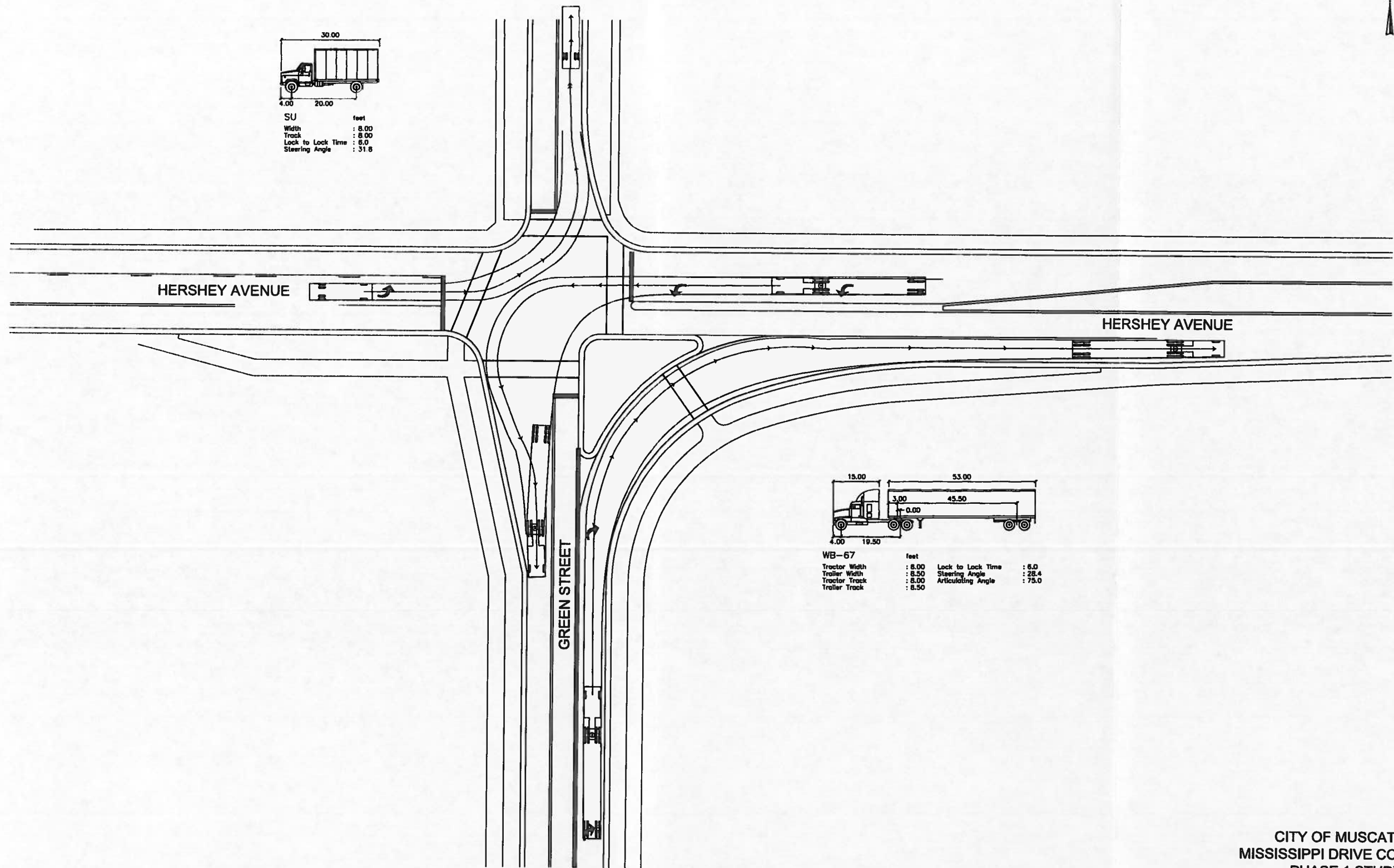
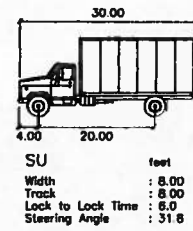
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
**PROPOSED TURNING MOVEMENTS
MULBERRY AVENUE**

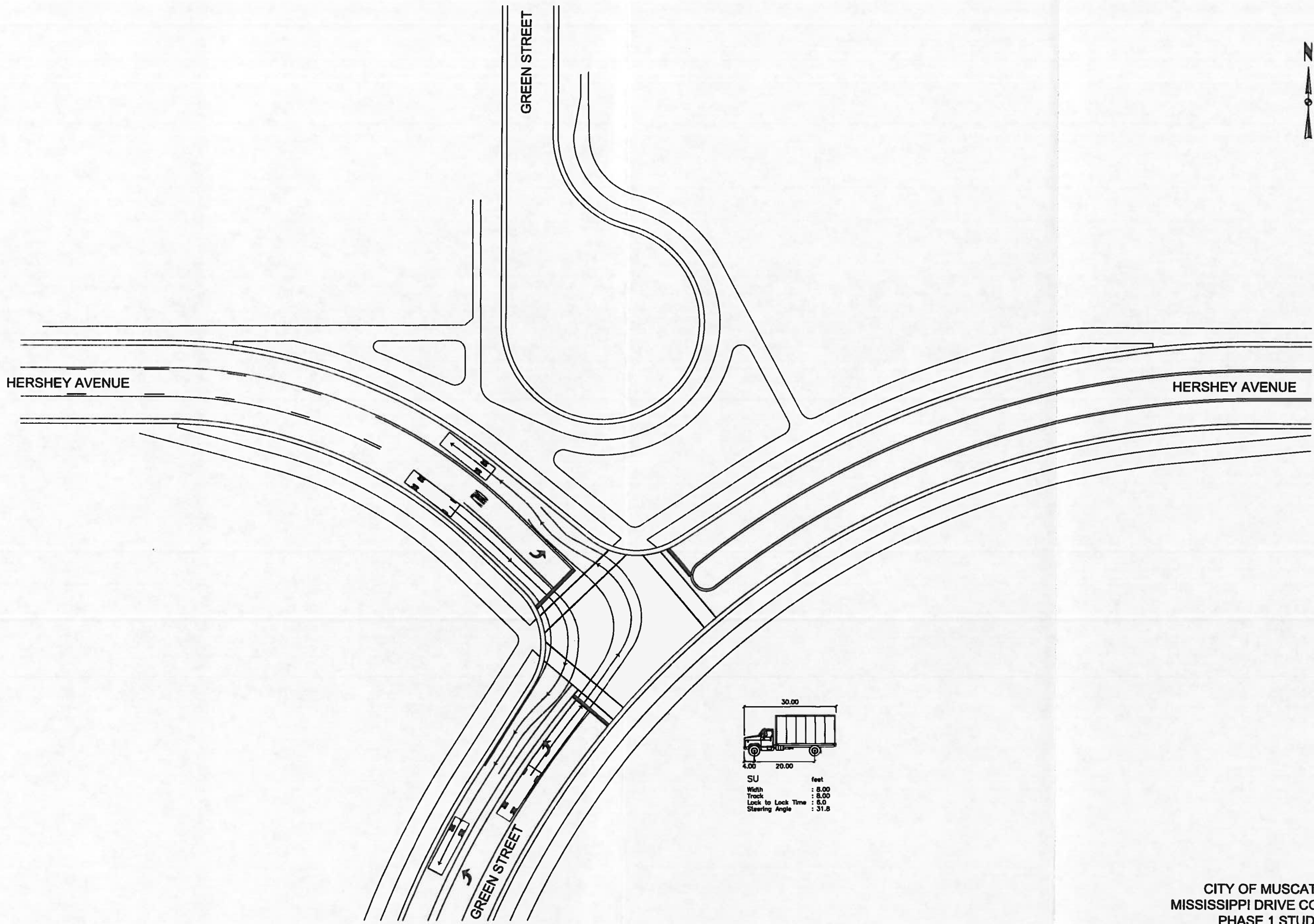




CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED TURNING MOVEMENTS
CARVER CORNER - OPTION 4

C	ENGLISH	IOWA DOT	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	2 OF 2	DATE: JULY 15, 2011
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					





CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED TURNING MOVEMENTS
CARVER CORNER - OPTION 3

C	ENGLISH	IOWA DOT	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	2 OF 2	DATE: JULY 15, 2011
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					

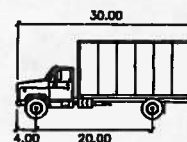


HERSHEY AVENUE

HERSHEY AVENUE

GREEN STREET

GREEN STREET



SU
Width : 8.00
Truck : 8.00
Lock to Lock Time : 6.0
Steering Angle : 31.8



CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED TURNING MOVEMENTS
CARVER CORNER - OPTION 3

C	ENGLISH	IOWA DOT	DESIGN TEAM
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC

COUNTY	PROJECT NUMBER
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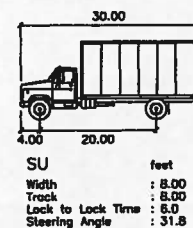
SHEET NUMBER	1 OF 2	DATE: JULY 15, 2011
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HERSHEY AVENUE

HERSHEY AVENUE

GREEN STREET

GREEN STREET



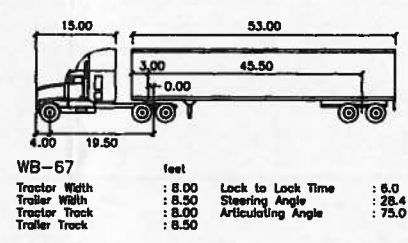
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED TURNING MOVEMENTS
CARVER CORNER - OPTION 2

HERSHEY AVENUE

GREEN STREET

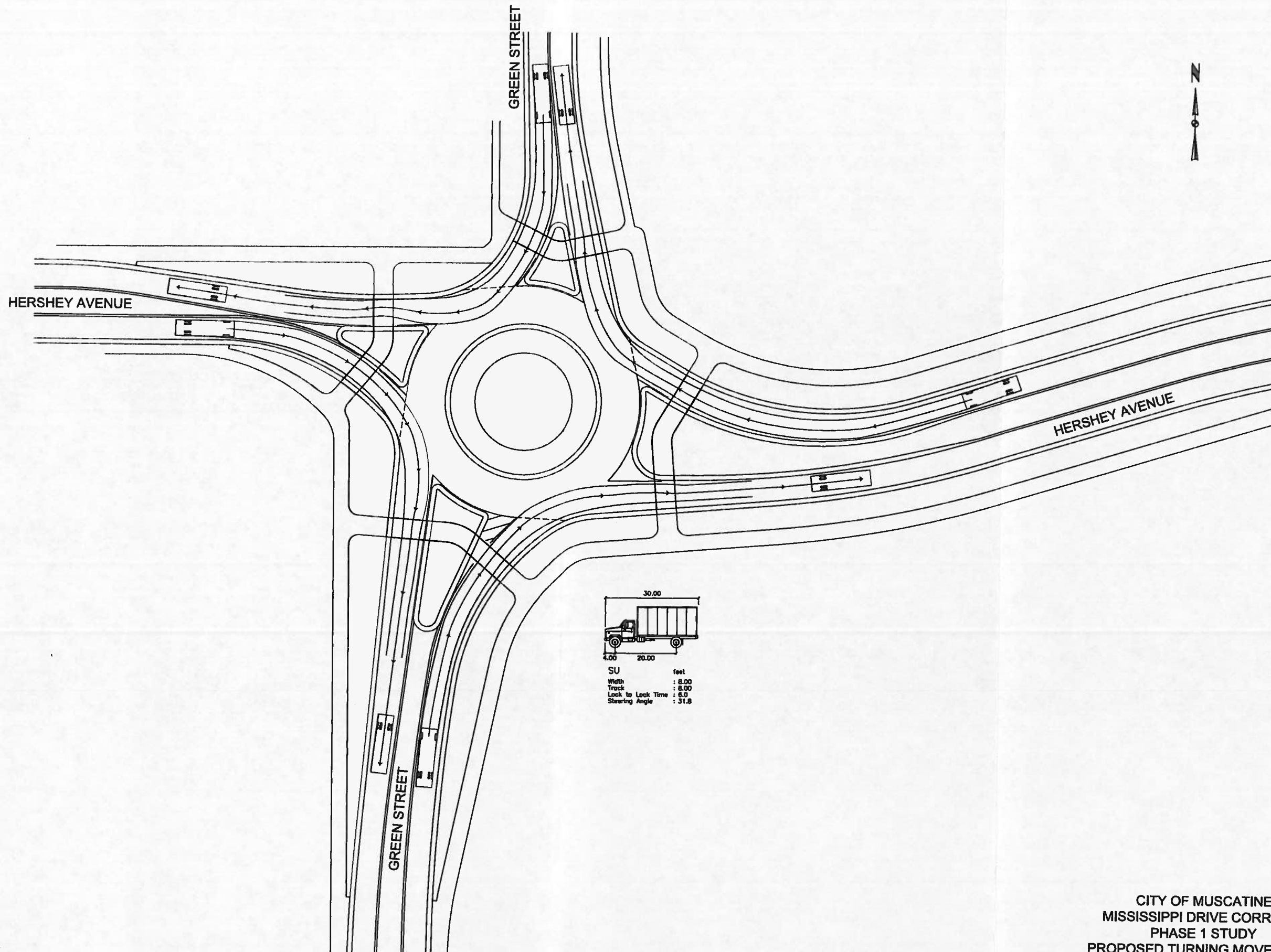
HERSHEY AVENUE

GREEN STREET



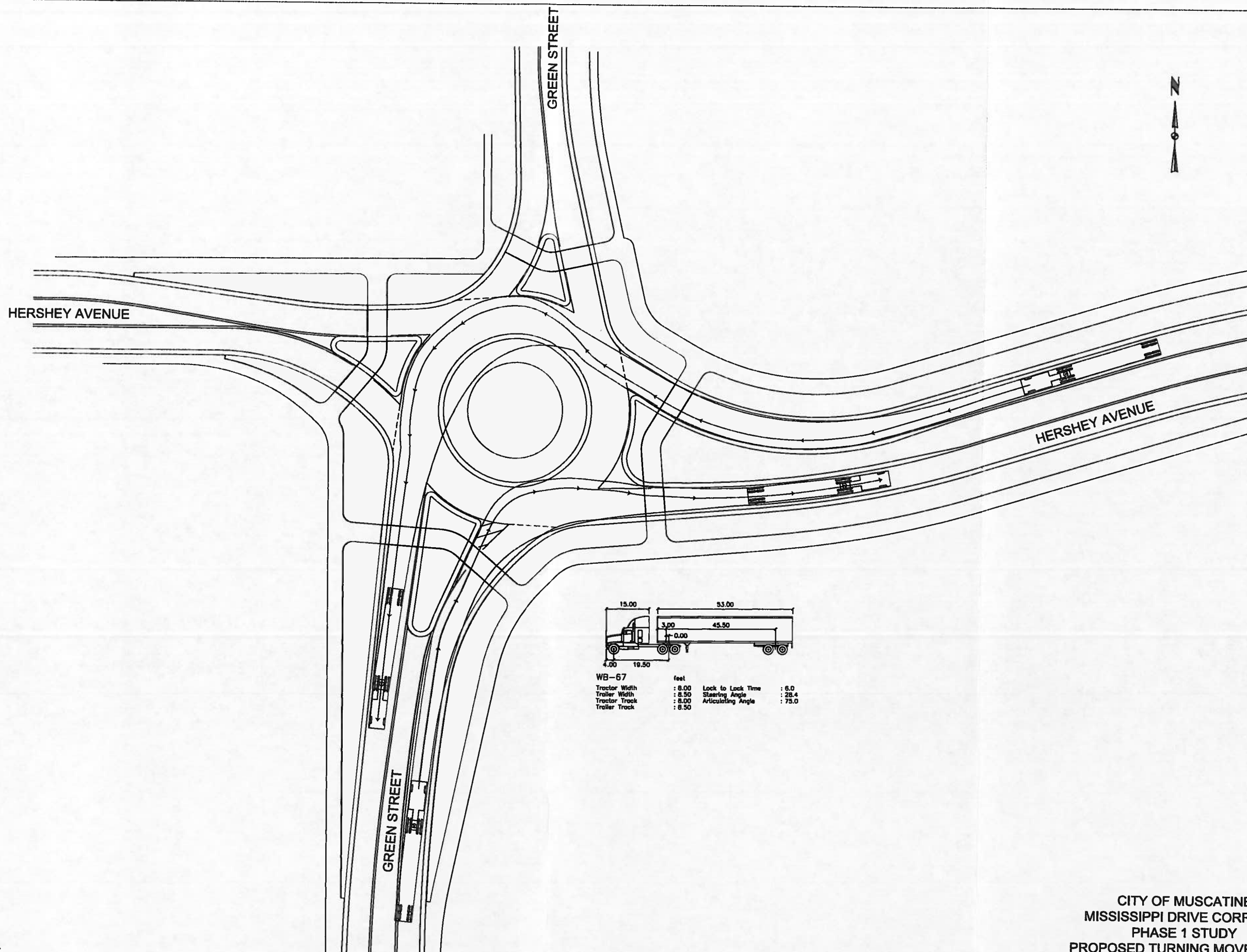
CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED TURNING MOVEMENTS
CARVER CORNER - OPTION 2

C	ENGLISH	IOWA DOT	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	1 OF 2	DATE: JULY 15, 2011
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					



CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED TURNING MOVEMENTS
CARVER CORNER - OPTION 1

C	ENGLISH	IOWA DOT	DESIGN TEAM	COUNTY	PROJECT NUMBER	SHEET NUMBER	2 OF 2	DATE: JULY 15, 2011
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC					



CITY OF MUSCATINE
MISSISSIPPI DRIVE CORRIDOR
PHASE 1 STUDY
PROPOSED TURNING MOVEMENTS
CARVER CORNER - OPTION 1

C	ENGLISH	IOWA DOT	DESIGN TEAM
SYSTEMTIME	SYSTEMDATE	USERNAME	DGNSPEC

COUNTY	PROJECT NUMBER
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SHEET NUMBER	1 OF 2	DATE: JULY 15, 2011
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