

Report for Wisconsin Department of Transportation

2002 South Reliever Impact Analysis Summary

Prepared by:

STRAND ASSOCIATES, INC.[®]
910 West Wingra Drive
Madison, WI 53715
www.strand.com

January 11, 2008



TABLE OF CONTENTS

	<u>Page No. or Following</u>
SECTION 1–INTRODUCTION AND EXECUTIVE SUMMARY	
1.01 Introduction	1-1
1.02 Executive Summary	1-2
SECTION 2–SOUTH RELIEVER DESCRIPTION	
2.01 Possible Stages	2-1
2.02 Stage Combination	2-7
SECTION 3–EVALUATION	
3.01 Traffic Capture	3-1
3.02 Right-Of-Way Impacts.....	3-5
3.03 Possible Costs	3-7
3.04 Noise Impacts	3-9
SECTION 4–PUBLIC REACTION	
4.01 Public Meeting November 19, 2002.....	4-1
4.02 Other Public Input	4-2
4.03 Resource Agency Input	4-3
SECTION 5–CONCLUSIONS	
5.01 Study Needs and Goals	5-1
5.02 South Reliever Analysis	5-1
5.03 Conclusions	5-1

APPENDICES

- APPENDIX A–SOUTH RELIEVER EXHIBITS
- APPENDIX B–PARK STREET INTERCHANGE EXHIBITS
- APPENDIX C-2030 MADISON AREA MPO TP+ SOUTH RELIEVER SUMMARY

TABLE OF CONTENTS Continued

Page No.
or following

TABLES

1.02-1	Estimated Right-of-Way Requirements for South Reliever Combinations .	1-4
1.02-2	Estimated Possible Costs for Verona Road Alternatives and South Reliever	1-5
3.01-1	Comparison of Traffic Volumes from TRANPLAN	3-3
3.01-2	2020 Volumes for Stage 1 with Park Street Interchange from TRANPLAN.....	3-2
3.02-1	Estimated Right-of-Way Requirements for South Reliever Stages.....	3-6
3.02-2	Estimated Right-of-Way Requirements for Park Street Interchange Alternatives	3-6
3.03-1	Estimated Possible Costs for the South Reliever	3-7
3.03-2	Estimated Possible Costs for Verona Road Alternatives and South Reliever	3-8

FIGURES

1.01-1	Proposed South Reliever Alignment	1-2
1.02-1	Year 2020 Traffic Volume Comparison of South Reliever Alignment Options.....	1-3
2.01-1	Stage 1 Alignment.....	2-1
2.01-2	Ramp Alignment for Alternative 1 of Park Street Interchange	2-3
2.01-3	Ramp Alignment for Alternative 2 of Park Street Interchange	2-4
2.01-4	Ramp Alignment for Alternative 3 of Park Street Interchange	2-5
2.01-5	Stage 2 Alignment.....	2-6
2.01-6	Stage 3 Alignment.....	2-6
3.01-1	Comparison of Stage 3N and 3S 2020 Traffic Volumes	3-4
3.01-2	Year 2020 Traffic Volume Comparison.....	3-5

SECTION 1
INTRODUCTION AND EXECUTIVE SUMMARY

1.01 INTRODUCTION

As an alternative to expanding US 151/Verona Road and US 12/14, the Wisconsin Department of Transportation (WisDOT) evaluated a South Reliever roadway in the south portion of the Madison metropolitan area, which was investigated in response to public input. The analysis was performed in the summer and fall of 2002 using data available at that time. Additional investigations are occurring in the fall of 2007, but they are not part of this summary.

The goal of the South Reliever would be to fulfill the project purpose and need for the US 151/18-US 12/14 (Verona Road/West Beltline) Environmental Impact Study (EIS), which includes the following components:

- Provide US 151 system continuity and consistency with the Corridors 2020 State Highway Plan.
- Improve regional mobility.
- Improve highway safety.
- Improve neighborhood connectivity for transit and nonmotorized travel.
- Improve metropolitan traffic movements and local access.

To address these needs for the study area, and for regional and local traffic, a South Reliever would need to draw a significant volume of traffic from the study corridor in general, and the Beltline interchange area in particular. In this way, conditions on and near existing Verona Road would be improved so that it could once again serve adequately as a metropolitan urban arterial.

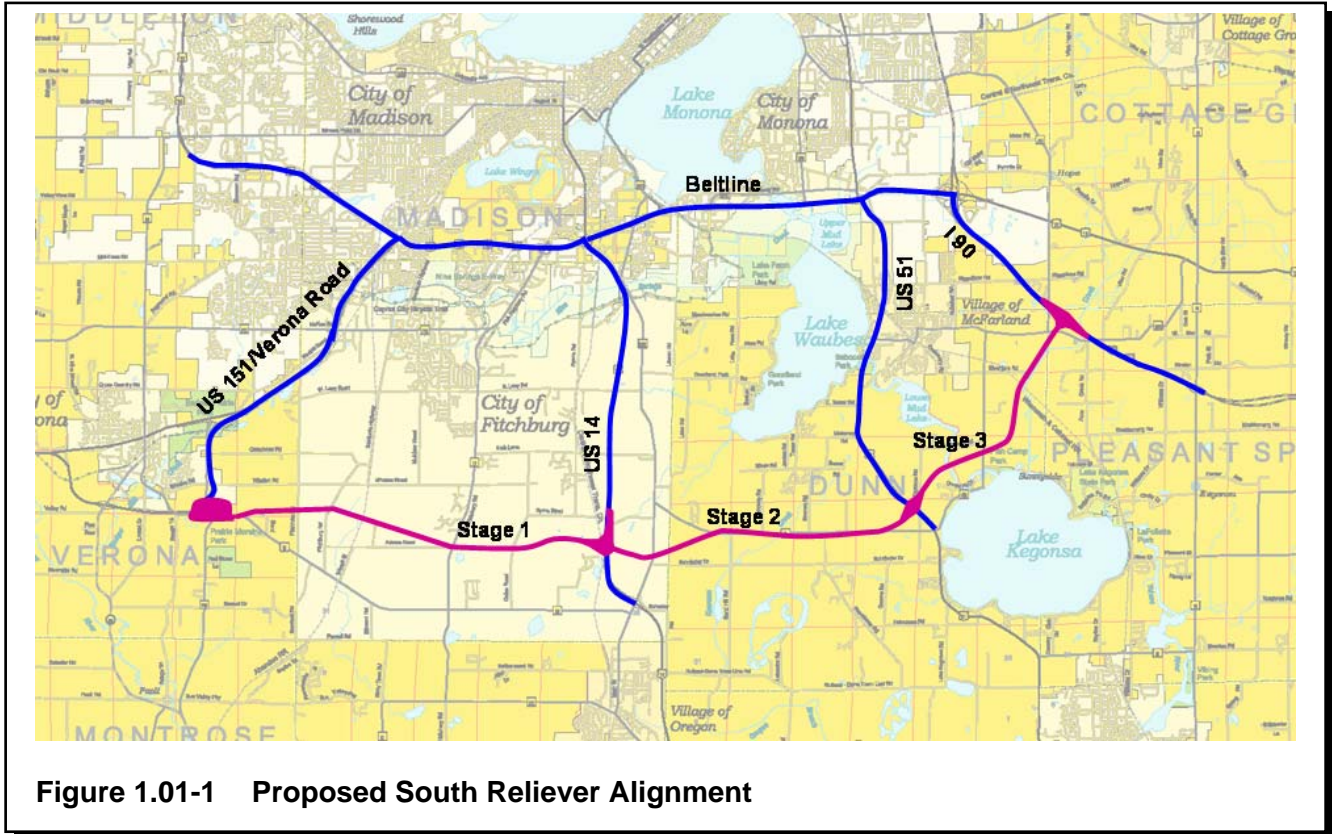
The South Reliever alignment evaluated as part of the Verona Road Study relocates US 18/151 off its current alignment at the City of Verona and reroutes it east through the City of Fitchburg, Town of Dunn, and Town of Pleasant Springs, connecting with Interstate 39/90 near the existing weigh station north of County N. The South Reliever alignment studied was selected to balance impacts and costs. However, it is approximate and would need further refinement if a study specifically for a South Reliever is initiated in the future. For example, another possible routing alternative could be to follow existing two-lane roads reusing existing right-of-way (R/W); however this would increase the number of relocations required. A four-lane freeway facility¹ with grass median was the roadway type studied. Compared to a four-lane expressway, it is safer, has higher capacity, and limits access to interchanges, all of which are important features of backbone routes.² However, both a freeway and an expressway would be expected to attract similar volumes of traffic in the 20-year period studied, and the cost for both would be similar, so the study outcome is essentially the same if a four-lane expressway is selected.

The South Reliever was divided into three stages that could be implemented together or incrementally. Stage 1 would connect the existing US 18/151 with US 14 and brings US 18/151 north on US 14 to the Madison Beltline. Stage 1 would consist of 6.5 miles of new four-lane roadway that is off-alignment. If Stage 1 were implemented by itself, improvements to the US

¹ It is more difficult to provide a freeway facility on the alignment of an existing roadway because of the development and driveways that already exist on that roadway.

² Corridors 2020 Backbone routes are the state's most important roadways and include interstates and other principal arterials.

14/Beltline interchange would be required to increase the capacity of the west-to-south and north-to-east US 18/151 backbone movements. The study analyzed several options, each of which would modernize the existing free-flow ramps and add a west-to-south free-flow ramp. Stage 2 would connect US 14 and US 51, a distance of 5.0 miles. Stage 3 would connect US 51 and Interstate 39/90, a distance of 4.0 miles. The study analyzed the implementation of the proposed South Reliever stages individually and in combination with each other. A schematic of the alignment of all three stages of the South Reliever is shown in Figure 1.01-1.



1.02 EXECUTIVE SUMMARY

The South Reliever was evaluated with two combinations, Stage 1 alone and Stages 1, 2, and 3 combined. The following paragraphs summarize the results of the evaluations. In both scenarios, there are no improvements to Verona Road or the Beltline.

A. Traffic Capture

Each set of South Reliever combinations was analyzed to determine the amount of traffic that would use the South Reliever and be drawn from the existing US 18/151 (Verona Road) facility. This analysis used the Madison Area Metropolitan Planning Organization's (MPOs) demand model. A base network that estimated year 2020 traffic on the existing roadway system was used

as the base traffic scenario to determine what, if any, traffic benefits to Verona Road or the Madison Beltline would result from constructing the South Reliever.

Traffic volumes along Verona Road and the most congested part of the Beltline are forecasted to increase for all South Reliever combinations over 2001/2002 levels. Modeling indicates that traffic diverted from Verona Road to the South Reliever will be replaced by other traffic that is currently avoiding and in the future would continue to avoid the Verona Road corridor because of high congestion levels. Year 2020 traffic volumes on Verona Road at Williamsburg Way, with a South Reliever in place, would still increase 1 to 2 percent above 2002 traffic volumes. Without a South Reliever, these volumes are projected to grow by about 10 percent. Changes in traffic volume along the rest of Verona Road from Raymond Road to the Beltline would be similar. Since traffic volumes on Verona Road will grow with or without a South Reliever, the need to improve Verona Road in the future will still exist. A traffic volume comparison of the two South Reliever options is shown in Figure 1.02-1. A more detailed traffic analysis can be found in Section 3.

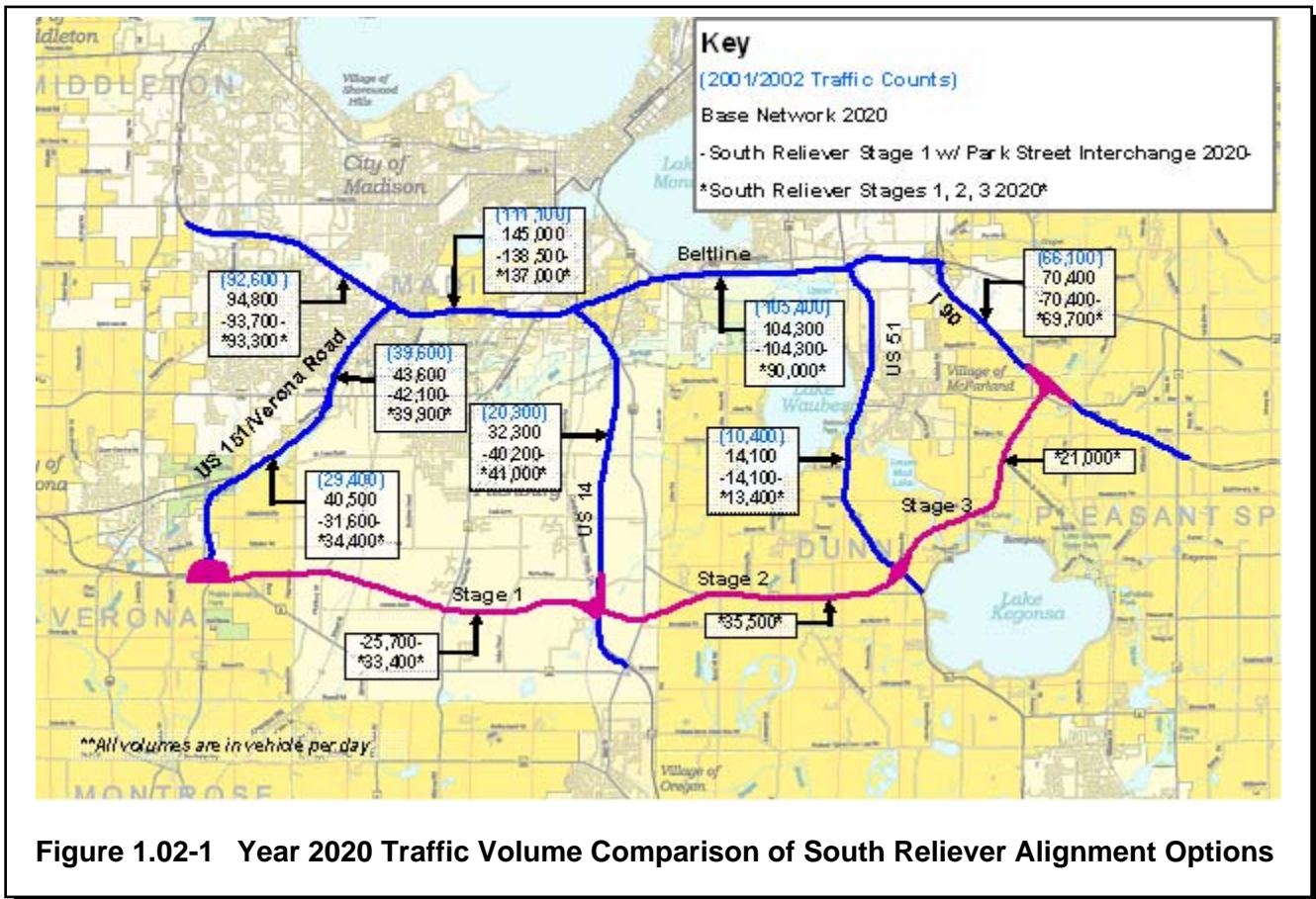


Figure 1.02-1 Year 2020 Traffic Volume Comparison of South Reliever Alignment Options

It should be noted that while the modeling was done for a full freeway facility off the existing alignment, the traffic capture for an expressway facility following County M would be similar. Also, this modeling does not differentiate between truck traffic diverted and auto traffic diverted. WisDOT does not have an automated vehicle classification recorder for US 151. Peak-hour traffic

counts show that trucks make up about 4 percent of the vehicle traffic during the evening peak hour near County PD. Since truck traffic is distributed throughout the day, trucks may comprise up to 8 percent of the traffic on US 151 (or up to 3,000 vpd). Through-truck traffic not destined for Madison is likely to be diverted onto the South Reliever. Further study is being planned to understand this volume more completely.

B. Impacts

Because the proposed South Reliever is a four-lane freeway facility and is in addition to, rather than a replacement of, existing local roads, significant amounts of R/W would be required. This additional R/W would be required whether the South Reliever is built on a new location or follows existing local road corridors. To construct Stage 1 and the Park Street interchange improvements, 600 to 650 acres of R/W would need to be acquired. The construction of this option for the South Reliever would also require approximately 115 to 737 residential and 33 to 65 business relocations, most of them near the Park Street interchange. The amount of R/W and number of relocations required is highly dependent on which Park Street interchange alternative is selected.

If Stages 1, 2, and 3 of the South Reliever are constructed, approximately 1,068 acres of R/W would be required. This would include 43 acres of residential land, 636 acres of farmland, and 250 acres of wetland. Approximately 13 residential, 3 farm, 1 commercial, and three other relocations would be required to complete Stages 1, 2, and 3 of the South Reliever. Improvements to the Park Street interchange would not be needed for this combination and are not included in these estimates. Further study would be required to refine the R/W and relocation requirements for any selected combination of the South Reliever. A summary of the estimated R/W requirements is shown in Table 1.02-1. A more detailed breakdown of the impacts associated with the South Reliever Stages can be found in Section 3.

	Stage 1 with Park Street Interchanges	Stages 1, 2, and 3
Right-of-Way (Acres)		
Farm	330	636
Residential	22-43	43
Commercial	42-71	0
Forested	104	139
Wetland	87	250
Park	2	0
Other	11-15	0
Total	598-652	1068
Relocations		
Agricultural	1	3
Residential*	115-737	13
Commercial	33-65	1
Other	2	3
Total	151-805	20

*Note: Residential relocations are high due to the numerous apartment buildings

Table 1.02-1 Estimated Right-of-Way Requirements for South Reliever Combinations

C. Possible Cost

The possible construction cost for the South Reliever includes the cost of purchasing additional R/W, relocating displaced residents and businesses, and the construction costs of the roadway and structures. R/W costs are highly variable and have been rising in and near the Madison metro area, so they could differ significantly from what is estimated in this report. The estimated cost to construct Stage 1 with the Park Street interchange is between \$112 and \$191 million. This includes \$45 to \$117 million in R/W costs and \$67 to \$82 million in construction costs. The cost for this option is highly variable, depending on which interchange improvement alternative is selected. The estimated cost to construct the second option for the South Reliever, Stage 1, 2, and 3, is \$119 million. This includes \$17 million in R/W costs and \$102 million in construction costs. The cost to construct Stages 1, 2, and 3 of the South Reliever is estimated to fall between the cost of the two Verona Road improvement alternatives. The cost to construct Stage 1 with the Park Street interchange is highly variable, depending on which alternative would be ultimately selected. The cost for this alternative ranges from between the two Verona Road alternatives to approximately \$50 million more than the Verona Road free flow alternative. Further study would need to be performed to refine the cost estimate for any selected South Reliever option. Table 1.02-2 shows a comparison of the costs of the Verona Rd and South Reliever alternatives. A more detailed cost breakdown for the South Reliever Stages can be found in Section 3.

	Stage 1 with Park Interchange	Stages 1, 2, and 3	Verona Road Urban	Verona Road Free Flow
Costs				
Right-of-Way	\$45 - \$117	\$17	\$10	\$25
Construction	\$67 - \$82	\$103	\$55	\$115
Total	\$112 - \$191	\$119	\$65	\$140
<i>All costs in Millions</i>				

Table 1.02-2 Estimated Possible Costs for Verona Road Alternatives and South Reliever (2002 dollars)

D. Public Reaction

Written responses, public meetings, and official positions of municipalities showed that opposition to the South Reliever concept exceeded support for the concept. A public meeting was held on November 19, 2002. Following the meeting, there were 382 letters of opposition and 758 signatures on petitions opposed to the project. There were 10 comment letters in support of the South Reliever. Some of the letters opposing the project came from the Dane County Executive, the 1000 Friends of Wisconsin, the Mayor of Verona, the Town of Dunn, and the Friends of Lake Kegonsa Society (FOLKS). Many people commented that the adverse effects of the road to the agricultural land and water resources would outweigh the benefit of the South Reliever. Several people also indicated they did not think the South Reliever should be built if improvements were still necessary to Verona Road and the Beltline. The study team also received petitions and letters from residents in Dunn and Fitchburg expressing their opposition to the South Reliever concept. More detailed public comments can be found in Section 4.

E. Conclusions

This review's primary conclusion is that a South Reliever will not solve the existing and growing Verona Road safety and congestion problems. Therefore a South Reliever would not address the Verona Road project Purpose and Need. For this reason, the Wisconsin Department of Transportation dismissed this as a viable alternative to improve Verona Road on December 3, 2002. Specific details supporting this conclusion include:

- A South Reliever does not provide significant traffic volume relief to the Verona Road corridor or the Verona Road interchange.
- A South Reliever does not provide substantial traffic volume relief to the Beltline corridor.
- A South Reliever is not likely to reduce congestion-related crashes, improving safety, because it does not substantially reduce traffic volumes on the Verona Road corridor.
- A South Reliever does not address other stated project goals, including improving neighborhood connectivity.
- A South Reliever would create a physical barrier separating parts of Fitchburg and the Town of Dunn.
- A South Reliever would adversely affect farmland, uplands, and other natural resources within the Upper Sugar River, Yahara River, and Koshkonong Creek watersheds.
- The South Reliever concept was met with strong public opposition.
- The total cost of the South Reliever, Stages 1 through 3, is in the range of the cost of the two Verona Road improvement alternatives being considered.

A second conclusion is that a South Reliever would improve the overall roadway network in the Madison Metro Area, but would require a separate and more extensive study to determine whether those improvements are sufficient to offset the relatively high socio-economic, environmental, and fiscal impacts of such a project. Factors influencing this conclusion include:

- A Stage 1 or Stages 1-3 South Reliever would provide an alternative route for regional US 18/151 traffic and some commuters currently using Verona Road and the Madison Beltline.
- A large number of east-west travelers currently using other nearby existing local routes south of the Madison area would be drawn to a South Reliever.
- Of the two South Reliever alternatives studied, building Stages 1 through 3 has greater traffic flow benefits.

- Of the two South Reliever alternatives studied, Stage 1 with Park Street interchange improvements would require less land area and have fewer impacts on the natural environment.

If reevaluation of the concept is considered, further study will be needed to refine the cost and impacts associated with the South Reliever and Park Street interchange improvements.