

**SECTION 3
EVALUATION**

3.01 TRAFFIC CAPTURE

The project team obtained the Madison Area Metropolitan Planning Organization's (MPO) TRANPLAN model to project the potential traffic utilization of the South Reliever options. The 2020 base model was used to determine the traffic levels on affected roadways with and without the implementation of the South Reliever. Both South Reliever staging options were incorporated into the network. 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 Highway M would be similar. A summary of the projected traffic levels of critical roadways for both staging options is presented in Table 3.01-1 and shown in Figure 3.01-2.

A. Base Roadway Network

The base roadway network includes the major Madison area roadways as they exist today. The Beltline is predicted to carry 145,000 vehicles per day (vpd) between Verona Road and Park Street, double the volume that I-39/90 is predicted to carry, by the year 2020. Verona Road at Williamsburg Way will carry between 40,000 and 45,000 vpd in 2020 if no improvements are constructed. The 2020 traffic volumes on the base roadway network are shown in Table 3.01-1. Note that at several locations, the 2001/2002 counts already approach or exceed the projected 2020 volumes. These are sections of road where recent actual growth in traffic volume exceeded predicted growth or where the current volume is already near capacity.

B. Stage 1 with Park Street Interchange

Traffic modeling predicted that improvements to the Park Street interchange and construction of Stage 1 of the South Reliever would attract a substantial amount of traffic. Some would be regional US 151 traffic and commuter traffic from Verona, Mount Horeb, and other outlying communities shifting from the Verona Road/Beltline corridor. However, the majority of traffic using a South Reliever would be local traffic shifting from existing east-west local roads in the general area between Verona and US 14. Overall, minimal traffic volume relief will be apparent on the most heavily traveled part of US 151 - Verona Road north of County PD and the Beltline east of Verona Road. So although traffic volumes on Verona Road would be slightly lower than what would occur without a South Reliever, they would still be greater than what existed in 2002.

Table 3.01-1 shows the forecasted traffic volumes and percent increases at a variety of locations under this alternative. With a South Reliever, year 2020 traffic on Verona Road at Williamsburg Way is forecasted to increase by 6 percent over 2002 volumes. Without a South Reliever, traffic on this section of Verona Road is forecasted to increase by 8 percent. South of County PD, the difference would be more noticeable. Year 2020 traffic on Verona Road with a South Reliever is forecasted to increase by 8 percent over 2002 volumes, whereas without a South Reliever it is forecasted to increase by 38 percent. US 14 will experience some of the greatest volume differences. With a South Reliever year 2020 traffic on US 14 is projected to increase 98 percent from 2002 volumes. Without a South Reliever, year 2020 traffic on US 14 is projected to increase 59 percent.

The limited traffic congestion benefits to the most heavily traveled section of Verona Road and the Beltline provided by this South Reliever option are not commensurate with the infrastructure investment and environmental impacts needed to attain it. Even with the construction of this option for the South Reliever, improvements to the Verona Road corridor would still be required.

C. Stage 1, 2, and 3N

Traffic modeling projects constructing all three stages of the South Reliever will create greater traffic shifts than constructing only Stage 1 and the Park Street interchange. More regional US 151 traffic would shift from Verona Road because it would access the interstate without having to enter Madison and travel on the Beltline. Commuter traffic from the general area south and east of Madison as well as from southwesterly areas would use this South Reliever with Stages 1, 2 and 3N. However, most of this local/commuter traffic would still be traffic shifting from existing local roads in the general area between Verona and I-39. So this alternative would also provide only minimal traffic volume relief on the most heavily traveled part of US 151 - Verona Road north of County PD and the Beltline east of Verona Road. Traffic volumes on that section of US 151 would be lower than what would occur without a South Reliever, but they would still be greater than what exists in 2002.

Table 3.01-1 shows the forecasted results at a variety of locations under this alternative. With Stages 1, 2, and 3N of the South Reliever in place, year 2020 traffic on US 151 between County PD and County M would increase 17 percent over 2002 volumes. Without a South Reliever, this section of US 151 is projected to increase 38 percent over 2002 volumes. With a South Reliever, year 2020 traffic on Verona Road at Williamsburg Way would increase 1 percent over 2002 volumes. Without a South Reliever this section of Verona Road is forecasted to increase 10 percent over 2002 volumes. Traffic on I-39/90 between the Beltline and County N will remain largely unchanged between the options of doing nothing and implementing a South Reliever Option. Traffic on the South Beltline, from Park Street to I-39, would actually be lower in 2020 if this South Reliever staging alternative were constructed.

In summary, traffic volumes along Verona Road and the most congested part of the Beltline are forecasted to increase over 2001/2002 levels for all South Reliever combinations. Modeling indicates that traffic diverted from Verona Road to the South Reliever will be replaced by other traffic that is currently avoiding it and in the future would continue to avoid the Verona Road corridor because of high congestion levels. Since traffic volumes on Verona Road will grow with or without a South Reliever, and Verona Road is already at congested traffic levels, the need to improve Verona Road in the future will still exist. The traffic congestion benefits provided by this option for the South Reliever do not appear to be commensurate with the infrastructure investment and environmental impacts needed to attain it. Traffic volumes on the highway network after completion of Stages 1, 2, and 3 of the South Reliever are shown in Table 3.01-1.

Roadway	2001/2002 Counts	2020 Base Volumes	% Diff Between 2001/2-2020 Volume	2020 Stage 1 with Park Street Int		2020 Stage 1, 2, 3N	
				2020 Volume	% Diff Between 2001/2 - 2020 Volumes	2020 Volume	% Diff Between 2001/2 - 2020 Volumes
US 151/Verona Road (At Williamsburg Way)	39,600	43,600	10%	42,100	6%	39,900	1%
US 151 (County PD to County M)	29,400	40,500	38%	31,600	8%	34,400	17%
Beltline (Whitney Way to Verona Road/US 151)	92,600	94,800	6%	93,700	1%	93,300	1%
Beltline (Verona Road/US 151 to Park Street/US 14)	111,000	145,000	31%	138,500	25%	137,000	23%
Beltline (Park Street/US 14 to Stoughton Road/US 51)	105,400	104,300	-1%	104,300	-1%	90,000	-15%
US 14 (County MM to Beltline)	20,300	32,300	59%	40,200	98%	41,000	102%
US 51 (County B to Beltline)	10,400	14,100	36%	14,100	36%	13,400	29%
IH 39/90 (Beltline to County N)	66,100	70,400	7%	70,400	7%	69,700	5%
South Reliever Stage 1	-	-	-	25,700	-	33,400	-
South Reliever Stage 2	-	-	-	-	-	35,500	-
South Reliever Stage 3N	-	-	-	-	-	21,000	-

All Volumes are in Vehicles Per Day (vpd).

Table 3.01-1 Comparison of Traffic Volumes from TRANPLAN (Year 2002 vs 2020)

The Madison Area MPO has since remodeled the South Reliever with the revised 2030 demand model. The results of this updated model are summarized in Appendix C. This new information does not change the conclusions of the 2002 analysis.

D. Stage 1, 2, and 3S

An alternative alignment for Stage 3 of the South Reliever was also considered. Alternative 3S routed the South Reliever to the south of Lake Kegonsa and north of Stoughton, intersecting I-39/90 at the current US 51 interchange. Traffic modeling indicated that the southern route for Stage 3 did not capture as much traffic from Verona Road and the Beltline, so it was discarded in favor of the northern route option. US 14 and US 51 experience higher traffic volumes with Stage 3S. A comparison of traffic volumes between Stage 3N and 3S is shown in Figure 3.01-1.

The modeling performed in 2002 did not differentiate between truck traffic diverted and auto traffic diverted to the South Reliever. WisDOT does not have an automated vehicle classification recorder for US 151 in Dane County. 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 3000 vpd). WisDOT is currently making plans to obtain truck classification counts in the fall of 2007. Through-truck traffic not destined for Madison is likely to be diverted onto the South Reliever.

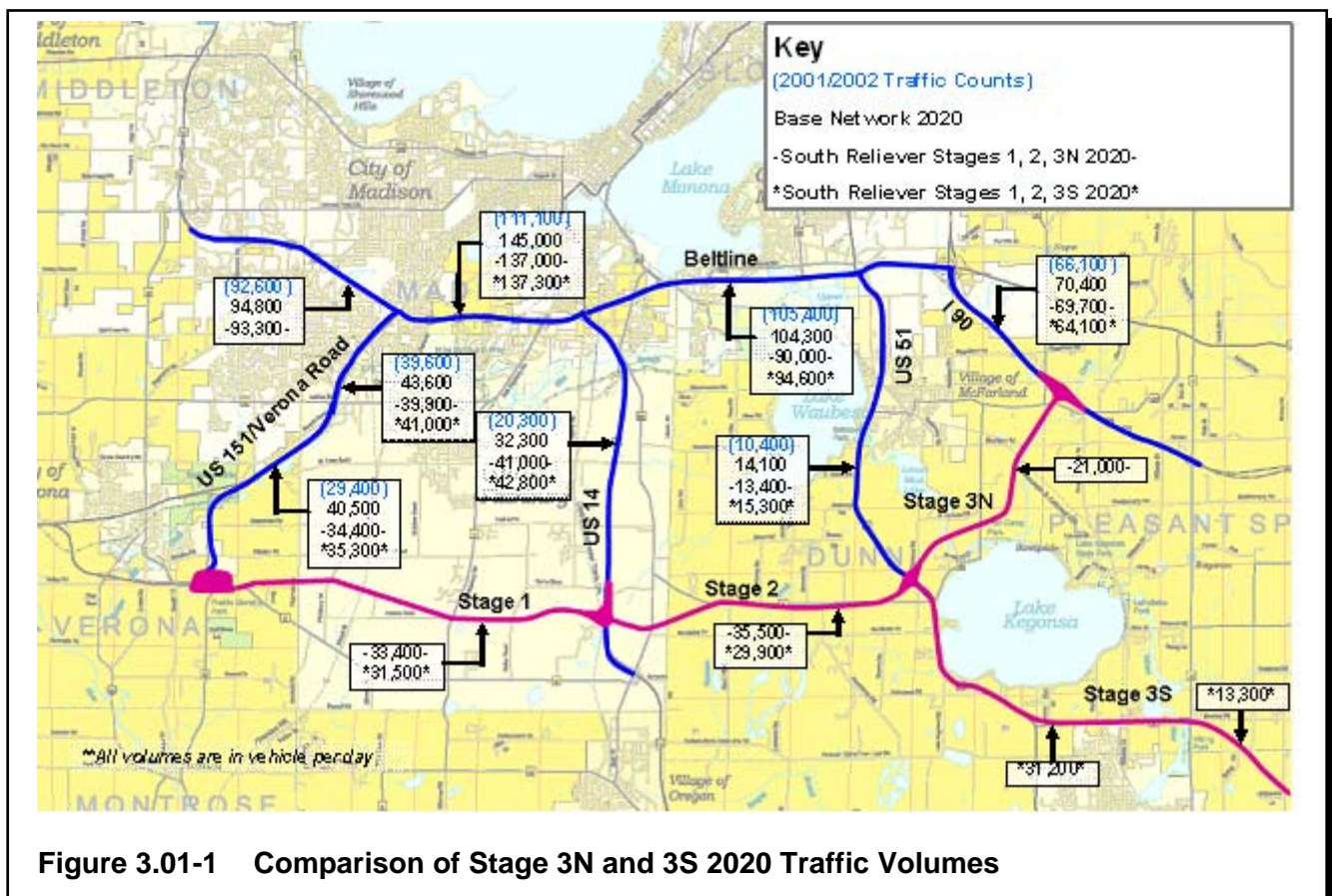


Figure 3.01-1 Comparison of Stage 3N and 3S 2020 Traffic Volumes

	Stage 1	Stage 2	Stage 3
Miles	~6.5	~5.0	~4.0
Interchanges	3	1	1
Right-of-Way (Acres)			
Farm	330	224	82
Residential	19	17	7
Commercial	0	0	0
Forested	104	19	16
Wetland	87	4	159
Park	0	0	0
Other	0	0	0
Total	540	264	264
Relocations			
Agricultural	1	2	0
Residential	3	7	3
Commercial	1	0	0
Other	2	1	0
Total	7	10	3

Table 3.02-1 Estimated Right-of-Way Requirements for South Reliever Stages

	40 mph Loop Ramps	30 mph Loop Ramps	Free Flow Ramps
Right-of-Way (Acres)			
Residential	24	3	11
Commercial	71	45	42
Park	0	0	2
Other	15	11	13
Total	110	59	68
Relocations			
Residential*	734	112	263
Commercial	64	34	32
Total	798	146	295

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

Table 3.02-2 Estimated Right-of-Way Requirements for Park Street Interchange Alternatives (Associated with Construction of Stage 1 only)

A. Stage 1 with Park Street Interchange

The amount of R/W and the number of relocations required to construct the Park Street interchange is highly variable and will depend on the selected interchange alternative. A total of 600 to 650 acres of additional R/W would be required to construct Stage 1 and the selected Park Street interchange alternative. The alignment of Stage 1 requires approximately 504 acres,

including 330 acres of farmland and 19 acres of residential land to be acquired. Stage 1 requires more right-of-way because it has more off-alignment roadway, is longer, and has more interchanges than Stages 2 or 3. To complete the Park Street interchange, 59 to 110 acres of residential and commercial land would need to be acquired depending on the selected alternative in addition to the Stage 1 right-of-way. Stage 1 of the South Reliever would require approximately 7 relocations along the proposed alignment. The Park Street interchange would require between 146 and 798 residential and commercial relocations. The 40 mph loop ramps would require the largest number of relocations, at approximately 734 residential and 64 commercial, to accommodate construction of the alternative.

B. Stage 1, 2, and 3

Approximately 1,068 acres of R/W would be required to construct Stages 1, 2, and 3. The alignment of Stage 1 requires approximately 540 acres, including 330 acres of farmland and 19 acres of residential land. The alignment of Stage 2 requires approximately 264 acres, including 224 acres of farmland and 17 acres of residential land. The use of the existing County B alignment reduces the amount of additional R/W required for Stage 2 but increases the number of relocations and may necessitate the relocation of County B. The alignment of Stage 3 requires approximately 264 acres, including 82 acres of farmland and 159 acres of wetland around the Yahara River. The proposed alignment for Stages 1, 2, and 3 would require about 13 residential, 3 farm, 1 commercial, and 3 other relocations.

3.03 POSSIBLE COSTS

The possible costs for the South Reliever include 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. All costs are shown in 2002 dollars in this report. A summary of the possible costs for the proposed South Reliever stages is shown in Table 3.03-1. A summary of the possible costs of the two selected South Reliever combinations is shown in Table 3.03-2 along with the possible costs for the Verona Road Free-flow and Urban Road alternatives. Further study would be required to select the preferred alternatives and to refine the cost estimates.

Total	Stage 1	40 mph Loop Ramps	30 mph Loop Ramps	Free Flow Ramps	Stage 2	Stage 3
Costs						
Right-of-Way	\$7	\$110	\$38	\$60	\$6	\$4
Construction	\$42	\$32	\$25	\$40	\$34	\$27
Total	\$49	\$142	\$63	\$100	\$40	\$31
<i>All costs in millions.</i>						

Table 3.03-1 Estimated Possible Costs for the South Reliever (2002 dollars)

Total	Stage 1 w/ Park Interchange	Stages 1,2,3	Verona Rd Urban	Verona Rd Free Flow
Costs				
Right-of-Way	\$45 - \$17	\$16	\$10	\$25
Construction	\$67 - \$82	\$103	\$55	\$115
Total	\$112 - \$191	\$119	\$65	\$140
<i>All costs in Millions</i>				

Table 3.03-2 Estimated Possible Costs for Verona Road Alternatives and South Reliever (2002 dollars)

A. Stage 1 with Park Street Interchange

The total possible cost to construct Stage 1 with the Park Street interchange is between \$112 and \$191 million in 2002 dollars. This cost is highly dependent on which Park Street interchange alternative is selected. The estimated cost to construct the roadway and interchanges for Stage 1 is \$42 million, and the estimated cost to purchase R/W is \$7 million. The cost for Stage 1 includes new interchanges at US 18/151, the intersection with Fish Hatchery Road, and the intersection with US 14. The estimated cost to reconfigure and upgrade the Park Street interchange is between \$63 and \$142 million. A significant portion of this cost, between \$38 and \$110 million, is the cost to acquire the R/W for the new interchange. The increased cost of R/W for the Park Street interchange is caused by its location in Madison, with several homes, apartment buildings, and businesses located within the needed R/W. The 40 mph loop ramp alternative is the highest cost alternative for the Park Street interchange, largely because of the cost of R/W that needs to be acquired to construct the interchange.

B. Stage 1, 2, and 3

The total possible cost to construct Stages 1, 2, and 3 is \$119 million. The estimated roadway and structure costs for Stage 1 is \$42 million. The cost for Stage 1 includes new interchanges at US 18/151, the intersection with Fish Hatchery Road, and the intersection with US 14. The R/W cost for Stage 1 is \$7 million. The roadway and structure costs for Stage 2 are \$34 million. This cost for Stage 2 includes a new interchange at the intersection with US 51. The R/W costs for Stage 2 of the South Reliever are \$6 million. The roadway and structure costs for Stage 3 are \$27 million. This includes the construction of a new system interchange at Interstate 39/90. The R/W costs for Stage 3 are \$4 million.

3.04 NOISE IMPACTS

A detailed noise analysis was not performed as part the South Reliever analysis. A generic noise evaluation was performed using Traffic Noise Model 2 (TNM2) for existing receptors that lie along Verona Road between Raymond Road and Williamsburg Way. For the current Verona Road roadway configuration and traffic volumes, a receptor 90 feet from the roadway will experience a 1 dBA reduction in sound levels for every 10,000 vpd reduction in traffic volume. Additionally, that same receptor will experience a 1 dBA reduction in sound levels for every 4 percent the truck volume percentage is decreased. Based on this general analysis, it is reasonable to expect that sound levels for sensitive receptors on Verona Road could be reduced by 2 dBA through implementation of the South Reliever. Generally it takes sound level reductions of 3 dBA or greater for the noise reduction to be perceptible to the human ear.

The routing of the South Reliever through Fitchburg and the Town of Dunn will increase noise levels for residents and businesses located near the proposed corridor. These impacts were not analyzed but would be if the alternative were brought forward in the EIS process.