

# AIRPORT SOUTH ROADWAY INFRASTRUCTURE IMPROVEMENTS

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**SRF** CONSULTING GROUP, INC.  
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**FINAL**

**AIRPORT SOUTH  
ROADWAY INFRASTRUCTURE IMPROVEMENTS**

**January 25, 2007**

Prepared for:  
City of Bloomington

Prepared by:  
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## **EXECUTIVE SUMMARY**

### **Introduction**

SRF Consulting Group has completed the preliminary engineering and cost estimates for the roadway infrastructure improvements necessary to support currently projected future growth in the Airport South Area over the next 25 years. These roadway improvements are consistent with the *Mall of America (MOA) Phase II Traffic Study* final draft report dated March 20, 2006 and the *Bloomington Central Station (BCS) Traffic Study* report dated October 28, 2004. Our work includes the following:

- Comprehensive list of infrastructure improvements for the Airport South Area
- Preliminary engineering for the TH 77 CD roadway connection to/from the current MOA
- Concept sketches, right-of-way needs and preliminary cost estimates for all infrastructure improvements
- Allocation of costs to the appropriate existing and proposed developments based on vehicular trips
- Supplemental operations analyses for the realignment of East Old Shakopee Road and reconstruction of the I-494/34th Avenue interchange

### **Infrastructure Improvements**

With City staff input, SRF developed a comprehensive list of infrastructure improvements for the entire Airport South Area bounded by I-494 on the north, the Minnesota River on the east and south, Old Shakopee Road on the south and TH 77 on the west.

### **Preliminary Cost Estimates**

Costs were developed for each improvement based on preliminary layouts and concept sketches. All cost estimates include construction cost, design engineering, contract administration, and construction engineering (inspection, testing services, etc.), right-of-way and contingency costs. Table Ex-1 includes the roadway infrastructure improvements and associated costs, by location.

### **Cost Allocations**

The purpose of the cost allocation analysis is to allocate future public improvement costs related to full build conditions (year 2030) of the Airport South AUAR area to the appropriate existing and future redevelopments/developments. In addition, consideration was applied to existing volumes currently using the roadway network contributing to the capacity constraints and subsequent need for improvements. Table Ex-2 presents the costs allocated to the various existing and future developments/redevelopments.

**Table Ex-1  
Airport South Roadway Infrastructure Improvements – Cost Summary**

<b>Hi-Mu Improvement</b>	<b>Location</b>	<b>Cost</b>
1	Northbound TH 77 to Eastbound Lindau Lane	See #'s 6 & 7
2	Killebrew Drive and 24th Avenue	\$881,104
3	Killebrew Drive and 22nd Avenue (City provided layout)	\$848,078
4	Killebrew Drive and 20th Avenue (City provided layout)	\$1,860,924
5	Lindau Lane/TH 77 Ramps/IKEA Way	See # 31
6 & 7	TH 77 CD Roadway (near Lindau Lane)	\$3,779,513
8	TH 77/I-494 CD Roadway (Interim)	\$512,549
9	TH 77/I-494 CD Roadway (Interim)	\$759,845
10A	TH 77/I-494 CD Roadway	\$1,258,795
10B	TH 77/I-494 CD Roadway	\$16,352,940
10C	Thunderbird Road Roundabout	\$1,178,231
11	I-494/24th Avenue Single-Point Interchange	\$646,121
12A	American Boulevard/24th Avenue	\$1,524,296
12B	American Boulevard/24th Avenue	\$4,076,987
13	28th Avenue/82nd Street	\$2,207,017
14	Old Shakopee Road, Cedar Avenue to Killebrew Drive	\$10,295,604
15	American Boulevard	\$474,094
16	American Boulevard/34th Avenue	\$2,252,575
17	American Boulevard/International Drive/33rd Avenue	\$170,138
18	American Boulevard/Metro Drive East	\$234,356
19	American Boulevard/30th Avenue	\$617,779
20	American Boulevard/28th Avenue	\$690,816
20A	28th Ave	\$1,676,140
21	34th Avenue	\$394,051
22	Old Shakopee Road/33rd Avenue	\$300,300
23	Old Shakopee Road/31st Avenue	Under construction
24	Old Shakopee Road/30th Avenue	\$2,433,499
25	Old Shakopee Road/28th Avenue	\$7,768,665
26	I-494/34th Avenue Interchange	\$59,652,091
27	24th Avenue/82nd Street	\$96,009
28A	86th Street extension to EOSR to 28th Avenue	\$28,261,141
28B	86th Street/Old Shakopee Road	\$1,608,896
29	30th Avenue	\$1,677,315
30	Wayfinding Signs	\$549,600
31	Lowering Lindau Lane	\$12,900,000
--	Old Shakopee Road, 24th Avenue to 30th Avenue	See #'s 24 & 25
--	ITS Improvements	\$2,500,000
<b>Total:</b>		<b>\$170,439,471</b>

**Table Ex-2  
Development/Redevelopment Cost Allocation Summary**

Development	Scenario	
	Weekday (Thursday)	Weekend (Saturday)
<b>Existing</b>		
City of Bloomington	\$20,429,651	\$22,327,527
MOA	\$7,064,048	\$10,666,826
IKEA	\$191,083	\$742,959
Health Partners	\$2,973,453	\$0
MAC	\$7,416,440	\$14,057,526
<b>Future</b>		
Proposed MOA II	\$31,371,834	\$32,875,649
Proposed BCS	\$25,874,408	\$35,093,766
Proposed AUAR Developments	\$58,566,569	\$42,154,464
Proposed MAC Terminal Expansion	\$11,331,414	\$7,632,189
Proposed Park-and-Ride Expansion	\$5,220,570	\$4,888,565
<b>Total:</b>	<b>\$170,439,471</b>	<b>\$170,439,471</b>

## **INTRODUCTION**

The proposed Mall of America Phase II and Bloomington Central Station developments alone will have a significant impact on the City's transportation infrastructure. As requested, we have completed the preliminary engineering and cost estimates for the roadway infrastructure improvements necessary to support currently projected future growth in the Airport South Area over the next 25 years. These roadway improvements are consistent with the *Mall of America (MOA) Phase II Traffic Study* final draft report dated March 20, 2006 and the *Bloomington Central Station (BCS) Traffic Study* report dated October 28, 2004. Our work includes the following:

- Comprehensive list of infrastructure improvements for the Airport South Area
- Preliminary engineering for the TH 77 CD roadway connection to/from the current MOA
- Concept sketches, right-of-way needs and preliminary cost estimates for all infrastructure improvements
- Allocation of costs to the appropriate existing and proposed developments based on vehicular trips
- Supplemental operations analyses for the realignment of East Old Shakopee Road and reconstruction of the I-494/34th Avenue interchange

## **INFRASTRUCTURE IMPROVEMENTS**

As previously stated, the infrastructure improvements were consolidated from the MOA Phase II and BCS Studies. However, it is important to note that other proposed developments contribute to the need for future improvements; i.e. Metropolitan Airports Commission (MAC), Metro Transit Park-and-Ride facilities and various Airport South redevelopments/developments. With City staff input, SRF developed a comprehensive list of infrastructure improvements for the entire Airport South Area bounded by I-494 on the north, the Minnesota River on the east and south, Old Shakopee Road on the south and TH 77 on the west. Attachment A includes Figure 1 (an aerial perspective of each improvement location) and Table 1 (a detailed description of each improvement).

## **PRELIMINARY ENGINEERING AND CONCEPT SKETCHES**

The preliminary engineering portion of the project provides the City with an initial layout for the new access to/from the northbound TH 77 CD roadway to/from the existing MOA. Given the location and complexity of the recommended improvement, the preliminary layout for the new connection to/from the TH 77 CD roadway consists of plan and profile views to check vertical and horizontal clearances, grades and utility clearances.

Previously, a concept layout was developed for the I-494/34th Avenue interchange as part of the MOA Phase II traffic study process. This layout was used to estimate the construction costs and review its feasibility to construct in the field. Additional concept sketches for the remaining improvements were developed on aerials to better tie in the existing curb lines and landmarks (i.e., Thunderbird Hotel and Mall of America, Phase II area improvements).

In preparation of the preliminary layouts and concept sketches, the following issues were addressed and resolved:

### **TH 77 CD Roadway**

- The new access to/from the northbound TH 77 CD roadway to/from the existing MOA required additional field review and surveying in order to determine the specific topography.
- The proposed northbound TH 77 exit ramp and its approach directly into the MOA roundabout maintains the 5 percent grade that exists today at this exit point.
- The bridged connection to the west parking structure of MOA maintains its existing tie-in point.

### **TH 77/I-494 C-D Roadway**

- There were no issues in laying out the new access from the northbound TH 77/eastbound I-494 CD roadway to Thunderbird Road. In addition, there were no problems with the new access from Thunderbird Road to the northbound TH 77/eastbound I-494 CD roadway (interim).
- For the permanent access from Thunderbird Road to the northbound TH 77/eastbound I-494 CD roadway, tunneling under 24th Avenue may cause some traffic control issues during construction. However, construction of this roadway is possible using a Conspan structure to create the tunnel under 24th Avenue. In-construction traffic control will be important in order to maintain roadway operations along 24th Avenue.
- A large retaining wall will be needed east of 24th Avenue. This will require Mn/DOT coordination for construction, as well as coordination with the MAC for right-of-way.

### **Killebrew Drive and 22nd Avenue**

- Based on the MOA Phase II Study, dual southbound left-turn lanes were recommended at this intersection. However, the need for dual eastbound left-turn lanes was raised. Due to intersection constraints, it is not feasible to construct both improvements, dual southbound and eastbound left-turn lanes. Further analysis was completed for the intersection and it was determined that either improvement on its own will improve operations equally. With the close spacing of 20th Avenue and 22nd Avenue, it is recommended to implement improvements on Killebrew Drive. Therefore, the dual eastbound left-turn lanes are included as an improvement in this study.



### **I-494/24th Avenue Single-Point Interchange**

- The westbound triple lefts proposed for this intersection were reviewed to determine their ability to turn within the intersection and not conflict with opposing left-turn movements.
- Review of this operation using Auto-Turn revealed no issues associated with this movement.

### **I-494/34th Avenue Interchange**

- The concept layout developed as part of the MOA Phase II Study was reviewed for its feasibility to construct in the field. This interchange concept with loops in the northwest and southwest quadrants does not present any major issues related to its construction.
- An additional operations analysis was conducted to determine the necessary interchange design if the LRT operations were modified to northbound/southbound green phase or priority operations. The results of the analysis indicate the need for loops in the northwest and southwest quadrants for year 2030 conditions, regardless of the LRT operations. Therefore, the study improvement at the I-494/34th Avenue interchange only includes the original concept layout with loops in the northwest and southwest quadrants. The operations analysis results are summarized later in this document.

### **86th Street Extension to 28th Avenue**

- This improvement requires traversing a deep ravine. Crossing this ravine would require a substantial box culvert with extreme fill or a large bridge structure.
- This area is contained within the fish and wildlife refuge.
- Additional study of this improvement is necessary to determine the overall impacts associated.

## **PRELIMINARY COST ESTIMATES**

Based on the preliminary layouts and concept sketches, costs were developed for each improvement. All cost estimates include construction cost, design engineering, contract administration, and construction engineering (inspection, testing services, etc.), right-of-way and contingency costs. The following processes and assumptions were used to determine the cost estimates:

- Aerial photography was used to determine the existing curb lines, number and length of lanes, and any existing structures that could be used as a guide to determine the placement of the recommended improvements.
- Roadway improvements were drawn on top of the aerial photography to determine the removal quantities and new material quantities needed to complete the improvement.
- A field visit was conducted on February 28, 2006 to review the existing layouts at each improvement location and assess special considerations for computing the cost estimates.

- Based on field visit observations, retaining walls are needed in conjunction with improvements 5, 16 and 25, due to extreme grade changes where widening of the roadway is recommended. In addition, the 86th Street extension to 28th Avenue will need to cross a deep ravine. It was assumed that a bridge will be constructed to cross the ravine. Its cost is reflected in this improvement's estimate (improvement 28A).
- Drainage quantity, cost, and structure type are affected by the specific improvement. These quantities were based on the location of existing structures, located on the aerial photographs. The assumption is that all drainage structures that are being removed or replaced do not lie on the trunk line system and the lateral can be extended outward.
- Right-of-way quantities were based on property right-of-way lines provided by the City. Amounts stated were overtaken by the respective improvement.
- All quantities are based on major construction components. Therefore, a contingency cost was added for all minor items. A 20-percent contingency was added for an improvement that included widening or construction of a lane or roadway. A 15-percent contingency was added if no widening occurred. It should be noted that the I-494/34th Avenue Interchange includes a contingency cost of 25 percent due to the size of this improvement.
- A project delivery cost of 30 percent of total construction cost was typically added (some exceptions are presented).
- Cost estimation item prices are based on average bid prices for Mn/DOT year 2005.
- Quantity assumptions include:
  - All median removals are concrete walk, unless aerial photography shows trees/shrubs.
  - All pavements are bituminous (4" wear and 4" non-wear course mix), except where the existing pavement is concrete (8" depth assumed for new or replacement pavement).
  - Areas under new pavement contain 3' depth subgrade excavation, 10" depth aggregate base class 5, and 1.5' depth select granular borrow.
  - Each pay item has 5 percent added to the total quantity to account for radii and miscellaneous areas of sway in calculations.

Attachment B includes Table 2, which summarizes the cost estimate for each improvement. Attachment B also includes the concept sketches and their associated detailed cost breakdowns. Attachment C contains the preliminary layout for the TH 77 CD roadway connection to/from the current MOA.

## **COST ALLOCATIONS**

The purpose of the cost allocation analysis is to allocate future public improvement costs related to full build conditions (year 2030) of the Airport South AUAR area to the appropriate existing and future redevelopments/developments. The improvements recommended in the MOA Phase II and BCS Studies are a direct result of the proposed developments included in each project. The land use assumptions in both of these studies include additional adjacent developments (i.e., MAC developments, Metro Transit Park-and-Ride facilities and other Airport South area redevelopments/developments). While the future redevelopments and developments use up the available excess capacity of the existing intersection and roadway system, the existing developments in the area use a percentage of its initial capacity. This initial capacity usage was taken into account when allocating future improvement costs.

The following processes and assumptions were used to conduct the analysis:

### **Existing Traffic Volumes**

- Existing traffic volumes include turning movement counts collected April/May 2005.
- Existing traffic volumes were rerouted to account for the one-way American Boulevard improvement between 30th Avenue and 34th Avenue.
- Existing properties that are to be redeveloped by year 2030 were also subtracted from the base traffic volumes.
- Special consideration was given to properties that are currently not producing the amount of trips generated using the ITE Trip Generation handbook.

### **Future Volumes**

- An operations and trip distribution software package (Traffix for Windows) was used to determine the trip allocation percentages by intersection. The Traffix model results provide a detailed breakdown of percent trips at a given intersection based on the trip source (existing trips at an intersection or a particular developments trips passing through the same intersection).
- The base volumes developed were entered into the Traffix model as existing volumes.
- Traffix was used to distribute the trips from future developments/redevelopments. The output includes both the number and percent trips from each future development/redevelopment to each individual intersection.

### **Cost Allocation**

- Improvement costs are to be allocated based on the percent vehicles from each development/redevelopment using the intersection.
- Existing volumes were associated with specific developments where applicable.
- Existing volumes that could not be associated with an existing development are identified as a City cost.

The total improvement costs were allocated for two scenarios, Thursday (weekday) and Saturday (weekend). As a result of the cost allocation analysis, the following breakdowns are provided:

Existing

- City of Bloomington
- MOA
- IKEA
- Health Partners
- MAC

Future

- Proposed MOA II
- Proposed Bloomington Central Station (BCS)
- Proposed AUAR Redevelopments/Developments
- Proposed MAC Terminal Expansion
- Proposed Park-and-Ride Expansion

The following table presents a summary of the costs allocated to each development/redevelopment:

Development	Scenario	
	Weekday (Thursday)	Weekend (Saturday)
<b>Existing</b>		
City of Bloomington	\$20,429,651	\$22,327,527
MOA	\$7,064,048	\$10,666,826
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<b>Total:</b>	<b>\$170,439,471</b>	<b>\$170,439,471</b>

Attachment D includes detailed matrices, which display the percent breakdown by existing and future trip percentages, as well as the related costs for each improvement. The first matrix presented is representative of all existing and future developments for the overall Airport South study area. The second matrix displays the existing trip allocations broken down by City responsibilities and existing developments, as well as the future developments grouped by project.

## **SUPPLEMENTAL OPERATIONS ANALYSIS**

### **East Old Shakopee Road**

In the MOA Phase II Study, the extension of 86th Street to 28th Avenue is assumed for future conditions. As requested, an additional operations analysis has been completed to determine the traffic impacts if this extension is not constructed. Based on our analysis results, it was identified that the absence of this improvement will have a direct impact on the intersections of Killebrew Drive/24th Avenue/East Old Shakopee Road and East Old Shakopee Road/28th Avenue. This analysis will determine if any additional improvements are needed, or if any previously recommended improvements (from the BCS Study) are no longer needed.

The year 2030 weekday p.m. peak hour traffic model (developed during MOA Phase II Study) was used for this analysis. At this time, a year 2030 weekday a.m. peak hour analysis had not been completed. However, preliminary review of the a.m. peak hour volumes was taken into account when determining the following recommendations:

#### East Old Shakopee Road from 24th Avenue to 30th Avenue

- Extend the third eastbound through lane from the existing lane drop just east of the Killebrew Drive/24th Avenue/East Old Shakopee Road intersection to 30th Avenue
- Construct a third westbound through lane from 30th Avenue to 28th Avenue

#### Killebrew Drive/24th Avenue/East Old Shakopee Road

- Eliminate the northbound free right-turn lane
- Convert the right-most through lane into a right-turn lane (dual rights)

#### East Old Shakopee Road/28th Avenue

- Eliminate the recommended improvements listed in BCS Study:
  - One southbound through lane
  - One northbound through lane
  - One northbound right-turn lane

### **34th Avenue Interchange**

In the MOA Phase II Study, the 34th Avenue/I-494 interchange needs to be reconstructed under the year 2012 no build (Thursday) condition. As requested, an additional operations analysis has been completed to determine whether the recommended interchange design would change if LRT operations were modified to northbound/southbound green phase or priority operations. The year 2030 weekday p.m. peak hour traffic model (developed during MOA Phase II Study) was used for this analysis. At this time, a year 2030 weekday a.m. peak hour analysis has not been completed. However, preliminary review of the a.m. peak hour volumes was taken into account when completing this analysis:

#### Existing Diamond with “All-Red” LRT Operations

- Turn lane improvements
  - SB dual rights at the North Ramp
  - EB and NB dual rights at the South Ramp
- Results
  - North Ramp – Delay = 285 seconds/vehicle LOS F
  - South Ramp – Delay = 80 seconds/vehicle LOS F (traffic spills back from this intersection into adjacent intersections to the south. Delay may actually be worse)

#### Existing Diamond with “NB/SB Green Phase” LRT Operations

- Turn lane improvements
  - SB dual rights at the North Ramp
  - EB and NB dual rights at the South Ramp
- Results
  - North Ramp – Delay = 90 seconds/vehicle LOS F
  - South Ramp – Delay = 80 seconds/vehicle LOS F (traffic spills back from this intersection into adjacent intersections to the south. Delay may actually be worse, but not as bad as the previous scenario)

#### Existing Diamond with “Priority” LRT Operations

- Turn lane improvements
  - SB dual rights at the North Ramp
  - EB and NB dual rights at the South Ramp
- Results
  - North Ramp – Delay = 90 seconds/vehicle LOS F
  - South Ramp – Delay = 80 seconds/vehicle LOS F (traffic does **NOT** spill back from this intersection into adjacent intersections to the south.)

The results of this analysis indicate that there is a capacity problem at the south ramp for all three scenarios. The additional analysis was completed assuming a loop in the southwest quadrant of the interchange:

#### Existing Diamond with Southwest Loop and “All-Red” LRT Operations

- Turn lane improvements
  - SB dual rights at the North Ramp
  - EB and NB dual rights at the South Ramp

- Results
  - North Ramp – Delay = 120 seconds/vehicle LOS F
  - South Ramp – Delay = 30 seconds/vehicle LOS C

Existing Diamond with Southwest Loop and “NB/SB Green Phase” LRT Operations

- Turn lane improvements
  - SB dual rights at the North Ramp
  - EB and NB dual rights at the South Ramp
- Results
  - North Ramp – Delay = 55 seconds/vehicle LOS D/E
  - South Ramp – Delay = 15 seconds/vehicle LOS B

Existing Diamond with Southwest Loop and “Priority” LRT Operations

- Turn lane improvements
  - SB dual rights at the North Ramp
  - EB and NB dual rights at the South Ramp
- Results
  - North Ramp – Delay = 50 seconds/vehicle LOS D
  - South Ramp – Delay = 15 seconds/vehicle LOS B

Assuming “all-red” LRT signal timing, the addition of the loop in the southwest quadrant of the interchange improves the level of service at the south ramp from LOS F to LOS C, however operational problems will still develop at the north intersection. By eliminating the “all-red” LRT signal timing, levels of service at the north ramp will improve from LOS F to LOS D/E.

The results of this analysis indicate that the north and south ramp at the I-494/34th Avenue interchange will operate at acceptable levels of service during the weekday p.m. peak hour assuming the following:

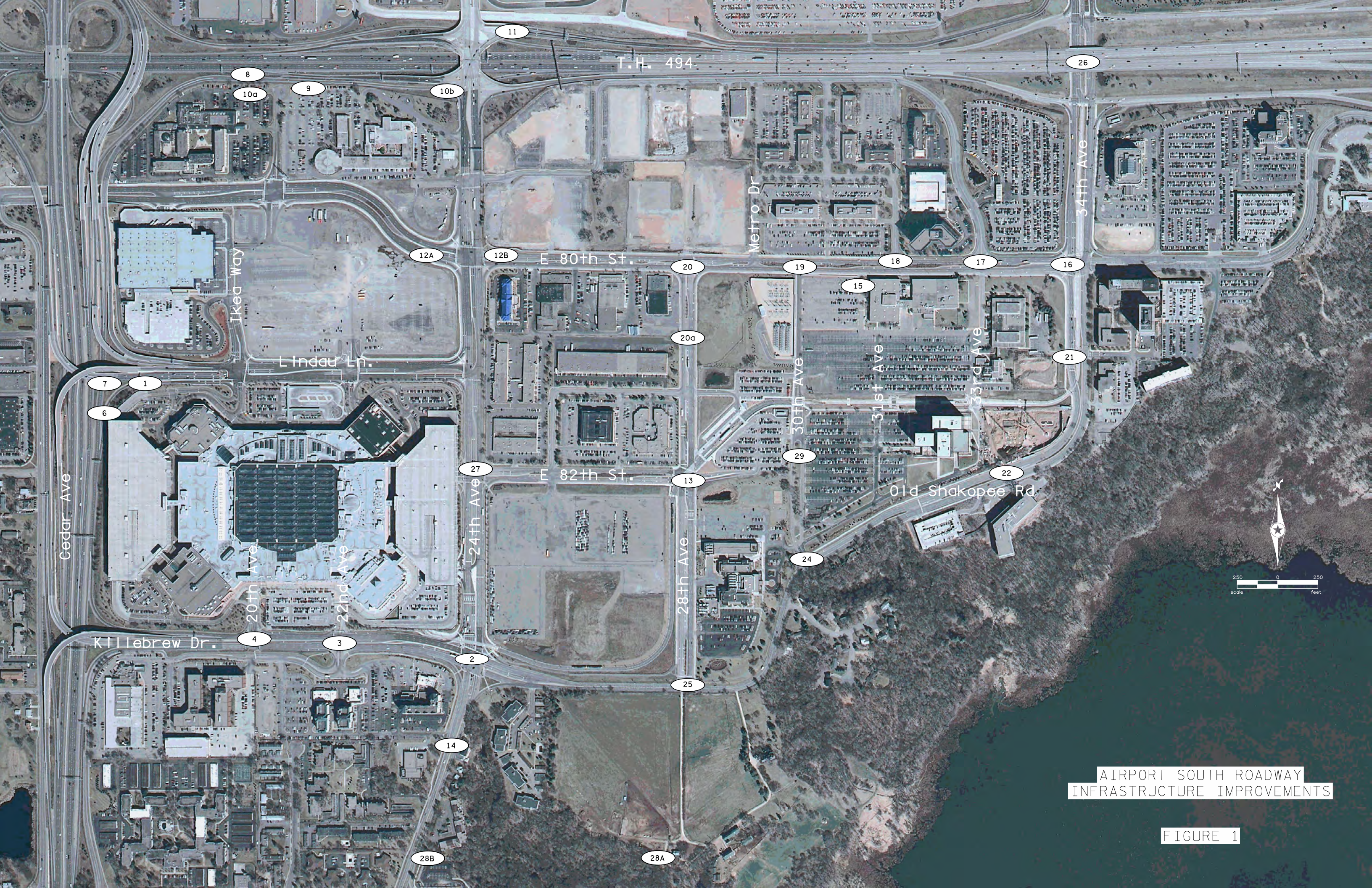
- Construction of a loop in the southwest quadrant of the interchange
- Replace the “All-Red” LRT signal timing with “NB/SB Green or Priority” LRT signal operations
- Turn lane improvements
  - SB dual rights at the North Ramp
  - EB and NB dual rights at the South Ramp

It is important to note that at the time of this analysis, a weekday a.m. peak hour traffic model has yet to be completed. Based on our review of the estimated volume and knowledge of the intersection in previous studies, it is expected that the north ramp will not operate at acceptable levels of service without a loop in the northwest quadrant of the interchange.

# Attachment A

1/25/2007





AIRPORT SOUTH ROADWAY  
INFRASTRUCTURE IMPROVEMENTS

FIGURE 1

**Airport South Roadway Infrastructure Improvements  
Based on City of Bloomington Staff Review**

**Table 1**

Hi-Mu Improvement	Location	Improvement
1	Northbound TH 77 to Eastbound Lindau Lane	Eliminate northbound TH 77 exit to eastbound Lindau Lane (Estimate included in improvement 6 & 7 cost estimate)
5	Lindau Lane/TH 77 Ramps/KEA Way	Removal of concrete median on the west approach Extend the southbound right-turn lane (350 feet) - (Estimate included in Lowering Lindau Lane cost estimate)
6 & 7	TH 77 CD Roadway	Construct a new access from northbound TH 77 into current MOA parking lot Construct a new access from current MOA parking lot to the northbound TH 77 CD roadway
8	TH 77/I-494 CD Roadway	Construct a new access from northbound TH 77/eastbound I-494 CD roadway to Thunderbird Road (Year 2012 interim)
10A	TH 77/I-494 CD Roadway	Construct a new access from northbound TH 77/eastbound I-494 CD roadway to Thunderbird Road
10C	Thunderbird Road Roundabout	Construct a new roundabout from Thunderbird road to ramp off of TH 77
9	TH 77/I-494 CD Roadway	Construct a new access from Thunderbird Road to the eastbound I-494 CD roadway (Year 2012 interim)
10B	TH 77/I-494 CD Roadway	Construct a new access from Thunderbird Road to the eastbound I-494 CD roadway (permanent) Construct a new CD roadway from Thunderbird Road under 24th Avenue to east of 34th Avenue
2	Killebrew Drive and 24th Avenue	Extend the eastbound left-turn lanes (400 feet) Extend the westbound left-turn lane (500 feet) Extend the third westbound through lane back to the intersection of Old Shakopee Road/28th Avenue
3	Killebrew Drive and 22nd Avenue (City has provided layout)	Construct an additional eastbound left-turn lane (dual lefts) North approach may need to be modified to accommodate a hotel development in the future
4	Killebrew Drive and 20th Avenue (City has provided layout)	Construct an additional eastbound left-turn lane (dual lefts)
11	I-494/24th Avenue Single-Point Interchange	Construct an additional westbound left-turn lane (triple lefts)
12A	American Boulevard/24th Avenue	Construct an additional southbound right-turn lane (dual rights). Extend both turn lanes to the I-494 single-point interchange Extend the eastbound left-turn lanes (500 feet)
12B	American Boulevard/24th Avenue	Extend the southbound outside left-turn lane (500 feet) Extend the westbound left-turn lanes (500 feet) Construct an additional westbound right-turn lane (triple rights). The westbound approach should have four lanes that begin at 28th Avenue Construct an additional eastbound right-turn lane (dual rights)
27	24th Avenue/82nd Street	Convert the right-turn/through lane into a trap right-turn lane (dual southbound rights)
16	American Boulevard/34th Avenue	Eliminate the southbound free right-turn lane Construct southbound dual right-turn lanes that extend from the I-494 South Ramps Eliminate the westbound free right-turn lane Construct westbound dual right-turn lanes
15	American Boulevard	Convert to a westbound one-way (three through lanes) roadway between 30th Avenue and 34th Avenue (Included in Airport South CIP)
17	American Boulevard/International Drive/33rd Avenue	Modify the westbound approach to provide a left-turn lane, two through lanes and a right-turn lane (this is with the one-way conversion) Modify the southbound approach to a right-turn only (free movement) (this is with the one-way conversion)
21	34th Avenue	Construct southbound right-in only into Northeast housing
26	I-494/34th Avenue Interchange	Reconstruction of interchange with LRT operations (folded diamond to west)
	I-494/34th Avenue Interchange	Reconstruction of interchange without LRT operations (to be determined) (pre-empt vs. priority)
18	American Boulevard/Metro Drive East	Construct a westbound left-turn lane (200 feet)
19	American Boulevard/30th Avenue	Install signal Convert the eastbound through lanes into dual right-turn lanes Modify the westbound approach to provide dual left-turn lanes and two through lanes. The inside through lane will become the outside left-turn lane Modify the northbound approach to provide dual left-turn lanes
20	American Boulevard/28th Avenue	Construct an eastbound right-turn lane (250 feet) Restripe the northbound inside through lane to a left-turn lane Extend the northbound left-turn lane to 200 feet Construct a southbound left-turn lane Replace north/south split phasing with protected left-turn phasing
13	28th Avenue/82nd Street	Construct an additional westbound left-turn lane (250 feet) (dual lefts) Restripe the eastbound through lane as a second left-turn lane Restripe the eastbound right-turn lane as a through/right-turn lane
22	Old Shakopee Road/33rd Avenue	Install signal Extend westbound right-turn lane to 300'
23	Old Shakopee Road/31st Avenue (to be consistent with BCS plans)	Construct an eastbound left-turn lane (350 feet) The southbound approach will provide a shared left-turn/through lane and a right-turn lane
24	Old Shakopee Road/30th Avenue (to be consistent with BCS plans)	Install signal Construct dual eastbound left-turn lanes The southbound approach will provide dual left-turn lanes and dual right-turn lanes. The inside left-turn lane is 100 feet with a second full-length left-turn lane
25	Old Shakopee Road/28th Avenue	Install signal The new northbound approach will provide dual left-turn lanes, two through lanes and dual right-turn lanes Construct southbound dual left-turn lanes (250 feet) Construct an additional southbound right-turn lane (400 feet) (dual rights) Construct dual eastbound left-turn lanes (300 feet) Construct an eastbound right-turn lane (300 feet) Construct a westbound right-turn lane (300 feet) Construct an additional westbound left-turn lane (300 feet) (dual lefts)
--	Old Shakopee Road, 24th Avenue to 30th Avenue (along the original section)	Reconstruct with two through lanes in each direction and a median with left- and right-turn lanes (this improvement is included in improvement #'s 24 & 25)
14	Old Shakopee Road, Cedar Avenue to Killebrew Drive (south of Killebrew Drive)	Reconstruct with three through lanes in each direction and a median with left turn lanes * (86th Street to Cedar Avenue was included in the Airport South CIP)
28A	86th Street extension to EOSR to 28th Avenue (new connection across Kelley Farm)	Construct two lanes in each direction with a median and left- and right-turn lanes
28B	86th Street/Old Shakopee Road	Modify the westbound approach to provide dual left-turn lanes, two through lanes and a right-turn lane
29	30th Avenue	Reconstruct roadway to provide two through lanes in each direction and a median with left-turn lanes (Included in Airport South CIP)
20A	28th Ave	Construct a southbound lane between American Boulevard and 82nd Street
--	ITS Improvements	Possibly electronic detection (Autoscope or similar technology) and dynamic signing
30	Wayfinding Signs	Mall of America Area - Phase II New Signing Only
31	Lowering Lindau Lane	Costs provided by others
<b>Improvements Total:</b>		

# **Attachment B**

1/25/2007

**Airport South Roadway Infrastructure Improvements  
Based on City of Bloomington Staff Review**

SRF No. 0065622

**Table 2**

Hi-Mu Improvement	Location	Improvement	Total
1	Northbound TH 77 to Eastbound Lindau Lane	Eliminate northbound TH 77 exit to eastbound Lindau Lane (Estimate included in improvement 6 & 7 cost estimate)	see #'s 6 & 7
5	Lindau Lane/TH 77 Ramps/IKEA Way	Removal of concrete median on the west approach Extend the southbound right-turn lane (350 feet) - (Estimate included in Lowering Lindau Lane cost estimate)	see #31
6 & 7	TH 77 CD Roadway	Construct a new access from northbound TH 77 into current MOA parking lot Construct a new access from current MOA parking lot to the northbound TH 77 CD roadway	\$3,779,513
8	TH 77/I-494 CD Roadway	Construct a new access from northbound TH 77/eastbound I-494 CD roadway to Thunderbird Road (Year 2012 interim)	\$512,549
10A	TH 77/I-494 CD Roadway	Construct a new access from northbound TH 77/eastbound I-494 CD roadway to Thunderbird Road (includes roundabout cost)	\$1,258,795
10C	Thunderbird Road Roundabout	Construct a new roundabout from Thunderbird road to ramp off of TH 77	\$1,178,231
9	TH 77/I-494 CD Roadway	Construct a new access from Thunderbird Road to the eastbound I-494 CD roadway (Year 2012 interim)	\$759,845
10B	TH 77/I-494 CD Roadway	Construct a new access from Thunderbird Road to the eastbound I-494 CD roadway (permanent) Construct a new CD roadway from Thunderbird Road under 24th Avenue to east of 34th Avenue	\$16,352,940
2	Killebrew Drive and 24th Avenue	Extend the eastbound left-turn lanes (400 feet) Extend the westbound left-turn lane (500 feet) Extend the third westbound through lane back to the intersection of Old Shakopee Road/28th Avenue	\$881,104
3	Killebrew Drive and 22nd Avenue (City has provided layout)	Construct an additional eastbound left-turn lane (dual lefts) North approach may need to be modified to accommodate a hotel development in the future	\$848,078
4	Killebrew Drive and 20th Avenue (City has provided layout)	Construct an additional eastbound left-turn lane (dual lefts)	\$1,860,924
11	I-494/24th Avenue Single-Point Interchange	Construct an additional westbound left-turn lane (triple lefts)	\$646,121
12A	American Boulevard/24th Avenue	Construct an additional southbound right-turn lane (dual rights). Extend both turn lanes to the I-494 single-point interchange Extend the eastbound left-turn lanes (500 feet)	\$1,524,296
12B	American Boulevard/24th Avenue	Extend the southbound outside left-turn lane (500 feet) Extend the westbound left-turn lanes (500 feet) Construct an additional westbound right-turn lane (triple rights). The westbound approach should have four lanes that begin at 28th Avenue Construct an additional eastbound right-turn lane (dual rights)	\$4,076,987
27	24th Avenue/82nd Street	Convert the right-turn/through lane into a trap right-turn lane (dual southbound rights)	\$96,009
16	American Boulevard/34th Avenue	Eliminate the southbound free right-turn lane Construct southbound dual right-turn lanes that extend from the I-494 South Ramps Eliminate the westbound free right-turn lane Construct westbound dual right-turn lanes	\$2,252,575
15	American Boulevard	Convert to a westbound one-way (three through lanes) roadway between 30th Avenue and 34th Avenue (Included in Airport South CIP)	\$474,094
17	American Boulevard/International Drive/33rd Avenue	Modify the westbound approach to provide a left-turn lane, two through lanes and a right-turn lane (this is with the one-way conversion) Modify the southbound approach to a right-turn only (free movement) (this is with the one-way conversion)	\$170,138
21	34th Avenue	Construct southbound right-in only into Northeast housing	\$394,051
26	I-494/34th Avenue Interchange	Reconstruction of interchange with LRT operations (folded diamond to west)	\$59,652,091
	I-494/34th Avenue Interchange	Reconstruction of interchange without LRT operations (to be determined) (pre-empt vs. priority)	
18	American Boulevard/Metro Drive East	Construct a westbound left-turn lane (200 feet)	\$234,356
19	American Boulevard/30th Avenue	Install signal Convert the eastbound through lanes into dual right-turn lanes Modify the westbound approach to provide dual left-turn lanes and two through lanes. The inside through lane will become the outside left-turn lane Modify the northbound approach to provide dual left-turn lanes	\$617,779
20	American Boulevard/28th Avenue	Construct an eastbound right-turn lane (250 feet) Restripe the northbound inside through lane to a left-turn lane Extend the northbound left-turn lane to 200 feet Construct a southbound left-turn lane Replace north/south split phasing with protected left-turn phasing	\$690,816
13	28th Avenue/82nd Street	Construct an additional westbound left-turn lane (250 feet) (dual lefts) Restripe the eastbound through lane as a second left-turn lane Restripe the eastbound right-turn lane as a through/right-turn lane	\$2,207,017
22	Old Shakopee Road/33rd Avenue	Install signal Extend westbound right-turn lane to 300'	\$300,300
23	Old Shakopee Road/31st Avenue (to be consistent with BCS plans)	Construct an eastbound left-turn lane (350 feet) The southbound approach will provide a shared left-turn/through lane and a right-turn lane	under construction w/ BCS
24	Old Shakopee Road/30th Avenue (to be consistent with BCS plans)	Install signal Construct dual eastbound left-turn lanes The southbound approach will provide dual left-turn lanes and dual right-turn lanes. The inside left-turn lane is 100 feet with a second full-length left-turn lane	\$2,433,499
25	Old Shakopee Road/28th Avenue	Install signal The new northbound approach will provide dual left-turn lanes, two through lanes and dual right-turn lanes Construct southbound dual left-turn lanes (250 feet) Construct an additional southbound right-turn lane (400 feet) (dual rights) Construct dual eastbound left-turn lanes (300 feet) Construct an eastbound right-turn lane (300 feet) Construct a westbound right-turn lane (300 feet) Construct an additional westbound left-turn lane (300 feet) (dual lefts)	\$7,768,665
--	Old Shakopee Road, 24th Avenue to 30th Avenue (along the original section)	Reconstruct with two through lanes in each direction and a median with left- and right-turn lanes (this improvement is included in improvement #'s 24 & 25)	see #'s 24 & 25
14	Old Shakopee Road, Cedar Avenue to Killebrew Drive (south of Killebrew Drive)	Reconstruct with three through lanes in each direction and a median with left turn lanes * (86th Street to Cedar Avenue was included in the Airport South CIP)	\$10,295,604
28A	86th Street extension to EOSR to 28th Avenue (new connection across Kelley Farm)	Construct two lanes in each direction with a median and left- and right-turn lanes	\$28,261,141
28B	86th Street/Old Shakopee Road	Modify the westbound approach to provide dual left-turn lanes, two through lanes and a right-turn lane	\$1,608,896
29	30th Avenue	Reconstruct roadway to provide two through lanes in each direction and a median with left-turn lanes (Included in Airport South CIP)	\$1,677,315
20A	28th Ave	Construct a southbound lane between American Boulevard and 82nd Street	\$1,676,140
--	ITS Improvements	Possibly electronic detection (Autoscope or similar technology) and dynamic signing	\$2,500,000
30	Wayfinding Signs	Mall of America Area - Phase II New Signing Only	\$549,600
31	Lowering Lindau Lane	Costs provided by others	\$12,900,000
<b>Improvements Total:</b>			<b>\$170,439,471</b>

## Improvement 2

1. Turn lane improvements at Killebrew Drive / 24th Avenue

(Extend the eastbound left-turn lanes to 400 feet)

(Extend the westbound left-turn lanes to 500 feet)

(Extend the third westbound through lane back to the intersection of Old Shakopee Road/28th Ave)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$25,000.00	1	\$25,000.00
Remove Curb & Gutter	LIN FT	\$5.00	780	\$3,900.00
Mill Pavement	SQ YD	\$3.00	12570	\$37,710.00
Wearing Course Mix	TON	\$50.00	1840	\$92,000.00
Non-Wearing Course Mix	TON	\$45.00	240	\$10,800.00
Subgrade Excavation	CU YD	\$12.00	980	\$11,760.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	280	\$5,040.00
Select Granular Borrow (CV)	CU YD	\$10.00	490	\$4,900.00
Curb & Gutter	LIN FT	\$10.00	720	\$7,200.00
Drainage	LUMP SUM	\$140,000.00	1	\$140,000.00
Traffic Control	LUMP SUM	\$15,000.00	1	\$15,000.00
Turf Establishment	LUMP SUM	\$4,000.00	1	\$4,000.00
Signal Modification	LUMP SUM	\$150,000.00	1	\$150,000.00
Street Lighting Modification	LUMP SUM	\$50,000.00	1	\$50,000.00
Signing & Striping	LUMP SUM	\$7,500.00	1	\$7,500.00
<b>Subtotal</b>				<b>\$564,810.00</b>
Contingency & Minor Items (assume 20%)				\$112,962.00
<b>Total Construction Cost</b>				<b>\$677,772.00</b>
Project Delivery (assume 30% construction cost)				\$203,331.60
<b>Total Improvement Cost</b>				<b>\$881,103.60</b>

## Improvement 3

1. Turn lane improvements at Killebrew Drive / 22nd Avenue

(Quantities are based on the Killebrew layout that was provided by the City)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$23,000.00	1	\$23,000.00
Remove Curb & Gutter	LIN FT	\$5.00	1740	\$8,700.00
Remove Concrete Walk	SQ FT	\$1.00	2910	\$2,910.00
Remove Pavement	SQ YD	\$2.00	630	\$1,260.00
Mill Pavement	SQ YD	\$3.00	6160	\$18,480.00
Subgrade Excavation	CU YD	\$12.00	1120	\$13,440.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	320	\$5,760.00
Select Granular Borrow (CV)	CU YD	\$10.00	560	\$5,600.00
Wearing Course Mix	TON	\$50.00	1060	\$53,000.00
Non-Wearing Course Mix	TON	\$45.00	270	\$12,150.00
Curb & Gutter	LIN FT	\$10.00	1580	\$15,800.00
Concrete Walk	SQ FT	\$2.50	1680	\$4,200.00
Truncated Dome	SQ FT	\$60.00	64	\$3,840.00
Drainage	LUMP SUM	\$135,000.00	1	\$135,000.00
Traffic Control	LUMP SUM	\$13,500.00	1	\$13,500.00
Turf Establishment	LUMP SUM	\$4,000.00	1	\$4,000.00
Signal Modification	LUMP SUM	\$195,000.00	1	\$195,000.00
Street Lighting Modification	LUMP SUM	\$20,000.00	1	\$20,000.00
Signing & Striping	LUMP SUM	\$8,000.00	1	\$8,000.00
<b>Subtotal</b>				<b>\$543,640.00</b>
Contingency & Minor Items (assume 20%)				\$108,728.00
<b>Total Construction Cost</b>				<b>\$652,368.00</b>
Project Delivery (assume 30% construction cost)				\$195,710.40
<b>Total Improvement Cost</b>				<b>\$848,078.40</b>

### Improvement 4

1. Turn lane, striping, and signal phasing improvements at Killebrew Drive / 20th Avenue

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$50,000.00	1	\$50,000.00
Remove Curb & Gutter	LIN FT	\$5.00	1180	\$5,900.00
Remove Curb & Gutter (Frontage Road)	LIN FT	\$5.00	1050	\$5,250.00
Mill Pavement	SQ YD	\$3.00	2720	\$8,160.00
Subgrade Excavation	CU YD	\$12.00	1540	\$18,480.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	430	\$7,740.00
Select Granular Borrow (CV)	CU YD	\$10.00	770	\$7,700.00
Wearing Course Mix	TON	\$50.00	740	\$37,000.00
Non-Wearing Course Mix	TON	\$45.00	370	\$16,650.00
Curb & Gutter	LIN FT	\$10.00	1560	\$15,600.00
Truncated Dome	SQ FT	\$60.00	32	\$1,920.00
Drainage	LUMP SUM	\$295,000.00	1	\$295,000.00
Traffic Signal Phasing	EACH	\$10,000.00	1	\$10,000.00
Traffic Control	LUMP SUM	\$30,000.00	1	\$30,000.00
Signal Modification	LUMP SUM	\$125,000.00	1	\$125,000.00
Street Lighting Modification	LUMP SUM	\$38,500.00	1	\$38,500.00
Frontage Road	LIN FT	\$150.00	1200	\$180,000.00
Sanitary Sewer Casing	LIN FT	\$300.00	1100	\$330,000.00
Turf Establishment	LUMP SUM	\$4,000.00	1	\$4,000.00
Signing & Striping	LUMP SUM	\$6,000.00	1	\$6,000.00
<b>Subtotal</b>				<b>\$1,192,900.00</b>
Contingency & Minor Items (assume 20%)				\$238,580.00
<b>Total Construction Cost</b>				<b>\$1,431,480.00</b>
Project Delivery (assume 30% construction cost)				\$429,444.00
<b>Total Improvement Cost</b>				<b>\$1,860,924.00</b>

### Improvements 1, 6, & 7

1. Eliminate northbound TH 77 exit to eastbound Lindau Lane
2. New access from northbound TH 77 CD roadway to current MOA
3. New access from existing MOA parking ramp to the northbound TH77 CD roadway

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$100,000.00	1	\$100,000.00
Clearing & Grubbing	ACRE	\$6,000.00	1	\$6,000.00
Remove Curb & Gutter	LIN FT	\$5.00	5100	\$25,500.00
Remove Concrete Walk	SQ FT	\$1.00	4780	\$4,780.00
Remove Pavement	SQ YD	\$2.00	12750	\$25,500.00
Remove Retaining Wall	LIN FT	\$8.00	690	\$5,520.00
Concrete Walk	SQ FT	\$2.50	11890	\$29,725.00
Curb & Gutter	LIN FT	\$10.00	6350	\$63,500.00
8" Concrete Pavement	SQ YD	\$4.00	3680	\$14,720.00
Structural Concrete	CU YD	\$63.00	820	\$51,660.00
Wearing Course Mix	TON	\$50.00	1320	\$66,000.00
Non-Wearing Course Mix	TON	\$45.00	1320	\$59,400.00
Common Excavation	CU YD	\$12.00	10980	\$131,760.00
Subgrade Excavation	CU YD	\$12.00	10250	\$123,000.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	2850	\$51,300.00
Select Granular Borrow	CU YD	\$10.00	5130	\$51,300.00
Bridge - Pre-Cast Concrete	SQ FT	\$120.00	5000	\$600,000.00
CIP Retaining Wall	SQ FT	\$40.00	4800	\$192,000.00
Modular Block Retaining Wall	SQ FT	\$20.00	1630	\$32,600.00
Drainage	LUMP SUM	\$600,000.00	1	\$600,000.00
Traffic Control	LUMP SUM	\$60,000.00	1	\$60,000.00
Street Lighting Modification	LUMP SUM	\$73,500.00	1	\$73,500.00
Turf Establishment	LUMP SUM	\$25,000.00	1	\$25,000.00
Signing & Striping	LUMP SUM	\$30,000.00	1	\$30,000.00
<b>Subtotal</b>				<b>\$2,422,765.00</b>
Contingency & Minor Items (assume 20%)				\$484,553.00
<b>Total Construction Cost</b>				<b>\$2,907,318.00</b>
Project Delivery (assume 30% construction cost)				\$872,195.40
<b>Total Improvement Cost</b>				<b>\$3,779,513.40</b>

### Improvement 8

1. New access from to northbound TH 77 to eastbound I-494 CD roadway to Thunderbird Road (interim)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$7,000.00	1	\$7,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.1	\$600.00
Remove Curb & Gutter	LIN FT	\$5.00	940	\$4,700.00
Remove Pavement	SQ YD	\$2.00	1750	\$3,500.00
Concrete Walk	SQ FT	\$2.50	1130	\$2,825.00
Curb & Gutter	LIN FT	\$10.00	960	\$9,600.00
Wearing Course Mix	TON	\$50.00	180	\$9,000.00
Non-Wearing Course Mix	TON	\$45.00	180	\$8,100.00
Common Excavation	CU YD	\$12.00	1440	\$17,280.00
Subgrade Excavation	CU YD	\$12.00	1080	\$12,960.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	300	\$5,400.00
Select Granular Borrow (CV)	CU YD	\$10.00	540	\$5,400.00
CD Roadway Lighting	LUMP SUM	\$26,500.00	1	\$26,500.00
Drainage	LUMP SUM	\$42,500.00	1	\$42,500.00
Erosion Control	LUMP SUM	\$4,000.00	1	\$4,000.00
Traffic Control	LUMP SUM	\$5,000.00	1	\$5,000.00
Turf Establishment	LUMP SUM	\$2,500.00	1	\$2,500.00
Signing & Striping	LUMP SUM	\$4,000.00	1	\$4,000.00
Subtotal				\$170,865.00
Contingency & Minor Items (assume 20%)				\$34,173.00
Total Construction Cost				\$205,038.00
Project Delivery (assume 30% construction cost)				\$61,511.40
Right of Way Cost	SQ FT	\$40.00	6150	\$246,000.00
<b>Total Improvement Cost</b>				<b>\$512,549.40</b>

### Improvement 9

1. New access from Thunderbird Road to northbound TH 77 to eastbound I-494 CD roadway (interim)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$9,500.00	1	\$9,500.00
Remove Curb & Gutter	LIN FT	\$5.00	1380	\$6,900.00
Remove Pavement	SQ YD	\$2.00	3500	\$7,000.00
Concrete Walk	SQ FT	\$2.50	4310	\$10,775.00
Curb & Gutter	LIN FT	\$10.00	1790	\$17,900.00
Wearing Course Mix	TON	\$50.00	370	\$18,500.00
Non-Wearing Course Mix	TON	\$45.00	370	\$16,650.00
Common Excavation	CU YD	\$12.00	500	\$6,000.00
Subgrade Excavation	CU YD	\$12.00	2540	\$30,480.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	710	\$12,780.00
Select Granular Borrow (CV)	CU YD	\$10.00	1280	\$12,800.00
CD Roadway Lighting	LUMP SUM	\$10,000.00	1	\$10,000.00
Drainage	LUMP SUM	\$60,000.00	1	\$60,000.00
Erosion Control	LUMP SUM	\$2,500.00	1	\$2,500.00
Traffic Control	LUMP SUM	\$6,000.00	1	\$6,000.00
Turf Establishment	LUMP SUM	\$2,500.00	1	\$2,500.00
Signing & Striping	LUMP SUM	\$5,000.00	1	\$5,000.00
Subtotal				\$235,285.00
Contingency & Minor Items (assume 20%)				\$47,057.00
Total Construction Cost				\$282,342.00
Project Delivery (assume 30% construction cost)				\$84,702.60
Right of Way Cost	SQ FT	\$40.00	9820	\$392,800.00
<b>Total Improvement Cost</b>				<b>\$759,844.60</b>

### Improvement 10A

1. New access from northbound TH77 to eastbound I-494 CD roadway to Thunderbird Road  
(Construct new ramp from northbound TH77 to eastbound I-494 CD roadway to Thunderbird Road)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$10,000.00	1	\$10,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.5	\$3,000.00
Remove Curb & Gutter	LIN FT	\$5.00	900	\$4,500.00
Remove Pavement	SQ YD	\$2.00	3090	\$6,180.00
Concrete Walk	SQ FT	\$2.50	12390	\$30,975.00
Curb & Gutter	LIN FT	\$10.00	3180	\$31,800.00
8" Concrete Pavement (Ramp)	SQ YD	\$4.00	1410	\$5,640.00
Structural Concrete	CU YD	\$63.00	310	\$19,530.00
Subgrade Excavation	CU YD	\$12.00	2290	\$27,480.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	640	\$11,520.00
Select Granular Borrow	CU YD	\$10.00	1150	\$11,500.00
Street Lighting Modification	LUMP SUM	\$28,000.00	1	\$28,000.00
Traffic Control	LUMP SUM	\$9,000.00	1	\$9,000.00
Turf Establishment	LUMP SUM	\$6,000.00	1	\$6,000.00
Drainage	LUMP SUM	\$70,000.00	1	\$70,000.00
<b>Subtotal</b>				<b>\$275,125.00</b>
Contingency & Minor Items (assume 20%)				\$55,025.00
<b>Total Construction Cost</b>				<b>\$330,150.00</b>
Project Delivery (assume 30% construction cost)				\$99,045.00
Right of Way Cost <sup>1</sup>	SQ FT	\$40.00	20740	\$829,600.00
<b>Total Improvement Cost</b>				<b>\$1,258,795.00</b>

1. Right of Way quantity does not include area of proposed Mn/DOT roadway for TH77. Assumed that roadway was completed.

### Improvement 10B

1. New access from Thunderbird Road to northbound TH 77 to eastbound I-494 CD roadway (permanent)  
(Construct a new ramp from Thunderbird Road to the northbound TH77 to the eastbound I-494 roadway)  
2. Construction of a new CD roadway under 24th Avenue to east of 34th Avenue

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$360,000.00	1	\$360,000.00
Clearing & Grubbing	ACRE	\$6,000.00	1.8	\$10,800.00
Remove Curb & Gutter	LIN FT	\$5.00	1590	\$7,950.00
Remove Pavement	SQ YD	\$2.00	8060	\$16,120.00
Concrete Walk	SQ FT	\$2.50	4330	\$10,825.00
Curb & Gutter	LIN FT	\$10.00	6700	\$67,000.00
8" Concrete Pavement (Ramp)	SQ YD	\$4.00	4790	\$19,160.00
Structural Concrete	CU YD	\$63.00	1060	\$66,780.00
Common Excavation	CU YD	\$12.00	42180	\$506,160.00
Subgrade Excavation	CU YD	\$12.00	8070	\$96,840.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	2240	\$40,320.00
Select Granular Borrow (CV)	CU YD	\$10.00	4040	\$40,400.00
Wearing Course Mix	TON	\$50.00	500	\$25,000.00
Non-Wearing Course Mix	TON	\$45.00	500	\$22,500.00
Bridge/Tunnel (Conspan 3-sided Structure)	SQ FT	\$250.00	9000	\$2,250,000.00
Steel Sheet Piling (temporary)	SQ FT	\$20.00	32140	\$642,800.00
Sheet Piling Anchors	EACH	\$2,000.00	80	\$160,000.00
CIP Retaining Wall	SQ FT	\$40.00	28200	\$1,128,000.00
MAC LIGHT SUPPORT BRIDGE OVER I-494 <sup>2</sup>	LUMP SUM	\$500,000.00	1	\$500,000.00
Traffic Barrier	LUMP SUM	\$7,500.00	1	\$7,500.00
CD Tunnel Lighting	LUMP SUM	\$50,000.00	1	\$50,000.00
CD Roadway Lighting	LUMP SUM	\$90,000.00	1	\$90,000.00
Drainage	LUMP SUM	\$2,200,000.00	1	\$2,200,000.00
Erosion Control	LUMP SUM	\$90,000.00	1	\$90,000.00
Staging & Traffic Control	LUMP SUM	\$400,000.00	1	\$400,000.00
Turf Establishment	LUMP SUM	\$60,000.00	1	\$60,000.00
Signing & Striping	LUMP SUM	\$100,000.00	1	\$100,000.00
<b>Subtotal</b>				<b>\$8,968,155.00</b>
Contingency & Minor Items (assume 20%)				\$1,793,631.00
<b>Total Construction Cost</b>				<b>\$10,761,786.00</b>
Project Delivery (assume 31% construction cost) <sup>3</sup>				\$3,336,153.66
Easement	SQ FT	\$20.00	20780	\$415,600.00
Right of Way Cost <sup>2</sup>	SQ FT	\$40.00	45985	\$1,839,400.00
<b>Total Improvement Cost</b>				<b>\$16,352,939.66</b>

1. Additional cost to account for coordinating & permitting with Mn/DOT and FHWA.  
2. Right of Way quantity does not include area of proposed Mn/DOT roadway for TH77. Assumed that roadway was completed.  
3. Subject to FAA & Mn/DOT Aeronautics approval. Price includes bridge and lighting components.



## Improvement 10C

1. Thunderbird Road Roundabout

(Construct a new roundabout from Thunderbird road to ramp off of TH 77)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$8,000.00	1	\$8,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.1	\$600.00
Remove Curb & Gutter	LIN FT	\$5.00	630	\$3,150.00
Remove Pavement	SQ YD	\$2.00	3250	\$6,500.00
Concrete Walk	SQ FT	\$2.50	7660	\$19,150.00
Curb & Gutter	LIN FT	\$10.00	1420	\$14,200.00
Subgrade Excavation	CU YD	\$12.00	2250	\$27,000.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	560	\$10,080.00
Select Granular Borrow	CU YD	\$10.00	1130	\$11,300.00
Wearing Course Mix	TON	\$50.00	510	\$25,500.00
Non-Wearing Course Mix	TON	\$45.00	510	\$22,950.00
Traffic Control	LUMP SUM	\$2,000.00	1	\$2,000.00
Turf Establishment	LUMP SUM	\$1,000.00	1	\$1,000.00
Drainage	LUMP SUM	\$35,000.00	1	\$35,000.00
Subtotal				\$186,430.00
Contingency & Minor Items (assume 20%)				\$37,286.00
Total Construction Cost				\$223,716.00
Project Delivery (assume 30% construction cost)				\$67,114.80
Right of Way Cost	SQ FT	\$40.00	22185	\$887,400.00
<b>Total Improvement Cost</b>				<b>\$1,178,230.80</b>

### Improvement 11

1. Westbound I-494 to the southbound 24th Avenue, triple left-turn lane  
(Construct an additional westbound left-turn lane (triple lefts))

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$18,000.00	1	\$18,000.00
Remove Curb & Gutter	LIN FT	\$5.00	1760	\$8,800.00
Remove Concrete Walk	SQ FT	\$1.00	21740	\$21,740.00
Remove Pavement	SQ YD	\$2.00	560	\$1,120.00
Curb & Gutter	LIN FT	\$10.00	1460	\$14,600.00
Concrete Walk	SQ FT	\$2.50	9020	\$22,550.00
8" Concrete Pavement (Ramp)	SQ YD	\$4.00	1540	\$6,160.00
Structural Concrete	CU YD	\$63.00	350	\$22,050.00
Common Excavation	CU YD	\$12.00	2000	\$24,000.00
Subgrade Excavation	CU YD	\$12.00	1000	\$12,000.00
Aggregate Base Class 5 (CV)	CU YD	\$18.00	600	\$10,800.00
Select Granular Borrow (CV)	CU YD	\$10.00	700	\$7,000.00
Truncated Dome	SQ FT	\$60.00	96	\$5,760.00
Chain Link Fence	LIN FT	\$10.00	460	\$4,600.00
Drainage	LUMP SUM	\$105,000.00	1	\$105,000.00
Signal Modification	LUMP SUM	\$75,000.00	1	\$75,000.00
Street Lighting Modification	LUMP SUM	\$20,000.00	1	\$20,000.00
Erosion Control	LUMP SUM	\$9,000.00	1	\$9,000.00
Traffic Control	LUMP SUM	\$11,000.00	1	\$11,000.00
Turf Establishment	LUMP SUM	\$5,000.00	1	\$5,000.00
Signing & Striping	LUMP SUM	\$10,000.00	1	\$10,000.00
<b>Subtotal</b>				<b>\$414,180.00</b>
Contingency & Minor Items (assume 20%)				\$82,836.00
<b>Total Construction Cost</b>				<b>\$497,016.00</b>
Project Delivery (assume 30% construction cost)				\$149,104.80
<b>Total Improvement Cost</b>				<b>\$646,120.80</b>

### Improvement 12 A

1. Turn lane and signal improvements at American Boulevard/24th Avenue (West of 24th Avenue)  
(Extend the eastbound left-turn lanes to 500 feet)  
(Construct an additional southbound right-turn lane. Extend both turn lanes to the I-494 single-point interchange)  
(Construct an additional eastbound right-turn lane. (Dual Rights))

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$34,000.00	1	\$34,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.3	\$1,800.00
Remove Curb & Gutter	LIN FT	\$5.00	1790	\$8,950.00
Remove Concrete Walk	SQ FT	\$1.00	13860	\$13,860.00
Mill Pavement	SQ YD	\$3.00	8280	\$24,840.00
Remove Pavement	SQ YD	\$2.00	290	\$580.00
Curb & Gutter	LIN FT	\$10.00	2330	\$23,300.00
Concrete Walk	SQ FT	\$2.50	22280	\$55,700.00
Wearing Course Mix	TON	\$50.00	1350	\$67,500.00
Non-Wearing Course Mix	TON	\$45.00	490	\$22,050.00
Common Excavation	CU YD	\$12.00	1800	\$21,600.00
Subgrade Excavation	CU YD	\$12.00	3040	\$36,480.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	1050	\$18,900.00
Select Granular Base (CV)	CU YD	\$10.00	1520	\$15,200.00
Truncated Dome	SQ FT	\$60.00	64	\$3,840.00
Drainage	LUMP SUM	\$205,000.00	1	\$205,000.00
Signal Modification	LUMP SUM	\$140,000.00	1	\$140,000.00
Street Lighting Modification	LUMP SUM	\$63,000.00	1	\$63,000.00
Traffic Control	LUMP SUM	\$20,000.00	1	\$20,000.00
Signing & Striping	LUMP SUM	\$10,000.00	1	\$10,000.00
Turf Establishment	LUMP SUM	\$10,000.00	1	\$10,000.00
Traffic Signal Phasing	EACH	\$5,000.00	1	\$5,000.00
<b>Subtotal</b>				<b>\$801,600.00</b>
Contingency & Minor Items (assume 20%)				\$160,320.00
<b>Total Construction Cost</b>				<b>\$961,920.00</b>
Project Delivery (assume 30% construction cost)				\$288,576.00
Right of Way Cost	SQ FT	\$40.00	6845	\$273,800.00
<b>Total Improvement Cost</b>				<b>\$1,524,296.00</b>

### Improvement 12 B

1. Turn lane and signal improvements at American Boulevard/24th Avenue (East of 24th Avenue)  
 (Extend the southbound left most left-turn lane to 500 feet)  
 (Extend the westbound left-turn lanes to 500 feet)  
 (Construct an additional westbound right-turn lane to provide three westbound right-turn lanes)  
 (The westbound approach should have four approach lanes that begin at 28th Avenue)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$50,000.00	1	\$50,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.2	\$1,200.00
Remove Curb & Gutter	LIN FT	\$5.00	3460	\$17,300.00
Remove Concrete Walk	SQ FT	\$1.00	25170	\$25,170.00
Mill Pavement	SQ YD	\$3.00	7420	\$22,260.00
Remove Pavement	SQ YD	\$2.00	260	\$520.00
Curb & Gutter	LIN FT	\$10.00	4920	\$49,200.00
Concrete Walk	SQ FT	\$2.50	43110	\$107,775.00
Wearing Course Mix	TON	\$50.00	2480	\$124,000.00
Non-Wearing Course Mix	TON	\$45.00	1460	\$65,700.00
Common Excavation	CU YD	\$12.00	4800	\$57,600.00
Subgrade Excavation	CU YD	\$12.00	4670	\$56,040.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	1500	\$27,000.00
Select Granular Base (CV)	CU YD	\$10.00	2330	\$23,300.00
Truncated Dome	SQ FT	\$60.00	96	\$5,760.00
Drainage	LUMP SUM	\$295,000.00	1	\$295,000.00
Signal Modification	LUMP SUM	\$140,000.00	1	\$140,000.00
Street Lighting Modification	LUMP SUM	\$45,500.00	1	\$45,500.00
Traffic Control	LUMP SUM	\$30,000.00	1	\$30,000.00
Signing & Striping	LUMP SUM	\$15,000.00	1	\$15,000.00
Turf Establishment	LUMP SUM	\$10,000.00	1	\$10,000.00
Traffic Signal Phasing	EACH	\$5,000.00	1	\$5,000.00
<b>Subtotal</b>				<b>\$1,173,325.00</b>
Contingency & Minor Items (assume 20%)				\$234,665.00
<b>Total Construction Cost</b>				<b>\$1,407,990.00</b>
Project Delivery (assume 30% construction cost)				\$422,397.00
Right of Way Cost	SQ FT	\$40.00	56165	\$2,246,600.00
<b>Total Improvement Cost</b>				<b>\$4,076,987.00</b>

### Improvement 13 \*\*\*

1. Turn lane improvements at 28th Avenue/82nd Street  
 (Construct an additional westbound left-turn lane)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$21,000.00	1	\$21,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.7	\$4,200.00
Remove Bituminous Pavement	SQ YD	\$2.00	1220	\$2,440.00
Remove Curb & Gutter	LIN FT	\$5.00	2090	\$10,450.00
Remove Concrete Walk	SQ FT	\$1.00	1720	\$1,720.00
Mill Bituminous Pavement	SQ YD	\$1.65	1080	\$1,782.00
Wearing Course Mix	TON	\$50.00	970	\$48,500.00
Non-Wearing Course Mix	TON	\$45.00	970	\$43,650.00
Curb & Gutter	LIN FT	\$10.00	2840	\$28,400.00
Subgrade Excavation	CU YD	\$12.00	2740	\$32,880.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	800	\$14,400.00
Select Granular Borrow	CU YD	\$10.00	1370	\$13,700.00
Truncated Dome	SQ FT	\$60.00	64	\$3,840.00
Drainage	LUMP SUM	\$105,000.00	1	\$105,000.00
Signing & Striping	LUMP SUM	\$4,000.00	1	\$4,000.00
Signal Modification	LUMP SUM	\$135,000.00	1	\$135,000.00
Traffic Control	LUMP SUM	\$13,000.00	1	\$13,000.00
Turf Establishment	LUMP SUM	\$3,500.00	1	\$3,500.00
Concrete Walk	SQ FT	\$2.50	3420	\$8,550.00
<b>Subtotal</b>				<b>\$496,012.00</b>
Contingency & Minor Items (assume 15%)				\$74,401.80
<b>Total Construction Cost</b>				<b>\$570,413.80</b>
Project Delivery (assume 25% construction cost)				\$142,603.45
Right of Way Cost	SQ FT	\$40.00	37350	\$1,494,000.00
<b>Total Improvement Cost</b>				<b>\$2,207,017.25</b>

\*\*\* Cost for Improvement 13 is anticipated to be fully funded by Metro Transit.

### Improvement 14

1. Old Shakopee Road improvements between Killebrew Drive and TH77  
 (Reconstruct with three through lanes in each direction and a median with left-turn lanes)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$120,000.00	1	\$120,000.00
Remove Curb & Gutter	LIN FT	\$5.00	6830	\$34,150.00
Mill Pavement	SQ YD	\$3.00	19720	\$59,160.00
Subgrade Excavation	CU YD	\$12.00	36400	\$436,800.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	10120	\$182,160.00
Select Granular Borrow	CU YD	\$10.00	18200	\$182,000.00
Curb & Gutter	LIN FT	\$10.00	6830	\$68,300.00
Wearing Course Mix	TON	\$50.00	6520	\$326,000.00
Non-Wearing Course Mix	TON	\$45.00	4010	\$180,450.00
Signal Modification	LUMP SUM	\$220,000.00	1	\$220,000.00
Street Lighting Modification	LUMP SUM	\$250,000.00	1	\$250,000.00
Truncated Dome	SQ FT	\$60.00	448	\$26,880.00
Traffic Control	LUMP SUM	\$75,000.00	1	\$75,000.00
Turf Establishment	LUMP SUM	\$35,000.00	1	\$35,000.00
Drainage <sup>1</sup>	LUMP SUM	\$750,000.00	1	\$750,000.00
<b>Subtotal</b>				<b>\$2,945,900.00</b>
Contingency & Minor Items (assume 20%)				\$589,180.00
<b>Total Construction Cost</b>				<b>\$3,535,080.00</b>
Project Delivery (assume 30% construction cost)				\$1,060,524.00
Right of Way Cost <sup>2,3</sup>	LUMP SUM	\$5,700,000.00	1	\$5,700,000.00
<b>Total Improvement Cost</b>				<b>\$10,295,604.00</b>

1. Do not have graphics for improvement. Assumed drainage structures to be installed every 300' along each side of roadway including median.  
 2. ROW width assumed to be 96' (48' both sides from centerline of existing roadway)  
 3. Assume total takes. The cost of Right of Way was supplied by the City of Bloomington.

### Improvement 15

1. American Boulevard conversion to a westbound one-way between 30th Ave. and 34th Avenue with three through lanes

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$13,000.00	1	\$13,000.00
Remove Curb & Gutter	LIN FT	\$5.00	2680	\$13,400.00
Remove Concrete Walk	SQ FT	\$1.00	2100	\$2,100.00
Remove Pavement	SQ YD	\$2.00	6210	\$12,420.00
Curb & Gutter	LIN FT	\$10.00	470	\$4,700.00
Topsoil Borrow	CU YD	\$14.00	4000	\$56,000.00
Turf Establishment	LUMP SUM	\$5,000.00	1	\$5,000.00
Traffic Control	LUMP SUM	\$8,000.00	1	\$8,000.00
Signal Modification	LUMP SUM	\$75,000.00	1	\$75,000.00
Street Lighting Modification	LUMP SUM	\$50,000.00	1	\$50,000.00
Turf Establishment	LUMP SUM	\$1,500.00	1	\$1,500.00
Drainage	LUMP SUM	\$76,000.00	1	\$76,000.00
<b>Subtotal</b>				<b>\$317,120.00</b>
Contingency & Minor Items (assume 15%)				\$47,568.00
<b>Total Construction Cost</b>				<b>\$364,688.00</b>
Project Delivery (assume 30% construction cost)				\$109,406.40
<b>Total Improvement Cost</b>				<b>\$474,094.40</b>

### Improvement 16

1. Turn lane improvements at American Boulevard/34th Avenue (listed in Bloomington Central Station Traffic Study)  
 (Eliminate the southbound free right-turn lane)  
 (Construct southbound dual right-turn lanes that extend from the I-494 South Ramps)  
 (Eliminate the westbound free right-turn lane)  
 (Construct westbound dual right-turn lanes)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$40,000.00	1	\$40,000.00
Remove Concrete Walk	SQ FT	\$1.00	19780	\$19,780.00
Mill Pavement	SQ YD	\$3.00	8040	\$24,120.00
Remove Curb & Gutter	LIN FT	\$5.00	2770	\$13,850.00
Remove Pavement	SQ YD	\$2.00	560	\$1,120.00
Curb & Gutter	LIN FT	\$10.00	2080	\$20,800.00
Wearing Course Mix	TON	\$50.00	1700	\$85,000.00
Non-Wearing Course Mix	TON	\$45.00	670	\$30,150.00
Subgrade Excavation	CU YD	\$12.00	3260	\$39,120.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	910	\$16,380.00
Select Granular Borrow	CU YD	\$10.00	1630	\$16,300.00
Concrete Walk	SQ FT	\$2.50	9030	\$22,575.00
Signal Modification	LUMP SUM	\$220,000.00	1	\$220,000.00
Street Lighting Modification	LUMP SUM	\$60,000.00	1	\$60,000.00
Truncated Dome	SQ FT	\$60.00	144	\$8,640.00
Modular Block Retaining Wall	SQ FT	\$20.00	3810	\$76,200.00
Drainage	LUMP SUM	\$250,000.00	1	\$250,000.00
Traffic Control	LUMP SUM	\$25,000.00	1	\$25,000.00
Turf Establishment	LUMP SUM	\$8,000.00	1	\$8,000.00
Signing & Striping	LUMP SUM	\$10,000.00	1	\$10,000.00
<b>Subtotal</b>				<b>\$987,035.00</b>
<b>Contingency &amp; Minor Items (assume 20%)</b>				<b>\$197,407.00</b>
<b>Total Construction Cost</b>				<b>\$1,184,442.00</b>
<b>Project Delivery (assume 30% construction cost)</b>				<b>\$355,332.60</b>
Right of Way Cost	SQ FT	\$40.00	17820	\$712,800.00
<b>Total Improvement Cost</b>				<b>\$2,252,574.60</b>

### Improvement 17

1. Turn lane improvements at American Boulevard/ International Drive/ 33rd Avenue  
 (The westbound approach will include a left-turn lane, two through lanes and a right-turn lane)  
 (The southbound approach will be a right-turn only (free movement))  
 (Convert to a right-in/right-out/eastbound left-in access)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$2,500.00	1	\$2,500.00
Remove Pavement	SQ YD	\$2.00	360	\$720.00
Remove Concrete Walk	SQ FT	\$1.00	2170	\$2,170.00
Remove Curb & Gutter	LIN FT	\$5.00	690	\$3,450.00
Concrete Walk	SQ FT	\$2.50	8490	\$21,225.00
Truncated Dome	SQ FT	\$60.00	64	\$3,840.00
Traffic Control	LUMP SUM	\$1,500.00	1	\$1,500.00
Drainage	LUMP SUM	\$70,000.00	1	\$70,000.00
Turf Establishment	LUMP SUM	\$1,000.00	1	\$1,000.00
Curb & Gutter	LIN FT	\$10.00	740	\$7,400.00
<b>Subtotal</b>				<b>\$113,805.00</b>
<b>Contingency &amp; Minor Items (assume 15%)</b>				<b>\$17,070.75</b>
<b>Total Construction Cost</b>				<b>\$130,875.75</b>
<b>Project Delivery (assume 30% construction cost)</b>				<b>\$39,262.73</b>
<b>Total Improvement Cost</b>				<b>\$170,138.48</b>

### Improvement 18

1. Turn lane improvements at American Boulevard/ Metro Drive East  
 (Construct a westbound left-turn lane (200 feet))  
 (The westbound approach will include a left-turn lane, three through lanes and a right-turn lane)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$6,500.00	1	\$6,500.00
Clearing & Grubbing	ACRE	\$6,000.00	0.3	\$1,800.00
Mill Pavement	SQ YD	\$3.00	2490	\$7,470.00
Remove Curb & Gutter	LIN FT	\$5.00	1050	\$5,250.00
Curb & Gutter	LIN FT	\$10.00	470	\$4,700.00
Wearing Course Mix	TON	\$50.00	820	\$41,000.00
Non-Wearing Course Mix	TON	\$45.00	240	\$10,800.00
Subgrade Excavation	CU YD	\$12.00	1260	\$15,120.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	350	\$6,300.00
Select Granular Borrow (CV)	CU YD	\$10.00	640	\$6,400.00
Truncated Dome	SQ FT	\$60.00	32	\$1,920.00
Drainage	LUMP SUM	\$40,000.00	1	\$40,000.00
Traffic Control	LUMP SUM	\$4,000.00	1	\$4,000.00
Turf Establishment	LUMP SUM	\$2,500.00	1	\$2,500.00
Signing & Striping	LUMP SUM	\$3,000.00	1	\$3,000.00
<b>Subtotal</b>				<b>\$156,760.00</b>
Contingency & Minor Items (assume 15%)				\$23,514.00
<b>Total Construction Cost</b>				<b>\$180,274.00</b>
Project Delivery (assume 30% construction cost)				\$54,082.20
<b>Total Improvement Cost</b>				<b>\$234,356.20</b>

### Improvement 19

1. New traffic signal and turn lane improvements at American Boulevard/30th Avenue  
 (Installation of a traffic signal)  
 (Convert the eastbound through lanes into dual right-turn lanes)  
 (The westbound approach will include dual left-turn lanes and two through lanes. The inside through lane will end and become the outside left-turn lane at this intersection.)  
 (The northbound approach will include dual left-turn lanes)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$17,000.00	1	\$17,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.3	\$1,800.00
Remove Pavement	SQ YD	\$2.00	250	\$500.00
Remove Curb & Gutter	LIN FT	\$5.00	600	\$3,000.00
Mill Pavement	SQ YD	\$3.00	1900	\$5,700.00
Concrete Walk	SQ FT	\$1.00	1510	\$1,510.00
Curb & Gutter	LIN FT	\$10.00	1010	\$10,100.00
Wearing Course Mix	TON	\$50.00	430	\$21,500.00
Non-Wearing Course Mix	TON	\$45.00	180	\$8,100.00
Subgrade Excavation	CU YD	\$12.00	1030	\$12,360.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	290	\$5,220.00
Select Granular Borrow	CU YD	\$10.00	510	\$5,100.00
Truncated Dome	SQ FT	\$60.00	64	\$3,840.00
Drainage	LUMP SUM	\$100,000.00	1	\$100,000.00
Signing & Striping	LUMP SUM	\$1,500.00	1	\$1,500.00
Traffic Control	LUMP SUM	\$10,000.00	1	\$10,000.00
Turf Establishment	LUMP SUM	\$6,000.00	1	\$6,000.00
Traffic Signal	EACH	\$200,000.00	1	\$200,000.00
<b>Subtotal</b>				<b>\$413,230.00</b>
Contingency & Minor Items (assume 15%)				\$61,984.50
<b>Total Construction Cost</b>				<b>\$475,214.50</b>
Project Delivery (assume 30% construction cost)				\$142,564.35
<b>Total Improvement Cost</b>				<b>\$617,778.85</b>

### Improvement 20

1. Turn lane, striping, and signal phasing improvements at American Boulevard/ 28th Avenue  
 (Construct an eastbound right-turn lane (250 feet))  
 (Restripe the northbound inside through lane to a left-turn/through lane)  
 (Extend the northbound left-turn lane to 200 feet)  
 (Convert the northbound left-turn/through lane into a left-turn lane)  
 (Construct a southbound left-turn lane)  
 (Replace north-south split phasing with protected left-turn phasing)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$16,000.00	1	\$16,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.1	\$600.00
Remove Curb & Gutter	LIN FT	\$5.00	460	\$2,300.00
Remove Concrete Walk	SQ FT	\$1.00	5800	\$5,800.00
Mill Pavement	SQ YD	\$3.00	7510	\$22,530.00
Wearing Course Mix	TON	\$50.00	1030	\$51,500.00
Non-Wearing Course Mix	TON	\$45.00	70	\$3,150.00
Subgrade Excavation	CU YD	\$12.00	910	\$10,920.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	260	\$4,680.00
Select Granular Borrow (CV)	CU YD	\$10.00	460	\$4,600.00
Curb & Gutter	LIN FT	\$10.00	540	\$5,400.00
Concrete Walk	SQ FT	\$2.50	5430	\$13,575.00
Truncated Dome	SQ FT	\$60.00	64	\$3,840.00
Drainage	LUMP SUM	\$95,000.00	1	\$95,000.00
Signing & Striping	LUMP SUM	\$3,000.00	1	\$3,000.00
Signal Modification	LUMP SUM	\$100,000.00	1	\$100,000.00
Street Lighting Modification	LUMP SUM	\$20,000.00	1	\$20,000.00
Traffic Control	LUMP SUM	\$10,000.00	1	\$10,000.00
Turf Establishment	LUMP SUM	\$2,500.00	1	\$2,500.00
Traffic Signal Phasing	EACH	\$10,000.00	1	\$10,000.00
<b>Subtotal</b>				<b>\$385,395.00</b>
Contingency & Minor Items (assume 20%)				\$77,079.00
<b>Total Construction Cost</b>				<b>\$462,474.00</b>
Project Delivery (assume 30% construction cost)				\$138,742.20
Right of Way Cost	SQ FT	\$40.00	2240	\$89,600.00
<b>Total Improvement Cost</b>				<b>\$690,816.20</b>

### Improvement 20A

On 28th Ave, add SB lane from American Blvd to 82nd St

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$19,000.00	1	\$19,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.3	\$1,800.00
Remove Curb & Gutter	LIN FT	\$5.00	1640	\$8,200.00
Remove Concrete Walk	SQ FT	\$1.00	15850	\$15,850.00
Mill Pavement	SQ YD	\$3.00	5030	\$15,090.00
Common Excavation	CU YD	\$12.00	2060	\$24,720.00
Subgrade Excavation	CU YD	\$12.00	2500	\$30,000.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	700	\$12,600.00
Select Granular Borrow	CU YD	\$10.00	1250	\$12,500.00
Curb & Gutter	LIN FT	\$10.00	1690	\$16,900.00
Concrete Walk	SQ FT	\$2.50	14070	\$35,175.00
Wearing Course Mix	TON	\$50.00	1060	\$53,000.00
Non-Wearing Course Mix	TON	\$45.00	460	\$20,700.00
Truncated Dome	SQ FT	\$60.00	96	\$5,760.00
Drainage	LUMP SUM	\$120,000.00	1	\$120,000.00
Signing & Striping	LUMP SUM	\$5,000.00	1	\$5,000.00
Street Lighting Modification	LUMP SUM	\$45,000.00	1	\$45,000.00
Traffic Control	LUMP SUM	\$11,000.00	1	\$11,000.00
Turf Establishment	LUMP SUM	\$6,000.00	1	\$6,000.00
<b>Subtotal</b>				<b>\$458,295.00</b>
Contingency & Minor Items (assume 20%)				\$91,659.00
<b>Total Construction Cost</b>				<b>\$549,954.00</b>
Project Delivery (assume 30% construction cost)				\$164,986.20
Right of Way Cost	SQ FT	\$40.00	24030	\$961,200.00
<b>Total Improvement Cost</b>				<b>\$1,676,140.20</b>

### Improvement 21

1. Southbound right in on 34th Avenue into the Northeast housing  
 (Construct a southbound right-in access to serve the Northeast Housing residents)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$7,000.00	1	\$7,000.00
Clearing & Grubbing	ACRE	\$6,000.00	0.3	\$1,800.00
Remove Curb & Gutter	LIN FT	\$5.00	290	\$1,450.00
Remove Concrete Walk	SQ FT	\$1.00	2840	\$2,840.00
Mill Pavement	SQ YD	\$3.00	2100	\$6,300.00
Concrete Walk	SQ FT	\$2.50	3570	\$8,925.00
Wearing Course Mix	TON	\$50.00	350	\$17,500.00
Non-wearing Course Mix	TON	\$45.00	80	\$3,600.00
Curb & Gutter	LIN FT	\$10.00	400	\$4,000.00
Subgrade Excavation	CU YD	\$12.00	410	\$4,920.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	120	\$2,160.00
Select Granular Base	CU YD	\$10.00	140	\$1,400.00
Truncated Dome	SQ FT	\$60.00	32	\$1,920.00
Drainage	LUMP SUM	\$40,000.00	1	\$40,000.00
Traffic Control	LUMP SUM	\$4,000.00	1	\$4,000.00
Signal Modification	LUMP SUM	\$50,000.00	1	\$50,000.00
Turf Establishment	LUMP SUM	\$1,500.00	1	\$1,500.00
Signing & Striping	LUMP SUM	\$2,000.00	1	\$2,000.00
Subtotal				\$161,315.00
Contingency & Minor Items (assume 20%)				\$32,263.00
Total Construction Cost				\$193,578.00
Project Delivery (assume 30% construction cost)				\$58,073.40
Right of Way Cost	SQ FT	\$40.00	3560	\$142,400.00
<b>Total Improvement Cost</b>				<b>\$394,051.40</b>

### Improvement 22

1. New traffic signal and turn lane improvements at Old Shakopee Road/ 33rd Avenue  
 (Installation of a traffic signal)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$13,000.00	1	\$13,000.00
Traffic Signal	EACH	\$220,000.00	1	\$220,000.00
Subtotal				\$220,000.00
Contingency & Minor Items (assume 5%)				\$11,000.00
Total Construction Cost				\$231,000.00
Project Delivery (assume 30% construction cost)				\$69,300.00
<b>Total Improvement Cost</b>				<b>\$300,300.00</b>



### Improvement 24

1. New traffic signal and turn lane improvements at Old Shakopee Road/ 30th Avenue  
 (Installation of a traffic signal)  
 (Construct an eastbound left-turn lane (350 feet))  
 (The southbound approach will include dual left-turn lanes and dual right-turn lanes (300 ft). This approach was modeled with what is shown on the proposed site plan, an inside left-turn lane of approximately 100 feet and a second full-length left-turn lane.)  
 (The southbound approach will include dual left-turn lanes and dual right-turn lanes (300 ft). However, full-length dual left-turn lanes should be provided with a short right-turn lane.)  
 (Construct an additional eastbound left-turn lane (350 feet))

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$50,000.00	1	\$50,000.00
Clearing & Grubbing	ACRE	\$6,000.00	1.7	\$10,200.00
Remove Curb & Gutter	LIN FT	\$5.00	1870	\$9,350.00
Remove Pavement	SQ YD	\$2.00	490	\$980.00
Mill Pavement	SQ YD	\$3.00	3740	\$11,220.00
Curb & Gutter	LIN FT	\$10.00	4450	\$44,500.00
Concrete Walk	SQ FT	\$2.50	10200	\$25,500.00
Wearing Course Mix	TON	\$50.00	2050	\$102,500.00
Non-Wearing Course Mix	TON	\$45.00	1570	\$70,650.00
Subgrade Excavation	CU YD	\$12.00	6380	\$76,560.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	1780	\$32,040.00
Select Granular Borrow (CV)	CU YD	\$10.00	3190	\$31,900.00
Retaining Wall	SQ FT	\$40.00	2850	\$114,000.00
Truncated Dome	SQ FT	\$60.00	32	\$1,920.00
Drainage	LUMP SUM	\$300,000.00	1	\$300,000.00
Signing & Striping	LUMP SUM	\$10,000.00	1	\$10,000.00
Traffic Control	LUMP SUM	\$30,000.00	1	\$30,000.00
Street Lighting Modification	LUMP SUM	\$50,000.00	1	\$50,000.00
Turf Establishment	LUMP SUM	\$9,000.00	1	\$9,000.00
Traffic Signal	EACH	\$220,000.00	1	\$220,000.00
<b>Subtotal</b>				<b>\$1,200,320.00</b>
Contingency & Minor Items (assume 20%)				\$240,064.00
<b>Total Construction Cost</b>				<b>\$1,440,384.00</b>
Project Delivery (assume 30% construction cost)				\$432,115.20
Right of Way Cost	SQ FT	\$40.00	14025	\$561,000.00
<b>Total Improvement Cost</b>				<b>\$2,433,499.20</b>

### Improvement 25

1. New traffic signal and turn lane improvements at Old Shakopee Road/ 28th Avenue  
 (Installation of a traffic signal)  
 (The new northbound approach will include dual left-turn lanes, two through lanes and a right-turn lane)  
 (Construct an eastbound left-turn lane (300 feet) and a right-turn lane (300 feet))  
 (Construct dual westbound left-turn lanes (300 feet))  
 (Restripe the southbound left-turn lane to a through lane)  
 (Construct a southbound left-turn lane (250 feet))  
 (Construct an additional eastbound left-turn lane (300 feet))  
 (Construct a westbound right-turn lane (300 feet))  
 (Construct an additional southbound right-turn lane (400 feet))  
 (Construct an additional southbound left-turn lane (250 feet))  
 (Construct an additional northbound right-turn lane (300 feet))

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$90,000.00	1	\$90,000.00
Clearing & Grubbing	ACRE	\$6,000.00	3	\$18,000.00
Remove Curb & Gutter	LIN FT	\$5.00	4700	\$23,500.00
Remove Pavement	SQ YD	\$2.00	1880	\$3,760.00
Mill Pavement	SQ YD	\$3.00	9870	\$29,610.00
Concrete Walk	SQ FT	\$2.50	23170	\$57,925.00
Wearing Course Mix	TON	\$50.00	4520	\$226,000.00
Non-Wearing Course Mix	TON	\$45.00	3260	\$146,700.00
Curb & Gutter	LIN FT	\$10.00	9660	\$96,600.00
Subgrade Excavation	CU YD	\$12.00	13620	\$163,440.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	3790	\$68,220.00
Select Granular Borrow (CV)	CU YD	\$10.00	6810	\$68,100.00
Truncated Dome	SQ FT	\$60.00	192	\$11,520.00
Drainage	LUMP SUM	\$540,000.00	1	\$540,000.00
Retaining Wall	SQ FT	\$40.00	2700	\$108,000.00
Erosion Control & Turf Establishment	LUMP SUM	\$50,000.00	1	\$50,000.00
Signing & Striping	LUMP SUM	\$26,000.00	1	\$26,000.00
Street Lighting Modification	LUMP SUM	\$115,000.00	1	\$115,000.00
Traffic Control	LUMP SUM	\$54,000.00	1	\$54,000.00
Turf Establishment	LUMP SUM	\$22,000.00	1	\$22,000.00
Traffic Signal	EACH	\$255,000.00	1	\$255,000.00
<b>Subtotal</b>				<b>\$2,173,375.00</b>
Contingency & Minor Items (assume 20%)				\$434,675.00
<b>Total Construction Cost</b>				<b>\$2,608,050.00</b>
Project Delivery (assume 30% of construction cost)				\$782,415.00
Right of Way Cost	SQ FT	\$40.00	109455	\$4,378,200.00
<b>Total Improvement Cost</b>				<b>\$7,768,665.00</b>

## Improvement 26

1. Reconstruction of I-494/34th Avenue interchange (with LRT)
  2. Reconstruction of I-494/34th Avenue interchange (without LRT)
- (Reconstruct the interchange to include loops in the northwest and southwest quadrants  
(see Figure 11: Proposed Roadway Concept, I-494/34th Avenue)

These improvements will eliminate two major traffic conflicts with LRT operations, the westbound to southbound movement, and the southbound to eastbound movement. Improvements at the 34th Avenue/I-494 Ramps are a result of increased traffic volumes due to background growth and adjacent developments.)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$1,200,000.00	1	\$1,200,000.00
Clearing & Grubbing	ACRE	\$6,000.00	4	\$24,000.00
Remove Curb & Gutter	LIN FT	\$5.00	22290	\$111,450.00
Remove Pavement	SQ YD	\$2.00	36750	\$73,500.00
Mill Pavement	SQ YD	\$3.00	29390	\$88,170.00
Concrete Walk	SQ FT	\$2.50	115310	\$288,275.00
8" Concrete Pavement (Ramps)	SQ YD	\$4.00	53930	\$215,720.00
Structural Concrete	CU YD	\$63.00	11990	\$755,370.00
Wearing Course Mix (34th Ave and Shoulders)	TON	\$50.00	4350	\$217,500.00
Non-Wearing Course Mix (34th Ave & Shoulders)	TON	\$45.00	1700	\$76,500.00
Curb & Gutter	LIN FT	\$10.00	53620	\$536,200.00
Common Embankment	CU YD	\$1.50	130270	\$195,405.00
Subgrade Excavation	CU YD	\$12.00	72660	\$871,920.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	20200	\$363,600.00
Select Granular Borrow	CU YD	\$10.00	36330	\$363,300.00
Truncated Dome	SQ FT	\$60.00	160	\$9,600.00
Steel Bridges (5)	SQ FT	\$150.00	33000	\$4,950,000.00
Pre-Cast Concrete Bridges (5)	SQ FT	\$120.00	41000	\$4,920,000.00
Overhead Sign Structure	LUMP SUM	\$120,000.00	1	\$120,000.00
MSE Retaining Wall	SQ FT	\$45.00	66060	\$2,972,700.00
Drainage	LUMP SUM	\$7,000,000.00	1	\$7,000,000.00
Erosion Control	LUMP SUM	\$100,000.00	1	\$100,000.00
Lighting	LUMP SUM	\$50,000.00	1	\$50,000.00
Signal Modification	LUMP SUM	\$480,000.00	1	\$480,000.00
Lighting	LUMP SUM	\$245,000.00	1	\$245,000.00
Traffic Control	LUMP SUM	\$700,000.00	1	\$700,000.00
Turf Establishment	LUMP SUM	\$250,000.00	1	\$250,000.00
Signing & Striping	LUMP SUM	\$300,000.00	1	\$300,000.00
Subtotal				\$27,478,210.00
Contingency & Minor Items (assume 25%)				\$6,869,552.50
<b>Total Construction Cost</b>				<b>\$34,347,762.50</b>
Project Delivery (assume 30% construction cost)				\$10,304,328.75
Right of Way Cost <sup>1</sup>	LUMP SUM	\$15,000,000.00	1	\$15,000,000.00
<b>Total Improvement Cost</b>				<b>\$59,652,091.25</b>

1. The cost of Right of Way is supplied by the City of Bloomington.

### Improvement 27

1. 24th Avenue/82nd Street

(On the north approach, convert the right/through lane into a trap dual right-turn lane. This improvement will create better lane utilization upstream at the single-point interchange)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$3,400.00	1	\$3,400.00
Remove Curb & Gutter	LIN FT	\$5.00	80	\$400.00
Concrete Walk	SQ FT	\$2.50	1480	\$3,700.00
Curb & Gutter	LIN FT	\$10.00	160	\$1,600.00
Truncated Dome	SQ FT	\$60.00	32	\$1,920.00
Signal Modification	LUMP SUM	\$50,000.00	1	\$50,000.00
Traffic Control	LUMP SUM	\$2,200.00	1	\$2,200.00
Signing & Striping	LUMP SUM	\$1,000.00	1	\$1,000.00
<b>Subtotal</b>				<b>\$64,220.00</b>
Contingency & Minor Items (assume 15%)				\$9,633.00
<b>Total Construction Cost</b>				<b>\$73,853.00</b>
Project Delivery (assume 30% construction cost)				\$22,155.90
<b>Total Improvement Cost</b>				<b>\$96,008.90</b>

### Improvement 28A

1. 86th Street Extension to EOSR to 28th Ave

(Construct two lanes in each direction with a median and left and right-turn lanes)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$580,000.00	1	\$580,000.00
Clearing and Grubbing	ACRE	\$6,000.00	4	\$24,000.00
Remove Curb & Gutter	LIN FT	\$5.00	1160	\$5,800.00
Remove Pavement	SQ YD	\$2.00	4590	\$9,180.00
Subgrade Excavation	CU YD	\$12.00	13540	\$162,480.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	3770	\$67,860.00
Select Granular Borrow	CU YD	\$10.00	6770	\$67,700.00
Curb & Gutter	LIN FT	\$10.00	6650	\$66,500.00
Wearing Course Mix	TON	\$50.00	3250	\$162,500.00
Non-Wearing Course Mix	TON	\$45.00	3250	\$146,250.00
Drainage <sup>1</sup>	LUMP SUM	\$3,500,000.00	1	\$3,500,000.00
Bridge	SQ FT	\$150.00	55200	\$8,280,000.00
Retaining Wall	SQ FT	\$40.00	7500	\$300,000.00
Erosion Control	LUMP SUM	\$100,000.00	1	\$100,000.00
Traffic Control	LUMP SUM	\$350,000.00	1	\$350,000.00
Lighting	LUMP SUM	\$120,000.00	1	\$120,000.00
Turf Establishment	LUMP SUM	\$65,000.00	1	\$65,000.00
Signing & Striping	LUMP SUM	\$80,000.00	1	\$80,000.00
<b>Subtotal</b>				<b>\$14,087,270.00</b>
Contingency & Minor Items (assume 20%)				\$2,817,454.00
<b>Total Construction Cost</b>				<b>\$16,904,724.00</b>
Project Delivery (assume 30% construction cost)				\$5,071,417.20
Right of Way Cost	SQ FT	\$40.00	157125	\$6,285,000.00
<b>Total Improvement Cost</b>				<b>\$28,261,141.20</b>

1. Assumed drainage structures to be installed every 300' along each side of roadway including median.

### Improvement 28B

1. 86th Street and Old Shakopee Road

(Modify the westbound approach to provide dual left-turns, two through lanes, and a right-turn lane)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$32,000.00	1	\$32,000.00
Curb & Gutter	LIN FT	\$10.00	1000	\$10,000.00
Subgrade Excavation	CU YD	\$12.00	5800	\$69,600.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	1620	\$29,160.00
Select Granular Borrow	CU YD	\$10.00	2900	\$29,000.00
Wearing Course Mix	TON	\$50.00	1400	\$70,000.00
Non-Wearing Course Mix	TON	\$45.00	1400	\$63,000.00
Truncated Dome	SQ FT	\$60.00	64	\$3,840.00
Lighting	LUMP SUM	\$30,000.00	1	\$30,000.00
Drainage <sup>1</sup>	LUMP SUM	\$190,000.00	1	\$190,000.00
Traffic Control	LUMP SUM	\$19,000.00	1	\$19,000.00
Traffic Signal	EACH	\$210,000.00	1	\$210,000.00
Turf Establishment	LUMP SUM	\$5,000.00	1	\$5,000.00
Signing & Striping	LUMP SUM	\$6,000.00	1	\$6,000.00
<b>Subtotal</b>				<b>\$766,600.00</b>
Contingency & Minor Items (assume 20%)				\$153,320.00
<b>Total Construction Cost</b>				<b>\$919,920.00</b>
Project Delivery (assume 30% construction cost)				\$275,976.00
Right of Way Cost	SQ FT	\$40.00	10325	\$413,000.00
<b>Total Improvement Cost</b>				<b>\$1,608,896.00</b>

1. Assumed drainage structures to be installed every 300' along each side of roadway including median.

### Improvement 29

1. 30th Ave

(Reconstruct roadway to provide two through lanes in each direction and a median with left-turn lanes)

Item Description	Unit	Unit Cost	Total	
			Quantities	Amount
Mobilization	LUMP SUM	\$45,000.00	1	\$45,000.00
Remove Curb & Gutter	LIN FT	\$5.00	3310	\$16,550.00
Remove Pavement	SQ YD	\$2.00	9560	\$19,120.00
Subgrade Excavation	CU YD	\$12.00	11400	\$136,800.00
Aggregate Base (CV) Class 5	CU YD	\$18.00	3170	\$57,060.00
Select Granular Borrow	CU YD	\$10.00	5700	\$57,000.00
Curb & Gutter	LIN FT	\$10.00	4960	\$49,600.00
Wearing Course Mix	TON	\$50.00	2740	\$137,000.00
Non-Wearing Course Mix	TON	\$45.00	2740	\$123,300.00
Lighting	LUMP SUM	\$100,000.00	1	\$100,000.00
Truncated Dome	SQ FT	\$60.00	192	\$11,520.00
Drainage <sup>1</sup>	LUMP SUM	\$270,000.00	1	\$270,000.00
Traffic Control	LUMP SUM	\$27,000.00	1	\$27,000.00
Light Rail Signaling	LUMP SUM	\$50,000.00	1	\$50,000.00
Turf Establishment	LUMP SUM	\$10,000.00	1	\$10,000.00
Signing & Striping	LUMP SUM	\$12,000.00	1	\$12,000.00
<b>Subtotal</b>				<b>\$1,121,950.00</b>
Contingency & Minor Items (assume 15%)				\$168,292.50
<b>Total Construction Cost</b>				<b>\$1,290,242.50</b>
Project Delivery (assume 30% construction cost)				\$387,072.75
<b>Total Improvement Cost</b>				<b>\$1,677,315.25</b>

1. Do not have graphics for improvement. Assumed drainage structures to be installed every 300' along each side of roadway including median.



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**Improvement 2**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington



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**Improvement 3**  
 Airport South Roadway Infrastructure Improvements  
 City of Bloomington



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**Improvement 4**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington

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**Improvements 1, 6, and 7**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington





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**Improvement 8**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington

5622  
5/11/2012

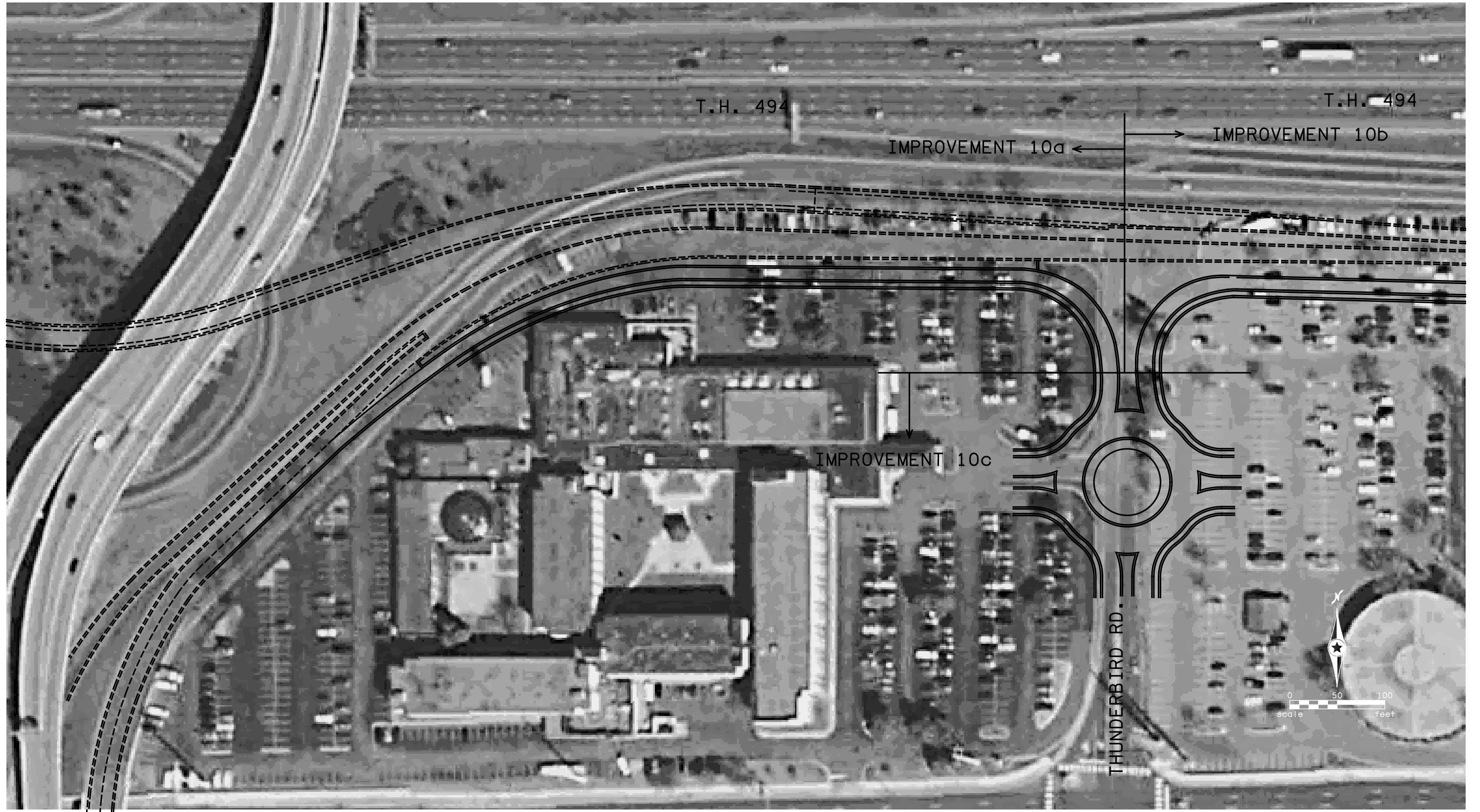


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**Improvement 9**  
 Airport South Roadway Infrastructure Improvements  
 City of Bloomington

5622  
 5/11/2012



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**Improvement 10a**  
 Airport South Roadway Infrastructure Improvements  
 City of Bloomington



SEE IMPROVEMENT 10b (2)

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**Improvement 10b (1)**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington

5622  
5/11/2012

SEE IMPROVEMENT 10b (1)

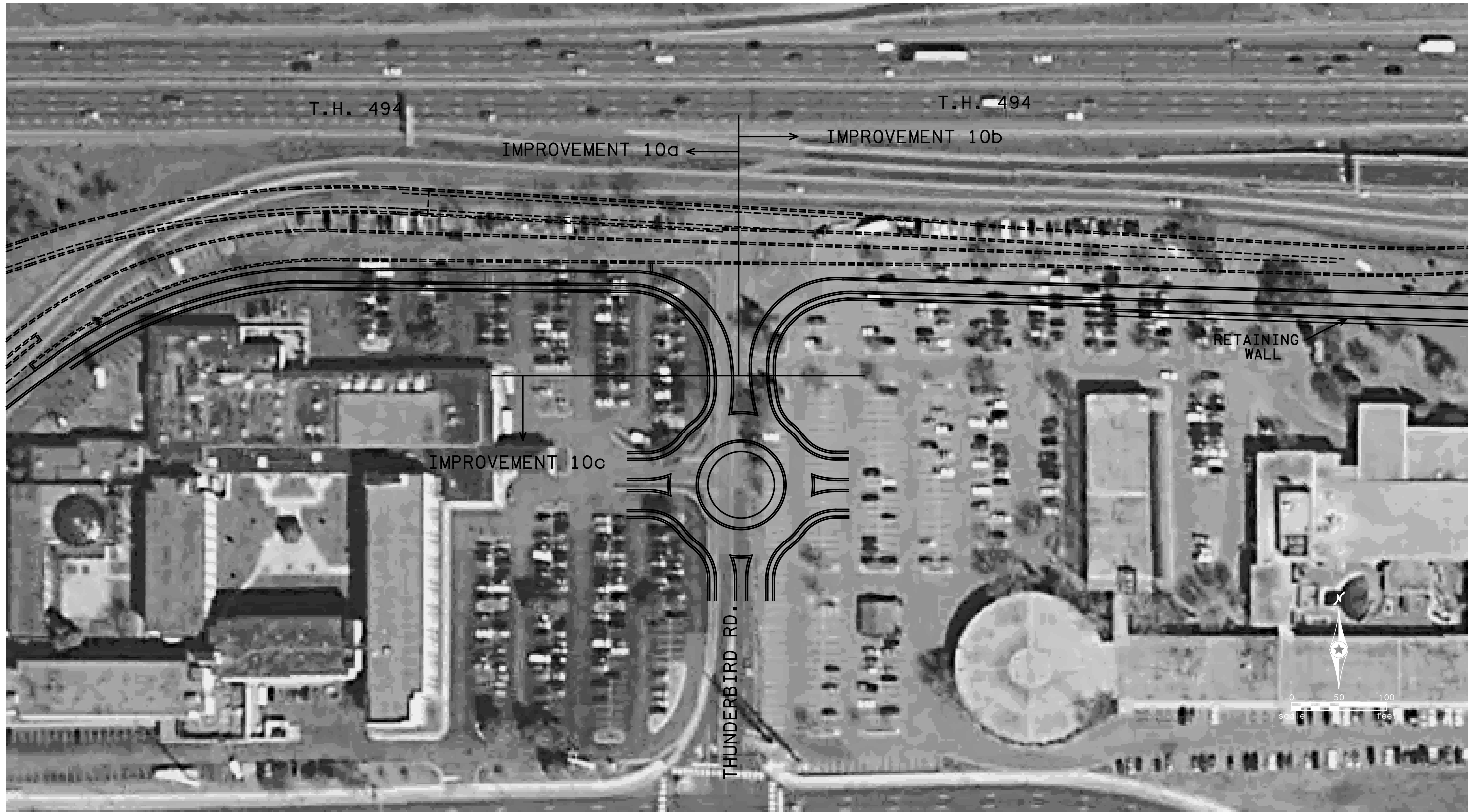


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**Improvement 10b (2)**  
 Airport South Roadway Infrastructure Improvements  
 City of Bloomington

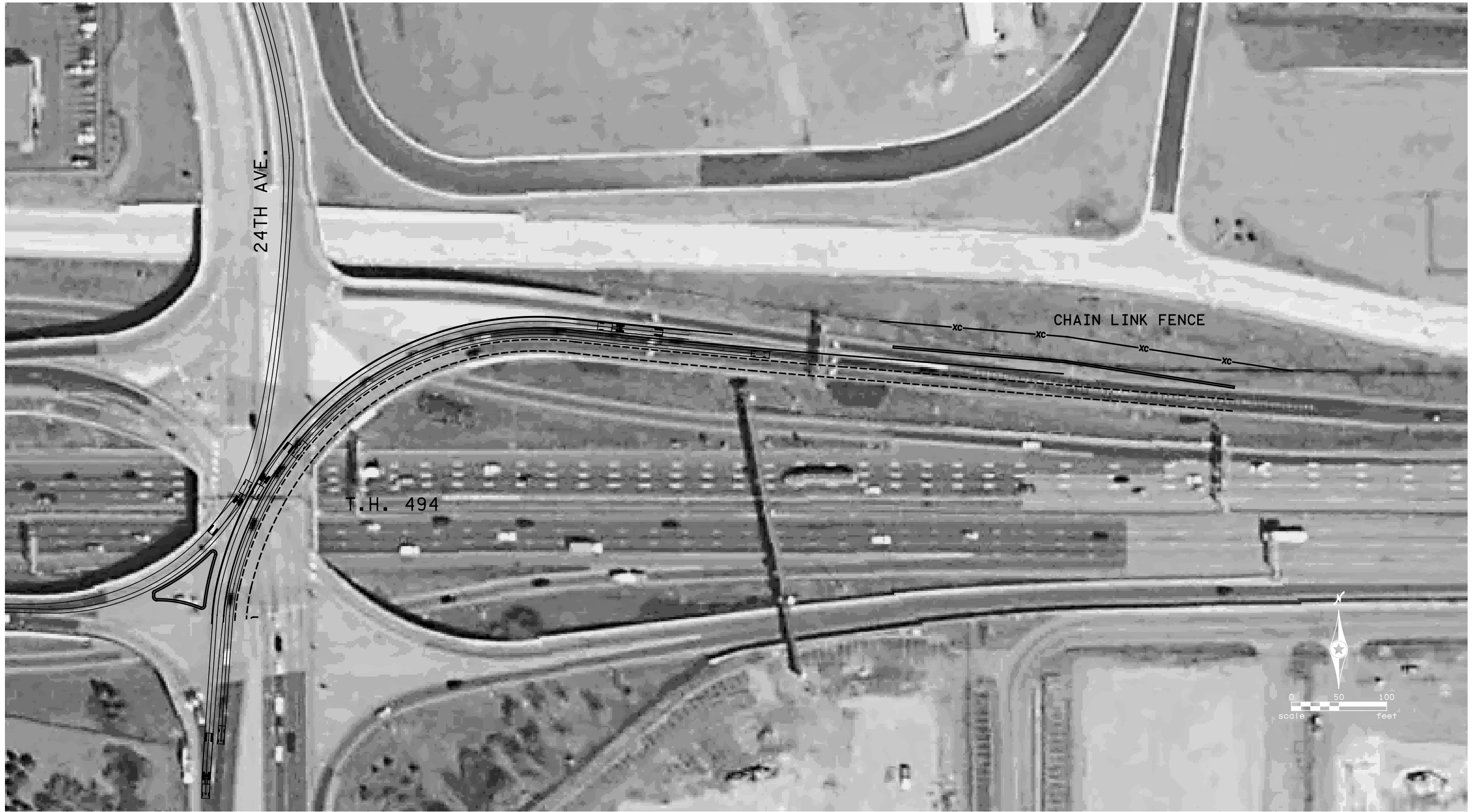
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**Improvement 10c**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington

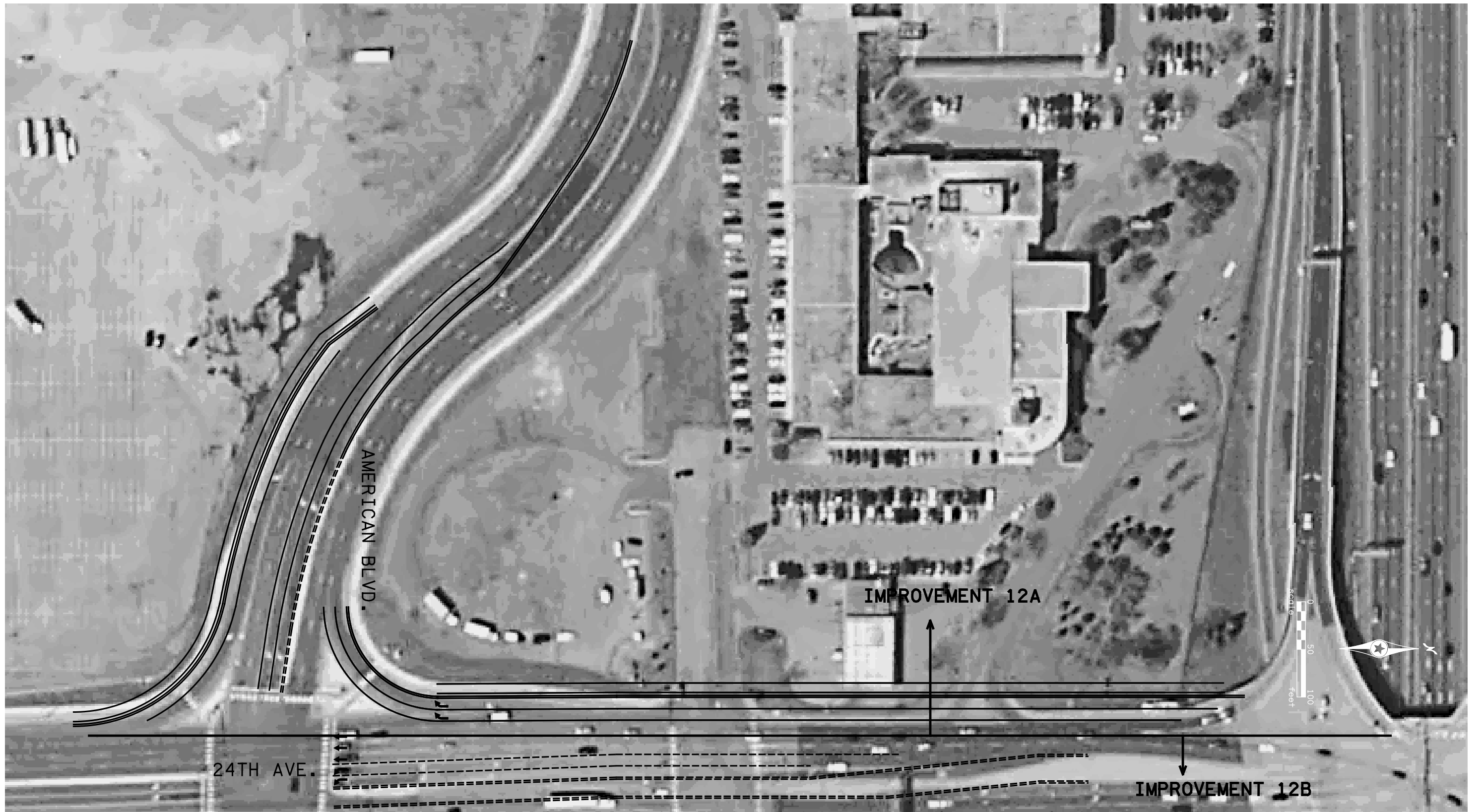


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**Improvement 11**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington

5622  
5/11/2012



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**Improvement 12 A**  
 Airport South Roadway Infrastructure Improvements  
 City of Bloomington

5622  
 5/11/2012





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**Improvement 12 B**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington



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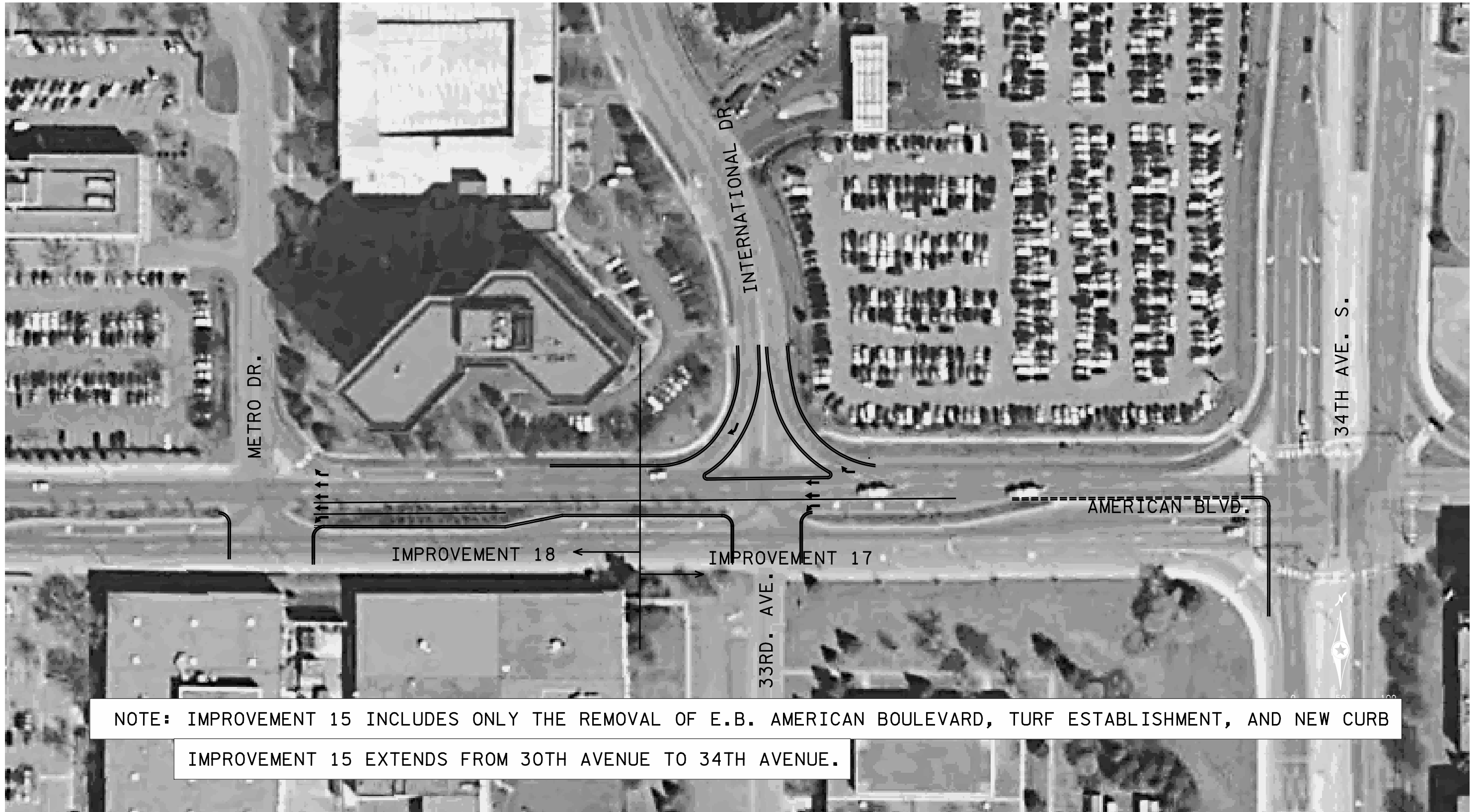
**Improvement 13**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington



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**Improvement 16**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington

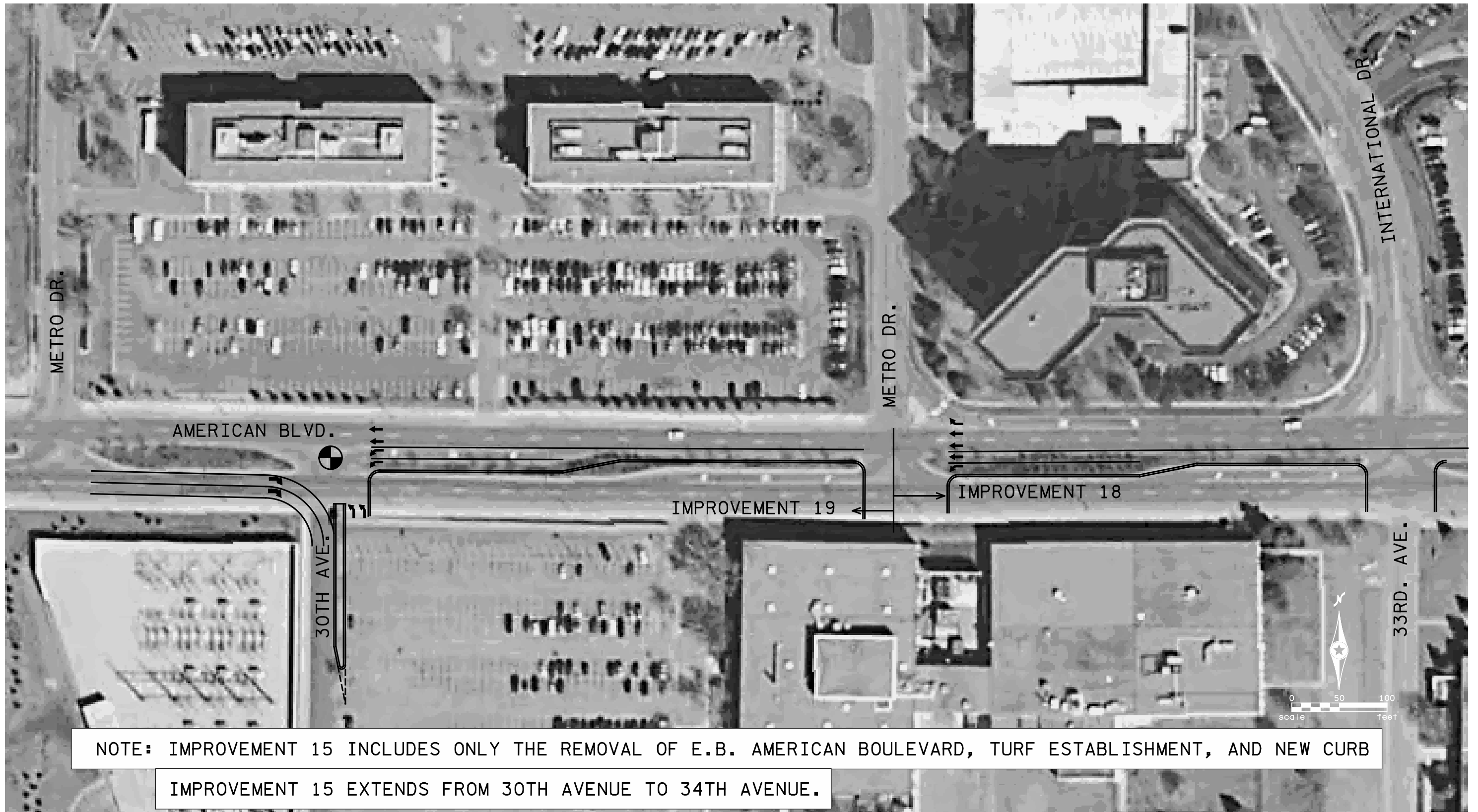


NOTE: IMPROVEMENT 15 INCLUDES ONLY THE REMOVAL OF E.B. AMERICAN BOULEVARD, TURF ESTABLISHMENT, AND NEW CURB  
IMPROVEMENT 15 EXTENDS FROM 30TH AVENUE TO 34TH AVENUE.

H:\Projects\5622\m\Graphics\2009\GRIT and I&D.dgn



**Improvements 15, 17, and 18**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington



NOTE: IMPROVEMENT 15 INCLUDES ONLY THE REMOVAL OF E.B. AMERICAN BOULEVARD, TURF ESTABLISHMENT, AND NEW CURB  
 IMPROVEMENT 15 EXTENDS FROM 30TH AVENUE TO 34TH AVENUE.

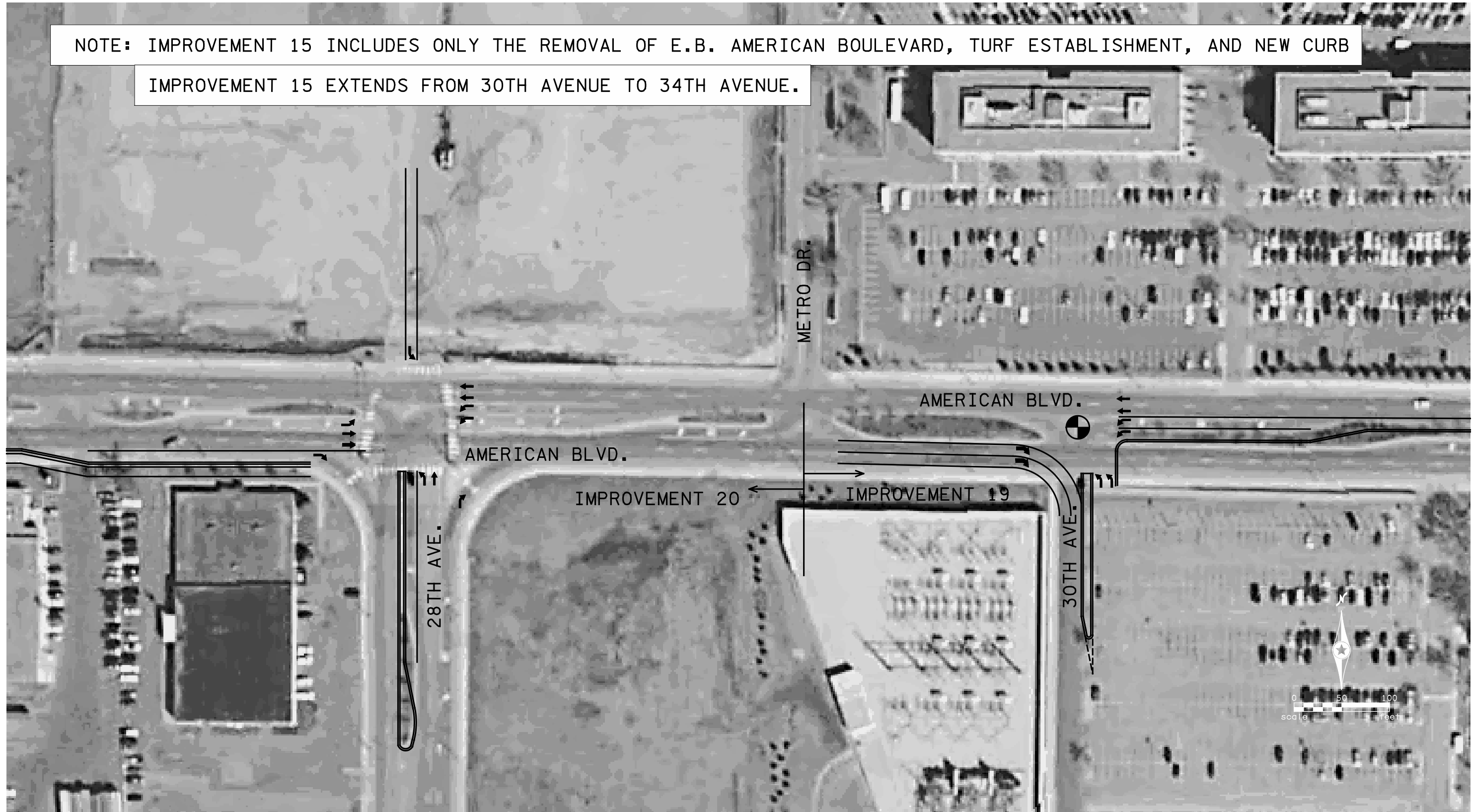
H:\Projects\5622\m\m\Graphics\2012\CR\_IBand19.dgn



**Improvements 15,18 and 19**  
 Airport South Roadway Infrastructure Improvements  
 City of Bloomington

5622  
 5/11/2012

NOTE: IMPROVEMENT 15 INCLUDES ONLY THE REMOVAL OF E.B. AMERICAN BOULEVARD, TURF ESTABLISHMENT, AND NEW CURB  
IMPROVEMENT 15 EXTENDS FROM 30TH AVENUE TO 34TH AVENUE.

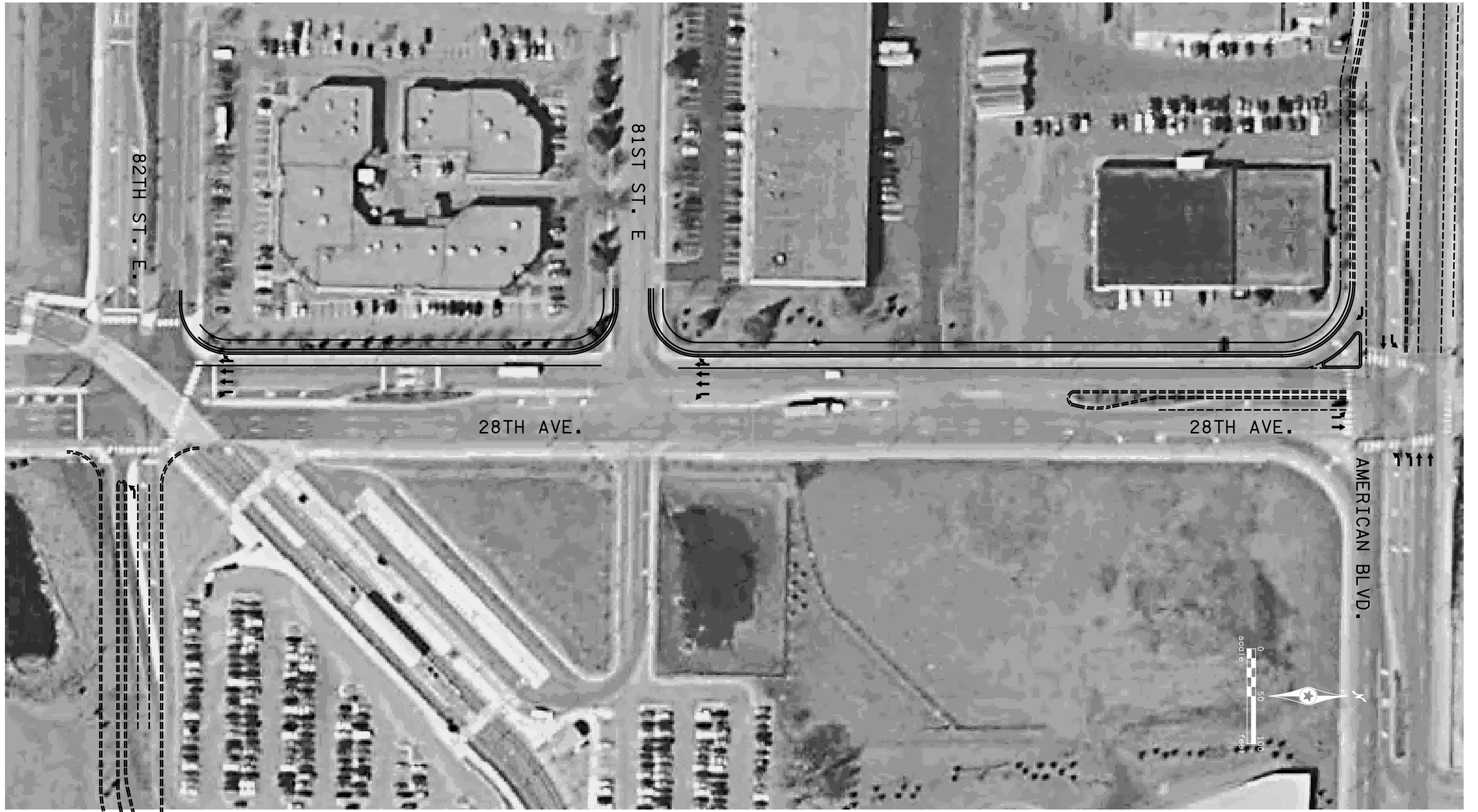


H:\P\rojects\5622\h-mu\Graphics\2012\GR\_19and20.dgn



**Improvements 15, 19 and 20**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington

XXXX  
5/11/2012

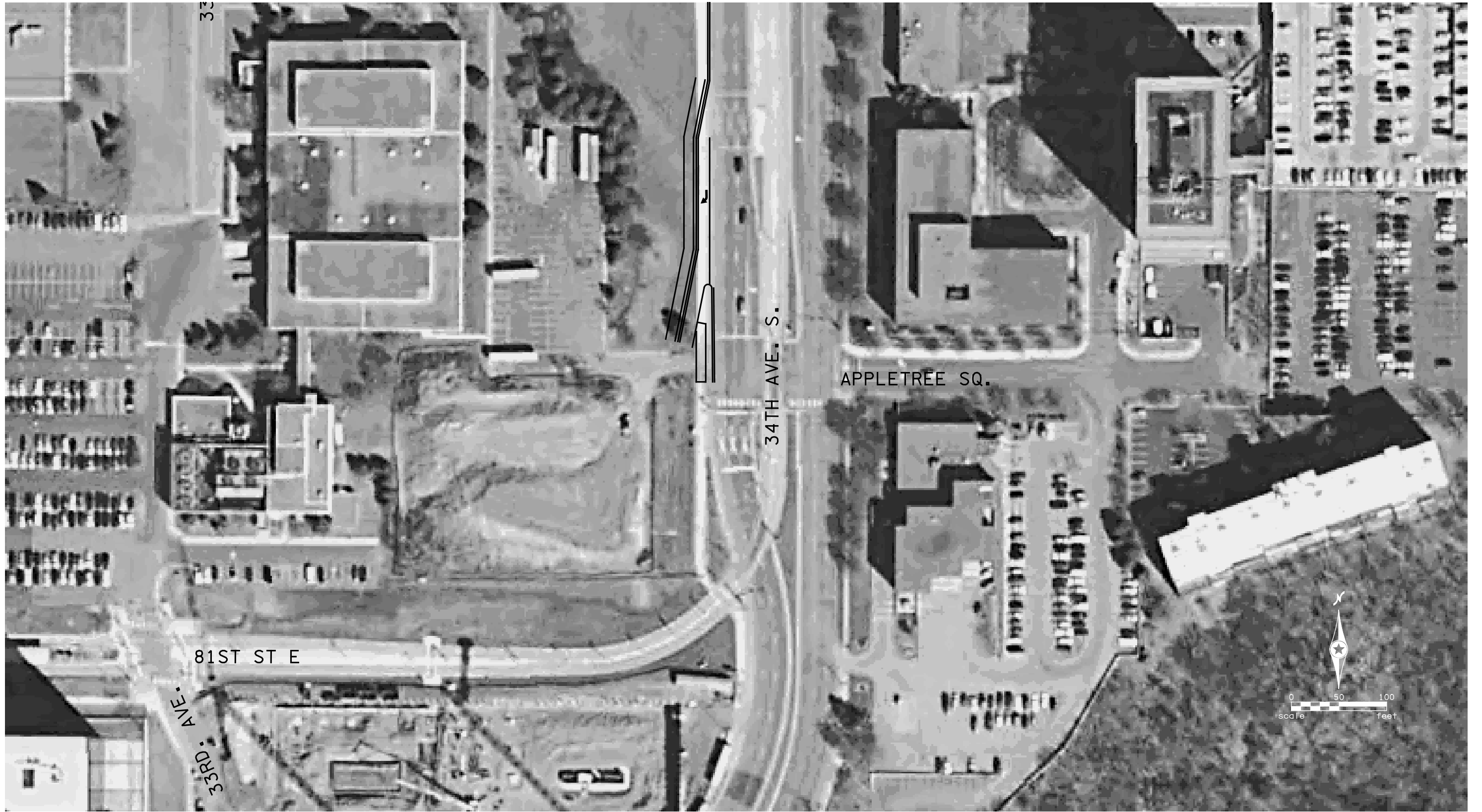


H:\P\Projects\5622\H-m\Graphics\2012\GR\_2012.dgn



**Improvement 20a**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington

XXXX  
5/11/2012

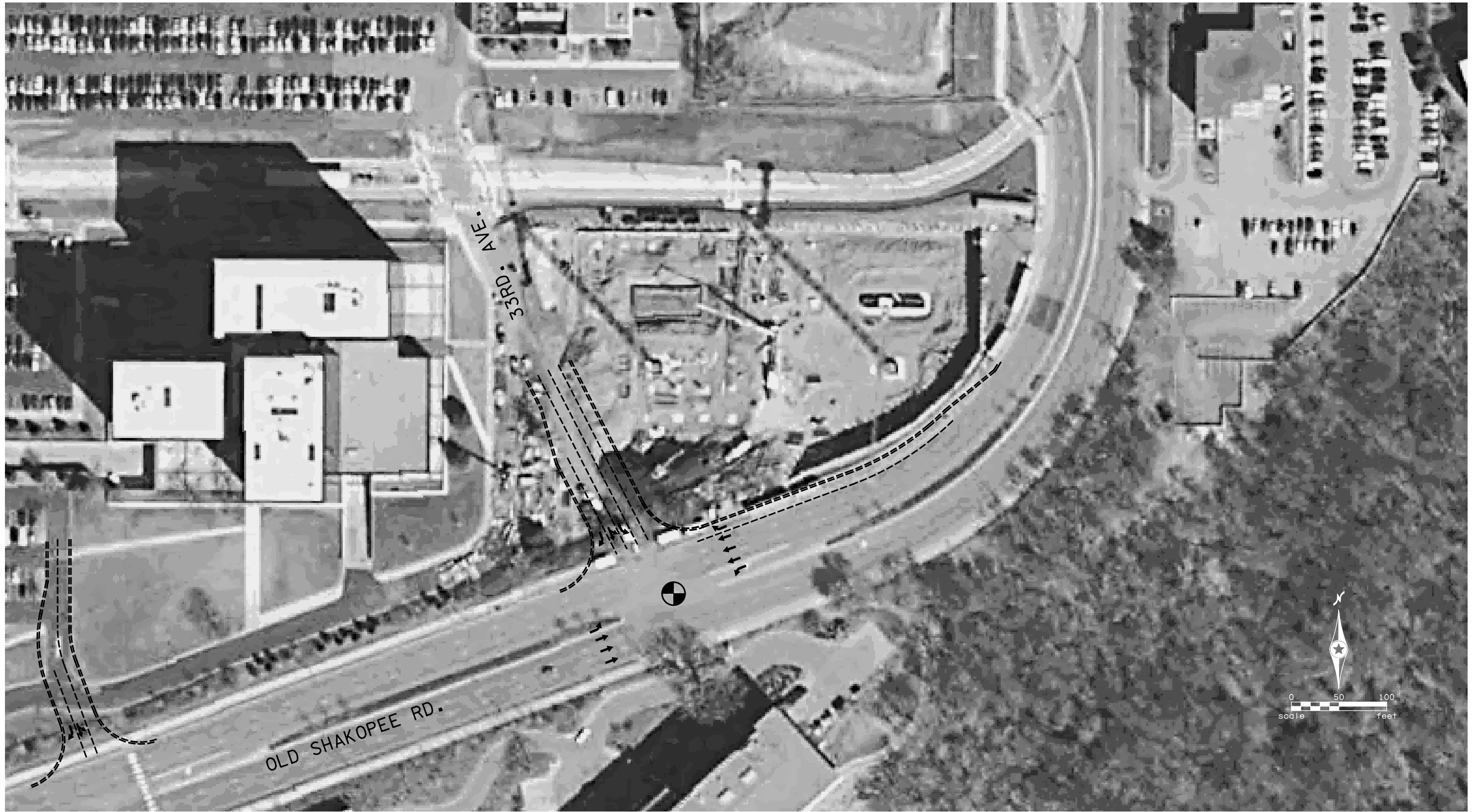


H:\P\ro\eds\5622\1\m\A\Graphics\2009\9R2\1.dgn



**Improvement 21**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington





H:\P\Projects\5622\11-m\A\Graphics\2009\Gr22and23.dgn



**Improvement 22**  
 Airport South Roadway Infrastructure Improvements  
 City of Bloomington



H:\Projects\5622\11-mu\Graphics\2019\CR\_24.dgn



**Improvement 24**  
 Airport South Roadway Infrastructure Improvements  
 City of Bloomington



H:\Projects\5622\11-mu\Graphics\2019\CR\_25.dgn



**Improvement 25**  
 Airport South Roadway Infrastructure Improvements  
 City of Bloomington



H:\P\Projects\5622\H-mu\Graphics\2010\06R\_27.dgn



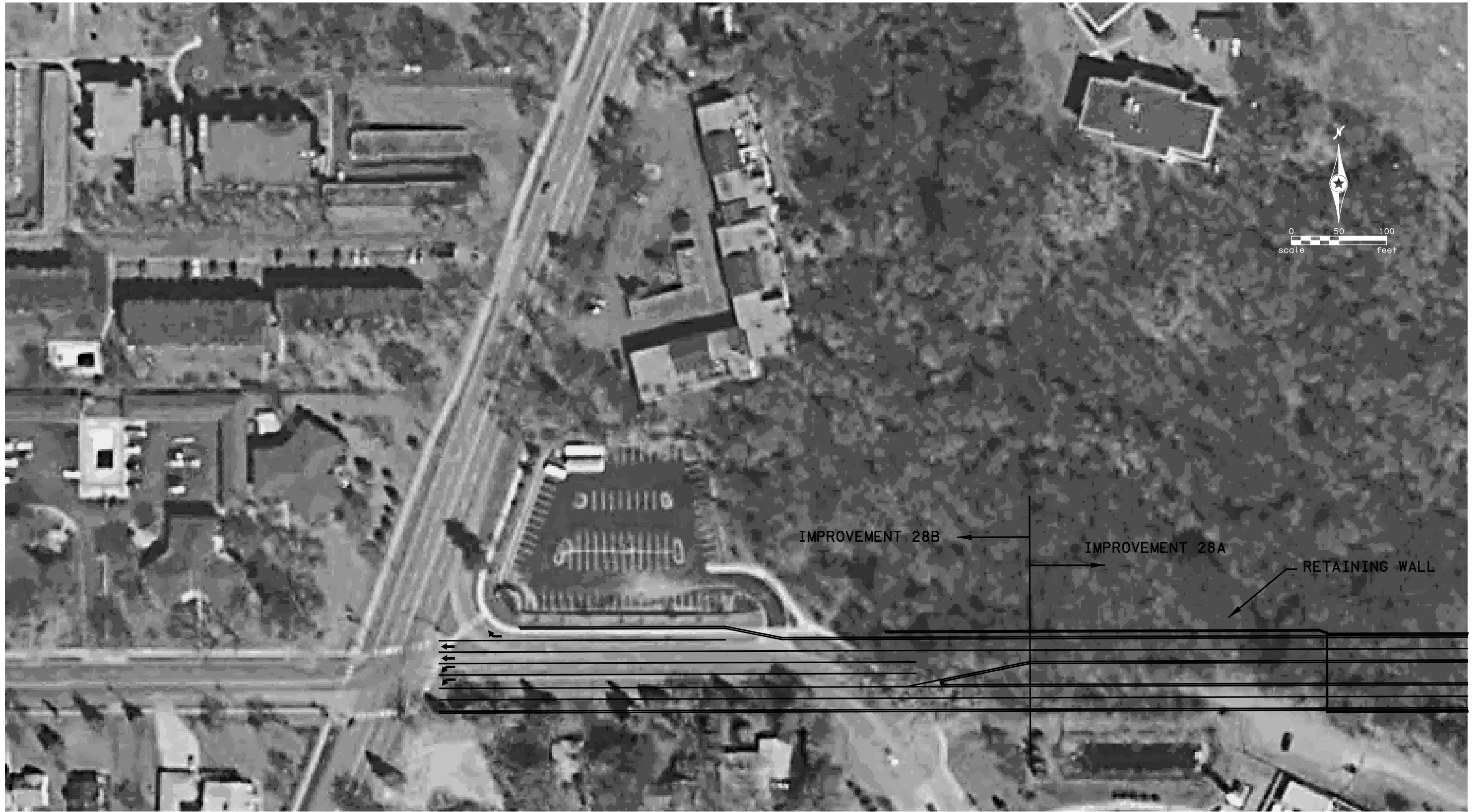
**Improvement 27**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington



H:\Projects\5622\11-mu\Graphics\2010\09\_28\_A.dgn



**Improvement 28A**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington



H:\Projects\5622\1-m\Graphics\2010\GR\_28\_B.dgn



**Improvement 28B**  
Airport South Roadway Infrastructure Improvements  
City of Bloomington

# Attachment C

1/25/2007

T.H. 77

LINDAU LANE

FILL UP AGAINST EXISTING RETAINING WALL

NO PARKING WILL BE POSSIBLE

☉ RAMP B

☉ 20TH ST

☉ ROUND-A-BOUT

☉ RAMP A

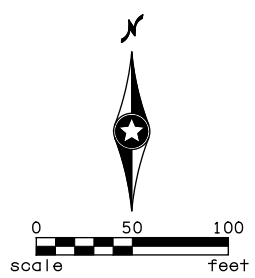
☉ WALK

GRADES TIE TO LOWERED LINDAU LANE AND WILL WORK FOR EXISTING CONDITION AS WELL

NO ACCESS FROM STREET TO DOOR

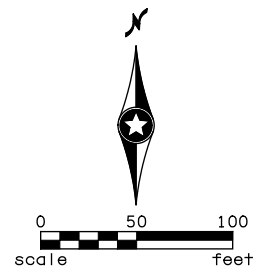
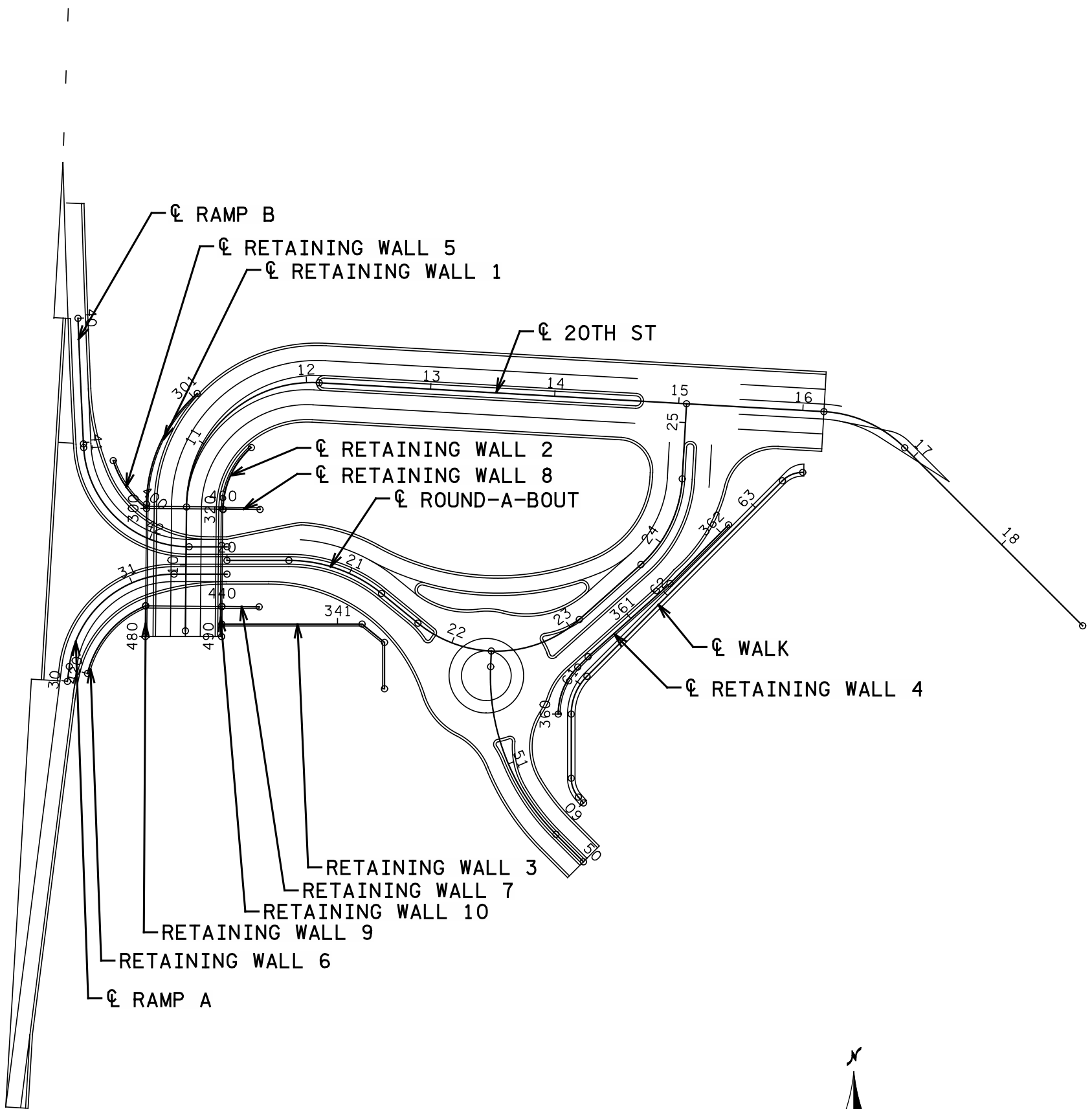
ACCESS REMOVED TO FIRST FLOOR OF RAMP

5% GRADE MATCHES EXISTING RAMP



**TH 77 CONNECTION TO LINDAU LANE**



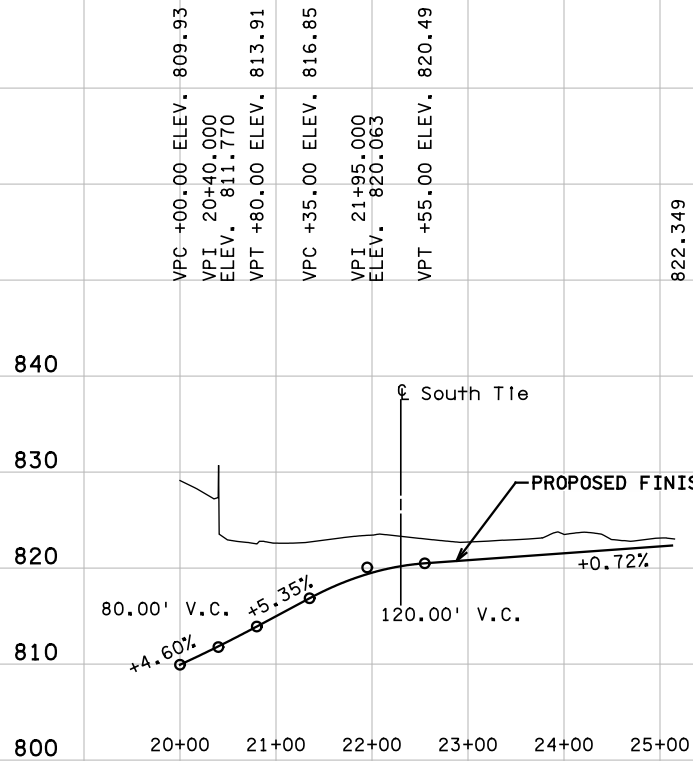


**TH 77 Connection to Lindau Lane Wall Locations**

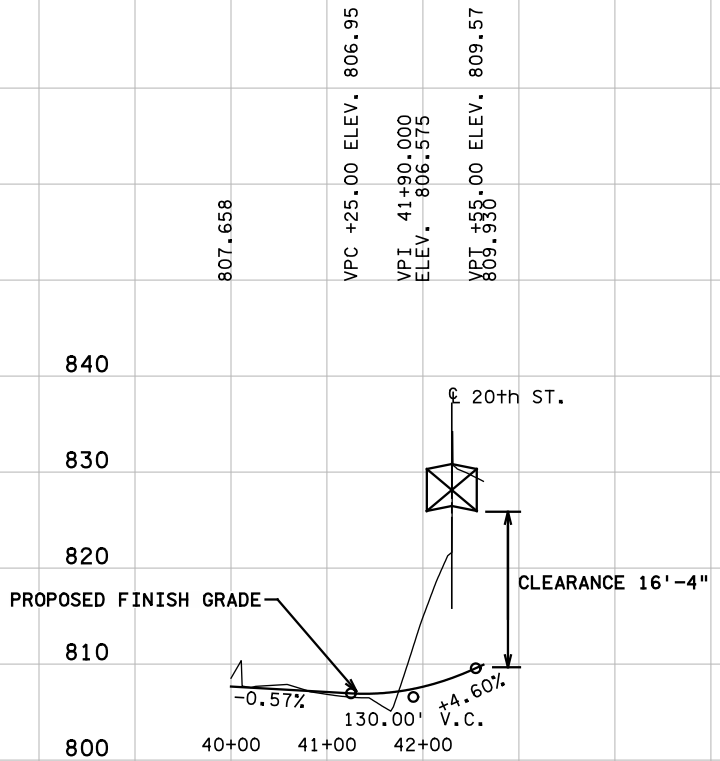
Airport South Roadway Infrastructure Improvements  
 City of Bloomington

5622  
 3-22-2006

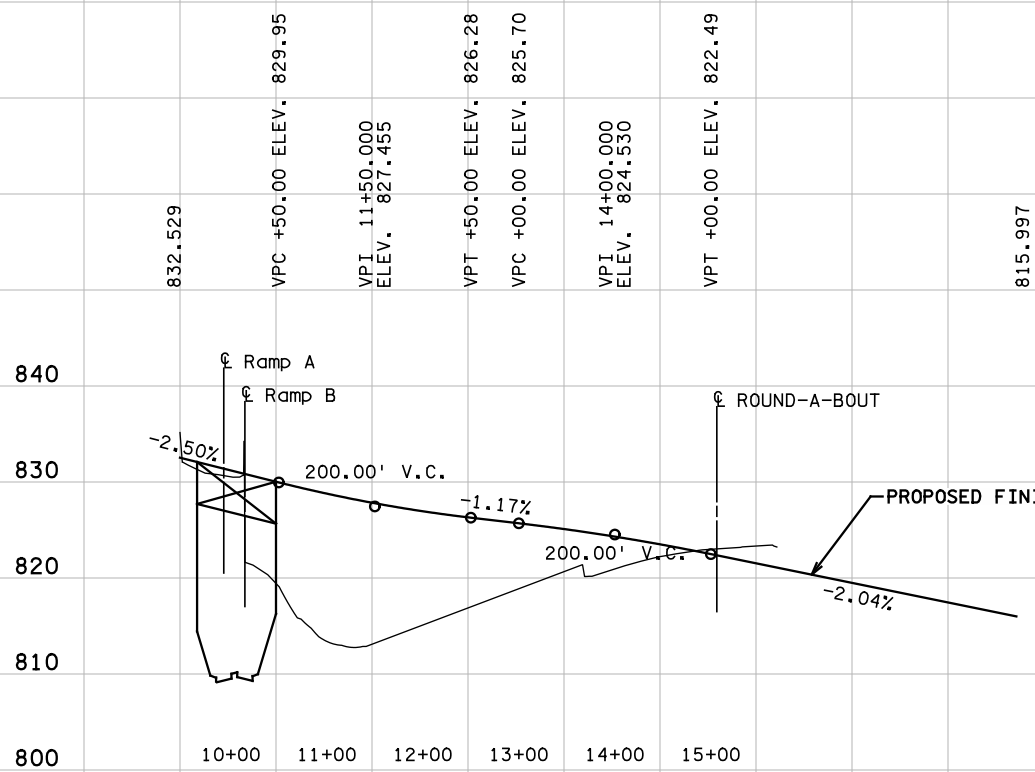
**ROUND-A-BOUT**



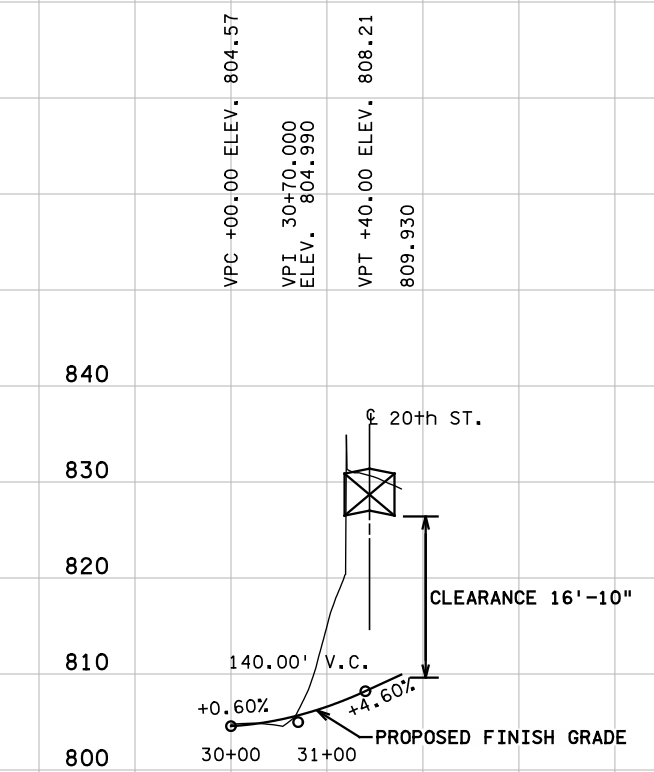
**RAMP B**



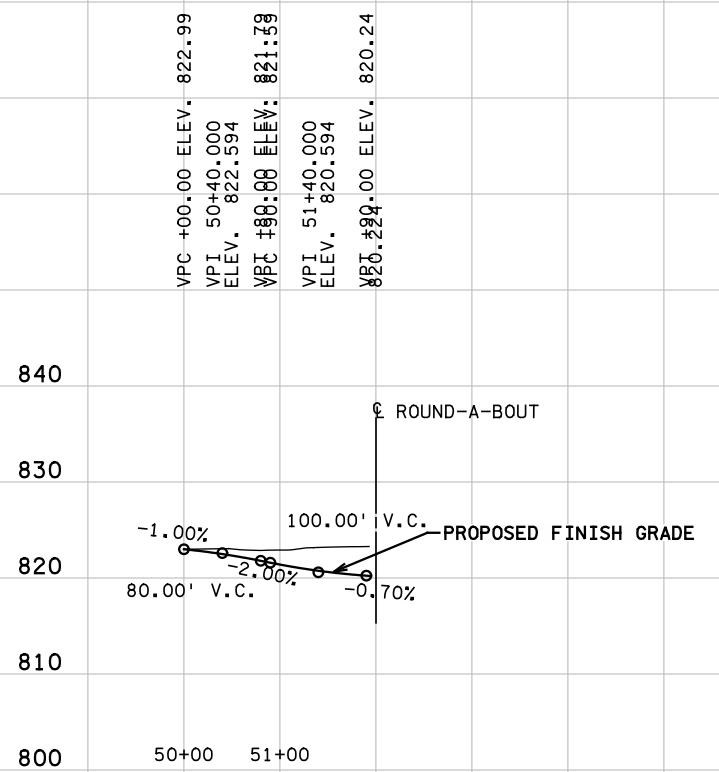
**20TH ST**



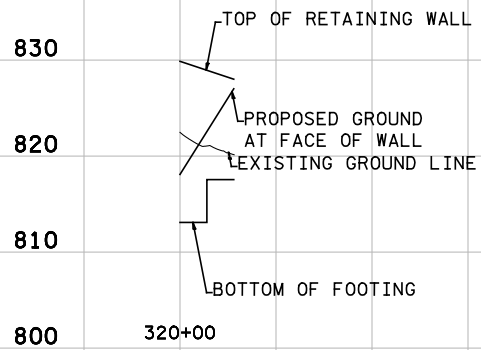
**RAMP A**



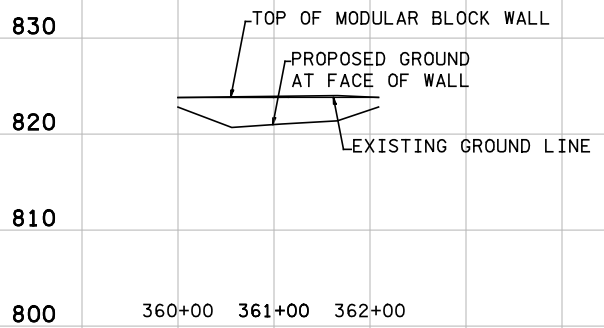
**SOUTH TIE**



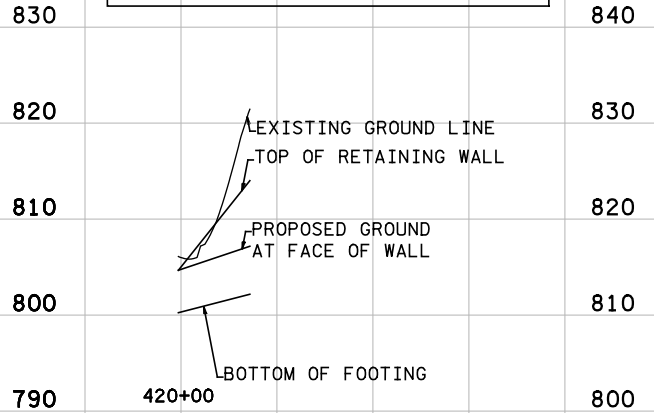
RETAINING WALL 2



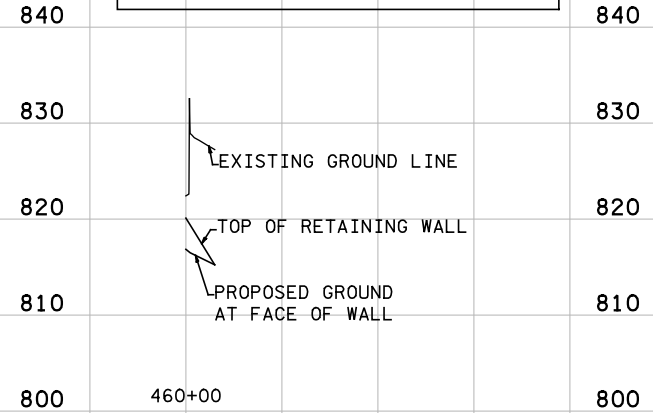
RETAINING WALL 4



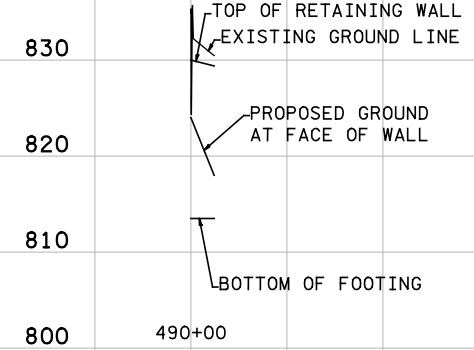
RETAINING WALL 6



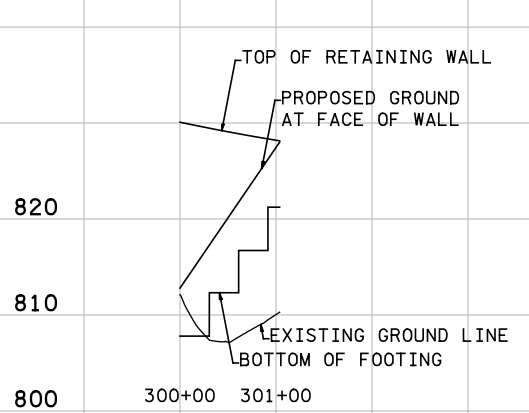
RETAINING WALL 8



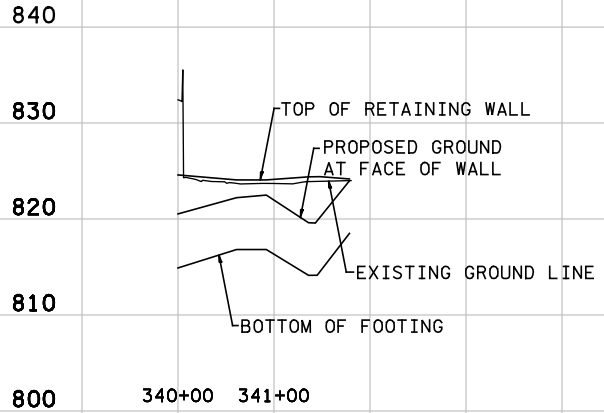
RETAINING WALL 10



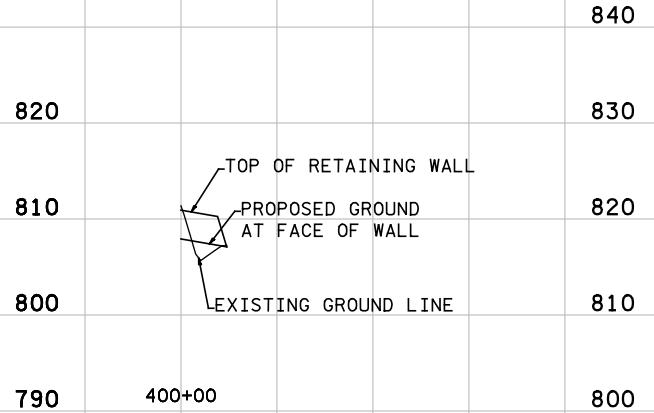
RETAINING WALL 1



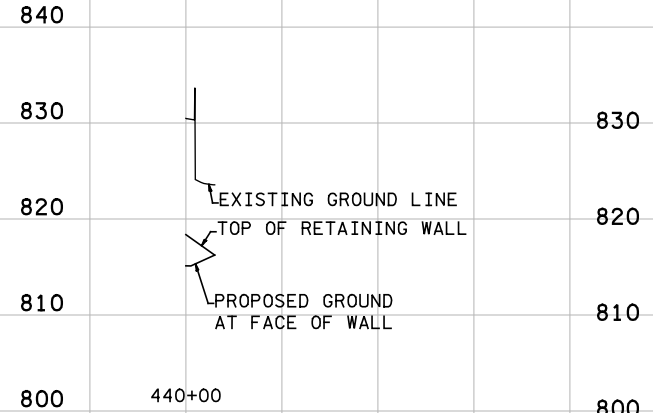
RETAINING WALL 3



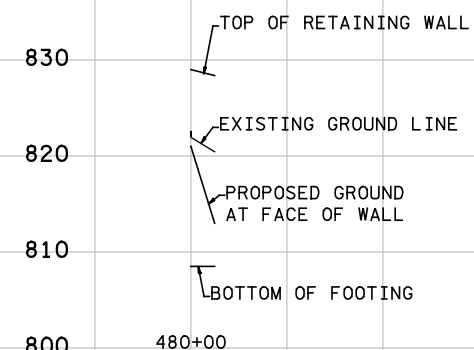
RETAINING WALL 5



RETAINING WALL 7

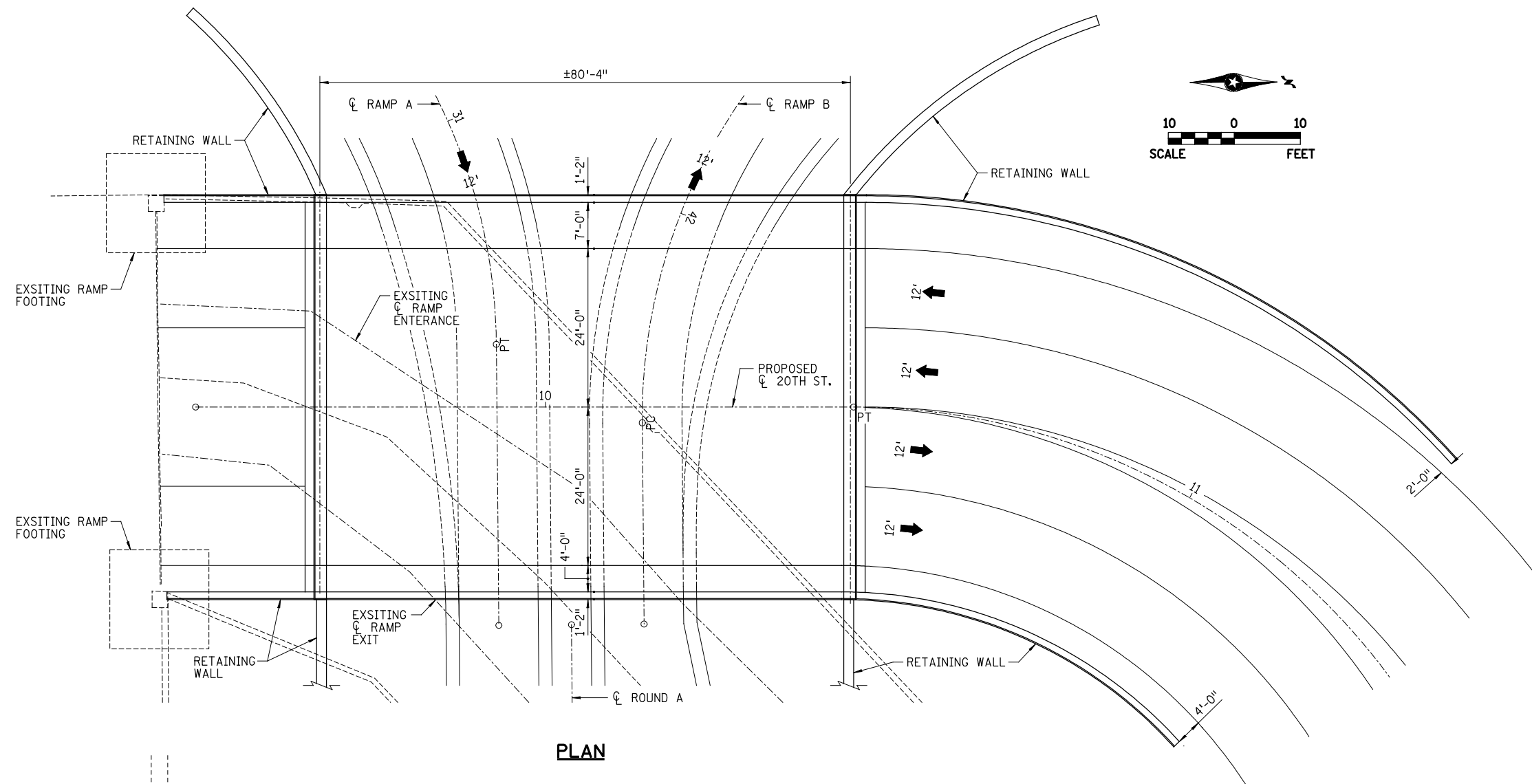


RETAINING WALL 9

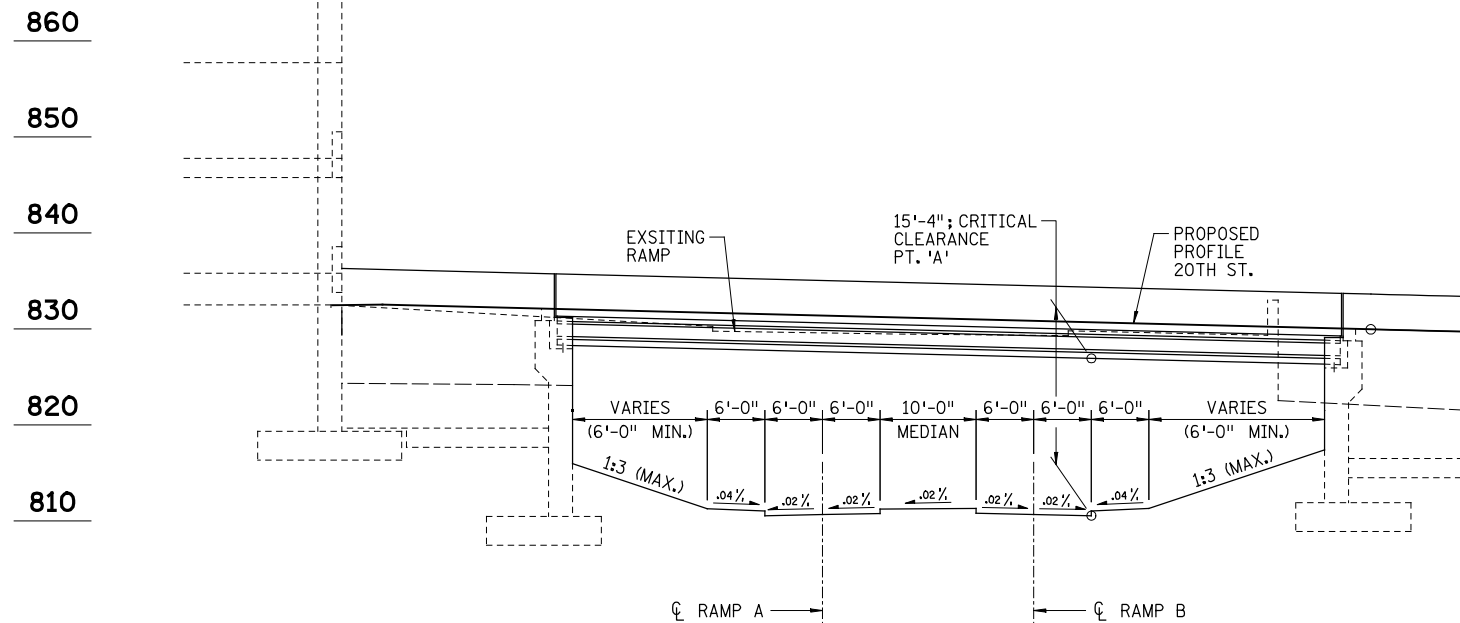


Retaining Wall Profiles

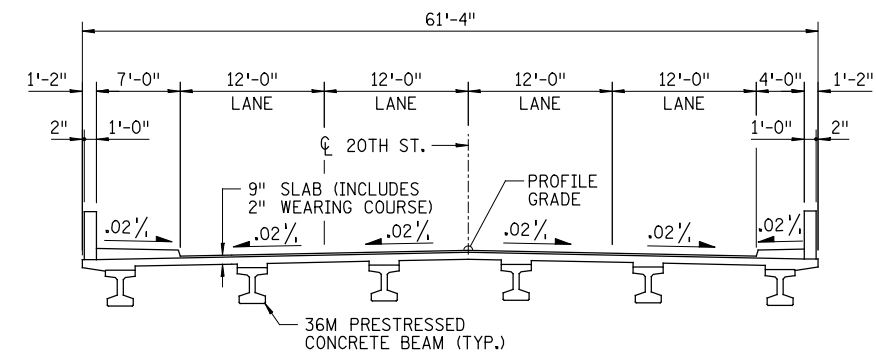
4/46/14 PM  
H:\Projects\5622\11-mu\5622\_p2.dgn



**PLAN**



**ELEVATION**



**TYPICAL SECTION**

NO	DATE	BY	CKD	APPR	REVISION

◆FILE◆

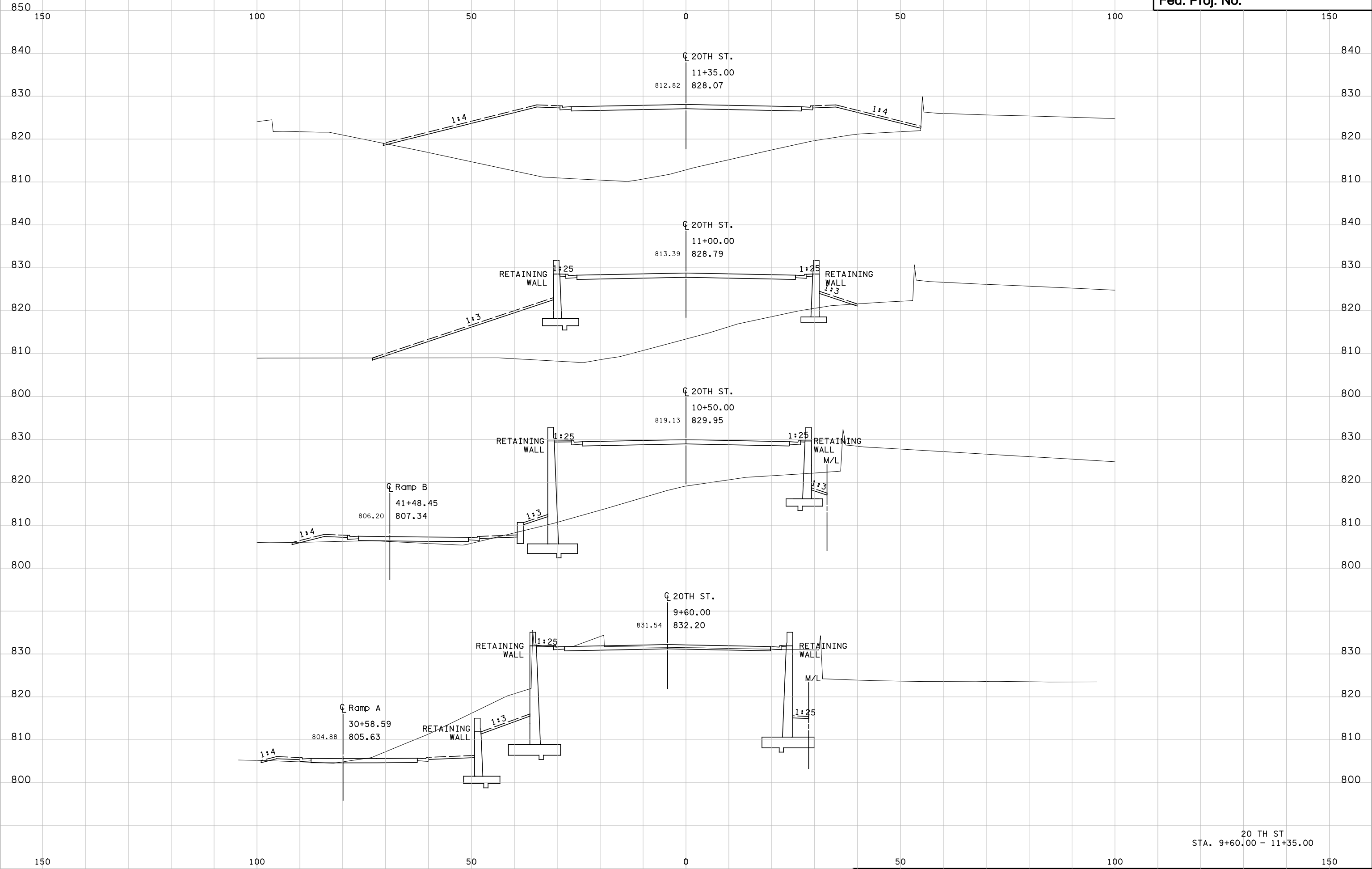
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  
 Print Name: LARRY A. ERICKSON  
 License # 14546

DRAWN BY E. JOHNSON DATE X/XX  
 DESIGNED BY K. SWEHLA X/XX  
 CHECKED BY L. ERICKSON X/XX  
 COMM. NO. \_\_\_\_\_  
 COMM. NO. \_\_\_\_\_



**CITY OF BLOOMINGTON**  
**20TH STREET OVER RAMPS A & B**  
**BRIDGE CONCEPT PLAN**

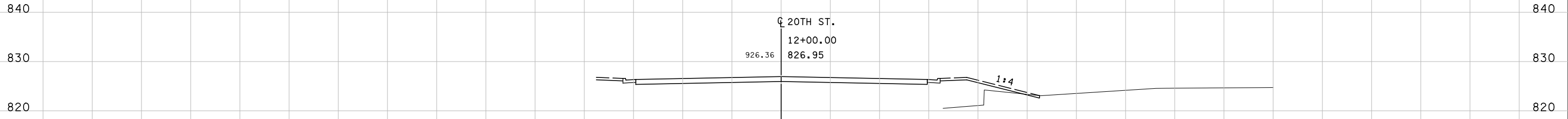
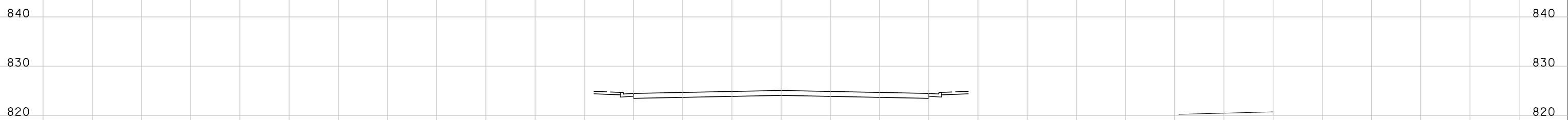
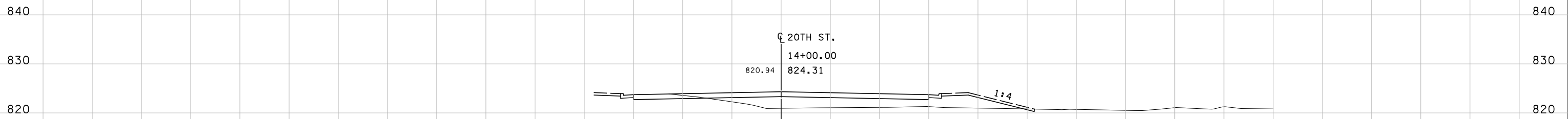
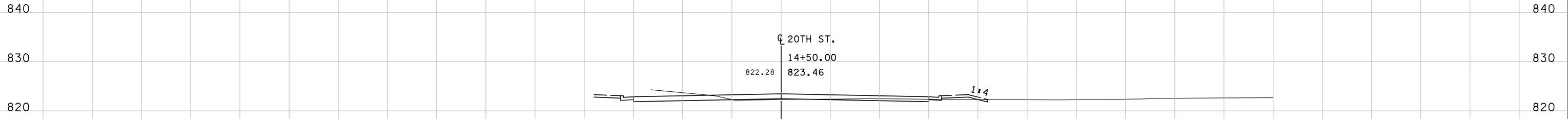
**SHEET**  
**X**  
**OF**  
**XX**



20 TH ST  
STA. 9+60,00 - 11+35,00

1:57:58 PM  
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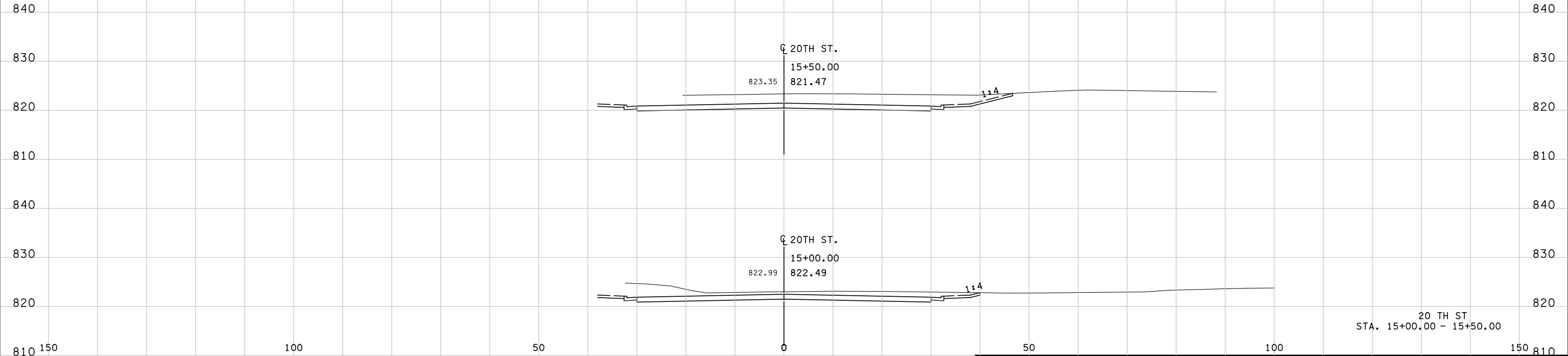
150 100 50 0 50 100 150



20 TH ST  
STA. 11+50.00 - 14+50.00

1:57:56 PM  
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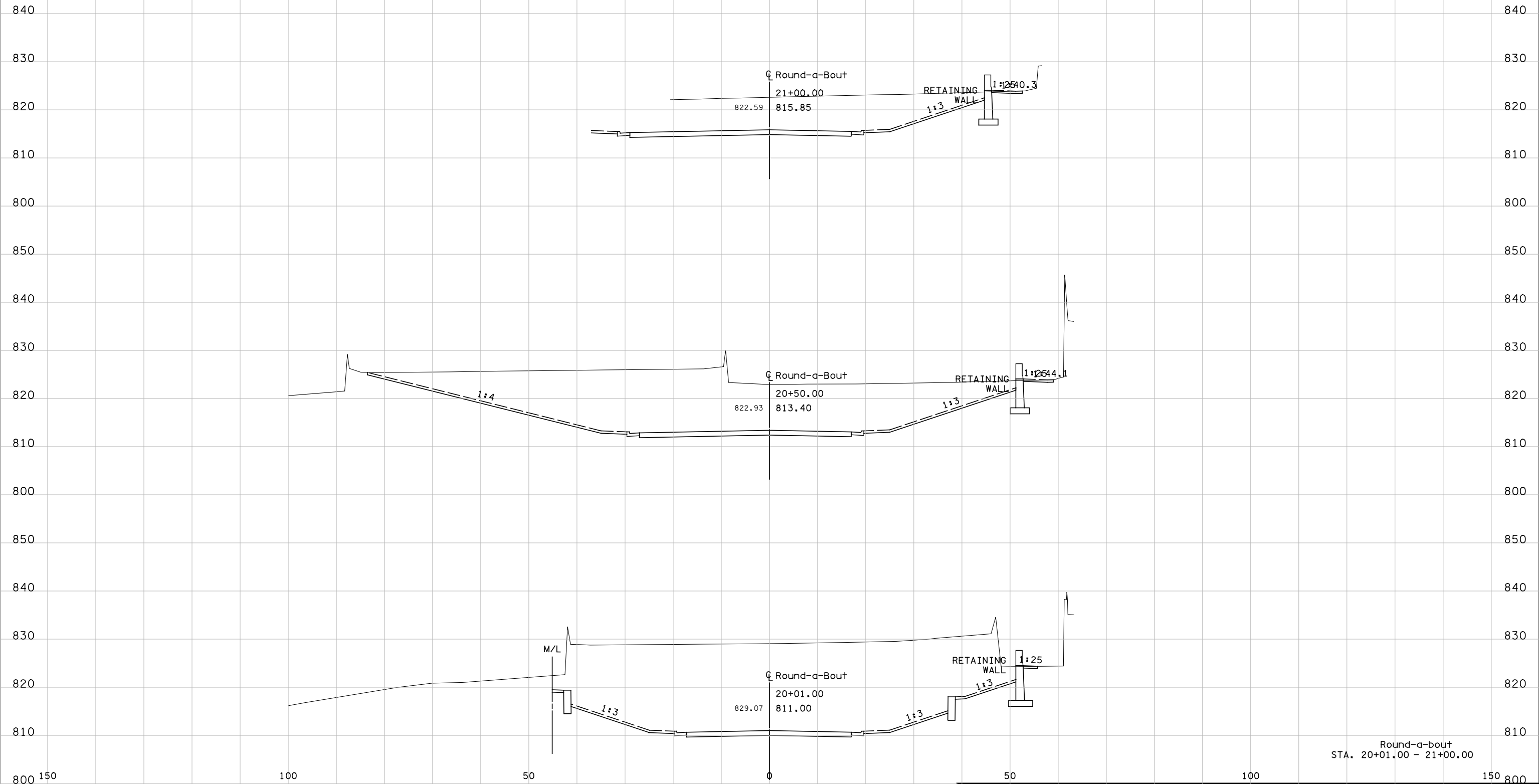
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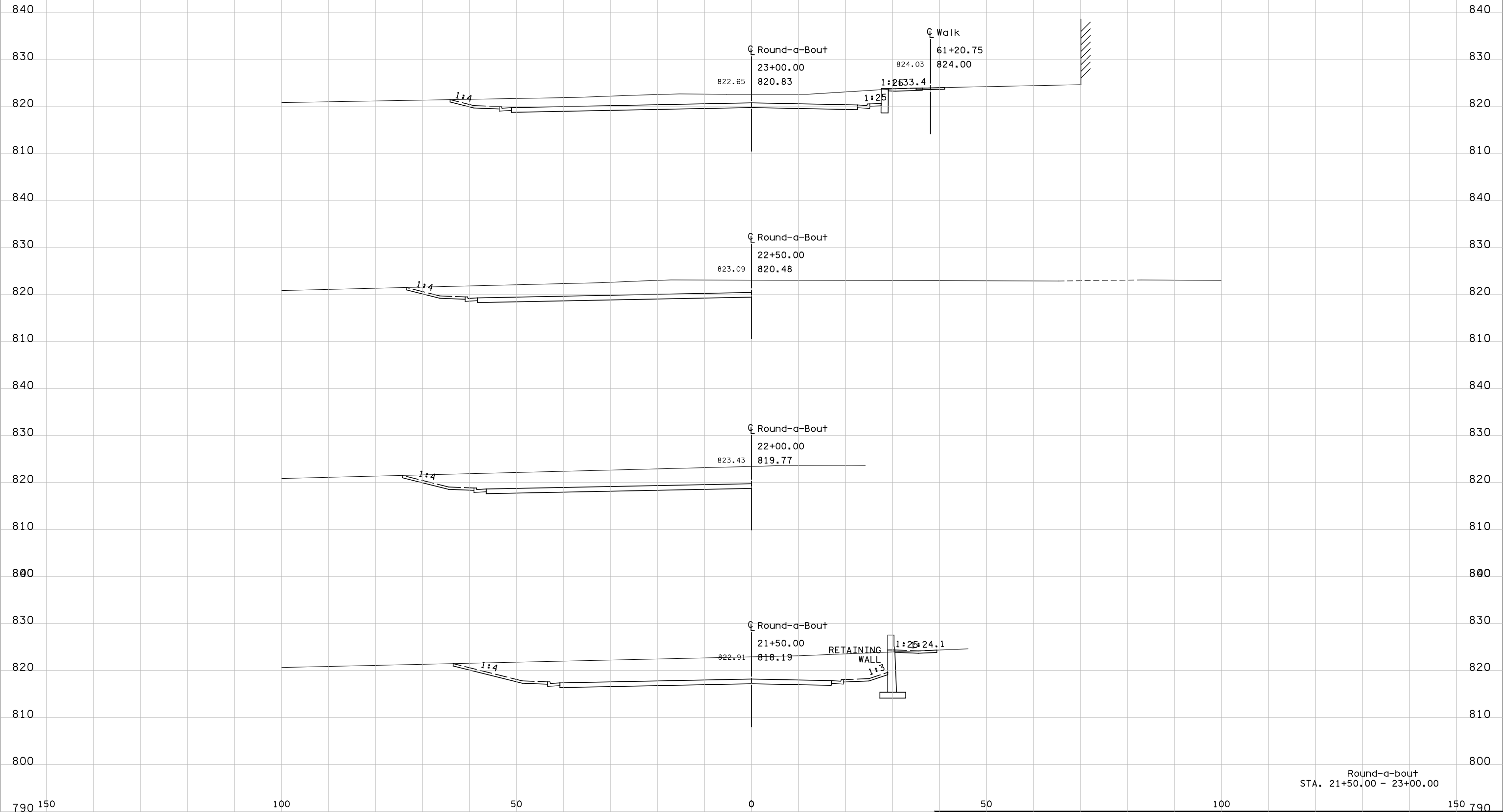


Round-a-bout  
STA. 20+01.00 - 21+00.00

1:58:01 PM  
3/1/2006  
H:\projects\5622\h1-mu\5622\_xsb.dgn



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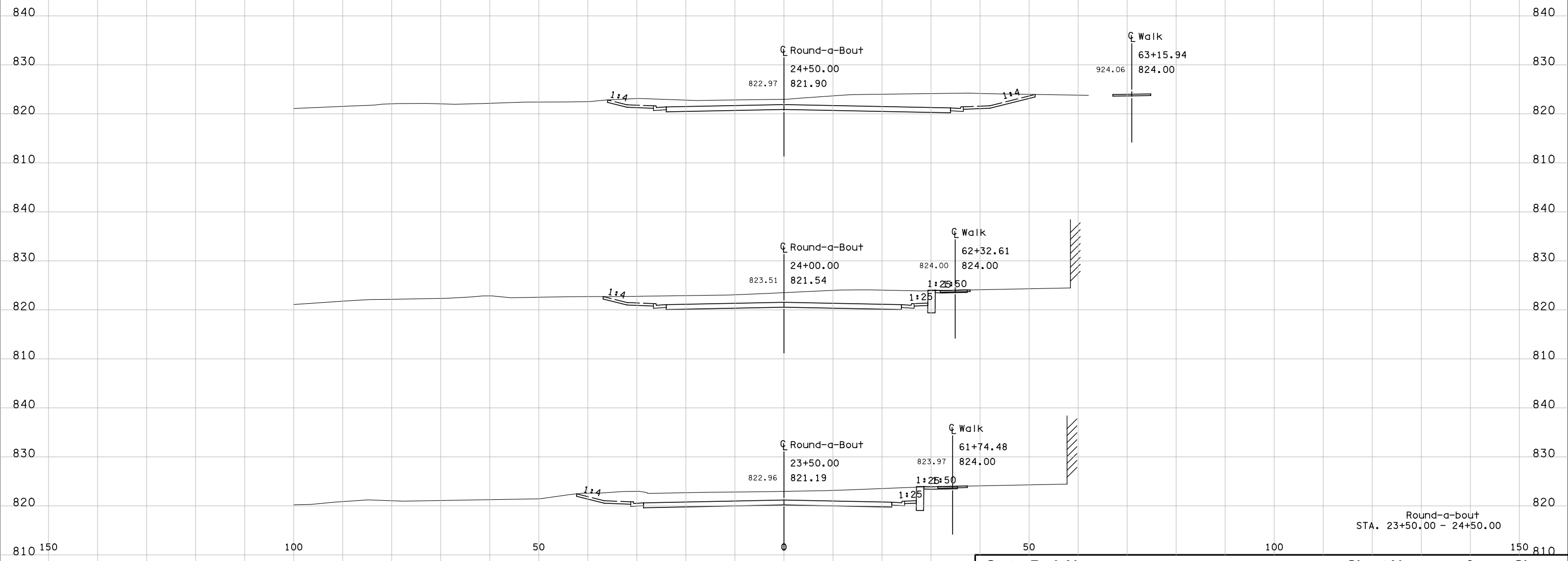


Round-a-bout  
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1:58:02 PM  
I:\projects\5622\1-mu\5622\_xsb.dgn

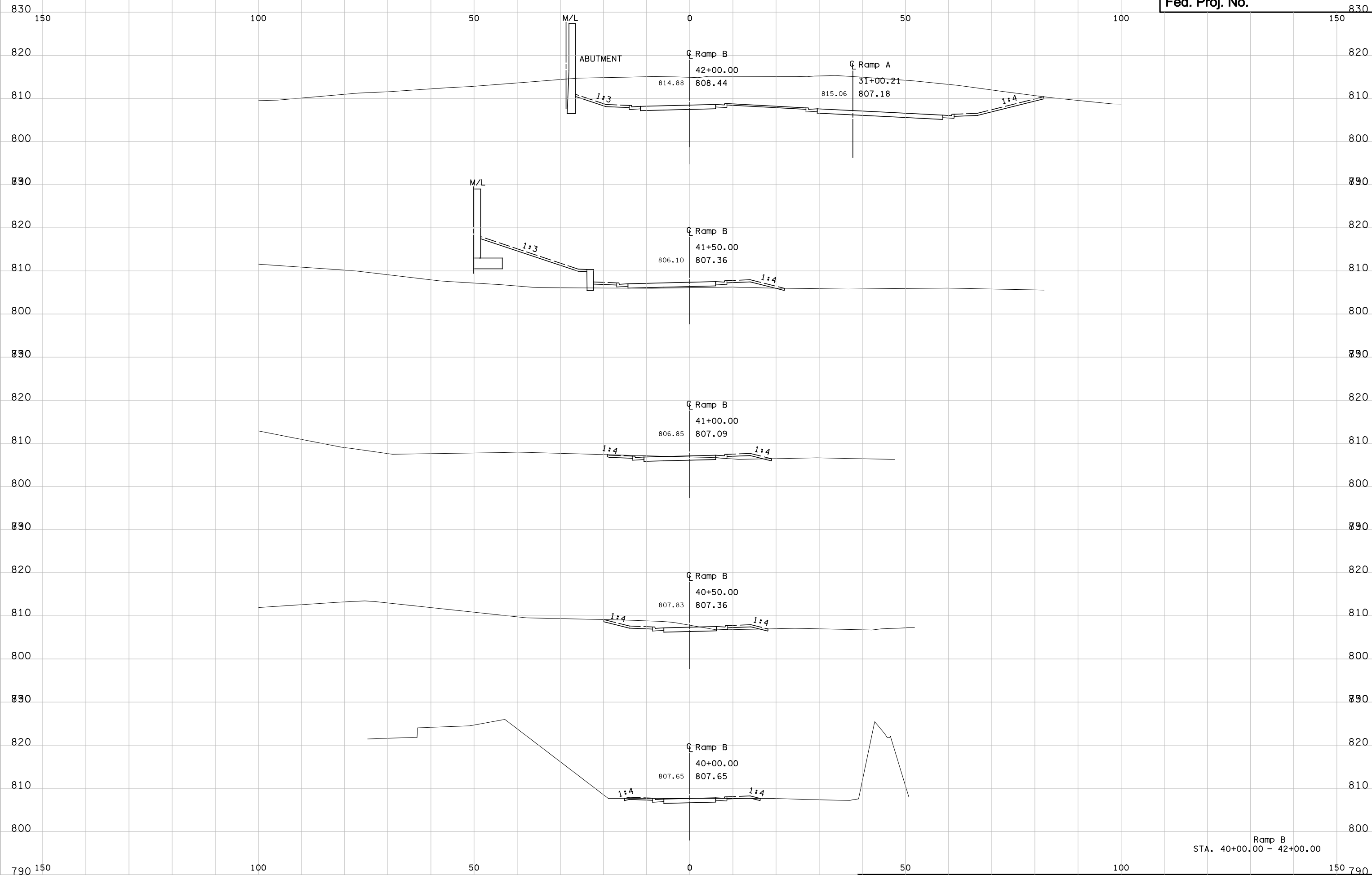
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150 100 50 0 50 100 150



Round-a-bout  
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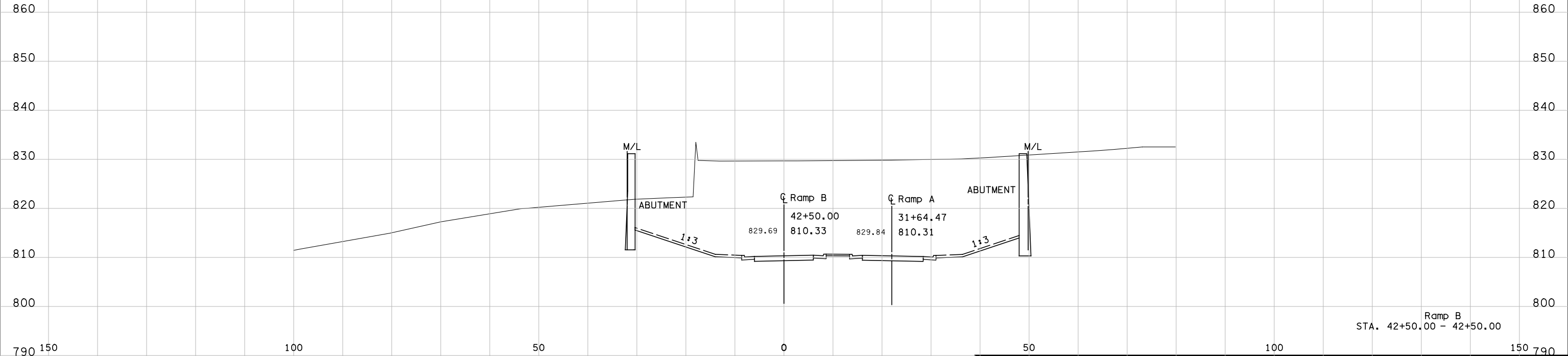
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I:\projects\5622\1-mu\5622\_xsb.dgn



Ramp B  
STA. 40+00.00 - 42+00.00

1:58:04 PM  
C:\Users\j\Documents\Projects\5622\11-mu5622\_xsc.dgn

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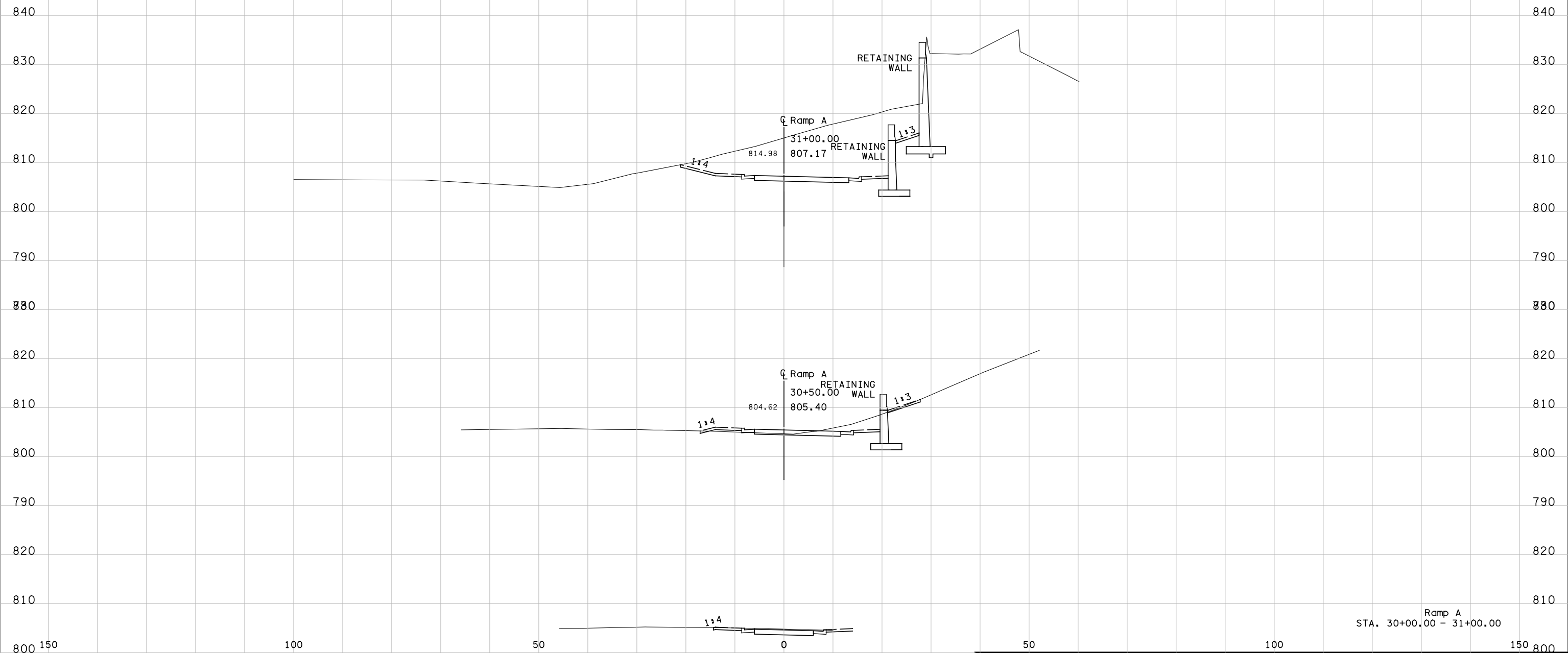


Ramp B  
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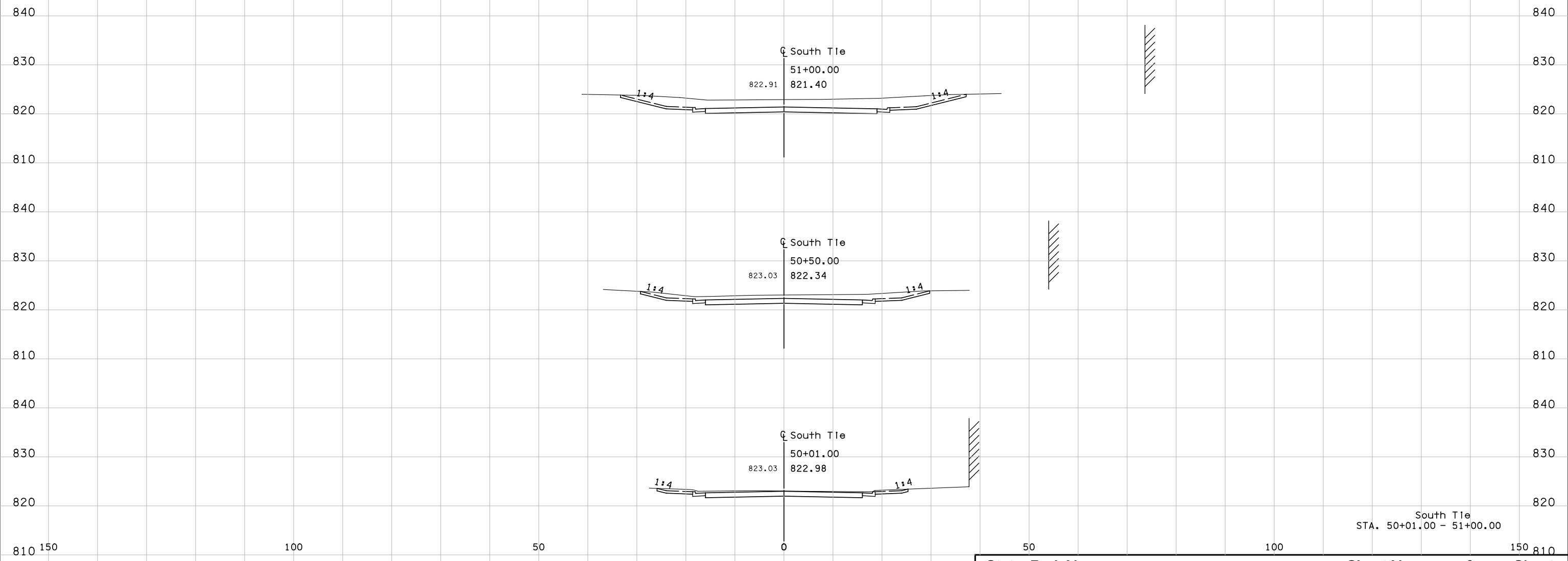
150 100 50 0 50 100 150



Ramp A  
STA. 30+00.00 - 31+00.00

1:58:06 PM  
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150 100 50 0 50 100 150



South Tie  
STA. 50+01.00 - 51+00.00

1:58:08 PM  
I:\projects\5622\1-mu\5622\_xse.dgn

810 150 100 50 0 50 100 150

# Attachment D

1/25/2007



AIRPORT SOUTH ROADWAY  
 INFRASTRUCTURE IMPROVEMENTS  
 DEVELOPMENT AND TAZ LOCATIONS  
 FIGURE 2









