



Benefit/Cost Evaluation of MoDOT's Total Striping and Delineation Program: Phase II

Final Report

**For
Missouri Department of Transportation**

MRIGlobal Project No. 110749

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16. Abstract: In 2005 and 2006, the Missouri Department of Transportation (MoDOT) undertook a major program, known as the Smooth Roads Initiative (SRI), to improve both the rideability and the visibility of over 2,300 mi of major roadways in Missouri. MRIGlobal previously conducted research for MoDOT to evaluate the safety effectiveness of SRI improvements and perform a benefit-cost evaluation of those improvements. The initial evaluation of SRI improvements was conducted using three years of crash data before implementation of SRI improvements and only one year of crash data after SRI implementation, because only one year of "after" crash data was available at the time. The evaluation presented in this report was conducted after two additional years of crash data were available; thus, the evaluation includes a three-year before study period and a three-year after study period. The safety evaluation indicated that the striping and delineation program resulted in an overall reduction of 16 percent in fatal-and-disabling-injury crashes and 11 percent in fatal-and-all-injury crashes. The striping and delineation improvements appeared to be particularly effective in reducing multiple-vehicle crashes. Results of the benefit-cost evaluation suggested that the SRI projects had an overall benefit-cost ratio of 11.2.			
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Executive Summary

In 2005 and 2006, MoDOT undertook a major initiative, known as the Smooth Roads Initiative (SRI), to improve both the rideability and the visibility of over 2,300 mi of major roadways in Missouri. The SRI program included most of the Interstate highway system in Missouri, as well as freeways and multilane divided nonfreeways; some multilane and two-lane undivided roads were included. The striping and delineation improvements in the SRI program included:

- Wider and higher-visibility lane lines
- Wider edgelines with rumble strips
- Centerline rumble strips (on undivided highways only)
- Barrier-mounted delineators (on concrete barriers, guardrails, and cable barriers)
- Emergency reference marker signs (on Interstate highways only)

In 2008, MRIGlobal conducted a research project for MoDOT to evaluate the striping and delineation program. That evaluation was conducted using crash data from a 3-year period (2002-2004) before and a 1-year period (2007) after implementation of SRI improvements. Results of that analysis were presented in MoDOT Report No. OR09-014 (1). While the report provided MoDOT with the best evaluation results possible with only 1 year of data after the improvements, MRIGlobal recommended that MoDOT repeat the evaluation when 3 years of crash data were available after implementation of SRI improvements. More reliable results could be obtained with a longer evaluation period.

Crash data for a 3-year period after implementation of SRI projects (2007-2009) became available in 2010. An evaluation of the same SRI striping and delineation projects has been performed with 3 years of crash data after implementation of SRI projects. This final report documents the results of that follow-on evaluation.

The objectives of the research were to:

- Evaluate the safety effectiveness of SRI improvements
- Use the safety evaluation results together with improvement cost data to perform a benefit-cost evaluation

A before-after evaluation was performed with the Empirical Bayes (EB) method to estimate the safety effectiveness of specific SRI striping and delineation improvement packages. The SRI program resulted in an overall reduction of 16 percent in fatal-and-disabling-injury crashes and 11 percent in fatal-and-all-injury crashes. The evaluation results for total crashes (all crash severity levels combined) show a statistically significant 4-percent reduction.

The SRI program appears to be particularly effective in reducing multiple-vehicle crashes on the improved roadways. By contrast, single-vehicle crashes appear to have increased, but this is likely to have resulted from a statewide trend of increases in lane-departure crashes rather than from an effect of the striping and delineation improvements. The SRI program provided statistically significant reductions in daytime fatal-and-all-injury crashes for all roadway types,

with crash reductions ranging from 20 to 59 percent. The SRI program provided statistically significant reductions in nighttime fatal-and-disabling-injury crashes, ranging from 18 to 31 percent, for rural freeways and rural multilane divided highways. There was a statistically significant 24-percent increase in nighttime fatal-and-disabling-injury crashes on urban freeways and a 49-percent decrease in nighttime fatal-and-disabling-injury crashes on urban two-lane highways. All other results for fatal-and-disabling-injury crashes were not statistically significant. There is no obvious explanation for the increase in nighttime fatal-and-disabling-injury crashes on urban freeways, but the corresponding result for fatal-and-all-injury crashes is a statistically significant 8-percent crash reduction.

Over a period of 5 years from 2007 through 2011, the SRI program is expected to reduce approximately 100 fatal crashes, 550 disabling injury crashes, 2,000 nondisabling injury crashes, and 6,700 property-damage-only crashes. The overall results are important because they show that the SRI program was a good investment in safety improvement for MoDOT.

A benefit-cost evaluation was performed for each combination of roadway type and striping and delineation package for which there was sufficient data to obtain a reliable safety effectiveness estimate. The benefit-cost evaluation focused on the cost-effectiveness of the SRI program and did not consider the costs or benefits of pavement resurfacing. While all of the roadway type/project type combinations that could be assessed had benefit-cost ratios substantially greater than 1.0, six specific project types stand out as being very cost-effective. These are:

- Wider markings with resurfacing on rural multilane undivided highways (benefit-cost ratio = 146)
- Wider markings with resurfacing on urban two-lane highways (benefit-cost ratio = 118)
- Wider markings with both centerline and edgeline rumble strips with resurfacing on rural two-lane highways (benefit-cost ratio = 36)
- Wider markings without resurfacing on urban multilane divided highways (benefit-cost ratio = 29)
- Wider markings without resurfacing on rural freeways (benefit-cost ratio = 24)
- Wider markings with resurfacing on urban multilane undivided highways (benefit-cost ratio = 22)

Furthermore, the best available estimate is that the overall SRI program is expected to provide \$755,000,000 in crash-reduction benefits over a 5-year service life, at a cost of \$67,000,000, for an overall benefit-cost ratio of 11.2.

Results of the research suggest that MoDOT may proceed with future striping and delineation improvements with confidence that such improvements make a substantial contribution to safety improvements.

Section 1.

Introduction

In 2008, MRIGlobal conducted a research project for the Missouri Department of Transportation (MoDOT) to evaluate the striping and delineation program implemented as part of MoDOT's Smooth Roads Initiative (SRI). That initial evaluation was conducted using crash data from a 3-year period (2002-2004) before and a 1-year period (2007) after implementation of SRI improvements. The use of a short duration for the period after implementation of SRI improvements allowed the evaluation results to be provided to MoDOT as soon as possible. Results of the previous analysis were presented in MoDOT Report No. OR09-014 (*I*). While the report provided MoDOT with the best evaluation results possible with only 1 year of data after the improvements, more reliable results could be obtained with a longer evaluation period. MRIGlobal recommended that MoDOT repeat the evaluation when 3 years of crash data were available after implementation of SRI improvements. The advantages of performing the evaluation again with 3 years of crash data are:

- Estimates of the crash reduction effectiveness for SRI packages should be more accurate.
- More results are likely to be statistically significant.

Crash data for a three-year period after implementation of SRI projects (2007-2009) became available in 2010. MRIGlobal has now conducted an evaluation of the same SRI striping and delineation projects that were previously evaluated, but with 3 years of crash data after implementation of SRI projects. This final report documents the results of that evaluation. This introduction presents an overview of the SRI program, a summary of the research tasks performed as part of this project, and the organization of the remainder of the report.

1.1 Smooth Roads Initiative Overview

In 2005 and 2006, MoDOT undertook a major initiative to improve both the rideability and the visibility of 2,200 mi of major roadways in Missouri. The SRI program was implemented with funding that came to MoDOT as a result of Amendment 3 and was announced with the slogan "Smoother, Safer, Sooner."

The SRI program included most of the Interstate highway system in Missouri, as well as other selected major highways. Most of the SRI program included freeways and multilane divided nonfreeways, but some multilane and two-lane undivided roadways were included. The key elements of the SRI program were:

- SMOOTHER—pavements were resurfaced, where needed
- SAFER—striping and delineation improvements were made at all sites in the program
- SOONER—the entire program for improving 2,300 mi of roadway was accomplished in only 2 years

The SRI program included five project types, or striping and delineation packages:

- Wider pavement markings with resurfacing
- Wider pavement markings and edgeline rumble strips with resurfacing
- Wider pavement markings and centerline rumble strips with resurfacing
- Wider pavement markings and both centerline and edgeline rumble strips with resurfacing (two-lane highways only)
- Wider pavement markings without resurfacing

1.2 Research Overview

The objectives of the research were to:

- Evaluate the safety effectiveness of SRI improvements (including specific combinations of improvement types) using a 3-year period before SRI improvements and a 3-year period after SRI improvements.
- Use the safety evaluation results together with improvement cost data to perform a benefit-cost evaluation.

1.3 Organization of This Report

Section 2 of this report presents the safety effectiveness evaluation. It includes a discussion of the safety evaluation approach and methodology, a description of the database, and a presentation of the safety evaluation results.

Section 3 presents the results of the benefit-cost evaluation. This section presents the benefit-cost methodology that was used, reviews each aspect of that methodology, and presents the results of the benefit-cost evaluation.

Section 4 presents the conclusions and recommendations of the research. It highlights key findings in the research and provides suggestions for future study.

Section 5 provides a reference list for the research.

Finally, two appendices are provided at the end of the report. Appendix A presents detailed results of the safety effectiveness evaluations discussed in Section 2 of the report. Appendix B presents a list of the SRI project locations included in the evaluation.

Section 2.

Safety Effectiveness of SRI Projects

A before-after evaluation was performed to determine the safety effectiveness of the striping and delineation improvements made as part of the SRI program. The evaluation estimated the effect on crash frequencies of the specific striping and delineation packages used in the program. The following discussion presents the evaluation approach and the results.

2.1 Evaluation Approach

The before-after safety effectiveness evaluation was performed with the Empirical Bayes (EB) method, which controls for the effect of regression to the mean. Regression to the mean is a key threat to the validity of observational before-after evaluations (2, 3). Simple before-after evaluations may find safety effectiveness measures that are artificially high because, at sites with particularly high crash frequencies, crashes would have subsequently decreased whether a project had been implemented or not. The EB method keeps the evaluation results unbiased by assuring that this natural decrease in crashes following a period of high crash frequencies is not mistaken for an effect of the project.

2.2 Safety Effectiveness Measures for SRI Projects

Primary safety measures used in evaluating the striping and delineation projects included:

- Crash frequencies for all crashes by severity level
- Crash frequencies for lane departure crashes by severity level

The crash severity levels that were considered were:

- Fatal crashes
- Disabling-injury crashes (including only the most severe injury crashes)
- All injury crashes (including injury crashes of all severity levels)
- Property-damage-only (PDO) crashes

Three additional safety measures that were used in the evaluation combined crash severity levels; these include:

- Total crashes (fatal, injury, and PDO crashes combined)
- Fatal and disabling-injury crashes combined
- Fatal and all injury crashes combined

The results for analysis of fatal-and-disabling-injury crashes are the most important for safety program management, because such crashes have the most severe consequences for road users. These crashes also constitute the most reliable dataset because they are the most

completely reported crashes. Analysis results for fatal-and-all-injury crashes include crashes involving less severe injuries and may not be as fully reported as fatal-and-disabling-injury crashes. Analysis results for total crashes are generally the least reliable because they include PDO crashes, which are often not fully reported.

Lane departure crashes were classified into three categories as follows:

- Lane departure crashes—on-roadway (head on or sideswipe)
- Roadway departure crashes—run-off-road right
- Roadway departure crashes—run-off-road left

Other crash type classifications that were considered include:

- Daytime vs. nighttime crashes
- Dry- vs. wet-pavement crashes

Nighttime wet-pavement crashes are of particular interest, because these are expected to benefit substantially from the striping and delineation improvements. It should be noted that, in comparing crashes by pavement surface condition, it was beyond the scope of this study to conduct a detailed assessment of the rainfall and snowfall amounts and intensities in the periods before and after SRI project implementation, as well as their effects on exposure (veh-mi of travel). For this reason, there is some possibility that differences in weather in the periods before and after installation of the SRI improvements could affect the evaluation results.

For each striping and delineation package and for each safety effectiveness measure of interest, the objective of the evaluation was to:

- Estimate the magnitude of the safety effectiveness (i.e., the percent change in crash frequency)
- Assess whether the safety effectiveness measure is statistically significant

2.3 Striping and Delineation Packages Evaluated

The evaluation focused on determining the safety effectiveness of specific combinations or packages of SRI striping and delineation improvements. These packages were defined by MRIGlobal, in consultation with MoDOT, and evaluated in the previous study. They are based on actual combinations of striping and delineation improvements implemented in the SRI program. The current research used the same SRI packages and the same sites as the previous analysis. Sites were dropped from the analysis only if there had been some further change to the site after 2007 that made it no longer appropriate for evaluation.

The evaluation considered all five striping and delineation packages that were implemented as part of the SRI program:

- Wider pavement markings with resurfacing

- Wider pavement markings and edgeline rumble strips with resurfacing
- Wider pavement markings and shoulder rumble strips with resurfacing
- Wider pavement markings and both centerline and edgeline rumble strips with resurfacing (two-lane highways only)
- Wider pavement markings without resurfacing

Each striping and delineation package also included roadside barrier (guardrail) improvements, where needed, and barrier-mounted delineators (on concrete barriers, guardrails, and cable barriers). Emergency reference marker signs (showing the route number, direction of travel, and milepost) were installed at 0.2-mi intervals on the entire interstate highway system; in addition to assisting in the reporting of crash and incident locations, these markers also provide delineation of the roadway ahead for drivers.

For each striping and delineation package, separate evaluations were performed for:

- Rural vs. urban areas
- Specific roadway types
 - Interstate highways and other freeways
 - Multilane divided highways other than freeways (e.g., expressways)
 - Multilane undivided highways
 - Two-lane undivided highways

2.4 Safety Evaluation Methodology

The before-after safety evaluations were performed using the EB methodology to compensate for bias due to regression to the mean. The safety evaluation methodology was the same as that used for Report No. OR09.014 (1). The EB methodology adjusts for sites with:

- High crash frequencies that would have *decreased* even if no improvement had been made
- Low crash frequencies that would have increased if no improvement had been made

In the EB method, safety performance functions (SPFs) serve as “control sites” and are used to estimate how many crashes would have occurred in the period after the improvement if no improvement had been made. MRIGlobal used the same SPFs for this study that were used for the previous SRI evaluation; no new SPFs were developed.

The EB method was applied in this research as follows:

1. Data were obtained for the observed crash frequency of each SRI project site during the before and after study periods.
2. SPFs were developed in the previous SRI evaluation that modeled crash frequencies as a function of site parameters (e.g., traffic volumes and other site characteristics). These

SPFs were developed by means of negative binomial regression analysis. The same SPFs for Missouri highways were used in this evaluation.

3. The predicted crash frequency at each SRI project site during the 3-year period before implementation of SRI projects was estimated using the appropriate SPF for that type of site.
4. A weighted average of the predicted and observed crash frequencies at each SRI project site during the before-study period was computed using the EB-method's weighting procedures (2,3). This crash frequency is referred to as the EB-adjusted expected crash frequency.
5. An estimate of the expected crash frequency at each SRI project site that would have occurred during the 3-year period following implementation of SRI projects, if no project had been implemented, was made using the EB-adjusted expected crash frequency for the before-study period. This step of the analysis accounts for changes in traffic volumes during the before- and after-study periods.
6. A comparison was made between the observed and expected crash frequencies at the SRI project sites for the 3-year period after their implementation. The difference between these observed and expected crash frequencies is an estimate of the safety effectiveness of the SRI projects.

2.5 Treatment of Potential Confounding Factors

Five potential confounding factors were carefully considered in the conduct of the before/after evaluation:

1. The safety benefits could be determined for each striping and delineation package as a whole, but not of the individual treatments that make up the package. For example, where wider pavement markings and rumble strips were installed together, their combined effect on safety was determined, but not their individual effects.
2. Special attention was given to the safety effects of cable median barriers that were installed on many of the same roads as the SRI projects during the same general time period. Cable median barriers have been installed recently on nearly all existing freeways with 40-ft medians, but only for selected freeway sites with medians wider than 40 ft. The evaluation was structured as well as possible to avoid mistaking the effect on safety of the cable median barrier for an effect of the striping and delineation treatments. Cable median barriers have been found to decrease fatal-and-disabling-injury crashes, but may increase less severe crashes, which often are unreported. To investigate the potential confounding effect of cable median barrier installation, separate analyses were conducted for (1) lane departure crashes that involved on-roadway collisions, (2) crashes involving roadway departures on the right side of the road, and (3) crashes involving roadway departures of the left side of the road, with the assumption that only crashes involving roadway departures on the left side of the roadway are affected by the cable median barriers.

3. Consideration was given to the potential confounding effect of roadway lighting on urban sites. Decreases in nighttime crashes due to retroreflectivity improvements may be smaller at sites that are lighted. Separate analyses were conducted for daytime and nighttime crashes.
4. The evaluation was structured to avoid bias due to seasonal effects. Specifically, in all cases the evaluation used before- and after-study periods that consisted of full-year periods (i.e., multiples of 12 months), rather than partial-year periods for which crashes might be influenced by seasonal variations in traffic volumes or roadway conditions.
5. It is always a concern in before/after evaluations that changes to the roadway system other than implementation of the projects being evaluated may have taken place between the before- and after-study periods. Sites where other project activity was known were dropped from the evaluation, but it is not generally possible to know of all such activity. And, as noted earlier, there is no direct way to account for differences in weather (e.g., rainfall or snowfall) between the before- and after-study periods. Differences in traffic volumes between the before- and after-study periods were accounted for in the evaluation.

2.6 Durations of Before- and After-Study Periods

All of the SRI striping and delineation improvements evaluated in this research were implemented in 2005 and 2006. The preferred duration of the before-study period for an observational before-after study is 5 years, so the ideal before-study period would have been the 5-year period from 2000 to 2004, inclusive. However, there was a major change in MoDOT's crash data system between 2001 and 2002 and some of the data needed for the SRI project evaluation were not available for the period prior to 2002. Therefore, a decision was reached to use a 3-year before-study period from 2002 through 2004, inclusive.

The after study period for the project included the after study period that was used in the initial evaluation by MRIGlobal, the calendar year 2007, along with the calendar years 2008 and 2009 for which crash data are now available. Thus, the after study period for the evaluation presented in this report was a 3-year period from 2007 to 2009, inclusive.

2.7 Collection and Assembly of the Safety Evaluation Database

MRI obtained data on roadway characteristics, traffic volumes, and crashes during the before- and after-study periods directly from the crash files and the State of the System file in the MoDOT Transportation Management System (TMS). These data were downloaded from TMS and organized into an evaluation database. MoDOT provided data on the locations of the SRI projects and the specific striping and delineation package used for each project.

Table 1 summarizes the total lengths of SRI projects that were evaluated in the research by roadway type and project type. The project lengths shown in the table represent each direction of travel separately on divided highways and both directions of travel combined on undivided highways. Table 2 shows a comparable summary of the number of SRI project sites evaluated by roadway type and project type. The locations of the evaluation sites are listed in Appendix B.

Adjacent sites consisting of the same roadway type, same project type, and similar characteristics were combined. This resulted in longer sites, which are preferable in a statistical evaluation of crash data. The evaluation dataset includes 493 divided highway sites with a total length of 2,097.1 mi and 138 undivided highway sites with a total length of 231.5 mi. The average length of the evaluation sites was 4.3 mi for divided highways and 1.7 mi for undivided highways. Rural sites were relatively long, averaging 6.7 mi in length, in comparison to urban sites which averaged 2.5 mi in length.

SRI project sites where other work was performed during the evaluation period have been excluded from the evaluation. In addition, 8.5 mi of roadway that were included in the previous SRI evaluation were excluded from the current evaluation because either there was additional construction at the site or traffic volume or crash data were not available for 2008 or 2009. In a few cases, the number of evaluation sites increased because a portion of a site was dropped from the evaluation and two separate sections remained and were treated as separate sites.

Average daily traffic volumes (ADTs) for each SRI project evaluation site were obtained from MoDOT's TMS database for each year of the before- and after-study periods. Table 3 presents a summary of the average ADT for the SRI project sites for each roadway and project type. The previous SRI evaluation found, on average, relatively modest traffic growth of 0.4 percent per year for rural sites and 0.3 percent per year for urban sites. The traffic volume data for this evaluation, with 2008 and 2009 data added, show a different picture from the previous SRI evaluation. There has been little traffic volume growth and, for some SRI project types, there have been decreases in traffic volume between the before and after periods. Such decreases in traffic volume are likely the result of the recent economic downturn that began in 2008 and 2009. The safety evaluation presented in this section of the report accounts directly for the change in traffic volume between the before and after periods for each individual evaluation site. The benefit-cost evaluation presented in Section 3, has assumed no new traffic growth between the before study period and the 5-year, full service life of the SRI projects (2007 through 2011).

Tables 4 through 6 summarize the crash frequency data for the SRI project sites for total, fatal-and-all-injury, and fatal-and-disabling-injury crashes, respectively. The evaluation dataset includes a total of 97,914 crashes—50,134 during the 3-year before-study period and 47,780 during the 3-year after-study period. There were 13,398 fatal-and-all-injury crashes during the before-study period and 11,758 during the after-study period, including 2,439 fatal-and-disabling-injury crashes during the before-study period and 1,870 during the after-study period.

The evaluation results from analysis of these data are presented in the next section of this report.

Table 1. Total Length (mi) of SRI Projects Evaluated

Roadway type	With pavement resurfacing					TOTAL
	Wider markings	Wider markings and edgeline rumble strips	Wider markings and shoulder strips	Wider markings with centerline and edgeline rumble strips	Wider markings without pavement resurfacing	
Rural freeways	254.4	383.2	197.2	–	43.4	878.2
Rural multilane divided highways		319.1	31.1	–	40.8	527.5
Rural multilane undivided highways	11.2	–	–	–	–	11.2
Rural two-lane highways	9.9	–	4.7	21.6	–	36.2
All rural roads	412.0	702.3	233.3	21.6	84.2	1,453.1
Urban freeways	222.4	136.4	68.1	–	5.9	432.8
Urban multilane divided highways		79.0	14.5	–	0.9	258.6
Urban multilane undivided highways		–	0.5	–	–	145.8
Urban two-lane highways	35.1	–	–	3.2	–	38.3
All urban roads	567.0	215.4	83.1	3.2	6.8	875.5
TOTAL	136.5	917.7	316.1		91.0	2,328.6

Table 2. Number of SRI Project Sites Evaluated

Roadway type	With pavement resurfacing					TOTAL
	Wider markings	Wider markings and edgeline rumble strips	Wider markings and shoulder strips	Wider markings with centerline and edgeline rumble strips	Wider markings without pavement resurfacing	
Rural freeways	49	54	23	–	4	130
Rural multilane divided highways	40	43	8	–	3	94
Rural multilane undivided highways	4	–	–	–	–	4
Rural two-lane highways	7	–	1	3	–	11
All rural roads	100	97	32	3	7	239
Urban freeways	57	37	23	–	2	119
Urban multilane divided highways	109	35	4	–	2	150
Urban multilane undivided highways	94	–	1	–	–	95
Urban two-lane highways	26	–	–	2	–	28
All urban roads	286	72	28	2	4	392
TOTAL	1645.3	169	60	5	11	631

Table 3. Summary of Average Daily Traffic Volumes (veh/day) for SRI Projects Evaluated

Roadway type	With pavement resurfacing									
	Wider markings		Wider markings and edgeline rumble strips		Wider markings and shoulder strips		Wider markings with centerline and edgeline rumble strips		Wider markings without pavement resurfacing	
	Before ^a	After ^b	Before	After	Before	After	Before	After	Before	After
Rural freeways ^c		13,751	11,723	12,721	9,287	10,313	–	–	14,613	15,232
Rural multilane divided highways ^c	9,229	8,542		9,144	7,748	7,379	–	–	7,544	8,293
Rural multilane undivided highways ^d	17,698	18,725		–	–	–	–	–	–	–
Rural two-lane highways ^d	13,203	12,100		–	6,731	6,040	13,017	12,880	–	–
Urban freeways ^c	35,604	36,766	32,219	32,226	21,541	23,028	–	–	15,780	16,785
Urban multilane divided highways ^c	13,189	12,744	15,045	14,642	6,698	6,255	–	–	9,566	9,696
Urban multilane undivided highways ^d	23,555	22,266		–	17,565	21,141	–	–	–	–
Urban two-lane highways ^d	18,154	16,067		–	–	–	13,170	12,780	–	–

^a Before-study period, 2002-2004 (3 years).

^b After-study period, 2007-2009 (3 years).

^c Divided highway traffic volumes are for one direction of travel only.

^d Undivided highway traffic volumes are for both directions of travel combined.

Table 4. Summary of Total Crash Frequencies for SRI Projects Evaluated

Roadway type	With pavement resurfacing											
	Wider markings		Wider markings and edgeline rumble strips		Wider markings and shoulder strips		Wider markings with centerline and edgeline rumble strips		Wider markings without pavement resurfacing		TOTAL	
	Before ^a	After ^b	Before	After	Before	After	Before	After	Before	After	Before	After
	13,831											
Rural freeways	2,874	3,344	3,233	3,196	1,078	965	–	–	367	436	7,552	7,941
Rural multilane divided highways	1,029	691	2,480	1,945	201	168	–	–	229	213	3,939	3,017
Rural multilane undivided highways	712	328	–	–	–	–	–	–	–	–	712	328
Rural two-lane highways	220	193	–	–	48	45	201	123	–	–	515	130
All rural roads	4,835	4,556	5,713	5,141	1,327	1,178	201	123	596	649	12,672	11,647
Urban freeways	12,770	13,364	5,412	5,055	1,795	1,824	–	–	110	91	20,087	20,334
Urban multilane divided highways	3,730	3,977	1,802	1,735	119	67	–	–	12	6	5,663	5,785
Urban multilane undivided highways	10,263	8,981	–	–	26	12	–	–	–	–	10,289	8,993
Urban two-lane highways	1,376	972	–	–	–	–	47	49	–	–	1,423	1,021
All urban roads	28,139	27,294	7,214	6,790	1,940	1,903	47	49	122	97	37,462	36,133
TOTAL		31,850	12,927	11,931	3,267	3,081		172	718	746	50,134	47,780

^a Before-study period, 2002-2004 (3 years).

^b After-study period, 2007-2009 (3 years).

Table 5. Summary of Fatal-and-All-Injury Crash Frequencies for SRI Projects Evaluated

Roadway type	With pavement resurfacing										TOTAL	
	Wider markings		Wider markings and edgeline rumble strips		Wider markings and shoulder strips		Wider markings with centerline and edgeline rumble strips		Wider markings without pavement resurfacing			
	Before ^a	After ^b	Before	After	Before	After	Before	After	Before	After	Before	After
Rural freeways	749	656	940	660	332	237	–	–	120	98	2,152	590
Rural multilane divided highways	318	201	754	505	46	41	–	–	76	72	1,201	321
Rural multilane undivided highways	186	84	–	–	–	–	–	–	–	–	186	52
Rural two-lane highways	57	53	–	–	17	13	82	50	–	–	167	40
All rural roads	1,310	994	1,694	1,165	395	291		50	196	170	3,677	2,670
Urban freeways	3,332	3,399	1,422	1,343	502	425	–	–	30	15	5,301	1,800
Urban multilane divided highways	987	1,026	476	400	45	16	–	–	4	1	1,569	542
Urban multilane undivided highways	2,557	2,184	–	–	3	3 ⁸²	–	–	–	–	355	121
Urban two-lane highways	349	262	–	–	–	–	14	14	–	–	365	121
All urban roads	7,225	6,871	1,898	1,743	550	444		14	34	16	9,721	9,088
TOTAL	8,535	7,865	3,592	2,908	945	735		64	230	186	13,398	11,758

^a Before-study period, 2002-2004 (3 years).

^b After-study period, 2007-2009 (3 years).

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Table 6. Summary of Fatal-and-Disabling-Injury Crash Frequencies for SRI Projects Evaluated

Roadway type	With pavement resurfacing										TOTAL	
	Wider markings		Wider markings and edgeline rumble strips		Wider markings and shoulder strips		Wider markings with centerline and edgeline rumble strips		Wider markings without pavement resurfacing			
	Before ^a	After ^b	Before	After	Before	After	Before	After	Before	After	Before	After
Rural freeways	258	178	298	199	115	72	–	–	29	15	700	464
Rural multilane divided highways	90	48	198	140	11	8	–	–	24	20	323	216
Rural multilane undivided highways	28	14	–	–	–	–	–	–	–	–	28	14
Rural two-lane highways	21	17	–	–	9	6	24	11	–	–	54	34
All rural roads	397	257	496	339	135	86	24	11	53	35	1,105	728
Urban freeways	443	395	205	187	98	95	–	–	9	4	755	681
Urban multilane divided highways	131	105	77	63	17	7	–	–	2	0	227	175
Urban multilane undivided highways	311	262	–	–	0	0	–	–	–	–	311	262
Urban two-lane highways	39	22	–	–	–	–	2	2	–	–	41	24
All urban roads	924	784	282	250	115	102	2	2	11	4	1,334	1,142
TOTAL		1,041	778	589	250	188	26	13	64	39	2,439	1,870

^a Before-study period, 2002-2004 (3 years).

^b After-study period, 2007-2009 (3 years).

2.8 Results of Safety Effectiveness Evaluation

This section presents the results of the safety effectiveness evaluation based on the EB method. The overall safety effectiveness evaluation results for the SRI program as a whole show a statistically significant 16-percent decrease in fatal-and-disabling-injury crashes and a statistically significant 11-percent decrease in fatal-and-all-injury crashes for the first three years after program implementation (see Table A-4 in Appendix A). The evaluation results for total crashes (all crash severity levels combined) show a statistically significant 4-percent reduction.

The overall results are important because they show that the SRI program was a good investment in safety improvement for MoDOT. The following discussion addresses the variation in evaluation results by roadway type, project type, and crash type. The results reported below focus on fatal-and-disabling-injury and fatal-and-all-injury crashes because these results are the most critical to safety improvement.

Detailed tables of the evaluation results for specific roadway and project types are presented in Appendix A.

2.8.1 Evaluation Results by Roadway Type

Table 7 summarizes the evaluation results by roadway type; the detailed results on which Table 7 is based are presented in Tables A-5 and A-6 in Appendix A. When the percentage change in crash frequency is statistically significant at the 90-percent level, the table also shows its standard error in parentheses. The standard error is a measure of precision of the estimated percent change. Smaller standard errors indicate better precision. In addition, smaller standard errors relative to the estimated percent change are more desirable.

Table 7. Summary of Before/After Evaluation Results by Roadway Type

Roadway type	Percentage change in crash frequency (standard error) from before to after the SRI projects	
	Fatal-and- disabling-injury crashes	Fatal-and- all-injury crashes
Rural freeways	-25.5 (3.5)	-18.2 (2.1)
Rural multilane divided highways	-27.9 (5.0)	-24.7 (2.8)
Rural multilane undivided highways	-45.8 (15.6)	-60.2 (4.7)
Rural two-lane highways	NS	-21.4 (8.1)
Urban freeways	NS	-7.4 (1.4)
Urban multilane divided highways	NS	NS
Urban multilane undivided highways	NS	-7.9 (2.2)
Urban two-lane highways	-36.1 (13.9)	NS
All roadway types combined	-16.1 (2.0)	-11.0 (0.9)

NS = Not statistically significant.

Table 7 shows that all of rural roadway types experienced statistically significant decreases in fatal-and-all-injury crashes, ranging from 18 to 60 percent. Only three rural roadway types experienced statistically significant reductions in fatal-and-disabling-injury crashes:

- 22-percent crash reduction for SRI projects on rural freeways
- 28-percent crash reduction for SRI projects on rural multilane divided highways
- 46-percent crash reduction for SRI projects on rural multilane undivided highways

The overall evaluation results for projects on urban roads were generally not statistically significant. The only exceptions were:

- 7-percent reduction in fatal-and-all-injury crashes for SRI projects on urban freeways
- 36-percent reduction in fatal-and-disabling injuries on urban two-lane highways

Table 7 combines results across all SRI project types. Results by project type and by roadway type and project type combined are presented below.

2.8.2 Evaluation Results by Project Type

Table 8 summarizes the evaluation results by project type; the detailed results on which Table 8 is based are presented in Tables A-8 and A-9 in Appendix A. The table shows that all project types resulted in statistically significant reductions in the frequency of fatal-and-all-injury crashes ranging from 6 to 33 percent. For most of these project types, statistically significant reductions were also found for fatal-and-disabling-injury crashes. For SRI projects involving wider markings, but without rumble strips, a statistically significant reduction in fatal-and-disabling-injury crashes was found only for placement of durable markings without resurfacing (45 percent reduction in crash frequency). Table 8 combines results across all roadway types. Results by roadway type and project type are presented below.

Table 8. Summary of Before/After Evaluation Results by SRI Project Type

SRI project type	Percentage change in crash frequency (standard error) from before to after the SRI projects	
	Fatal-and- disabling-injury crashes	Fatal-and- all-injury crashes
1–Wider markings with resurfacing	–13.7 (2.8)	–6.4 (1.2)
2–Wider markings and edgeline rumble strips with resurfacing	–17.9 (3.5)	–16.8 (1.7)
3–Wider markings and shoulder rumble strips with resurfacing	NS	–23.6 (3.0)
2 and 3–Wider markings and either edgeline or shoulder rumble strips with resurfacing	–16.3 (3.1)	–18.2 (1.5)
4–Wider markings and both centerline and edgeline rumble strips with resurfacing ^a	–43.8 (16.5)	–32.9 (9.2)
5–Wider markings without resurfacing	–44.9 (9.0)	–24.3 (5.9)
All project types combined	–16.1 (2.0)	–11.0 (0.9)

NS = Not statistically significant.

^a Two-lane highways only.

2.8.3 Evaluation Results by Roadway Type and Project Type

Table 9 summarizes overall evaluation results for specific SRI project types on freeways. Detailed evaluation results on which Table 9 is based are presented in Tables A-1 and A-2 in Appendix A. For fatal-and-all-injury crashes on rural freeways, there were statistically significant crash reductions, ranging from 9 to 23 percent, for all SRI project types. For fatal-and-disabling-injury crashes on rural freeways, there were statistically significant reductions, ranging from 20 to 60 percent, for all SRI project types. Thus, the evaluation results show that all of the SRI project types were effective in reducing crashes on rural freeways.

For urban freeways, Table 9 shows statistically significant reductions in fatal-and-all-injury crashes, ranging from 4 to 51 percent, for all SRI project types. However, none of the evaluation results for fatal-and-disabling-injury crashes were statistically significant.

Table 10 summarizes the overall evaluation results for multilane divided highways. The detailed results on which Table 10 is based are presented in Tables A-1 and A-2 in Appendix A. For rural multilane divided highways, there was a statistically significant 25-percent reduction in the frequency of fatal-and-all-injury crashes for SRI projects involving wider markings with resurfacing. SRI projects with wider markings and any type of rumble strip (edgeline or shoulder) experienced a statistically significant 26-percent reduction in crash frequency. The overall effectiveness for SRI projects on rural multilane divided highways was a 25-percent reduction in fatal-and-all-injury crashes, and a 28-percent reduction in fatal-and-disabling injury crashes.

For urban multilane divided highways, SRI projects involving wider markings and edgeline rumble strips resulted in a statistically significant 14-percent reduction in fatal-and-all-injury crashes, while SRI projects involving wider markings and shoulder rumble strips with resurfacing had a statistically significant 66-percent decrease in fatal-and-all-injury crash frequency. Wider markings without resurfacing reduced fatal-and-all-injury crashes by 81 percent. For SRI projects on urban multilane divided highways involving wider markings with resurfacing, there was a statistically significant 8-percent increase in fatal-and-all-injury crash frequency. There is also no obvious explanation for this 8-percent increase in fatal-and-all-injury crashes. This is the only statistically significant *increase* in crash frequency observed for any overall project type in the study. It is not credible to believe that striping and delineation would reduce crashes on other roadway types and increase crashes on urban freeways. There is a potential concern that striping and delineation could increase vehicle speeds, leading to increases in crash frequencies, but this is not evident in any of the other evaluation results. It should be noted that this same effect was observed in the preliminary results with only 1 year of after data (1), but the magnitude of the effect was larger—a 14-percent increase in crashes. So, the acquisition of additional years of after-period data has reduced the magnitude of this effect. After a careful review, we believe that this observed increase in crashes is simply an anomalous result that may be due to factors other than SRI projects and not a matter for concern.

Table 9. Summary of Before/After Evaluation Results by SRI Project Type for Freeways

SRI project type	Percentage change in crash frequency (standard error) from before to after the SRI projects			
	Rural sites		Urban sites	
	Fatal-and-disabling-injury crashes	Fatal-and-all-injury crashes	Fatal-and-disabling-injury crashes	Fatal-and-all-injury crashes
1–Wider markings with resurfacing	-20.5 (6.1)	-8.9 (3.7)	NS	-3.8 (1.9)
2–Wider markings and edgeline rumble strips with resurfacing	-24.8 (5.4)	-23.6 (3.1)	NS	-10.4 (2.7)
3–Wider markings and shoulder rumble strips with resurfacing	-26.2 (8.8)	-23.2 (5.1)	NS	-20.3 (4.3)
2 and 3–Wider markings and either edgeline or shoulder rumble strips with resurfacing	-25.2 (4.6)	-23.5 (2.6)	NS	-12.9 (2.3)
5–Wider markings without resurfacing	-59.5 (10.5)	-22.4 (8.1)	NS	-50.8 (13.4)
All project types combined	-25.5 (3.5)	-18.2 (2.1)	NS	-7.4 (1.4)

NS = Not statistically significant.

Table 10. Summary of Before/After Evaluation Results by SRI Project Type for Multilane Divided Highways

SRI project type	Percentage change in crash frequency (standard error) from before to after the SRI projects			
	Rural sites		Urban sites	
	Fatal-and-disabling-injury crashes	Fatal-and-all-injury crashes	Fatal-and-disabling-injury crashes	Fatal-and-all-injury crashes
1–Wider markings with resurfacing	-34.0 (9.7)	-25.0 (5.5)	NS	+7.8 ^a (3.8)
2–Wider markings and edgeline rumble strips with resurfacing	-24.3 (6.5)	-25.9 (3.5)	NS	-13.8 (4.8)
3–Wider markings and shoulder rumble strips with resurfacing	-49.1 (18.3)	-25.1 (12.3)	NS	-65.6 (8.9)
2 and 3–Wider markings and either edgeline or shoulder rumble strips with resurfacing	-26.2 (6.2)	-25.8 (3.3)	NS	-18.5 (4.4)
5–Wider markings without resurfacing	NS	NS	NS	-80.9 (19.7)
All project types combined	-27.9 (5.0)	-24.7 (2.8)	NS	NS

NS = Not statistically significant.

^a Statistically significant increase in crash frequency.

Table 11 summarizes the evaluation results by SRI project type for multilane undivided highways. The detailed results on which Table 11 is based are presented in Tables A-1 and A-2 in Appendix A. There were statistically significant reductions in fatal-and-all-injury crashes for SRI projects involving wider markings (without rumble strips) with resurfacing for both rural and urban multilane undivided highways. The evaluation results for SRI projects involving wider markings and shoulder rumble strips with resurfacing were not statistically significant for urban multilane undivided highways (and were not installed on rural multilane undivided highways).

Table 12 summarizes the evaluation results by SRI project type for two-lane highways; the detailed results on which Table 12 is based are presented in Tables A-1 and A-2 in Appendix A. The only SRI project type to show statistically significant results for rural two-lane highways was placement of wider markings, centerline rumble strips, and edgeline rumble strips. This project type resulted in a statistically significant reduction of 38 percent in fatal-and-all-injury crashes and 47 percent in fatal-and-disabling-injury crashes. The only SRI project type to show statistically significant results for urban two-lane highways was placement of wider markings with resurfacing, which resulted in a reduction of 38 percent in fatal-and-disabling-injury crashes.

A few of the evaluation results obtained involve large crash reductions (over 50 percent) that, although statistically significant, may be over optimistic. Such results include:

- a reduction of 60 percent in fatal-and-disabling-injury crashes for wider markings without resurfacing on rural freeways
- a reduction of 51 percent in fatal-and-all-injury crashes for wider markings without resurfacing on urban freeways
- a reduction of 66 percent in fatal-and-all-injury crashes for wider markings and shoulder rumble strips with resurfacing on urban multilane divided highways
- a reduction of 81 percent in fatal-and-all-injury crashes for wider markings with resurfacing on urban multilane divided highways
- a reduction of 60 percent in fatal-and-all-injury crashes for wider markings with resurfacing on rural multilane undivided highways

There is no obvious explanation for these large effects, but we consider it best not to utilize such large effects in planning future projects, and they have been omitted from the summary table later in this report.

Table 11. Summary of Before/After Evaluation Results by SRI Project Type for Multilane Undivided Highways

SRI project type	Percentage change in crash frequency (standard error) from before to after the SRI projects			
	Rural sites		Urban sites	
	Fatal-and-disabling-injury crashes	Fatal-and-all-injury crashes	Fatal-and-disabling-injury crashes	Fatal-and-all-injury crashes
1–Wider markings with resurfacing	-45.8 (15.6)	-60.2 (4.7)	NS	-8.1 (2.2)
3–Wider markings and shoulder rumble strips with resurfacing	–	–	NS	NS
All project types combined	-45.8 (15.6)	-60.2 (4.7)	NS	-7.9 (2.2)

NS = Not statistically significant.

Table 12. Summary of Before/After Evaluation Results by SRI Project Type for Two-Lane Highways

SRI project type	Percentage change in crash frequency (standard error) from before to after the SRI projects			
	Rural sites		Urban sites	
	Fatal-and-disabling-injury crashes	Fatal-and-all-injury crashes	Fatal-and-disabling-injury crashes	Fatal-and-all-injury crashes
1–Wider markings with resurfacing	NS	NS	-37.7 (14.2)	NS
3–Wider markings and shoulder rumble strips with resurfacing	NS	NS	–	–
4–Wider markings and both centerline and edgeline rumble strips with resurfacing	-47.4 (16.7)	-38.3 (9.5)	NS	NS
All project types combined	NS	-21.4 (8.1)	-36.1 (13.9)	NS

NS = Not statistically significant.

2.8.4 Evaluation by Crash Type

Single- and Multiple-Vehicle Crashes

The overall evaluation results, as noted above, show a net reduction of 16 percent in fatal-and-disabling-injury crashes from before to after SRI project evaluation. This net reduction in severe crashes consists of a 38-percent reduction in multiple-vehicle crashes and a 31-percent increase in single-vehicle crashes. This result is surprising because SRI projects were expected to reduce single-vehicle crashes. The data, however, show that the SRI projects were particularly effective in reducing multiple-vehicle crashes. This should be anticipated in future striping and delineation projects.

Consideration of the Effects of Cable Barrier

A key issue that was considered in the SRI project evaluation for freeways was the addition of cable barrier in the medians of many of the same sites as the SRI projects and during the same time period (2005 and 2006). MoDOT has found that cable median barriers have been 95 percent successful in preventing out-of-control vehicles from crossing the median and entering the opposing lanes of traffic. It is expected that the installation of cable barriers in the median at SRI project sites should reduce the frequency of these cross-median collisions (a very severe crash type) and will result in additional injury and PDO collisions with the cable barrier.

Table 13 summarizes the lengths of SRI projects on freeways with and without cable median barriers installed during the evaluation period. Overall, 43 percent of the evaluation sites on rural freeways had cable median barriers installed, while cable median barriers were installed for only 8 percent of the evaluation sites on urban freeways.

Table 13. Summary of Lengths of SRI Projects Evaluated for Freeways With and Without Cable Median Barrier Installed During the Study Period

SRI project type	Rural freeways			Urban freeways		
	No cable barrier installed	Cable barrier installed	TOTAL	No cable barrier installed	Cable barrier installed	TOTAL
1–Wider markings with resurfacing	90.0	164.4	254.4	209.8	12.6	222.4
2–Wider markings and edgeline rumble strips with resurfacing	180.5	202.6	383.2	122.9	13.5	136.4
3–Wider markings and shoulder rumble strips with resurfacing	187.5	9.6	197.2	60.7	7.4	68.1
5–Wider markings without resurfacing	43.4	0.0	43.4	5.9	0.0	5.9
All project types combined	501.4	376.6	878.2	399.3	33.5	432.8

The analysis results do not show a substantial bias due to the installation of cable barriers during the same time period as the SRI projects. In particular, Table A-8 in Appendix A shows that SRI projects implemented together with cable median barrier installation had only slightly higher effectiveness in reducing fatal and disabling-injury crashes than SRI projects implemented without cable median barrier installation.

Daytime and Nighttime Crashes

The overall evaluation results for daytime and nighttime crashes by roadway type are presented in Tables A-5 through A-7 in Appendix A. The results for daytime fatal-and-all-injury crashes are statistically significant for all rural roadway types, with crash reductions ranging from 20 to 59 percent. For fatal-and-disabling-injury crashes, the results for rural two-lane highways were not statistically significant. For daytime crashes on urban freeways, there was a statistically significant 6-percent reduction in fatal-and-all-injury crashes, and a statistically significant 10-percent reduction in daytime crashes for urban multilane undivided highways. For daytime fatal-and-disabling-injury crashes on urban roadways, the results were statistically significant for all roadway types, except urban two-lane highways, with crash reductions ranging from 13 to 25 percent.

For nighttime fatal-and-all-injury crashes, there were statistically significant crash reductions for all rural roadway types, ranging from 13 to 60 percent, and an 8-percent reduction for urban freeways. No other roadway types had evaluation results that were statistically significant. For nighttime crashes, there were statistically significant reductions in fatal-and-disabling-injury crashes, ranging from 18 to 31 percent, for rural freeways and rural multilane divided highways. There was a statistically significant 24-percent increase in nighttime fatal-and-disabling-injury crashes on urban freeways and a 49-percent decrease in nighttime fatal-and-disabling-injury crashes on urban two-lane highways. All other results for fatal-and-disabling-injury crashes were not statistically significant. There is no obvious explanation for the increase in nighttime fatal-and-disabling-injury crashes on urban freeways, but the corresponding result for fatal-and-all-injury crashes is a statistically significant 8-percent crash reduction.

Dry- and Wet-Pavement Crashes

The overall evaluation results for both dry- and wet-pavement crashes by roadway type are presented in Tables A-5 through A-7 in Appendix A. The results for dry-pavement fatal-and-all-injury crashes were statistically significant for all roadway types, except urban multilane divided highways, with crash reductions ranging from 7 to 62 percent. For fatal-and-disabling-injury crashes, the results for urban freeways, urban multilane divided highways, and urban multilane undivided highways were not statistically significant. The results for wet-pavement fatal-and-all-injury crashes were statistically significant rural multilane divided highways, rural multilane undivided highways, and urban multilane undivided highways, with crash reductions ranging from 13 to 44 percent. There was a statistically significant 18-percent increase in fatal-and-all-injury crashes on urban freeways. For fatal-and-disabling-injury crashes, the results for wet-pavement crashes were statistically significant on rural freeways and rural multilane divided highways and for all urban roadways except urban freeways.

The results for fatal-and-disabling-injury crashes on ice-and-snow-covered pavements show a statistically significant reduction in crashes for rural freeways, rural multilane divided highways, and urban multilane divided highways, with crash reductions ranging from 33 to 60 percent. The results for fatal-and-all-injury crashes on ice-and-snow-covered pavements were statistically significant only for rural freeways (16-percent reduction) and urban multilane divided highways (20-percent reduction).

Nighttime Wet-Pavement Crashes

SRI improvements should be particularly effective in addressing nighttime wet-pavement crashes, so a special analysis of this crash type was conducted. For fatal-and-all-injury crashes, statistically significant reductions in crashes were found for rural multilane divided highways (31 percent), rural multilane undivided highways (71 percent), and urban multilane undivided highways (20 percent). However, a statistically significant increase in nighttime wet-pavement fatal-and-all-injury crashes was found for urban freeways. For fatal-and-disabling-injury crashes, the only statistically significant results were for rural freeways, with a 27-percent reduction, and rural multilane divided highways, with a 41-percent reduction.

2.8.5 Summary of Safety Effectiveness Measures for SRI Projects

Table 14 presents a summary of the safety effectiveness measures for SRI projects based on the results shown in Tables 9 through 12. Where statistically significant results for fatal-and-disabling-injury crashes were not available, but the results for fatal-and-all-injury crashes were statistically significant, the results for fatal-and-all-injury crashes should be used as the best available estimate of the safety effectiveness for fatal-and-disabling-injury crashes.

If the evaluation results for both fatal-and-disabling-injury crashes and fatal-and-all-injury crashes were found to be not statistically significant in Tables 9 through 12, no safety effectiveness measure is shown in Table 14.

The effectiveness estimates greater than 50 percent shown in Tables 9 through 12 have been omitted from Table 14, as these results seem over optimistic and do not appear suitable for use in planning future projects. Table 10 includes a statistically significant increase in crash frequency observed for wider markings with resurfacing on urban multilane divided highways. This result has not been included in Table 14 because it may be related to factors other than the SRI projects.

The safety effectiveness measures in Table 14 include reductions in crash frequency ranging from 9 to 49 percent. The highest safety effectiveness measure shown in the table, a statistically significant reduction in crash frequency of 49 percent, was found for installation of wider markings with shoulder rumble strips on rural multilane divided highways. The table shows that a broad range of additional SRI project types are effective in reducing crash frequency. A few project types have no statistically significant results even with the inclusion of three full years of data for the period after project implementation.

Table 14. Summary of Safety Effectiveness Measures for SRI Projects

SRI project type	Roadway type	Percent reduction in crash frequency from before to after the SRI projects	
		Fatal-and-disabling-injury crashes	Fatal-and-all-injury crashes
1–Wider markings with resurfacing	Rural freeways	21	9
	Rural multilane divided highways	34	25
	Rural multilane undivided highways	46	–
	Rural two-lane highways	–	–
	Urban freeways	–	4
	Urban multilane divided highways	–	–
	Urban multilane undivided highways	–	8
	Urban two-lane highways	38	–
2–Wider markings and edgeline rumble strips with resurfacing	Rural freeways	25	24
	Rural multilane divided highways	24	26
	Urban freeways	–	10
	Urban multilane divided highways	–	14
3–Wider markings and shoulder rumble strips with resurfacing	Rural freeways	26	23
	Rural multilane divided highways	49	25
	Rural two-lane highways	–	–
	Urban freeways	–	20
	Urban multilane divided highways	–	–
4–Wider markings and both centerline and edgeline rumble strips with resurfacing	Rural two-lane highways	47	38
	Urban two-lane highways	–	–
5–Wider markings without resurfacing	Rural freeways	–	22
	Rural multilane divided highways	–	–
	Urban freeways	–	–
	Urban multilane divided highways	–	–

Section 3.

Benefit-Cost Evaluation of SRI Projects

A benefit-cost evaluation was performed for each combination of roadway type and striping and delineation package for which there was sufficient data to obtain a reliable safety effectiveness estimate. The benefit-cost evaluation compared the benefits of each striping and delineation package over its service life to the cost of the improvement. The following discussion presents the benefit-cost methodology used, reviews each aspect of the methodology, and presents the results of the benefit-cost evaluation.

The benefit-cost evaluation focused on the cost-effectiveness of the striping and delineation improvements and did not consider the costs or benefits of pavement resurfacing. This focus is reasonable because the pavements that were resurfaced needed resurfacing and would have been resurfaced even if no striping and delineation improvements had been made. Furthermore, a benefit-cost evaluation of resurfacing would need to consider benefits other than safety (e.g., improvement of ride quality and preservation of the structural integrity of the pavement).

3.1 Benefit-Cost Methodology

The results of the benefit-cost evaluation are presented in the form of benefit-cost ratios for specific striping and delineation packages on specific roadway types. A benefit-cost ratio of 1.0 or greater indicates the improvement has benefits that equal or exceed its costs and that the improvement is, therefore, considered cost effective. A benefit-cost ratio less than 1.0 indicates the benefits of the improvement are less than its costs and that the improvement is not considered cost effective.

The benefit-cost ratio is computed as:

$$B/C = \frac{\left(\sum_{j=1}^n N_{jk} T_k r_{jk} C_j \right) (P/A, i\%, n)}{CC_k} \quad (1)$$

where:	B/C	=	benefit-cost ratio
	N_{jk}	=	annual crash frequency per mile for severity level j on roadway type k
	T_k	=	adjustment for traffic volume growth for roadway type k
	r_{jk}	=	proportional reduction in crashes due to striping and delineation improvements for severity level j on roadway type k
	C_j	=	average crash cost for severity level j on roadway type k
	$(P/A, i\%, n)$	=	uniform series present worth factor for an improvement service life of n years at a minimum attractive rate of return of $i\%$
	CC_k	=	installation cost per mile for a specific package of striping and delineation improvements on roadway type k

Each element of the benefit-cost methodology is discussed below.

3.1.1 Crash Frequency Per Mile (N_{jk})

The typical crash frequency per mile per year for specific crash severity levels and roadway types has been determined from the observed crash frequencies in the evaluation dataset for the before-study period (see Tables 4 through 6).

3.1.2 Adjustment for Traffic Volume Growth (T_k)

The traffic volume adjustment factor is intended to include allowances for:

- Traffic volume growth during the period when SRI projects were implemented
- Traffic volume growth during the service life of the SRI improvements (see below)

Any traffic volume growth that occurs in the future on the SRI project sites is likely to increase future crash frequencies. Thus, if traffic volume grows, there would be more crashes in the future, and more opportunity to reduce crashes. The initial evaluation of the SRI project sites (*I*), which used only one year of after-period data, found annual traffic volume growth of 0.4 percent per year for rural sites and 0.3 percent per year for urban sites between the 3-year before period (2002 through 2004) and the 1-year after period (2007). The traffic volume data for the additional 2 years of after-period data added for this report (2008 and 2009) show small decreases in traffic volumes to levels often slightly below those in the before period (see Table 3). This decrease in traffic volume is likely explained by the recent economic downturn that began in 2008 and 2009. If one were to forecast future traffic volumes based upon 2008 and 2009 levels, one might conclude that future traffic volumes would continue to decrease. However, we have taken the more optimistic view that traffic volumes in the near-term future will grow slightly from 2009 levels such that the net traffic volume levels over a 5-year evaluation period (2007 through 2011) will be the same as those in the before period (2002 through 2004). Thus, we have assumed a value of 1.00 for T_k .

3.1.3 Reduction in Crashes Due to Striping and Delineation Improvements (r_{jk})

The reduction in crashes due to striping and delineation improvements represents the percentage reductions in crash frequency, based on the evaluation results presented in Table 14, expressed as a proportion. Since the effect of the SRI projects on PDO crashes was not formally evaluated, it is assumed to be equal to the effectiveness for minor-injury crashes shown in Table 14. Where no safety effectiveness measure is shown in Table 14, no benefit-cost evaluation was conducted.

3.1.4 Crash Costs (C_{jk})

The benefit-cost evaluation uses estimates of the average cost per crash for specific crash severity levels that have been provided by MoDOT. Specifically, MoDOT has provided estimates for 2005 of the economic cost (in dollar terms) for four injury severity levels. The crash cost estimates for each injury severity level have been updated to 2009 levels to account for inflation. The injury severity levels and their associated 2009 costs per crash are:

- Fatal crashes (\$4,707,000)
- Disabling-injury crashes (\$300,000)
- Minor-injury crashes (\$76,200)
- Property-damage-only (PDO) crashes (\$4,300)

The cost for a fatal crash is based on the average number of fatalities, disabling injuries, and other injuries per fatal crash. The cost for a disabling injury crash is based on the average number of disabling injuries and other injuries per disabling-injury crash. The cost for any other injury crash is based on the average number of injuries per other-injury crash.

3.1.5 Uniform Series Present Worth Factor (P/A , $i\%$, n)

The uniform series present worth factor is used to estimate the present value of a series of annual cash flows. The safety benefits of a striping and delineation project would be expected to be obtained annually over the entire service life of the project. The purpose of the benefit-cost evaluation is to compare the magnitude of these benefits to the improvement cost, which is a one-time cost incurred at the time the improvement is made. The uniform series present worth factor converts the annual benefits to a present value that can be compared to the improvement cost. The uniform series present worth factor is computed as:

$$(P/A, i\%, n) = \frac{(1+i)^n - 1}{i(1+i)^n} \quad (2)$$

where: i = minimum attractive rate of return (interest rate or discount rate), expressed as a proportion (i.e., $I = 0.04$ corresponds to 4 percent minimum attractive rate of return)
 n = service life of improvement (years)

3.1.6 Minimum Attractive Rate of Return (i)

The minimum attractive rate of return is the minimum return on investment that represents an attractive investment in highway safety. The minimum attractive rate of return is also known as the interest rate or discount rate. A minimum attractive rate of return of 4 percent, which represents a reasonable estimate of the real long-term cost of capital (not including inflation), has been used in the benefit-cost evaluation. While there is no formal recommendation concerning the minimum attractive rate of return in the AASHTO *Highway Safety Manual* (HSM) (4) the

benefit-cost analysis examples shown in the HSM are based on a minimum attractive rate of return equal to 4 percent.

3.1.7 Service Life (n)

The service life of striping and delineation improvements is estimated to be 5 years. The pavement markings have a service life of 5 years or less. The rumble strips, delineators, and emergency reference markers have a service life of at least 5 years. Since the benefit-cost evaluation is focused on the striping and delineation improvements, the life of pavement resurfacing has not been considered in determining the project service life.

3.1.8 Installation Cost (CC_k)

Installation cost serves as the denominator in computing the benefit-cost ratio with Equation (1). The installation cost is a one-time initial cost that is already a present value and does not need to be multiplied by a present worth factor. Estimates of installation cost for specific striping and delineation packages on specific roadway types have been provided by MoDOT based on experience for actual SRI projects. Table 15 summarizes the installation cost per mile for various types of SRI improvements. The installation costs per mile in Table 15 are based on the following unit costs for specific SRI project components:

- 6-in white marking \$0.57 per ft
- 6-in yellow marking \$0.55 per ft
- 6-in tape marking \$4.00 per ft
- Edgeline or shoulder rumble strip \$38.33 per 100 ft
- Centerline rumble strip \$55.00 per 100 ft
- Reference markers (0.2-mi intervals) \$162.05 per marker
- Delineators \$83.00 per mi

The marking materials for 6-in white and 6-in yellow lines included both epoxy and polyurea; the unit costs shown above are a weighted average based on the relative lengths of these materials that were used. The 6-in tape markings were used for lane lines at some sites, but not all sites. Where more than one line of Table 15 applies to a specific roadway type/project type combination, a weighted average based on the lengths of the evaluation segments has been used. The needs for guardrail improvements as part of SRI projects were very site specific, and neither overall nor site-specific costs for the guardrail improvements were available. Therefore, guardrail improvement costs have not been included in the benefit-cost analysis. It is expected that guardrail improvement costs constitute a relatively small proportion of the overall SRI project costs.

Table 15. Installation Costs for Various SRI Project Types

Roadway type	Number of lanes ^a	Tape lane line markings	Number included in installation cost estimate ^b							Total installation cost (\$) per mi	
			White lane lines	White edgelines	Yellow edgelines	Yellow centerlines	Edge/shoulder rumble strips	Centerline rumble strips	Reference markers		
PROJECT TYPE 1 or 5: Wider markings with or without resurfacing											
Freeway	2	N	1	1	1					5	9,816
	2	Y	1	1	1					5	27,927
	3	N	2	1	1					5	12,826
	3	Y	2	1	1					5	49,047
Freeway (non-Interstate)	2	N	1	1	1						27,117
	2	Y	1	1	1						12,016
	3	N	2	1	1						48,237
	3	Y	2	1	1						9,006
Multilane divided highway	2	N	1	1	1						9,006
	2	Y	1	1	1					9,006	27,117
	3	N	2	1	1						12,016
	3	Y	2	1	1						48,237
Multilane undivided highway	4	N	2	2			2				17,929
	4	Y	2	2			2				54,150
Two-lane highway	2	N		2			2				11,910
PROJECT TYPE 2 or 3: Wider markings and edgeline or shoulder rumble strip with resurfacing											
Freeway	2	N	1	1	1			2		5	13,864
	2	Y	1	1	1			2		5	31,974
	3	N	2	1	1			2		5	16,874
	3	Y	2	1	1			2		5	53,094
Freeway (non-Interstate)	2	N	1	1	1			2			13,054
	2	Y	1	1	1			2			31,164
	3	N	2	1	1			2			16,063
	3	Y	2	1	1			2			52,284
Multilane divided highway	2	N	1	1	1			2			13,054
	2	Y	1	1	1			2			31,164
	3	N	2	1	1			2			16,063
	3	Y	2	1	1			2			52,284
Multilane undivided highway	4	N	2	2			2	2			21,977
	4	Y	2	2			2	2			58,198
Two-lane highway	2	N		2			2				15,958
PROJECT TYPE 4: Wider markings and centerline and edgeline rumble strips with resurfacing											
Two-lane highway	2	N		2			2		1		18,862

^a One direction of travel for divided highways and both directions of travel for undivided highways.

^b Indicates number of pavement marking lines, rumble strips, or reference markers per mile used in deriving installation costs. Blank values indicate conditions where the improvement was not applicable. For example, reference markers were only installed on freeways.

3.2 Results of Benefit-Cost Evaluation

Table 16 summarizes the benefits, costs, and benefit-cost ratios determined for specific combinations of roadway type and project type. Computed benefit-cost ratios are presented only for those combinations for which a safety effectiveness estimate was available in Table 14. The results in Table 16 show benefit-cost ratios ranging from 6 to 145. The average benefit-cost ratio was 10.8. This indicates that these improvements are expected to provide \$10.80 in benefits, over a 5-year service life, for each dollar invested in striping and delineation improvements.

Table 16. Summary of Benefit-Cost Ratios for SRI Projects

SRI project type	Roadway type	Benefit (\$)	Installation cost (\$)	Benefit-cost ratio
1–Wider markings with resurfacing	Rural freeways	61,544,000	6,607,000	9.3
	Rural multilane divided highways	42,862,000	3,573,000	12.0
	Rural multilane undivided highways	31,759,000	217,600	145.9
	Rural two-lane highways	–	–	–
	Urban freeways	49,600,000	8,710,000	5.7
	Urban multilane divided highways	–	–	–
	Urban multilane undivided highways	75,916,000	3,481,000	21.8
2–Wider markings and edgeline rumble strips with resurfacing	Urban two-lane highways	49,150,000	418,000	117.6
	Rural freeways	100,473,000	12,038,000	8.3
	Rural multilane divided highways	76,258,000	9,565,000	8.0
	Urban freeways	53,626,000	5,382,000	10.0
3–Wider markings and shoulder rumble strips with resurfacing	Urban multilane divided highways	25,170,000	2,415,000	10.4
	Rural freeways	36,766,000	6,305,000	5.8
	Rural multilane divided highways	7,114,000	959,000	7.4
	Rural two-lane highways	–	–	–
4–Wider markings and both centerline and edgeline rumble strips with resurfacing	Urban freeways	39,336,000	2,250,000	17.5
	Urban multilane divided highways	–	–	–
	Urban multilane undivided highways	–	–	–
	Rural two-lane highways	14,508,000	407,000	35.6
5–Wider markings without resurfacing	Urban two-lane highways	920,000	41,000	22.2
	Rural freeways	10,158,000	426,000	23.8
	Rural multilane divided highways	–	–	–
	Urban freeways	–	–	–
	Urban multilane divided highways	231,000	8,000	28.5

While all of the project types that could be assessed were found to have benefit-cost ratios substantially greater than 1.0, six project types stand out as being particularly cost-effective. These are:

- Wider markings with resurfacing on rural multilane undivided highways (benefit-cost ratio = 146)
- Wider markings with resurfacing on urban two-lane highways (benefit-cost ratio = 118)
- Wider markings and both centerline and edgeline rumble strips with resurfacing on rural two-lane highways (benefit-cost ratio = 36)
- Wider markings without resurfacing on urban multilane divided highways (benefit-cost ratio = 29)
- Wider markings without resurfacing on rural freeways (benefit-cost ratio = 24)
- Wider markings with resurfacing on urban multilane undivided highways (benefit-cost ratio = 22)

It is not possible to evaluate the SRI program as a whole with the safety effectiveness measures in Table 14, because the evaluation results for a few project types were not statistically significant. Section 2.8 noted that the overall program effectiveness measures were an 16-percent reduction in fatal-and-disabling-injury crashes and a 11-percent reduction in fatal-and-all-injury crashes. If these overall effectiveness measures are applied to each roadway and project type, it is estimated that the SRI striping and delineation program, as a whole, would be expected to provide \$755,000,000 in crash reduction benefits over a 5-year service life, at a cost of \$67,000,000 for a benefit-cost ratio of 11.2. In other words, the SRI striping and delineation program as a whole should provide \$11.20 in benefits for each dollar spent on striping and delineation improvements. Based on this estimate, it is projected that, over a period of 5 years from 2007 through 2011, the striping and delineation program will reduce approximately 100 fatal crashes; 550 disabling-injury crashes; 2,000 minor-injury crashes; and 6,700 property-damage-only crashes. It should, however, be recognized that this projection includes some roadway type and project type combinations for which the available data were too variable to achieve statistically significant results.

Section 4.

Conclusions and Recommendations

This section of the report presents the conclusions and recommendations of the research.

4.1 Conclusions

MoDOT implemented an extensive program of striping and delineation improvements, often in conjunction with pavement resurfacing, in 2005 and 2006, known as the Smooth Roads Initiative (SRI). The SRI program included 2,328.6 mi of striping and delineation improvements at sites with sufficient data for evaluation, including 2,097.1 mi on divided highways and 231.5 mi on undivided highways. The following conclusions were reached in the research presented in this report.

1. The striping and delineation program resulted in an overall reduction of 16 percent in fatal-and-disabling-injury crashes and 11 percent in fatal-and-all-injury crashes.
2. Over a period of 5 years from 2007 through 2011, the striping and delineation program is expected to reduce approximately 100 fatal crashes; 550 disabling-injury crashes; 2,000 minor-injury crashes; and 6,700 property-damage-only crashes.
3. The best available estimate is that the overall striping and delineation program is expected to provide \$755,000,000 in benefits over the 5-year period at a cost of \$67,000,000, for an overall benefit-cost ratio of approximately 11. This finding indicates that the program provides approximately \$11 in crash reduction benefits for each dollar invested in striping and delineation improvements.
4. Statistically significant estimates of the crash reduction effectiveness of the striping and delineation program, obtained using the Empirical Bayes (EB) method for before/after safety evaluations, were obtained for 18 of the 24 specific combinations of roadway type and project type evaluated. The 18 roadway type/project type combinations experienced reductions in injury crashes ranging from 4 to 81 percent (see Table 14).
5. While all of the 18 roadway type/project type combinations with statistically significant results had corresponding benefit-cost ratios substantially greater than 1.0, six specific project types stand out as being particularly cost-effective. These are:
 - Wider markings with resurfacing on rural multilane undivided highways (benefit-cost ratio = 146)
 - Wider markings with resurfacing on urban two-lane highways (benefit-cost ratio = 118)
 - Wider markings and both centerline and edgeline rumble strips with resurfacing on rural two-lane highways (benefit-cost ratio = 36)
 - Wider markings without resurfacing on urban multilane divided highways (benefit-cost ratio = 29)

- Wider markings without resurfacing on rural freeways (benefit-cost ratio = 24)
 - Wider markings with resurfacing on urban multilane undivided highways (benefit-cost ratio = 22)
6. The striping and delineation improvements appear to be particularly effective in reducing multiple-vehicle crashes on the improved roadways. By contrast, single-vehicle crashes appear to have increased, particularly on urban freeways.
 7. The striping and delineation improvements provided statistically significant reductions in daytime fatal-and-all-injury crashes for all roadway types, with crash reductions ranging from 12 to 76 percent.
 8. The striping and delineation improvements provided statistically significant reductions in nighttime fatal-and-disabling-injury crashes, ranging from 23 to 56 percent, for rural freeways, rural multilane divided highways, and urban two-lane highways. By contrast, nighttime fatal-and-disabling-injury crashes appear to have increased on some urban freeways.
 9. There were statistically significant reductions for both dry- and wet-pavement crashes on rural roadways. For urban roadways, there were mixed results with crash reductions for dry- and wet-pavement crashes observed for some roadway types and crash increases for others. The evaluation results for nighttime wet-pavement crashes were statistically significant for rural multilane divided highways, rural multilane undivided highways, and urban multilane undivided highways; crash reductions ranged from 20 to 71 percent.

4.2 Recommendations

The research results indicate that MoDOT may proceed with future striping and delineation improvements with confidence that they make a substantial contribution to safety improvement.

Section 5. References

1. Potts, I. B., D. W. Harwood, C. D. Bokenkroger, and J. M. Hutton, “Benefit/Cost Evaluation of MoDOT’s Total Striping and Delineation Program,” Report No. OR09-014, Missouri Department of Transportation (October 2008).
2. Hauer, E., *Observational Before-After Studies in Road Safety*, Pergamon Press, 1997.
3. Hauer, E., D. W. Harwood, F. M. Council, and M. S. Griffith, “Estimating Safety by the Empirical Bayes Method: A Tutorial,” *Transportation Research Record 1784*, Transportation Research Board, 2002.
4. American Association of State Highway and Transportation Officials, *Highway Safety Manual*, 2010.

Appendix A

Detailed Before/After Evaluation Results

This appendix includes tables presenting the detailed results of the before/after safety evaluation of striping and delineation improvements, expressed as percentage changes in crash frequency from before to after the SRI improvement projects. Negative changes in crash frequency represent crash reductions. Positive changes in crash frequency represent crash increases. Crash reductions that are statistically significant are shown in green. Crash increases that are statistically significant are shown in red. Percentage changes in crash frequency shown in black are not statistically significant and could have occurred due to chance variations alone. All assessments of statistical significance are at the 90-percent confidence level.

Tables A-1 through A-3 present the evaluation results by severity level for specific roadway and project types. The results at this level of detail are considered the primary results of the study, particularly for fatal-and-disabling injury crashes (Table A-1) and fatal-and-all-injury crashes (Table A-2). The results for total crashes (all crash severity levels combined) in Table A-3 are considered less reliable because they include property-damage-only crashes which are often not fully reported.

Table A-4 presents an overall summary of the before/after evaluation results by crash severity for all roadway and project types combined. The results in Table A-4 are useful as overall measures of the success of the striping and delineation program, but they may be less reliable than Tables A-1 through A-3 precisely because they represent average results combined across two factors—roadway type and project type—whose effects on safety have been shown to be important. Tables A-5 through A-7 present detailed evaluation results by roadway type (averaging across all project types) and Tables A-8 through A-10 present detailed evaluation results by project type (averaging across all roadway types).

Table A-1. Summary of Before/After Evaluation Results for Fatal-and-Disabling-Injury Crashes by Roadway and Project Type

Project type	Cable median barrier	No. of sites	Total length (mi)	Percentage change in crash frequency																			
				Lane departure									Pavement surface condition			Day				Night			
				All	MV	SV	All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow
RURAL FREEWAYS																							
1	N	23	90.0	-7.7	-28.7	8.4	-19.6	-41.6	-10.6	-25.5	3.2	-33.4	-8.2	-2.8	-0.5	-13.8	-16.5	2.7	-28.8	12.2	18.0	-14.7	34.5
1	Y	26	164.4	-25.6	-48.0	-5.4	-39.2	-57.4	-29.9	-20.4	-36.5	-39.5	-15.0	-37.9	-57.1	-30.0	-22.4	-44.8	-36.8	-16.1	0.7	-23.2	-85.3
1	N+Y	49	254.4	-20.5	-42.7	-1.4	-33.5	-53.0	-24.3	-21.9	-24.6	-37.7	-13.1	-28.3	-43.1	-25.3	-21.0	-32.0	-34.1	-8.3	5.9	-20.6	-55.4
2	N	30	180.5	-30.8	-25.5	-34.0	-42.2	4.8	-55.8	-60.8	-49.7	-36.6	-36.6	-30.5	2.9	-14.7	-23.3	-27.9	47.0	-54.7	-55.2	-35.5	-74.6
2	Y	24	202.6	-21.8	-39.7	-6.8	-25.8	-33.3	-21.1	-24.3	-16.2	-29.2	-21.1	-6.3	-42.2	-28.9	-31.8	-9.8	-40.3	-4.1	2.3	2.6	-45.3
2	N+Y	54	383.2	-24.8	-35.4	-16.7	-31.4	-22.4	-33.7	-38.2	-27.9	-31.7	-26.6	-13.2	-26.0	-24.4	-29.0	-14.6	-8.2	-23.3	-20.6	-9.8	-55.5
3	N	22	187.5	-31.9	-66.7	-7.2	-36.7	-69.3	-25.6	-30.9	-18.7	-46.2	-22.6	-57.9	-36.6	-34.8	-34.5	-55.0	-3.9	-25.7	-0.6	-63.7	-71.0
3	Y	1	9.6	35.9	-44.5	102.8	-0.6	-34.8	14.9	-58.5	181.9	-49.8	110.8	-100.0	6.2	14.1	89.7	-100.0	15.7	102.0	148.8	-100.0	-100.0
3	N+Y	23	197.2	-26.2	-64.6	1.3	-33.6	-65.5	-22.4	-33.5	-8.8	-46.3	-12.6	-62.6	-34.2	-29.7	-24.6	-61.2	-1.4	-18.9	9.8	-65.8	-71.7
2+3	N	52	368.1	-31.3	-47.1	-21.2	-39.7	-31.8	-41.7	-46.8	-35.1	-41.3	-30.2	-45.7	-19.2	-24.8	-28.8	-43.1	20.8	-40.6	-31.3	-50.7	-72.1
2+3	Y	25	212.3	-19.2	-39.9	-2.2	-24.8	-33.3	-19.6	-26.1	-11.4	-30.1	-16.2	-11.9	-39.9	-26.6	-27.2	-16.0	-36.0	-0.7	7.9	-0.9	-46.3
2+3	N+Y	77	580.3	-25.2	-43.3	-11.9	-32.1	-32.8	-30.8	-36.9	-23.2	-35.5	-23.2	-27.4	-28.3	-25.8	-28.0	-28.0	-5.8	-22.0	-13.0	-25.8	-61.4
5	N	4	43.4	-59.5	-77.4	-34.6	-55.3	-75.0	-41.8	-34.7	-46.5	-60.4	-55.5	-85.6	-23.8	-66.0	-66.6	-80.8	36.8	-43.3	-27.3	-100.0	-100.0
RURAL MULTILANE DIVIDED HIGHWAYS																							
1	N	40	136.5	-34.0	1.2	-57.8	-55.0	-10.5	-65.9	-63.1	-67.2	-44.7	-17.9	-59.4	-56.7	-32.8	-21.8	-55.8	-19.0	-33.8	-7.2	-69.0	-100.0
2	N	43	319.1	-24.3	-38.0	-15.4	-19.6	-15.3	-20.2	-13.4	-23.9	-14.5	-20.7	-34.5	-35.8	-22.0	-15.2	-41.3	-45.6	-26.8	-29.0	-23.1	-18.6
3	N	8	31.1	-49.1	-56.7	-48.7	-30.1	-38.6	-29.2	-43.7	-17.4	-40.9	-52.8	-56.6	-21.9	-59.5	-50.6	-100.0	-1.5	-38.7	-59.0	24.5	-100.0
2+3	N	51	350.3	-26.3	-39.3	-18.4	-20.4	-17.1	-20.9	-15.8	-23.3	-16.5	-23.0	-36.9	-35.0	-25.0	-17.7	-49.1	-41.9	-27.8	-31.5	-15.9	-22.7
5	N	3	40.8	-24.2	21.2	-45.7	-42.2	14.1	-53.4	-54.6	-51.1	-33.0	-14.3	-63.1	-39.6	-6.4	2.7	-46.7	13.3	-48.0	-33.4	-100.0	-60.6
RURAL MULTILANE UNDIVIDED HIGHWAYS																							
1	N	4	11.2	-45.8	-49.0	-24.1	-19.0	6.9	-46.3	40.7	-100.0	14.9	-63.5	280.6	-100.0	-57.1	-77.6	285.8	-100.0	-0.6	-9.9	68.6	-100.0
RURAL TWO-LANE HIGHWAYS																							
1	N	7	9.9	2.9	20.3	-1.6	40.0	57.6	83.0	153.4	73.1	59.8	-11.6	121.8	-100.0	13.1	-3.9	210.1	-100.0	-5.0	2.8	68.0	-100.0
3	N	1	4.7	-6.2	55.5	-56.6	-14.9	68.1	-50.2	-100.0	17.4	-4.8	-56.1	186.8	2,197.9	35.1	-43.7	190.2	.	-17.8	-51.5	268.3	-100.0
4	N	3	21.6	-47.4	-51.5	-28.5	-57.8	-32.9	-79.2	-64.9	-100.0	-48.3	-43.4	-100.0	39.9	-59.2	-63.4	-100.0	105.0	-11.1	13.3	-100.0	-100.0
URBAN FREEWAYS																							
1	N	49	209.8	-9.7	-24.6	28.6	-13.0	-30.7	14.6	30.4	0.6	-13.9	-10.2	-5.1	12.2	-15.5	-20.1	-11.4	38.6	13.9	22.4	6.6	-22.1
1	Y	8	12.6	71.6	30.4	131.2	-2.8	-45.6	31.3	66.1	11.9	-8.3	99.2	-3.9	16.8	58.0	80.8	-50.8	200.4	96.3	135.1	74.8	-100.0
1	N+Y	57	222.4	-7.0	-22.9	33.1	-12.4	-31.2	16.0	32.2	2.2	-13.6	-6.7	-5.0	12.6	-13.2	-17.1	-12.9	43.7	17.4	26.9	9.4	-26.6
2	N	30	122.9	-5.3	-27.4	49.2	3.0	-31.5	50.0	48.9	58.2	-9.1	-9.5	25.0	-13.1	-17.9	-27.9	23.9	-11.3	33.0	44.7	26.7	-14.6
2	Y	7	13.5	-49.5	-22.8	-69.6	-23.3	32.8	-51.9	-55.3	-46.0	-11.4	-54.8	1.7	-100.0	-44.2	-47.7	-12.9	-100.0	-55.3	-67.5	26.9	-100.0
2	N+Y	37	136.4	-7.9	-27.9	40.6	2.0	-28.7	43.3	41.9	51.6	-8.8	-12.1	23.6	-18.4	-19.5	-29.2	21.6	-16.2	27.7	37.8	27.4	-20.4
3	N	21	60.7	13.0	-39.9	90.5	16.7	-44.6	66.0	44.5	98.7	-10.5	20.7	-9.2	48.0	8.4	-6.5	35.8	108.6	40.2	92.1	-80.2	-46.0
3	Y	2	7.4	20.3	-6.6	82.5	28.6	74.8	26.8	138.2	-41.0	82.0	39.4	-43.9	1,215.1	4.0	21.5	-100.0	.	101.7	116.9	97.9	-100.0
3	N+Y	23	68.1	13.9	-37.1	90.3	19.9	-27.5	62.2	56.0	80.7	3.1	22.8	-12.8	65.0	8.0	-3.7	19.0	140.4	46.3	95.2	-63.9	-48.5
2+3	N	51	183.6	-0.2	-30.7	65.7	7.6	-35.0	57.9	48.9	76.1	-9.5	-1.4	15.4	5.0	-10.9	-22.5	27.3	30.5	35.5	59.1	-6.2	-22.5
2+3	Y	9	20.9	-18.9	-15.3	-13.0	1.1	50.5	-18.6	16.1	-45.3	30.6	-14.6	-22.8	31.7	-22.7	-18.3	-60.0	295.1	2.3	2.5	53.7	-100.0
2+3	N+Y	60	204.5	-1.5	-30.5	60.1	8.3	-28.6	52.4	48.2	65.6	-5.2	-2.3	12.9	5.3	-11.9	-22.5	21.0	36.1	33.6	55.6	-1.3	-27.4
5	N	2	5.9	-33.8	-67.8	17.1	-50.0	-100.0	-7.5	-31.6	65.5	-69.0	-37.7	15.1	-100.0	-18.9	-28.9	41.4	-100.0	-41.8	-34.4	-100.0	.
URBAN MULTILANE DIVIDED HIGHWAYS																							
1	N	109	164.2	-13.5	-29.8	28.5	-1.6	-4.1	4.1	27.3	-15.8	6.3	-2.5	-35.2	-63.1	-16.5	-4.0	-57.7	-66.0	-1.2	2.9	12.8	-59.5
1	N	35	79.0	-5.9	-18.6	24.3	-0.9	-31.9	21.9	35.6	14.9	-2.0	-0.8	2.7	-73.5	-29.7	-32.0	-12.0	-100.0	65.1	97.2	37.7	-41.3
3	N	4	14.5	-18.1	-63.6	15.3	-60.7	-100.0	-46.2	-100.0	-22.7	-100.0	0.4	-100.0	6.4	-32.3	-10.2	-100.0	-100.0	34.4	48.3	-100.0	124.9
2+3	N	39	93.5	-7.2	-23.1	26.2	-8.7	-39.1	12.6	21.4	11.8	-12.5	-0.5	-5.8	-56.0	-30.0	-29.3	-18.9	-100.0	62.4	92.7	25.4	-3.5
5	N	2	0.9	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	.	-100.0	.	.	-100.0
URBAN MULTILANE UNDIVIDED HIGHWAY																							
1	N	94	145.3	-8.9	-19.6	71.5	-21.8	-17.7	-2.1	-27.8	98.0	-26.9	-3.2	-30.6	-38.5	-16.1	-10.4	-34.4	-70.5	23.8	38.2	-27.7	33.9
3	N	1	0.5	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	.	-100.0	-100.0	-100.0	.	-100.0	-100.0	-100.0	.
URBAN TWO-LANE HIGHWAYS																							
1	N	26	35.1	-37.7	-46.2	35.8	-36.7	-47.7	24.2	5.5	132.4	-42.3	-27.3	-82.6	-100.0	-27.4	-19.3	-76.4	-100.0	-56.0	-39.1	-100.0	-100.0
4	N	2	3.2	-18.1	-32.7	-10.6	60.2	154.0	3.8	176.3	-100.0	134.2	-100.0	445.1	930.1	-48.7	-100.0	.	-100.0	31.6	-100.0	-100.0	1,900.1

Project Code **Project Type** Numbers in **GREEN** represent a statistically significant decrease in crashes
 1 Wider markings with resurfacing.
 2 Wider markings and edgeline rumble stripe with resurfacing. Numbers in **RED** represent a statistically significant increase in crashes.
 3 Wider markings and shoulder rumble strip with resurfacing.
 4 Wider markings and centerline and edgeline rumble strips with resurfacing. Numbers in **BLACK** are not statistically significant.
 5 Wider markings without resurfacing.

Table A-2. Summary of Before/After Evaluation Results for Fatal-and-All-Injury Crashes by Roadway and Project Type

Project type	Cable median barrier	No. of sites	Total length (mi)	Percentage change in crash frequency																			
				All	MV	SV	Lane departure					Pavement surface condition			Day				Night				
							All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow
RURAL FREEWAYS																							
1	N	23	90.0	4.3	-10.6	18.3	-18.0	-30.3	-12.1	-19.1	-2.0	-25.4	-12.2	49.9	58.4	1.3	-19.4	66.9	32.0	22.3	14.2	11.6	92.4
1	Y	26	164.4	-14.4	-33.9	1.1	-34.9	-55.1	-25.2	-34.3	-16.5	-45.1	-10.4	-22.3	-26.2	-18.4	-16.2	-24.5	-18.9	-8.8	-0.4	-17.5	-36.9
1	N+Y	49	254.4	-8.9	-27.4	6.2	-30.0	-48.3	-21.3	-29.9	-12.3	-39.5	-11.0	-3.3	-5.1	-12.5	-17.6	-0.3	-6.1	-0.3	4.1	-9.4	-4.1
2	N	30	180.5	-27.9	-27.3	-27.1	-42.6	-31.8	-45.2	-53.0	-34.4	-45.6	-37.1	5.5	-3.4	-16.5	-30.0	23.5	15.3	-42.2	-45.5	-25.9	-36.2
2	Y	24	202.6	-21.5	-34.3	-10.6	-26.6	-42.4	-18.5	-29.7	-4.2	-36.3	-26.1	8.1	-30.7	-26.2	-35.3	17.0	-39.6	-9.0	-6.5	-11.5	-15.9
2	N+Y	54	383.2	-23.6	-32.2	-16.5	-32.0	-39.4	-28.1	-38.4	-14.6	-39.5	-30.0	7.3	-21.0	-23.1	-33.6	18.6	-19.7	-21.5	-21.9	-16.1	-22.9
3	N	22	187.5	-23.6	-44.8	-8.1	-31.9	-58.8	-22.5	-39.4	-3.0	-47.2	-19.1	-31.9	-28.7	-24.2	-22.2	-37.9	-9.1	-21.1	-12.1	-19.5	-49.5
3	Y	1	9.6	-19.4	-47.6	1.6	-36.5	-39.4	-35.9	-73.6	45.2	-60.0	7.7	-100.0	33.2	-31.4	-0.4	-100.0	8.7	10.6	17.1	-100.0	301.3
3	N+Y	23	197.2	-23.3	-45.0	-7.4	-32.2	-56.6	-23.5	-42.7	-1.0	-48.4	-17.1	-39.7	-25.1	-24.8	-20.5	-46.5	-6.7	-19.6	-10.2	-24.4	-46.4
2+3	N	52	368.1	-25.8	-36.4	-18.2	-37.6	-45.1	-34.6	-46.7	-19.6	-46.4	-28.9	-15.1	-17.4	-20.3	-26.3	-11.1	2.9	-32.0	-31.0	-22.3	-44.3
2+3	Y	25	212.3	-21.4	-34.8	-10.2	-27.0	-42.3	-19.2	-32.0	-3.3	-37.4	-25.0	1.8	-27.7	-26.3	-34.0	9.0	-36.0	-8.6	-5.7	-14.5	-13.3
2+3	N+Y	77	580.3	-23.5	-35.7	-14.2	-32.1	-43.6	-26.9	-39.6	-11.3	-41.8	-26.9	-5.9	-22.0	-23.6	-30.4	0.2	-15.6	-20.9	-19.1	-18.4	-31.3
5	N	4	43.4	-22.4	-56.8	29.7	-19.4	-61.5	9.6	45.9	-11.0	-22.6	-33.4	13.2	39.6	-29.1	-39.8	-1.7	109.8	-4.6	-14.7	58.1	-47.6
RURAL MULTILANE DIVIDED HIGHWAYS																							
1	N	40	136.5	-25.0	-0.8	-39.7	-41.5	19.1	-55.7	-52.4	-55.4	-28.1	-16.9	-44.4	-6.0	-25.3	-15.1	-50.1	28.3	-23.3	-15.7	-27.8	-46.2
2	N	43	319.1	-25.9	-28.3	-23.0	-36.9	-32.0	-37.6	-38.1	-32.9	-36.5	-28.2	-17.0	-8.5	-19.3	-20.5	-5.8	-17.6	-35.8	-41.0	-36.0	9.0
3	N	8	31.1	-25.1	-42.9	-22.1	-27.8	-46.6	-25.2	-23.7	-28.0	-29.0	-29.3	-58.9	102.0	-50.3	-45.3	-82.7	12.0	4.9	-18.6	-11.2	413.2
2+3	N	51	350.3	-25.8	-29.3	-22.8	-36.3	-33.1	-36.6	-36.9	-32.4	-36.0	-28.3	-22.2	-1.4	-21.6	-22.1	-16.1	-15.1	-32.2	-39.0	-32.3	25.2
5	N	3	40.8	-14.8	-19.1	-16.7	-32.6	-23.1	-37.3	-37.6	-40.3	-29.9	-27.8	-0.9	-17.3	-6.6	-29.1	2.4	146.0	-38.6	-33.4	-24.8	-88.3
RURAL MULTILANE UNDIVIDED HIGHWAYS																							
1	N	4	11.2	-60.2	-62.3	-46.5	-70.1	-64.4	-83.9	-78.4	-100.0	-68.0	-62.4	-43.6	-8.4	-59.1	-62.7	-27.5	-40.1	-59.7	-59.8	-70.5	4.5
RURAL TWO-LANE HIGHWAYS																							
1	N	7	9.9	3.0	2.4	8.6	15.1	80.2	-24.9	3.3	-55.6	40.3	2.0	-23.6	-100.0	-8.1	-5.4	-12.2	-100.0	6.9	28.7	-52.0	-100.0
3	N	1	4.7	-16.4	-34.1	9.5	-25.6	-41.5	-7.2	-36.2	39.3	-42.2	-66.0	67.6	2,117.0	8.5	-45.4	56.4	.	-31.0	-83.7	67.8	1,008.5
4	N	3	21.6	-38.3	-28.2	-50.4	-60.7	-41.8	-71.2	-56.1	-90.7	-51.2	-46.3	-29.4	73.6	-36.8	-44.4	0.8	87.0	-46.5	-48.7	-65.1	69.2
URBAN FREEWAYS																							
1	N	49	209.8	-3.8	-1.8	-4.8	-35.2	-36.5	-31.0	-26.8	-29.5	-34.7	-9.4	16.9	10.4	-1.5	-7.1	16.8	15.1	-5.8	-12.8	16.3	3.0
1	Y	8	12.6	-3.3	-28.6	29.5	-35.9	-64.6	-15.3	-2.2	-22.2	-43.3	3.7	-46.7	52.2	-16.6	-10.8	-71.4	227.6	14.5	24.7	0.0	-68.3
1	N+Y	57	222.4	-3.8	-2.3	-3.8	-35.2	-37.3	-30.4	-26.0	-29.3	-34.9	-9.1	15.0	11.8	-1.8	-7.1	14.1	20.3	-5.2	-11.7	15.8	-0.5
2	N	30	122.9	-9.8	-21.5	16.2	-27.0	-44.8	-6.0	-17.1	12.6	-36.7	-21.1	34.2	4.1	-8.8	-20.4	31.2	24.0	-10.0	-22.1	38.6	-16.5
2	Y	7	13.5	-26.4	-24.2	-36.8	-37.1	-15.3	-51.6	-73.3	-26.3	-42.8	-41.8	-1.3	-1.7	-17.9	-35.0	23.8	22.4	-50.5	-60.2	-48.1	-21.6
2	N+Y	37	136.4	-10.4	-21.8	14.0	-27.2	-44.0	-8.0	-20.1	11.2	-36.8	-21.8	32.9	4.1	-9.2	-21.0	30.8	23.9	-11.4	-23.6	35.2	-16.3
3	N	21	60.7	-22.6	-35.6	-2.8	-41.6	-64.5	-25.8	-23.8	-21.3	-47.9	-29.1	1.3	-12.1	-22.5	-29.9	1.9	-11.1	-19.1	-23.4	-3.0	-14.7
3	Y	2	7.4	7.4	-0.5	17.8	-20.5	-10.0	-21.4	-29.0	-8.6	-19.5	-0.6	-16.9	1,353.0	-19.0	-25.6	-54.8	.	64.8	50.8	78.4	384.3
3	N+Y	23	68.1	-20.3	-33.4	-0.8	-39.1	-58.5	-25.1	-24.2	-19.4	-44.9	-26.9	-0.2	5.6	-22.2	-29.5	-3.9	9.9	-12.3	-17.0	3.6	-1.9
2+3	N	51	183.6	-13.1	-24.7	11.0	-30.9	-49.3	-11.8	-18.7	1.9	-39.6	-23.2	25.8	0.0	-12.2	-22.7	23.7	13.6	-12.3	-22.3	27.4	-16.2
2+3	Y	9	20.9	-10.8	-13.4	-13.0	-29.3	-14.2	-37.8	-55.7	-18.8	-32.1	-23.6	-11.1	157.7	-18.3	-30.8	-21.6	348.4	-2.3	-13.7	5.0	53.0
2+3	N+Y	60	204.5	-12.9	-24.6	9.9	-30.5	-47.5	-13.2	-21.0	1.2	-39.0	-23.2	24.1	4.6	-12.5	-23.1	21.5	19.9	-11.5	-21.6	26.4	-13.3
5	N	2	5.9	-50.8	-41.9	-57.8	-71.4	-48.6	-83.3	-87.1	-71.6	-69.6	-59.1	-3.8	-100.0	-46.1	-50.1	-4.7	-100.0	-64.6	-73.2	7.1	.
URBAN MULTILANE DIVIDED HIGHWAYS																							
1	N	109	164.2	7.8	17.5	-7.5	-34.4	-28.8	-37.3	-31.2	-38.1	-30.0	8.7	8.9	-7.5	14.5	15.9	17.2	1.9	-9.2	-7.9	-6.6	-17.5
2	N	35	79.0	-13.8	-14.3	-13.8	-37.0	-51.0	-30.2	-33.8	-23.1	-42.0	-12.1	-18.9	-37.5	-25.4	-23.2	-33.6	-25.5	10.7	14.8	13.4	-54.2
3	N	4	14.5	-65.6	-81.8	-57.4	-76.7	-100.0	-69.6	-52.6	-75.9	-76.9	-70.1	-73.0	-34.9	-66.5	-72.4	-78.2	-8.5	-65.0	-65.9	-65.2	.
2+3	N	39	93.5	-18.5	-19.0	-18.7	-41.6	-55.7	-35.0	-35.4	-32.1	-45.2	-17.4	-22.9	-35.4	-29.1	-27.8	-36.6	-20.9	3.7	7.9	6.9	-55.1
5	N	2	0.9	-80.9	-100.0	-71.4	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0	-75.1	-100.0	-100.0	-75.6	-75.1	-100.0	.	-100.0	.	.	-100.0
URBAN MULTILANE UNDIVIDED HIGHWAYS																							
1	N	94	145.3	-8.1	-12.1	18.2	-28.2	-31.2	-20.9	-20.6	-18.7	-28.8	-7.4	-12.0	-4.4	-10.0	-9.4	-10.1	-34.8	-1.2	1.6	-18.7	62.5
3	N	1	0.5	-27.1	3.2	-100.0	-38.6	-36.4	-100.0	-100.0	-100.0	-37.7	16.9	-100.0	.	-51.1	17.9	-100.0	.	-100.0	-100.0	-100.0	.
URBAN TWO-LANE HIGHWAYS																							
1	N	26	35.1	-10.2	-17.2	28.0	-29.3	-45.3	-4.6	-37.8	102.4	-41.5	-12.4	-3.1	-47.7	-12.1	-16.8	-5.4	-23.5	-5.5	-2.6	-17.7	-80.0
4	N	2	3.2	-4.3	-17.2	1.7	-19.0	11.1	-40.2	68.8	-82.2	59.2	-21.1	-15.5	35.1	14.0	-8.6	.	-100.0	-55.7	-58.7	-100.0	98.2

Project Code **Project Type** **Numbers in GREEN represent a statistically significant decrease in crashes**

1 Wider markings with resurfacing

2 Wider markings and edgeline rumble stripe with resurfacing

3 Wider markings and shoulder rumble strip with resurfacing

4 Wider markings and centerline and edgeline rumble strips with resurfacing

5 Wider markings without resurfacing

Numbers in RED represent a statistically significant increase in crashes

Numbers in BLACK are not statistically significant.

Table A-3. Summary of Before/After Evaluation Results for Total Crashes (All Severity Levels Combined) by Roadway and Project Type

Project type	Cable median barrier	No. of sites	Total length (mi)	Percentage change in crash frequency																			
				Lane departure									Pavement surface condition			Day				Night			
				All	MV	SV	All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow
RURAL FREEWAYS																							
1	N	23	90.0	12.4	3.1	25.1	-11.6	-19.9	-5.7	-27.2	12.6	-25.2	-5.2	49.6	111.8	7.6	-13.6	60.0	128.6	35.0	26.9	41.0	96.5
1	Y	26	164.4	23.6	-6.0	48.2	-6.1	-37.3	6.8	-27.5	31.6	-31.5	17.0	14.1	81.6	23.2	17.0	16.3	74.4	23.6	15.9	8.8	90.5
1	N+Y	49	254.4	20.1	-3.3	40.9	-7.8	-32.3	2.8	-27.4	25.4	-29.6	10.1	24.2	90.4	18.2	6.6	28.7	88.9	26.9	19.2	17.8	93.6
2	N	30	180.5	-19.5	-17.3	-18.6	-39.7	-22.0	-44.6	-45.2	-44.5	-37.2	-34.4	8.8	51.7	-14.2	-29.0	5.1	59.1	-24.7	-41.0	16.7	41.4
2	Y	24	202.6	9.7	-28.7	39.8	-3.8	-39.3	11.7	-33.0	51.8	-36.0	-12.7	65.5	59.1	3.4	-19.9	61.6	49.2	24.1	3.1	75.0	76.3
2	N+Y	54	383.2	-0.2	-25.5	19.1	-16.0	-34.6	-8.4	-37.4	18.9	-36.4	-20.2	49.4	56.6	-2.4	-22.9	46.6	52.8	6.3	-13.8	56.8	64.5
3	N	22	187.5	-13.1	-26.9	-4.2	-38.5	-30.3	-41.8	-49.7	-35.1	-41.8	-12.9	-9.3	-21.9	-14.5	-12.3	-27.8	-6.8	-12.3	-14.7	27.8	-38.4
3	Y	1	9.6	17.5	-17.1	39.0	-6.1	-6.1	-10.9	-68.0	91.5	-39.4	22.6	-8.2	-6.5	13.2	28.4	-21.6	-18.3	17.9	3.8	60.9	112.2
3	N+Y	23	197.2	-10.7	-26.0	-1.0	-35.7	-27.4	-39.4	-51.4	-28.2	-41.6	-10.1	-8.9	-21.1	-11.9	-9.0	-26.3	-7.7	-10.7	-13.4	28.9	-37.6
2+3	N	52	368.1	-16.4	-22.1	-11.9	-39.1	-26.0	-43.4	-47.3	-40.1	-39.4	-24.7	-1.0	10.8	-14.3	-21.2	-13.2	25.5	-18.8	-29.7	23.0	-8.4
2+3	Y	25	212.3	10.0	-28.1	39.8	-3.9	-37.9	10.8	-34.7	52.3	-36.1	-11.5	61.6	56.3	3.9	-18.2	56.5	45.5	23.7	3.0	74.0	75.2
2+3	N+Y	77	580.3	-2.9	-25.6	14.0	-20.9	-33.1	-16.3	-41.1	7.2	-37.7	-17.9	33.4	32.0	-4.8	-19.7	26.6	35.3	1.9	-13.8	49.2	27.2
5	N	4	43.4	1.5	-46.5	66.7	15.7	-51.8	55.9	25.7	67.7	-21.3	-31.4	84.8	214.2	-6.2	-37.9	76.6	221.1	15.1	-20.4	104.2	205.5
RURAL MULTILANE DIVIDED HIGHWAYS																							
1	N	40	136.5	-23.6	-15.1	-29.1	-50.6	-18.6	-59.4	-53.3	-66.2	-40.9	-14.7	-46.3	3.5	-24.6	-16.1	-44.5	16.7	-21.7	-9.0	-49.0	-9.4
2	N	43	319.1	-15.8	-25.2	-6.9	-38.7	-30.6	-41.3	-42.1	-42.3	-37.8	-19.6	-5.5	6.6	-18.2	-23.6	0.5	-1.3	-9.2	-10.4	-14.3	22.0
3	N	8	31.1	-16.1	-22.6	-14.8	-43.6	-51.1	-42.6	-44.5	-44.1	-46.0	-15.8	-49.5	90.9	-26.6	-21.0	-60.4	26.0	-1.5	-11.1	-31.7	316.1
2+3	N	51	350.3	-15.8	-25.1	-7.6	-39.1	-31.9	-41.4	-42.3	-42.4	-38.4	-19.3	-10.9	12.3	-18.8	-23.5	-7.3	1.0	-8.5	-10.4	-16.1	34.6
5	N	3	40.8	-16.3	-29.3	-12.9	-35.8	-25.8	-40.6	-50.9	-36.3	-40.1	-27.7	-2.8	-6.8	-14.2	-32.2	2.1	42.5	-25.0	-27.9	-27.0	-36.0
RURAL MULTILANE UNDIVIDED HIGHWAYS																							
1	N	4	11.2	-60.5	-63.6	-44.3	-67.1	-70.4	-51.7	-49.3	-53.2	-67.6	-62.3	-49.3	1.2	-59.1	-62.2	-37.2	21.2	-62.7	-62.2	-72.7	-22.9
RURAL TWO-LANE HIGHWAYS																							
1	N	7	9.98	-1.4	-12.0	29.2	-25.1	-7.5	-43.5	-22.9	-71.9	-12.8	-8.4	-1.7	31.9	-11.5	-17.0	11.9	90.4	7.1	15.0	-33.5	10.6
3	N	1	4.7	3.0	-6.4	14.0	-20.7	-42.7	-7.0	-16.3	-4.8	-30.9	-23.8	17.1	735.0	40.7	14.6	37.5	.	-40.7	-71.5	-8.4	257.9
4	N	3	21.6	-39.3	-46.6	-28.3	-59.8	-48.5	-70.2	-68.3	-74.2	-55.9	-44.2	-20.7	-10.0	-43.0	-47.1	-16.3	-23.6	-34.0	-39.0	-31.3	17.5
URBAN FREEWAYS																							
1	N	49	209.8	-0.1	2.2	-6.1	-32.2	-30.3	-35.8	-39.7	-33.6	-32.5	-5.9	20.0	18.9	1.4	-3.9	22.4	22.6	-3.8	-12.9	16.7	13.2
1	Y	8	12.6	-0.9	-20.3	32.9	-36.3	-55.5	-19.1	-34.1	-12.8	-48.6	-5.1	-17.9	112.3	-5.1	-4.9	-37.9	178.3	7.0	-7.3	16.1	69.5
1	N+Y	57	222.4	-0.1	1.6	-4.6	-32.3	-31.1	-34.9	-39.5	-31.9	-33.0	-5.9	18.7	22.5	1.2	-3.9	20.4	26.6	-3.4	-12.7	16.7	16.4
2	N	30	122.9	-11.4	-17.6	4.0	-34.4	-43.0	-23.7	-31.8	-18.8	-39.3	-21.5	30.6	-2.7	-12.9	-23.4	30.1	17.6	-7.5	-17.4	27.1	-24.5
2	Y	7	13.5	35.2	10.2	40.2	13.3	-25.9	21.8	-45.0	77.4	-28.5	9.3	71.0	48.4	50.3	8.1	134.6	126.1	-12.4	-12.2	-56.8	-16.1
2	N+Y	37	136.4	-10.1	-17.2	6.3	-32.7	-42.6	-20.8	-32.0	-12.9	-38.9	-20.7	32.0	-0.3	-11.4	-22.7	33.3	21.4	-7.6	-16.9	23.8	-23.6
3	N	21	60.7	-7.4	-12.7	3.8	-33.7	-38.9	-29.6	-36.8	-25.6	-37.7	-17.8	19.6	56.1	-6.3	-18.9	28.1	66.8	-6.0	-16.1	3.8	32.2
3	Y	2	7.4	6.5	-5.4	13.9	-20.8	-23.0	-23.0	-61.4	9.7	-38.3	-9.5	31.1	601.7	-3.8	-20.6	4.0	.	29.5	7.8	82.6	133.9
3	N+Y	23	68.1	-6.4	-12.3	3.3	-32.5	-37.6	-28.8	-39.2	-21.8	-37.7	-17.2	20.8	63.1	-6.1	-19.0	25.8	77.1	-3.0	-13.9	10.0	35.5
2+3	N	51	183.6	-10.4	-16.6	3.8	-34.1	-42.2	-25.2	-33.0	-20.5	-38.9	-20.6	28.0	13.2	-11.3	-22.4	29.7	33.8	-7.0	-16.9	21.0	-12.3
2+3	Y	9	20.9	21.6	3.3	27.9	-4.3	-25.6	-0.4	-51.7	40.8	-33.4	0.7	48.5	128.1	24.9	-4.7	60.4	324.3	6.5	-2.9	2.8	17.6
2+3	N+Y	60	204.5	-9.2	-16.2	5.7	-32.5	-41.5	-23.1	-34.0	-15.4	-38.5	-19.8	29.2	16.5	-10.1	-21.9	31.5	39.0	-6.2	-16.0	20.2	-11.0
5	N	2	5.9	-21.2	-57.2	23.4	-32.2	-65.7	-9.7	-61.6	99.4	-63.4	-59.1	130.6	16.9	-19.0	-55.9	112.1	16.9	-31.3	-66.3	218.9	.
URBAN MULTILANE DIVIDED HIGHWAYS																							
1	N	109	164.2	9.8	14.7	-5.6	-32.9	-23.8	-44.6	-44.8	-49.0	-29.7	8.3	8.6	3.7	13.2	12.2	11.4	9.6	-2.9	-5.6	-3.2	-8.9
2	N	35	79.0	-2.6	0.5	-11.9	-35.7	-34.4	-39.3	-44.8	-38.7	-37.0	-0.8	-7.7	-21.7	-9.6	-9.3	-16.9	-14.7	13.1	18.5	5.8	-36.0
3	N	4	14.5	-49.2	-72.2	-41.5	-69.3	-81.9	-68.3	-60.1	-77.0	-67.5	-55.9	-53.2	-44.6	-61.0	-69.2	-66.7	-33.1	-35.1	-34.9	-39.7	-65.2
2+3	N	39	93.5	-5.8	-2.8	-15.1	-39.0	-38.1	-42.7	-46.1	-44.6	-39.5	-4.8	-10.8	-23.6	-13.1	-13.5	-20.5	-15.7	9.1	13.8	2.2	-39.4
5	N	2	0.9	-56.8	-60.2	-61.2	-77.5	-100.0	-37.3	-46.6	-45.2	-87.3	-65.8	6.8	-100.0	-60.9	-74.4	6.8	.	-57.1	.	.	-100.0
URBAN MULTILANE UNDIVIDED HIGHWAYS																							
1	N	94	145.3	-6.6	-8.7	10.5	-29.2	-27.3	-33.6	-34.3	-31.7	-28.9	-7.9	-4.5	22.4	-6.9	-8.4	-1.8	13.6	-5.8	-5.3	-10.5	37.7
3	N	1	0.5	-62.1	-53.2	-100.0	-53.3	-25.4	-100.0	-100.0	-100.0	-42.5	-54.6	-100.0	.	-69.9	-56.3	-100.0	.	-54.6	-53.1	-100.0	.
URBAN TWO-LANE HIGHWAYS																							
1	N	26	35.1	-13.8	-20.2	38.1	-30.6	-45.6	11.4	-2.0	31.6	-35.6	-15.6	-9.1	2.8	-15.5	-17.8	-11.2	14.3	-6.6	-7.9	-10.0	-23.4
4	N	2	3.2	4.6	2.7	2.3	-18.0	-19.3	-23.4	80.0	-77.3	20.2	-16.1	208.3	-27.5	-5.1	-17.2	.	-100.0	2.6	-18.9	71.3	18.3

Project Code **Project Type** Numbers in **GREEN** represent a statistically significant decrease in crashes

1 Wider markings with resurfacing

2 Wider markings and edgeline rumble stripe with resurfacing Numbers in **RED** represent a statistically significant increase in crashes

3 Wider markings and shoulder rumble strip with resurfacing

4 Wider markings and centerline and edgeline rumble strips with resurfacing Numbers in **BLACK** are not statistically significant.

5 Wider markings without resurfacing

Table A-4. Summary of Before/After Evaluation Results by Severity Level for All Roadway and Project Types Combined

No. of sites	Total length (mi)	All	MV	SV	Lane departure					Pavement surface condition				Day				Night			
					All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow
FATAL-AND-DISABLING-INJURY CRASHES																					
632	2,329.3	-16.1	-38.3	30.6	-8.6	-29.0	12.5	11.7	17.6	-14.9	-14.6	-19.7	-5.5	-22.9	-25.0	-23.9	11.5	7.7	18.5	-12.1	-30.2
FATAL-AND-ALL-INJURY CRASHES																					
632	2,329.3	-11.0	-18.3	7.9	-26.9	-37.9	-15.7	-21.1	-6.2	-32.2	-15.3	2.0	9.3	-11.8	-16.8	1.5	11.7	-6.5	-9.9	2.0	-1.5
TOTAL CRASHES (ALL CRASH SEVERITY LEVEL COMBINED)																					
632	2,329.3	-4.1	-11.2	16.0	-24.6	-33.3	-13.4	-28.2	3.1	-31.8	-10.9	12.3	46.5	-5.3	-12.4	12.8	50.8	0.4	-6.7	10.9	35.7

Numbers in **GREEN** represent a statistically significant decrease in crashes.
 Numbers in **RED** represent a statistically significant increase in crashes.
 Numbers in **BLACK** are not statistically significant.

Table A-5. Summary of Before/After Evaluation Results by Severity Level for Fatal-and-Disabling-Injury Crashes by Roadway Type

Roadway type	No. of sites	Total length (mi)	All	MV	SV	Lane departure					Pavement surface condition				Day				Night			
						All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow
Rural freeways	130	878.1	-25.5	-45.8	-9.4	-33.9	-43.7	-29.1	-31.9	-25.2	-37.7	-21.8	-31.3	-33.2	-28.2	-28.2	-33.1	-14.2	-18.5	-7.7	-27.3	-60.5
Rural multilane divided highways	94	527.6	-27.9	-25.3	-30.2	-31.1	-13.7	-35.8	-31.0	-38.1	-24.5	-21.1	-48.0	-38.3	-25.6	-17.0	-52.1	-35.0	-30.8	-26.8	-40.9	-43.8
Rural multilane undivided highways	4	11.2	-45.8	-49.0	-24.1	-19.0	6.9	-46.3	40.7	-100.0	14.9	-63.5	280.6	-100.0	-57.1	-77.6	285.8	-100.0	-0.6	-9.9	68.6	-100.0
Rural two-lane highways	11	36.1	-21.7	-12.1	-22.1	-20.2	10.1	-22.8	-11.4	-18.9	-10.0	-32.3	55.8	129.6	-18.5	-36.1	101.6	327.7	-7.2	2.1	24.5	-100.0
Urban freeways	119	432.8	-5.0	-26.3	44.7	-4.0	-30.9	32.8	38.7	33.3	-10.8	-5.2	1.5	9.7	-12.8	-19.3	-0.1	39.9	23.6	38.0	4.6	-25.9
Urban multilane divided highways	150	258.5	-11.6	-28.1	27.6	-5.0	-18.6	9.4	25.8	-1.3	-2.3	-2.7	-23.6	-59.7	-22.4	-14.6	-42.0	-81.3	21.7	33.6	17.5	-34.0
Urban multilane undivided highways	96	146.7	-8.3	-19.7	74.4	-20.6	-17.9	1.8	-28.4	112.9	-27.1	-2.1	-32.2	-38.8	-15.7	-9.4	-36.2	-70.7	24.8	39.5	-28.5	33.5
Urban two-lane highways	28	38.2	-36.1	-45.4	34.8	-25.1	-37.2	34.8	40.8	37.3	-27.9	-32.2	-66.6	9.5	-28.9	-25.7	-54.4	-100.0	-48.4	-43.6	-100.0	101.7
Rural and urban two-lane highways combined	39	74.4	-28.2	-30.9	11.3	-10.7	-1.2	13.4	23.7	24.5	-7.1	-31.8	-16.6	78.9	-24.8	-31.7	-2.2	145.7	-19.2	-9.2	-41.9	13.7

Numbers in **GREEN** represent a statistically significant decrease in crashes.
 Numbers in **RED** represent a statistically significant increase in crashes.
 Numbers in **BLACK** are not statistically significant.

Table A-6. Summary of Before/After Evaluation Results for Fatal-and-All-Injury Crashes by Roadway Type

Roadway type	No. of sites	Total length (mi)	All	MV	SV	Lane departure					Pavement surface condition				Day				Night			
						All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow
Rural freeways	130	878.1	-18.2	-34.2	-5.3	-30.8	-46.7	-23.5	-33.5	-12.0	-40.1	-21.7	-4.2	-15.9	-19.9	-26.4	-0.5	-10.8	-13.1	-11.3	-11.5	-23.3
Rural multilane divided highways	94	527.6	-24.7	-21.7	-26.3	-37.3	-20.7	-41.7	-40.7	-39.7	-33.6	-25.6	-29.5	-2.8	-21.5	-20.9	-28.8	1.7	-30.7	-33.8	-30.6	-10.5
Rural multilane undivided highways	4	11.2	-60.2	-62.3	-46.5	-70.1	-64.4	-83.9	-78.4	-100.0	-68.0	-62.4	-43.6	-8.4	-59.1	-62.7	-27.5	-40.1	-59.7	-59.8	-70.5	4.5
Rural two-lane highways	11	36.1	-21.4	-16.5	-26.0	-37.2	-10.5	-51.4	-37.0	-64.3	-27.1	-31.1	-11.1	135.4	-22.0	-29.1	2.3	188.8	-27.6	-32.3	-32.9	90.6
Urban freeways	119	432.8	-7.4	-10.6	1.0	-33.6	-41.0	-23.9	-24.8	-16.5	-36.7	-14.5	17.9	8.4	-5.9	-13.2	16.4	19.2	-7.8	-15.7	19.4	-6.1
Urban multilane divided highways	150	258.5	-1.7	5.2	-12.3	-37.7	-39.5	-36.3	-32.9	-35.3	-36.5	-0.5	-3.3	-20.4	-1.4	0.3	-4.2	-7.7	-5.1	-2.7	-1.7	-35.2
Urban multilane undivided highways	96	146.7	-7.9	-11.6	17.6	-28.2	-31.0	-21.3	-22.1	-17.0	-29.1	-6.8	-13.1	-4.6	-9.8	-8.8	-11.4	-35.1	-0.8	2.3	-19.5	62.2
Urban two-lane highways	28	38.2	-9.8	-17.1	26.0	-27.6	-41.8	-9.8	-27.7	23.5	-35.5	-12.7	-3.9	-38.8	-11.0	-16.3	-1.8	-29.5	-9.5	-7.0	-25.9	-62.7
Rural and urban two-lane highways combined	39	74.4	-13.5	-17.3	5.2	-29.5	-26.5	-27.8	-25.0	-25.1	-28.4	-18.6	-6.6	24.9	-14.5	-20.3	-2.7	44.9	-14.4	-14.2	-27.0	-18.7

Numbers in **GREEN** represent a statistically significant decrease in crashes.
 Numbers in **RED** represent a statistically significant increase in crashes.
 Numbers in **BLACK** are not statistically significant.

Table A-7. Summary of Before/After Evaluation Results for Total Crashes (All Crash Severity Levels Combined)

Roadway type	No. of sites	Total length (mi)	All	MV	SV	Lane departure						Pavement surface condition			Day				Night			
						All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow
Rural freeways	130	878.1	5.9	-18.7	26.0	-14.2	-34.2	-6.1	-34.0	17.3	-34.0	-8.8	31.4	53.9	3.7	-11.3	30.0	54.9	11.5	-3.1	36.4	52.3
Rural multilane divided highways	94	527.6	-17.7	-22.7	-13.1	-41.9	-28.2	-46.1	-45.8	-48.6	-39.1	-18.8	-24.3	9.2	-20.1	-22.2	-22.1	6.6	-12.7	-11.3	-28.2	12.5
Rural multilane undivided highways	4	11.2	-60.5	-63.6	-44.3	-67.1	-70.4	-51.7	-49.3	-53.2	-67.6	-62.3	-49.3	1.2	-59.1	-62.2	-37.2	21.2	-62.7	-62.2	-72.7	-22.9
Rural two-lane highways	11	36.1	-18.2	-26.1	-2.5	-42.1	-31.4	-52.2	-46.5	-60.0	-36.7	-26.5	-3.6	44.9	-21.8	-28.8	8.1	49.3	-18.2	-21.5	-24.6	44.3
Urban freeways	119	432.8	-3.5	-4.9	-0.4	-32.4	-35.0	-29.7	-37.4	-23.8	-35.2	-11.2	22.7	20.3	-2.9	-10.7	24.7	32.3	-4.6	-14.2	18.3	4.1
Urban multilane divided highways	150	258.5	4.3	8.9	-9.5	-35.5	-29.2	-43.7	-45.4	-47.1	-33.7	3.7	1.3	-8.5	3.8	3.1	-0.9	-1.2	1.1	0.7	-1.3	-23.4
Urban multilane undivided highways	96	146.7	-6.4	-8.5	10.9	-28.8	-26.9	-33.3	-34.7	-29.5	-28.7	-7.8	-4.2	22.3	-6.7	-8.2	-1.4	12.6	-5.9	-5.3	-10.8	39.5
Urban two-lane highways	28	38.2	-13.1	-19.5	33.9	-29.5	-44.3	6.0	5.2	-9.0	-32.7	-15.6	-5.8	1.3	-15.2	-17.7	-8.9	5.6	-5.6	-8.8	-5.5	-17.9

Numbers in **GREEN** represent a statistically significant decrease in crashes.
 Numbers in **RED** represent a statistically significant increase in crashes.
 Numbers in **BLACK** are not statistically significant.

Table A-8. Summary of Before/After Evaluation Results for Fatal-and-Disabling-Injury Crashes by SRI Project Type

SRI project type	Cable median barrier	No. of sites	Total length (mi)	All	MV	SV	Lane departure						Pavement surface condition			Day				Night				
							All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	
1	N	352	801.9	-13.1	-28.9	38.7	-8.1	-21.5	14.3	16.5	18.0	-11.8	-11.3	-16.7	-7.2	-19.3	-19.6	-22.7	-0.8	12.7	21.9	-6.6	-17.9	
1	Y	34	176.9	-17.7	-41.5	5.4	-35.9	-57.1	-24.4	-13.1	-32.0	-36.8	-5.5	-34.8	-51.8	-23.1	-14.0	-44.5	-25.1	2.2	-6.4	12.6	-15.0	-86.2
1	N+Y	386	978.9	-13.7	-32.4	40.0	-8.9	-26.5	15.2	18.6	16.3	-13.5	-11.5	-18.2	-11.9	-20.4	-20.6	-25.1	2.2	12.0	22.1	-5.8	-32.9	
2	N	139	702.4	-15.9	-34.8	11.9	-9.7	-25.8	2.9	5.3	4.9	-12.8	-16.2	-10.6	-15.7	-21.7	-25.1	-16.1	-5.8	1.5	7.1	-0.2	-28.9	
2	Y	31	216.1	-23.5	-38.5	-10.7	-25.7	-29.0	-22.7	-26.1	-17.6	-28.1	-23.4	-5.9	-44.7	-29.7	-32.8	-10.0	-42.0	-7.7	-2.6	4.5	-48.9	
2	N+Y	170	918.5	-17.9	-37.1	7.6	-12.6	-26.4	-2.4	-2.1	1.2	-15.9	-18.3	-8.7	-23.0	-23.9	-27.5	-13.4	-15.3	-0.4	5.0	0.9	-33.6	
3	N	57	299.1	-14.6	-52.6	24.8	-15.5	-52.3	5.5	-7.4	22.6	-31.3	-8.9	-33.7	1.5	-19.1	-25.3	-22.6	43.1	1.3	28.4	-53.4	-51.8	
3	Y	3	17.0	28.0	-24.0	95.3	15.1	26.3	22.5	19.5	37.0	16.5	66.3	-74.5	172.4	11.6	48.2	-100.0	246.0	94.0	124.8	12.2	-100.0	
3	N+Y	60	316.2	-11.1	-50.4	30.4	-12.2	-43.6	7.3	-4.6	23.8	-26.0	-3.1	-37.5	7.4	-16.3	-19.6	-30.9	53.3	7.3	35.6	-49.2	-53.0	
2+3	N	196	1,001.5	-15.5	-39.4	16.7	-11.0	-32.7	4.6	2.2	11.8	-17.7	-14.5	-16.8	-9.1	-21.2	-25.4	-17.7	11.1	1.8	12.9	-15.3	-35.6	
2+3	Y	34	233.2	-19.1	-37.2	-3.0	-22.2	-23.5	-19.3	-22.5	-13.9	-23.9	-16.1	-13.0	-36.7	-26.1	-26.2	-19.9	-28.6	-0.5	7.2	5.1	-49.5	
2+3	N+Y	230	1,234.7	-16.3	-40.0	13.5	-12.3	-30.2	0.3	-2.5	7.3	-18.2	-15.1	-15.4	-14.9	-22.3	-26.0	-17.4	2.3	1.5	12.0	-11.3	-38.4	
4	N	5	24.7	-43.8	-49.2	-24.0	-47.2	-20.2	-64.6	-37.6	-100.0	-33.8	-49.7	-44.8	154.7	-57.1	-68.4	23.2	92.0	-7.1	0.5	-100.0	244.8	
5	N	11	91.0	-44.8	-53.0	-37.3	-50.8	-61.9	-44.8	-45.8	-42.1	-54.2	-40.5	-69.4	-37.9	-43.8	-43.7	-58.4	3.6	-44.9	-30.0	-100.0	-66.1	

Project Code **Project Type** Numbers in **GREEN** represent a statistically significant decrease in crashes
 1 Wider markings with resurfacing
 2 Wider markings and edgeline rumble stripe with resurfacing Numbers in **RED** represent a statistically significant increase in crashes
 3 Wider markings and shoulder rumble strip with resurfacing
 4 Wider markings and centerline and edgeline rumble strips with resurfacing Numbers in **BLACK** are not statistically significant.
 5 Wider markings without resurfacing

Table A-9. Summary of Before/After Evaluation Results for Fatal-and-All-Injury Crashes by SRI Project Type

SRI project type	Cable median barrier	No. of sites	Total length (mi)	Lane departure									Pavement surface condition			Day				Night			
				All	MV	SV	All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow
1	N	352	801.9	-5.9	-8.5	9.3	-27.8	-30.8	-19.7	-18.9	-13.8	-28.6	-9.2	5.4	19.5	-5.9	-9.5	5.9	13.8	-2.6	-5.3	3.3	19.1
1	Y	34	176.9	-12.8	-34.3	6.2	-34.5	-57.3	-22.6	-29.9	-16.0	-44.6	-8.8	-25.1	-17.9	-18.1	-16.1	-30.5	-1.6	-5.3	3.6	-14.8	-40.5
1	N+Y	386	978.9	-6.4	-10.8	12.0	-26.6	-32.8	-16.4	-18.2	-9.1	-29.2	-9.6	3.5	16.7	-7.0	-10.6	3.4	14.2	-1.9	-4.0	2.4	11.0
2	N	139	702.4	-15.7	-24.7	-1.9	-30.7	-43.0	-22.4	-30.6	-12.7	-37.4	-22.4	7.0	-4.8	-15.4	-22.3	5.0	3.0	-15.6	-23.0	11.2	-18.0
2	Y	31	216.1	-21.8	-33.3	-12.7	-27.3	-39.9	-21.0	-33.4	-6.3	-36.8	-27.6	7.2	-29.5	-25.5	-35.2	16.9	-38.3	-13.0	-11.9	-15.0	-16.3
2	N+Y	170	918.5	-16.8	-26.7	-2.8	-28.8	-42.4	-20.4	-30.4	-9.4	-36.7	-23.5	7.3	-10.1	-17.2	-24.7	7.5	-7.0	-14.9	-20.8	6.8	-17.5
3	N	57	299.1	-25.1	-42.2	-6.8	-37.7	-63.5	-24.4	-30.1	-17.0	-47.1	-29.5	-18.4	-8.9	-27.3	-32.0	-23.8	-2.2	-19.4	-22.6	-10.1	-22.4
3	Y	3	17.0	-2.5	-18.2	12.2	-26.3	-20.8	-26.2	-49.7	3.6	-35.0	0.3	-51.7	234.6	-22.7	-18.2	-75.9	194.3	45.1	38.3	28.2	352.9
3	N+Y	60	316.2	-23.6	-40.7	-5.4	-36.6	-59.3	-24.5	-31.7	-15.3	-45.9	-27.5	-21.1	-0.8	-27.0	-31.1	-28.8	7.0	-15.4	-18.3	-7.8	-16.3
2+3	N	196	1,001.5	-17.9	-28.5	-2.8	-32.3	-47.7	-22.6	-30.2	-13.4	-39.7	-24.1	1.0	-5.6	-18.1	-24.6	-1.8	1.8	-16.4	-22.8	5.9	-19.0
2+3	Y	34	233.2	-20.0	-31.7	-10.4	-27.2	-37.4	-21.4	-34.9	-5.4	-36.7	-24.9	0.0	-18.2	-25.2	-33.6	4.9	-25.5	-7.6	-6.9	-10.6	-7.7
2+3	N+Y	230	1,234.7	-18.2	-29.5	-3.2	-30.5	-46.0	-21.2	-30.6	-10.6	-38.7	-24.3	1.0	-7.7	-19.2	-26.1	-0.4	-3.5	-14.9	-20.2	3.5	-17.0
4	N	5	24.7	-32.9	-26.0	-41.8	-54.7	-34.7	-65.4	-43.1	-87.8	-41.3	-42.1	-24.2	75.3	-29.2	-38.4	44.5	56.1	-48.4	-50.5	-80.0	89.0
5	N	11	91.0	-24.3	-45.7	-5.9	-34.3	-53.8	-25.8	-21.1	-29.2	-36.8	-35.0	5.6	-15.6	-24.7	-38.1	-0.9	83.9	-28.3	-30.1	15.4	-81.9

Project Code **Project Type** Numbers in **GREEN** represent a statistically significant decrease in crashes
 1 Wider markings with resurfacing
 2 Wider markings and edgeline rumble stripe with resurfacing Numbers in **RED** represent a statistically significant increase in crashes
 3 Wider markings and shoulder rumble strip with resurfacing
 4 Wider markings and centerline and edgeline rumble strips with resurfacing Numbers in **BLACK** are not statistically significant.
 5 Wider markings without resurfacing

Table A-10. Summary of Before/After Evaluation Results for Total Crashes (All Crash Severity Levels Combined) by SRI Project Type

SRI project type	Cable median barrier	No. of sites	Total length (mi)	Lane departure									Pavement surface condition			Day				Night			
				All	MV	SV	All	On road	ROR	ROR right	ROR left	All except ROR left	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow	All	Dry	Wet	Ice and snow
1	N	352	801.9	-3.5	-4.9	4.7	-29.1	-29.0	-26.8	-31.5	-19.0	-30.2	-7.6	8.0	38.1	-3.3	-7.3	9.9	41.1	-3.4	-8.2	5.4	34.6
1	Y	34	176.9	19.5	-10.4	48.5	-9.9	-41.8	5.7	-26.3	28.1	-33.9	12.5	10.1	88.9	18.5	12.1	9.7	86.4	21.0	11.8	10.2	88.9
1	N+Y	386	978.9	-1.9	-5.8	14.6	-24.9	-29.7	-15.2	-27.5	2.1	-29.6	-6.5	9.1	55.2	-2.1	-6.7	10.8	55.9	-0.2	-5.9	6.9	52.9
2	N	139	702.4	-11.3	-18.0	1.4	-33.9	-39.5	-29.4	-34.4	-27.8	-37.0	-18.7	11.7	10.4	-13.7	-22.1	9.8	19.0	-4.4	-10.2	12.8	-6.2
2	Y	31	216.1	11.4	-25.7	40.0	-2.6	-38.2	12.6	-33.8	53.7	-35.4	-11.2	66.1	58.1	6.6	-17.8	66.5	50.8	21.0	1.7	61.7	67.6
2	N+Y	170	918.5	-7.3	-19.8	12.9	-25.6	-39.1	-15.5	-32.6	-0.6	-36.1	-17.6	22.2	24.8	-10.4	-21.7	21.3	29.8	0.9	-7.6	21.2	11.6
3	N	57	299.1	-11.8	-21.5	-0.8	-36.1	-40.5	-34.2	-40.5	-31.5	-39.9	-19.1	-0.2	22.8	-12.9	-21.0	-3.9	32.4	-8.3	-16.5	3.8	-0.6
3	Y	3	17.0	10.8	-10.3	24.0	-15.5	-20.3	-17.0	-62.6	28.8	-38.1	0.1	16.7	105.0	4.9	-5.0	-3.9	94.4	22.1	4.0	69.1	126.4
3	N+Y	60	316.2	-10.3	-20.9	1.1	-34.4	-38.8	-32.7	-42.4	-26.8	-39.7	-17.8	1.4	25.4	-11.7	-20.0	-3.7	35.1	-6.3	-15.0	7.7	1.0
2+3	N	196	1,001.5	-11.4	-18.9	1.2	-34.3	-39.8	-30.4	-35.8	-28.3	-37.6	-18.9	9.0	14.7	-13.6	-22.0	6.7	23.7	-5.2	-11.6	10.8	-4.2
2+3	Y	34	233.2	11.3	-24.3	38.7	-3.8	-36.4	10.2	-36.4	52.0	-35.8	-10.2	59.9	60.9	6.4	-16.6	57.2	53.6	21.2	1.9	62.5	68.6
2+3	N+Y	230	1,234.7	-7.9	-20.1	10.2	-27.5	-39.1	-19.6	-34.9	-7.1	-36.8	-17.7	17.7	25.2	-10.7	-21.5	16.0	31.5	-0.6	-9.2	18.2	9.2
4	N	5	24.7	-31.0	-36.9	-22.4	-52.6	-43.2	-61.6	-51.2	-75.0	-45.3	-38.4	12.3	-10.8	-36.6	-41.5	19.8	-34.4	-24.8	-33.7	-4.8	23.3
5	N	11	91.0	-8.2	-43.5	23.3	-11.6	-50.6	4.8	-28.1	27.3	-37.6	-34.7	60.5	43.2	-11.0	-39.5	57.3	94.0	-8.5	-29.3	55.9	1.0

Project Code **Project Type** Numbers in **GREEN** represent a statistically significant decrease in crashes
 1 Wider markings with resurfacing
 2 Wider markings and edgeline rumble stripe with resurfacing Numbers in **RED** represent a statistically significant increase in crashes
 3 Wider markings and shoulder rumble strip with resurfacing
 4 Wider markings and centerline and edgeline rumble strips with resurfacing Numbers in **BLACK** are not statistically significant.
 5 Wider markings without resurfacing

Appendix B

List of Evaluation Sites

Table B-1 presents a list of all SRI project evaluation sites by roadway type and project type. The striping and delineation project at each of these sites was implemented during 2005 and/or 2006. The site locations are identified by the continuous log mileages in use during 2006.

Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
RURAL FREEWAYS—Wider markings with resurfacing									
23	IS	29	N	4	Platte	23.610	24.300	0.690	Y
223	IS	44	E	7	Jasper	27.982	29.933	1.951	Y
224	IS	44	E	7	Jasper	29.933	32.518	2.585	Y
225	IS	44	E	7	Lawrence	32.518	32.978	0.460	Y
227	IS	44	E	7	Lawrence	37.678	38.502	0.824	Y
228	IS	44	E	7	Lawrence	38.502	44.302	5.800	Y
229	IS	44	E	7	Lawrence	44.302	46.923	2.621	Y
230	IS	44	E	7	Lawrence	46.923	47.380	0.457	Y
245	IS	44	E	8	Greene	82.512	84.509	1.997	Y
246	IS	44	E	8	Greene	84.509	88.353	3.844	Y
251	IS	44	E	8	Webster	95.529	96.029	0.500	Y
252	IS	44	E	8	Webster	96.029	100.946	4.917	Y
253	IS	44	E	8	Webster	100.946	107.561	6.615	Y
254	IS	44	E	8	Webster	107.561	111.745	4.184	Y
255	IS	44	E	8	Laclede	111.745	113.236	1.491	Y
256	IS	44	E	8	Laclede	113.236	115.600	2.364	Y
266	IS	44	E	9	Pulaski	145.457	145.723	0.266	Y
267	IS	44	E	9	Pulaski	145.723	150.645	4.922	Y
268	IS	44	E	9	Pulaski	150.645	153.235	2.590	Y
270	IS	44	E	9	Pulaski	153.429	156.773	3.344	Y
271	IS	44	E	9	Pulaski	156.773	158.700	1.927	Y
272	IS	44	E	9	Pulaski	158.700	159.856	1.156	N
273	IS	44	E	9	Pulaski	159.856	160.358	0.502	N
274	IS	44	E	9	Pulaski	160.358	161.189	0.831	Y
275	IS	44	E	9	Pulaski	161.189	162.442	1.253	Y
282	IS	44	E	9	Phelps	176.554	179.470	2.916	Y
283	IS	44	E	9	Phelps	179.470	182.514	3.044	Y
305	IS	44	E	6	Franklin	225.860	226.074	0.214	N
306	IS	44	E	6	Franklin	226.074	230.269	4.195	N
307	IS	44	E	6	Franklin	230.269	238.847	8.578	N
308	IS	44	E	6	Franklin	238.847	240.340	1.493	N
309	IS	44	E	6	Franklin	240.340	242.221	1.881	N
310	IS	44	E	6	Franklin	242.221	247.117	4.896	N
311	IS	44	E	6	Franklin	247.117	247.684	0.567	N
312	IS	44	E	6	Franklin	247.684	252.043	4.359	N
313	IS	44	E	6	Franklin	252.043	253.321	1.278	N
314	IS	44	E	6	Franklin	253.321	255.490	2.169	N
414	IS	44	W	9	Phelps	117.672	119.450	1.778	N
415	IS	44	W	9	Phelps	119.450	121.290	1.840	Y
416	IS	44	W	9	Phelps	121.290	121.445	0.155	Y
417	IS	44	W	9	Pulaski	121.445	121.900	0.455	Y
421	IS	44	W	9	Pulaski	127.915	129.171	1.256	Y
422	IS	44	W	9	Pulaski	129.171	129.997	0.826	Y
423	IS	44	W	9	Pulaski	129.997	130.509	0.512	N
424	IS	44	W	9	Pulaski	130.509	131.822	1.313	N
425	IS	44	W	9	Pulaski	131.822	133.555	1.733	Y
426	IS	44	W	9	Pulaski	133.555	136.010	2.455	Y
429	IS	44	W	9	Pulaski	137.107	139.698	2.591	Y
430	IS	44	W	9	Pulaski	139.698	144.622	4.924	Y
431	IS	44	W	9	Pulaski	144.622	144.886	0.264	Y
432	IS	44	W	8	Laclede	144.886	147.425	2.539	Y
443	IS	44	W	8	Laclede	174.812	177.098	2.286	Y
444	IS	44	W	8	Laclede	177.098	178.617	1.519	Y
445	IS	44	W	8	Webster	178.617	182.796	4.179	Y
446	IS	44	W	8	Webster	182.796	188.128	5.332	Y
474	IS	44	W	7	Lawrence	257.303	257.763	0.460	Y

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
475	IS	44	W	7	Jasper	257.763	260.348	2.585	Y
476	IS	44	W	7	Jasper	260.348	262.294	1.946	Y
497	IS	55	N	10	Pemiscot	19.088	27.625	8.537	N
642	IS	55	S	10	Pemiscot	179.972	182.332	2.360	N
643	IS	55	S	10	Pemiscot	182.332	190.577	8.245	N
647	IS	55	S	10	Pemiscot	193.183	195.463	2.280	N
648	IS	55	S	10	Pemiscot	195.463	201.960	6.497	N
649	IS	55	S	10	Pemiscot	201.960	205.449	3.489	N
650	IS	55	S	10	Pemiscot	205.449	208.210	2.761	N
736	IS	70	E	4	Jackson	23.125	24.552	1.427	Y
737	IS	70	E	4	Jackson	24.552	28.156	3.604	Y
738	IS	70	E	4	Jackson	28.156	29.150	0.994	Y
739	IS	70	E	4	Jackson	29.150	29.157	0.007	Y
740	IS	70	E	4	Lafayette	29.157	31.535	2.378	Y
741	IS	70	E	4	Lafayette	31.535	36.975	5.440	Y
742	IS	70	E	4	Lafayette	36.975	38.665	1.690	Y
756	IS	70	E	5	Cooper	86.709	89.909	3.200	Y
757	IS	70	E	5	Cooper	89.909	93.900	3.991	Y
766	IS	70	E	5	Boone	114.712	115.495	0.783	Y
767	IS	70	E	5	Boone	115.495	117.698	2.203	Y
768	IS	70	E	5	Boone	117.698	121.548	3.850	Y
769	IS	70	E	5	Boone	121.548	122.764	1.216	Y
784	IS	70	E	5	Callaway	154.534	155.424	0.890	Y
785	IS	70	E	5	Callaway	155.424	161.316	5.892	Y
786	IS	70	E	5	Callaway	161.316	161.531	0.215	Y
799	IS	70	E	6	St. Charles	203.350	203.764	0.414	Y
800	IS	70	E	6	St. Charles	203.764	207.754	3.990	Y
912	IS	70	W	6	St. Charles	43.753	47.763	4.010	Y
913	IS	70	W	6	St. Charles	47.763	48.183	0.420	Y
945	IS	70	W	5	Cooper	145.139	147.590	2.451	Y
966	IS	70	W	4	Lafayette	212.843	214.532	1.689	Y
967	IS	70	W	4	Lafayette	214.532	220.021	5.489	Y
968	IS	70	W	4	Lafayette	220.021	222.407	2.386	Y
969	IS	70	W	4	Jackson	222.407	222.415	0.008	Y
970	IS	70	W	4	Jackson	222.415	223.400	0.985	Y
971	IS	70	W	4	Jackson	223.400	227.164	3.764	Y
972	IS	70	W	4	Jackson	227.164	228.409	1.245	Y
1037	IS	229	N	1	Buchanan	0.402	0.758	0.356	N
1038	IS	229	N	1	Buchanan	0.758	1.742	0.984	N
1068	IS	229	S	1	Buchanan	13.373	14.361	0.988	N
1069	IS	229	S	1	Buchanan	14.361	14.630	0.269	N
11543	US	60	E	8	Greene	77.509	77.665	0.156	N
11544	US	60	E	8	Greene	77.665	79.675	2.010	N
11545	US	60	E	8	Greene	79.675	79.703	0.028	N
11761	US	60	W	8	Greene	261.079	261.372	0.293	N
12286	US	65	N	8	Taney	10.847	11.444	0.597	N
12287	US	65	N	8	Taney	11.444	12.402	0.958	N
12288	US	65	N	8	Taney	12.402	12.702	0.300	N
12313	US	65	N	8	Greene	54.171	54.801	0.630	N
12460	US	65	S	8	Greene	258.231	258.890	0.659	N
12486	US	65	S	8	Taney	300.656	301.595	0.939	N
12487	US	65	S	8	Taney	301.595	302.198	0.603	N
12643	US	71	N	7	Jasper	50.591	53.353	2.762	N
12646	US	71	N	7	Jasper	54.348	55.862	1.514	N
12772	US	71	S	7	Vernon	215.757	216.693	0.936	N
12795	US	71	S	7	Jasper	260.966	262.477	1.511	N
12798	US	71	S	7	Jasper	263.497	263.947	0.450	N
12800	US	71	S	7	Jasper	264.535	266.482	1.947	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
10135	MO	13	N	8	Polk	83.693	83.886	0.193	N
10136	MO	13	N	8	Polk	83.886	85.366	1.480	N
10137	MO	13	N	8	Polk	85.366	85.739	0.373	N
RURAL FREEWAYS—Wider markings and edgeline rumble stripe with resurfacing									
25	IS	29	N	4	Platte	24.916	25.915	0.999	Y
28	IS	29	N	4	Platte	27.346	27.626	0.280	Y
29	IS	29	N	4	Platte	27.626	32.151	4.525	Y
30	IS	29	N	4	Platte	32.151	36.693	4.542	Y
45	IS	29	N	1	Andrew	60.399	60.703	0.304	N
46	IS	29	N	1	Andrew	60.703	63.696	2.993	N
47	IS	29	N	1	Andrew	63.696	67.017	3.321	N
48	IS	29	N	1	Andrew	67.017	71.964	4.947	N
49	IS	29	N	1	Andrew	71.964	72.224	0.260	N
50	IS	29	N	1	Andrew	72.224	73.235	1.011	N
51	IS	29	N	1	Holt	73.235	74.043	0.808	N
71	IS	29	S	1	Holt	56.673	57.608	0.935	N
72	IS	29	S	1	Andrew	57.608	58.796	1.188	N
73	IS	29	S	1	Andrew	58.796	63.976	5.180	N
74	IS	29	S	1	Andrew	63.976	67.182	3.206	N
75	IS	29	S	1	Andrew	67.182	70.401	3.219	N
89	IS	29	S	1	Buchanan	93.065	93.076	0.011	Y
90	IS	29	S	4	Platte	93.076	94.134	1.058	Y
91	IS	29	S	4	Platte	94.134	98.651	4.517	Y
92	IS	29	S	4	Platte	98.651	103.178	4.527	Y
93	IS	29	S	4	Platte	103.178	104.721	1.543	Y
94	IS	29	S	4	Platte	104.721	105.884	1.163	Y
96	IS	29	S	4	Platte	106.497	107.250	0.753	Y
135	IS	35	N	4	Clay	20.900	24.516	3.616	N
136	IS	35	N	4	Clay	24.516	26.299	1.783	N
137	IS	35	N	4	Clay	26.299	27.320	1.021	N
138	IS	35	N	4	Clay	27.320	32.887	5.567	N
146	IS	35	N	1	DeKalb	54.876	56.832	1.956	N
147	IS	35	N	1	Caldwell	56.832	56.910	0.078	N
148	IS	35	N	1	Daviess	56.910	61.610	4.700	N
149	IS	35	N	1	Daviess	61.610	65.076	3.466	N
150	IS	35	N	1	Daviess	65.076	68.727	3.651	N
153	IS	35	N	1	Daviess	77.752	78.153	0.401	N
154	IS	35	N	1	Daviess	78.153	80.504	2.351	N
155	IS	35	N	1	Daviess	80.504	82.858	2.354	N
156	IS	35	N	1	Harrison	82.858	84.469	1.611	N
157	IS	35	N	1	Harrison	84.469	88.520	4.051	N
158	IS	35	N	1	Harrison	88.520	92.332	3.812	N
167	IS	35	S	1	Harrison	21.953	25.756	3.803	N
168	IS	35	S	1	Harrison	25.756	29.805	4.049	N
169	IS	35	S	1	Harrison	29.805	31.425	1.620	N
170	IS	35	S	1	Daviess	31.425	33.777	2.352	N
171	IS	35	S	1	Daviess	33.777	36.129	2.352	N
172	IS	35	S	1	Daviess	36.129	36.354	0.225	N
175	IS	35	S	1	Daviess	45.529	49.204	3.675	N
176	IS	35	S	1	Daviess	49.204	52.668	3.464	N
177	IS	35	S	1	Daviess	52.668	57.372	4.704	N
178	IS	35	S	1	Caldwell	57.372	57.394	0.022	N
179	IS	35	S	1	DeKalb	57.394	59.407	2.013	N
183	IS	35	S	1	Clinton	61.299	65.444	4.145	N
186	IS	35	S	1	Clinton	73.099	73.902	0.803	N
187	IS	35	S	1	Clinton	73.902	80.842	6.940	N
188	IS	35	S	1	Clinton	80.842	81.393	0.551	N
189	IS	35	S	4	Clay	81.393	86.796	5.403	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
190	IS	35	S	4	Clay	86.796	87.980	1.184	N
191	IS	35	S	4	Clay	87.980	93.377	5.397	N
192	IS	35	S	4	Clay	93.377	93.725	0.348	N
210	IS	44	E	7	Newton	0.000	0.351	0.351	Y
211	IS	44	E	7	Newton	0.351	2.841	2.490	Y
231	IS	44	E	7	Lawrence	47.380	49.724	2.344	Y
232	IS	44	E	7	Lawrence	49.724	58.350	8.626	Y
233	IS	44	E	7	Lawrence	58.350	58.802	0.452	Y
234	IS	44	E	7	Lawrence	58.802	59.884	1.082	Y
276	IS	44	E	9	Pulaski	162.442	163.851	1.409	Y
277	IS	44	E	9	Pulaski	163.851	168.915	5.064	Y
278	IS	44	E	9	Phelps	168.915	169.110	0.195	Y
279	IS	44	E	9	Phelps	169.110	170.910	1.800	Y
280	IS	44	E	9	Phelps	170.910	172.592	1.682	N
281	IS	44	E	9	Phelps	172.592	176.554	3.962	Y
291	IS	44	E	9	Phelps	189.977	190.530	0.553	N
292	IS	44	E	9	Phelps	190.530	195.633	5.103	Y
293	IS	44	E	9	Phelps	195.633	201.160	5.527	Y
295	IS	44	E	9	Crawford	203.414	208.308	4.894	Y
296	IS	44	E	9	Crawford	208.308	210.808	2.500	Y
297	IS	44	E	9	Crawford	210.808	214.276	3.468	Y
300	IS	44	E	9	Crawford	218.976	223.156	4.180	Y
397	IS	44	W	9	Crawford	76.676	79.460	2.784	Y
398	IS	44	W	9	Crawford	79.460	81.959	2.499	Y
399	IS	44	W	9	Crawford	81.959	86.853	4.894	Y
400	IS	44	W	9	Crawford	86.853	88.116	1.263	Y
402	IS	44	W	9	Phelps	89.097	94.632	5.535	Y
403	IS	44	W	9	Phelps	94.632	100.289	5.657	Y
413	IS	44	W	9	Phelps	116.439	117.672	1.233	Y
418	IS	44	W	9	Pulaski	121.900	126.197	4.297	Y
433	IS	44	W	8	Laclede	147.425	150.332	2.907	Y
434	IS	44	W	8	Laclede	150.332	155.105	4.773	Y
435	IS	44	W	8	Laclede	155.105	158.954	3.849	Y
465	IS	44	W	7	Lawrence	230.399	231.486	1.087	Y
466	IS	44	W	7	Lawrence	231.486	232.008	0.522	Y
467	IS	44	W	7	Lawrence	232.008	240.577	8.569	Y
468	IS	44	W	7	Lawrence	240.577	242.941	2.364	Y
487	IS	44	W	7	Newton	287.417	289.943	2.526	Y
488	IS	44	W	7	Newton	289.943	290.284	0.341	Y
494	IS	55	N	10	Pemiscot	15.022	17.669	2.647	N
495	IS	55	N	10	Pemiscot	17.669	18.720	1.051	N
501	IS	55	N	10	New Madrid	41.000	44.926	3.926	N
502	IS	55	N	10	New Madrid	44.926	49.654	4.728	N
618	IS	55	S	10	Cape Girardeau	104.171	109.705	5.534	N
636	IS	55	S	10	New Madrid	160.284	165.034	4.750	N
637	IS	55	S	10	New Madrid	165.034	168.959	3.925	N
638	IS	55	S	10	New Madrid	168.959	169.139	0.180	N
660	IS	57	N	10	Mississippi	10.245	10.599	0.354	N
749	IS	70	E	2	Saline	62.561	66.878	4.317	Y
750	IS	70	E	2	Saline	66.878	71.370	4.492	Y
751	IS	70	E	2	Saline	71.370	74.594	3.224	Y
752	IS	70	E	2	Saline	74.594	77.026	2.432	Y
758	IS	70	E	5	Cooper	93.900	97.993	4.093	Y
759	IS	70	E	5	Cooper	97.993	101.119	3.126	Y
763	IS	70	E	5	Cooper	103.895	106.376	2.481	Y
764	IS	70	E	5	Cooper	106.376	111.452	5.076	Y
765	IS	70	E	5	Cooper	111.452	114.712	3.260	Y
788	IS	70	E	3	Montgomery	164.747	165.629	0.882	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
789	IS	70	E	3	Montgomery	165.629	169.101	3.472	N
943	IS	70	W	5	Cooper	136.808	140.066	3.258	Y
944	IS	70	W	5	Cooper	140.066	145.139	5.073	Y
949	IS	70	W	5	Cooper	149.943	153.512	3.569	Y
950	IS	70	W	5	Cooper	153.512	161.140	7.628	Y
951	IS	70	W	5	Cooper	161.140	161.596	0.456	Y
952	IS	70	W	5	Cooper	161.596	164.804	3.208	Y
956	IS	70	W	2	Saline	174.464	176.919	2.455	Y
957	IS	70	W	2	Saline	176.919	180.142	3.223	Y
958	IS	70	W	2	Saline	180.142	184.635	4.493	Y
959	IS	70	W	2	Saline	184.635	188.952	4.317	Y
12101	US	63	N	5	Boone	213.418	214.218	0.800	N
12642	US	71	N	7	Jasper	49.942	50.591	0.649	N
12674	US	71	N	7	Vernon	107.987	110.370	2.383	N
12681	US	71	N	7	Bates	134.040	135.261	1.221	N
12682	US	71	N	7	Bates	135.261	139.946	4.685	N
12753	US	71	S	7	Bates	176.857	181.553	4.696	N
12754	US	71	S	7	Bates	181.553	182.793	1.240	N
12764	US	71	S	7	Vernon	206.456	208.759	2.303	N
12769	US	71	S	7	Vernon	212.326	212.467	0.141	N
12770	US	71	S	7	Vernon	212.467	213.606	1.139	N
12784	US	71	S	7	Barton	243.030	245.790	2.760	N
12799	US	71	S	7	Jasper	263.947	264.535	0.588	N
12801	US	71	S	7	Jasper	266.482	266.877	0.395	N
10134	MO	13	N	8	Polk	82.272	83.693	1.421	N
10172	MO	13	S	8	Polk	208.892	210.454	1.562	N
RURAL FREEWAYS—Wider markings and shoulder rumble strip with resurfacing									
76	IS	29	S	1	Andrew	70.401	73.018	2.617	N
77	IS	29	S	1	Andrew	73.018	73.024	0.006	N
78	IS	29	S	1	Buchanan	73.024	73.476	0.452	N
79	IS	29	S	1	Buchanan	73.476	74.054	0.578	N
85	IS	29	S	1	Buchanan	80.197	81.041	0.844	N
86	IS	29	S	1	Buchanan	81.041	84.183	3.142	N
452	IS	44	W	8	Greene	201.355	205.768	4.413	Y
469	IS	44	W	7	Lawrence	242.941	243.378	0.437	Y
470	IS	44	W	7	Lawrence	243.378	245.966	2.588	Y
471	IS	44	W	7	Lawrence	245.966	251.779	5.813	Y
472	IS	44	W	7	Lawrence	251.779	252.580	0.801	Y
489	IS	55	N	10	Pemiscot	0.000	1.131	1.131	N
490	IS	55	N	10	Pemiscot	1.131	4.482	3.351	N
491	IS	55	N	10	Pemiscot	4.482	7.978	3.496	N
492	IS	55	N	10	Pemiscot	7.978	14.485	6.507	N
493	IS	55	N	10	Pemiscot	14.485	15.022	0.537	N
496	IS	55	N	10	Pemiscot	18.720	19.088	0.368	N
503	IS	55	N	10	New Madrid	49.654	52.191	2.537	N
504	IS	55	N	10	New Madrid	52.191	58.246	6.055	N
505	IS	55	N	10	New Madrid	58.246	65.408	7.162	N
510	IS	55	N	10	Scott	69.593	80.983	11.390	N
511	IS	55	N	10	Scott	80.983	89.750	8.767	N
512	IS	55	N	10	Scott	89.750	90.210	0.460	N
522	IS	55	N	10	Cape Girardeau	105.790	118.082	12.292	N
523	IS	55	N	10	Cape Girardeau	118.082	119.316	1.234	N
524	IS	55	N	10	Perry	119.316	124.075	4.759	N
525	IS	55	N	10	Perry	124.075	129.514	5.439	N
528	IS	55	N	10	Perry	130.017	135.627	5.610	N
529	IS	55	N	10	Perry	135.627	139.971	4.344	N
610	IS	55	S	10	Perry	69.997	74.332	4.335	N
611	IS	55	S	10	Perry	74.332	79.961	5.629	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
614	IS	55	S	10	Perry	80.449	85.892	5.443	N
615	IS	55	S	10	Perry	85.892	90.636	4.744	N
616	IS	55	S	10	Cape Girardeau	90.636	91.882	1.246	N
617	IS	55	S	10	Cape Girardeau	91.882	104.171	12.289	N
626	IS	55	S	10	Scott	119.737	120.200	0.463	N
627	IS	55	S	10	Scott	120.200	128.951	8.751	N
628	IS	55	S	10	Scott	128.951	140.363	11.412	N
633	IS	55	S	10	New Madrid	144.519	151.695	7.176	N
634	IS	55	S	10	New Madrid	151.695	157.771	6.076	N
635	IS	55	S	10	New Madrid	157.771	160.284	2.513	N
644	IS	55	S	10	Pemiscot	190.577	190.858	0.281	N
645	IS	55	S	10	Pemiscot	190.858	192.258	1.400	N
646	IS	55	S	10	Pemiscot	192.258	193.183	0.925	N
651	IS	55	S	10	Pemiscot	208.210	208.813	0.603	N
652	IS	55	S	10	Pemiscot	208.813	209.944	1.131	N
655	IS	57	N	10	Scott	0.573	1.725	1.152	N
668	IS	57	S	10	Mississippi	0.278	8.677	8.399	N
671	IS	57	S	10	Mississippi	10.003	10.477	0.474	N
674	IS	57	S	10	Mississippi	11.757	17.392	5.635	N
675	IS	57	S	10	Mississippi	17.392	20.157	2.765	N
676	IS	57	S	10	Scott	20.157	20.181	0.024	N
677	IS	57	S	10	Scott	20.181	21.782	1.601	N
RURAL FREEWAYS—Wider markings without resurfacing									
219	IS	44	E	7	Jasper	11.863	15.278	3.415	N
220	IS	44	E	7	Jasper	15.278	18.479	3.201	N
221	IS	44	E	7	Jasper	18.479	26.511	8.032	N
222	IS	44	E	7	Jasper	26.511	27.982	1.471	N
477	IS	44	W	7	Jasper	262.294	263.771	1.477	N
478	IS	44	W	7	Jasper	263.771	271.805	8.034	N
479	IS	44	W	7	Jasper	271.805	275.030	3.225	N
480	IS	44	W	7	Jasper	275.030	278.419	3.389	N
625	IS	55	S	10	Scott	119.435	119.737	0.302	N
639	IS	55	S	10	New Madrid	169.139	177.034	7.895	N
640	IS	55	S	10	New Madrid	177.034	178.059	1.025	N
641	IS	55	S	10	Pemiscot	178.059	179.972	1.913	N
RURAL MULTILANE DIVIDED HIGHWAYS—Wider markings with resurfacing									
11047	US	36	E	1	DeKalb	31.856	32.890	1.034	N
11048	US	36	E	1	DeKalb	32.890	33.509	0.619	N
11052	US	36	E	1	DeKalb	35.363	35.366	0.003	N
11053	US	36	E	1	Caldwell	35.366	36.134	0.768	N
11070	US	36	W	1	Caldwell	157.221	157.353	0.132	N
11071	US	36	W	1	DeKalb	157.353	157.358	0.005	N
11075	US	36	W	1	DeKalb	159.227	159.834	0.607	N
11076	US	36	W	1	DeKalb	159.834	160.843	1.009	N
11185	US	50	E	5	Pettis	74.455	75.051	0.596	N
11186	US	50	E	5	Pettis	75.051	76.384	1.333	N
11241	US	50	E	5	Cole	147.237	149.047	1.810	N
11242	US	50	E	5	Cole	149.047	149.680	0.633	N
11273	US	50	W	5	Cole	110.765	113.549	2.784	N
11274	US	50	W	5	Cole	113.549	115.370	1.821	N
11359	US	54	E	5	Camden	118.817	118.836	0.019	N
11361	US	54	E	5	Camden	121.528	122.040	0.512	N
11407	US	54	E	5	Callaway	198.220	198.570	0.350	N
11408	US	54	E	5	Callaway	198.570	198.780	0.210	N
11441	US	54	W	5	Callaway	73.422	73.640	0.218	N
11442	US	54	W	5	Callaway	73.640	73.993	0.353	N
11470	US	54	W	5	Miller	123.300	123.667	0.367	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
11471	US	54	W	5	Miller	123.667	126.592	2.925	N
11472	US	54	W	5	Miller	126.592	129.752	3.160	N
11473	US	54	W	5	Miller	129.752	131.107	1.355	N
11474	US	54	W	5	Miller	131.107	131.597	0.490	N
11554	US	60	E	8	Greene	88.465	90.249	1.784	N
11555	US	60	E	8	Greene	90.249	94.185	3.936	N
11556	US	60	E	8	Greene	94.185	96.183	1.998	N
11557	US	60	E	8	Greene	96.183	97.280	1.097	N
11558	US	60	E	8	Webster	97.280	97.725	0.445	N
11559	US	60	E	8	Webster	97.725	99.642	1.917	N
11560	US	60	E	8	Webster	99.642	102.630	2.988	N
11561	US	60	E	8	Webster	102.630	104.880	2.250	N
11562	US	60	E	8	Webster	104.880	106.349	1.469	N
11563	US	60	E	8	Webster	106.349	106.562	0.213	N
11568	US	60	E	8	Webster	114.087	116.347	2.260	N
11569	US	60	E	8	Webster	116.347	118.292	1.945	N
11731	US	60	W	8	Wright	215.938	219.248	3.310	N
11732	US	60	W	8	Wright	219.248	219.797	0.549	N
11733	US	60	W	8	Webster	219.797	224.602	4.805	N
11734	US	60	W	8	Webster	224.602	230.200	5.598	N
11735	US	60	W	8	Webster	230.200	230.668	0.468	N
11736	US	60	W	8	Webster	230.668	231.236	0.568	N
11737	US	60	W	8	Webster	231.236	234.471	3.235	N
11738	US	60	W	8	Webster	234.471	234.685	0.214	N
11739	US	60	W	8	Webster	234.685	236.164	1.479	N
11740	US	60	W	8	Webster	236.164	236.697	0.533	N
11743	US	60	W	8	Webster	239.028	239.427	0.399	N
11745	US	60	W	8	Webster	240.843	241.393	0.550	N
11746	US	60	W	8	Webster	241.393	243.307	1.914	N
11747	US	60	W	8	Webster	243.307	243.752	0.445	N
11748	US	60	W	8	Greene	243.752	244.846	1.094	N
11749	US	60	W	8	Greene	244.846	246.848	2.002	N
11750	US	60	W	8	Greene	246.848	250.773	3.925	N
11751	US	60	W	8	Greene	250.773	252.216	1.443	N
11762	US	60	W	8	Greene	261.372	263.288	1.916	N
12109	US	63	N	5	Boone	222.082	223.341	1.259	N
12110	US	63	N	5	Boone	223.341	225.404	2.063	N
12193	US	63	S	2	Macon	65.286	65.318	0.032	N
12215	US	63	S	5	Boone	111.881	113.793	1.912	N
12216	US	63	S	5	Boone	113.793	115.194	1.401	N
12542	US	67	N	6	St. Charles	194.102	194.646	0.544	N
12547	US	67	S	6	St. Charles	3.508	4.142	0.634	N
12757	US	71	S	7	Bates	185.034	187.450	2.416	N
12869	US	160	E	8	Greene	102.455	102.712	0.257	N
12870	US	160	E	8	Christian	102.712	102.965	0.253	N
12871	US	160	E	8	Christian	102.965	103.031	0.066	N
12885	US	160	W	8	Christian	220.042	220.700	0.658	N
12886	US	160	W	8	Christian	220.700	220.710	0.010	N
12887	US	160	W	8	Greene	220.710	221.707	0.997	N
12970	US	169	S	4	Clay	107.800	110.040	2.240	N
10033	MO	7	N	4	Cass	138.536	141.335	2.799	N
10034	MO	7	N	4	Cass	141.335	144.761	3.426	N
10035	MO	7	N	4	Cass	144.761	146.836	2.075	N
10064	MO	7	S	4	Cass	40.326	42.865	2.539	N
10065	MO	7	S	4	Cass	42.865	46.009	3.144	N
10066	MO	7	S	4	Cass	46.009	48.740	2.731	N
10126	MO	13	N	8	Greene	67.284	70.836	3.552	N
10127	MO	13	N	8	Greene	70.836	72.231	1.395	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
10129	MO	13	N	8	Polk	73.170	74.935	1.765	N
10130	MO	13	N	8	Polk	74.935	75.871	0.936	N
10131	MO	13	N	8	Polk	75.871	78.569	2.698	N
10132	MO	13	N	8	Polk	78.569	81.043	2.474	N
10142	MO	13	N	8	Polk	88.049	88.822	0.773	N
10281	MO	30	E	6	Jefferson	20.749	21.781	1.032	N
10282	MO	30	E	6	Jefferson	21.781	23.860	2.079	N
10284	MO	30	E	6	Jefferson	24.981	26.365	1.384	N
10314	MO	30	W	6	Jefferson	25.370	26.220	0.850	N
10316	MO	30	W	6	Jefferson	27.000	27.960	0.960	N
10318	MO	30	W	6	Jefferson	28.560	30.888	2.328	N
10319	MO	30	W	6	Jefferson	30.888	31.906	1.018	N
10570	MO	100	E	6	St. Louis	93.620	95.070	1.450	N
15078	LP	29	N	1	Andrew	11.594	12.125	0.531	N
RURAL MULTILANE DIVIDED HIGHWAYS—Wider markings and edgeline rumble stripe with resurfacing									
11164	US	50	E	4	Johnson	28.456	29.994	1.538	N
11165	US	50	E	4	Johnson	29.994	31.538	1.544	N
11166	US	50	E	4	Johnson	31.538	35.645	4.107	N
11167	US	50	E	4	Johnson	35.645	40.793	5.148	N
11168	US	50	E	4	Johnson	40.793	45.943	5.150	N
11169	US	50	E	4	Johnson	45.943	49.966	4.023	N
11174	US	50	E	4	Johnson	53.476	54.008	0.532	N
11304	US	50	W	4	Johnson	208.605	209.260	0.655	N
11309	US	50	W	4	Johnson	212.772	216.682	3.910	N
11310	US	50	W	4	Johnson	216.682	221.711	5.029	N
11311	US	50	W	4	Johnson	221.711	226.872	5.161	N
11312	US	50	W	4	Johnson	226.872	230.992	4.120	N
11313	US	50	W	4	Johnson	230.992	232.536	1.544	N
11314	US	50	W	4	Johnson	232.536	234.076	1.540	N
11380	US	54	E	5	Cole	155.998	156.189	0.191	N
11381	US	54	E	5	Cole	156.189	158.186	1.997	N
11382	US	54	E	5	Cole	158.186	163.467	5.281	N
11466	US	54	W	5	Cole	108.781	114.013	5.232	N
11467	US	54	W	5	Cole	114.013	116.011	1.998	N
11784	US	61	N	6	St. Charles	258.341	260.464	2.123	N
11785	US	61	N	6	St. Charles	260.464	263.172	2.708	N
11786	US	61	N	6	St. Charles	263.172	263.830	0.658	N
11788	US	61	N	6	St. Charles	264.062	264.200	0.138	N
11789	US	61	N	3	Lincoln	264.200	265.818	1.618	N
11790	US	61	N	3	Lincoln	265.818	269.678	3.860	N
11791	US	61	N	3	Lincoln	269.678	271.858	2.180	N
11792	US	61	N	3	Lincoln	271.858	274.086	2.228	N
11800	US	61	N	3	Lincoln	288.175	289.204	1.029	N
11801	US	61	N	3	Pike	289.204	289.709	0.505	N
11802	US	61	N	3	Pike	289.709	291.278	1.569	N
11824	US	61	N	3	Ralls	324.949	325.150	0.201	N
11825	US	61	N	3	Ralls	325.150	327.172	2.022	N
11826	US	61	N	3	Ralls	327.172	329.149	1.977	N
11827	US	61	N	3	Ralls	329.149	329.440	0.291	N
11905	US	61	S	3	Pike	101.709	101.890	0.181	N
11906	US	61	S	3	Pike	101.890	103.710	1.820	N
11907	US	61	S	3	Pike	103.710	104.240	0.530	N
11908	US	61	S	3	Lincoln	104.240	106.764	2.524	N
11909	US	61	S	3	Lincoln	106.764	107.105	0.341	N
11910	US	61	S	3	Lincoln	107.105	111.411	4.306	N
11913	US	61	S	3	Lincoln	119.044	119.157	0.113	N
11914	US	61	S	3	Lincoln	119.157	121.584	2.427	N
11915	US	61	S	3	Lincoln	121.584	123.257	1.673	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
11917	US	61	S	3	Lincoln	123.305	123.754	0.449	N
11918	US	61	S	3	Lincoln	123.754	127.617	3.863	N
11919	US	61	S	3	Lincoln	127.617	129.237	1.620	N
11920	US	61	S	6	St. Charles	129.237	130.285	1.048	N
11921	US	61	S	6	St. Charles	130.285	132.985	2.700	N
11922	US	61	S	6	St. Charles	132.985	135.110	2.125	N
12094	US	63	N	5	Callaway	190.361	195.035	4.674	N
12095	US	63	N	5	Boone	195.035	200.937	5.902	N
12096	US	63	N	5	Boone	200.937	203.943	3.006	N
12097	US	63	N	5	Boone	203.943	207.946	4.003	N
12098	US	63	N	5	Boone	207.946	209.991	2.045	N
12099	US	63	N	5	Boone	209.991	210.480	0.489	N
12100	US	63	N	5	Boone	210.480	213.418	2.938	N
12224	US	63	S	5	Boone	123.595	126.507	2.912	N
12230	US	63	S	5	Boone	136.155	136.486	0.331	N
12231	US	63	S	5	Boone	136.486	142.258	5.772	N
12232	US	63	S	5	Callaway	142.258	144.585	2.327	N
12507	US	67	N	10	St. Francois	102.574	106.282	3.708	N
12508	US	67	N	10	St. Francois	106.282	108.111	1.829	N
12510	US	67	N	10	St. Francois	108.547	109.669	1.122	N
12511	US	67	N	10	St. Francois	109.669	110.275	0.606	N
12512	US	67	N	10	St. Francois	110.275	113.241	2.966	N
12513	US	67	N	10	St. Francois	113.241	121.091	7.850	N
12514	US	67	N	10	St. Francois	121.091	121.587	0.496	N
12515	US	67	N	10	St. Francois	121.587	122.256	0.669	N
12516	US	67	N	6	Jefferson	122.256	123.392	1.136	N
12517	US	67	N	6	Jefferson	123.392	126.928	3.536	N
12518	US	67	N	6	Jefferson	126.928	130.135	3.207	N
12519	US	67	N	6	Jefferson	130.135	135.460	5.325	N
12520	US	67	N	6	Jefferson	135.460	136.075	0.615	N
12573	US	67	S	6	Jefferson	62.038	62.645	0.607	N
12574	US	67	S	6	Jefferson	62.645	67.996	5.351	N
12575	US	67	S	6	Jefferson	67.996	71.201	3.205	N
12576	US	67	S	6	Jefferson	71.201	74.740	3.539	N
12577	US	67	S	6	Jefferson	74.740	75.873	1.133	N
12578	US	67	S	10	St. Francois	75.873	75.957	0.084	N
12579	US	67	S	10	St. Francois	75.957	76.543	0.586	N
12580	US	67	S	10	St. Francois	76.543	77.026	0.483	N
12581	US	67	S	10	St. Francois	77.026	84.892	7.866	N
12582	US	67	S	10	St. Francois	84.892	87.851	2.959	N
12583	US	67	S	10	St. Francois	87.851	88.456	0.605	N
12584	US	67	S	10	St. Francois	88.456	89.585	1.129	N
12586	US	67	S	10	St. Francois	90.027	91.934	1.907	N
12587	US	67	S	10	St. Francois	91.934	94.473	2.539	N
12588	US	67	S	10	St. Francois	94.473	95.441	0.968	N
12661	US	71	N	7	Barton	89.047	89.761	0.714	N
12675	US	71	N	7	Vernon	110.370	113.701	3.331	N
12676	US	71	N	7	Vernon	113.701	120.676	6.975	N
12677	US	71	N	7	Vernon	120.676	121.080	0.404	N
12678	US	71	N	7	Bates	121.080	124.343	3.263	N
12679	US	71	N	7	Bates	124.343	132.647	8.304	N
12680	US	71	N	7	Bates	132.647	134.040	1.393	N
12683	US	71	N	7	Bates	139.946	145.004	5.058	N
12684	US	71	N	7	Bates	145.004	147.526	2.522	N
12685	US	71	N	7	Bates	147.526	150.389	2.863	N
12686	US	71	N	4	Cass	150.389	151.066	0.677	N
12687	US	71	N	4	Cass	151.066	159.815	8.749	N
12748	US	71	S	4	Cass	156.974	165.929	8.955	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
12749	US	71	S	4	Cass	165.929	166.420	0.491	N
12750	US	71	S	7	Bates	166.420	169.285	2.865	N
12751	US	71	S	7	Bates	169.285	171.809	2.524	N
12752	US	71	S	7	Bates	171.809	176.857	5.048	N
12755	US	71	S	7	Bates	182.793	184.166	1.373	N
12756	US	71	S	7	Bates	184.166	185.034	0.868	N
12759	US	71	S	7	Bates	191.690	192.731	1.041	N
12760	US	71	S	7	Bates	192.731	195.733	3.002	N
12761	US	71	S	7	Vernon	195.733	196.122	0.389	N
12762	US	71	S	7	Vernon	196.122	203.112	6.990	N
12763	US	71	S	7	Vernon	203.112	206.456	3.344	N
12783	US	71	S	7	Barton	240.285	243.030	2.745	N
10128	MO	13	N	8	Polk	72.231	73.170	0.939	N
10133	MO	13	N	8	Polk	81.043	82.272	1.229	N
10173	MO	13	S	8	Polk	210.454	213.794	3.340	N
10174	MO	13	S	8	Polk	213.794	216.419	2.625	N
10175	MO	13	S	8	Polk	216.419	217.314	0.895	N
10176	MO	13	S	8	Polk	217.314	219.981	2.667	N
10177	MO	13	S	8	Greene	219.981	221.339	1.358	N
10178	MO	13	S	8	Greene	221.339	226.245	4.906	N
10179	MO	13	S	8	Greene	226.245	227.745	1.500	N
10180	MO	13	S	8	Greene	227.745	231.830	4.085	N
10283	MO	30	E	6	Jefferson	23.860	24.981	1.121	N
10285	MO	30	E	6	Jefferson	26.365	27.395	1.030	N
10313	MO	30	W	6	Jefferson	25.256	25.370	0.114	N
10315	MO	30	W	6	Jefferson	26.220	27.000	0.780	N
10317	MO	30	W	6	Jefferson	27.960	28.560	0.600	N
10473	MO	79	N	6	St. Charles	1.070	1.167	0.097	N
RURAL MULTILANE DIVIDED HIGHWAYS—Wider markings and shoulder rumble strip with resurfacing									
11033	US	36	E	1	Buchanan	5.627	5.911	0.284	N
11090	US	36	W	1	Buchanan	186.838	187.132	0.294	N
11793	US	61	N	3	Lincoln	274.086	274.289	0.203	N
11794	US	61	N	3	Lincoln	274.289	278.385	4.096	N
11911	US	61	S	3	Lincoln	111.411	114.604	3.193	N
11912	US	61	S	3	Lincoln	114.604	119.044	4.440	N
12225	US	63	S	5	Boone	126.507	126.951	0.444	N
12226	US	63	S	5	Boone	126.951	127.481	0.530	N
12227	US	63	S	5	Boone	127.481	129.483	2.002	N
12228	US	63	S	5	Boone	129.483	133.525	4.042	N
12229	US	63	S	5	Boone	133.525	136.155	2.630	N
12758	US	71	S	7	Bates	187.450	191.690	4.240	N
10213	MO	21	N	6	Jefferson	175.900	178.179	2.279	N
10230	MO	21	S	6	Jefferson	16.443	18.900	2.457	N
RURAL MULTILANE DIVIDED HIGHWAYS—Wider markings without resurfacing									
11175	US	50	E	4	Johnson	54.008	54.080	0.072	N
11176	US	50	E	4	Johnson	54.080	57.792	3.712	N
11177	US	50	E	4	Johnson	57.792	60.849	3.057	N
11178	US	50	E	4	Johnson	60.849	61.366	0.517	N
11179	US	50	E	4	Johnson	61.366	62.599	1.233	N
11180	US	50	E	4	Johnson	62.599	64.292	1.693	N
12634	US	71	N	7	Newton	27.148	27.405	0.257	N
12635	US	71	N	7	Newton	27.405	30.421	3.016	N
12636	US	71	N	7	Newton	30.421	36.423	6.002	N
12637	US	71	N	7	Newton	36.423	38.445	2.022	N
12638	US	71	N	7	Newton	38.445	42.449	4.004	N
12805	US	71	S	7	Newton	274.395	278.422	4.027	N
12806	US	71	S	7	Newton	278.422	280.439	2.017	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
12807	US	71	S	7	Newton	280.439	286.446	6.007	N
12808	US	71	S	7	Newton	286.446	289.462	3.016	N
12809	US	71	S	7	Newton	289.462	289.648	0.186	N
RURAL MULTILANE UNDIVIDED HIGHWAYS—Wider markings with resurfacing									
11360	US	54	E	5	Camden	118.836	121.528	2.692	N
11362	US	54	E	5	Camden	122.040	124.526	2.486	N
11363	US	54	E	5	Miller	124.526	124.661	0.135	N
11364	US	54	E	5	Camden	124.661	125.588	0.927	N
11953	US	61	S	6	Jefferson	193.512	193.596	0.084	N
11954	US	61	S	6	Jefferson	193.596	196.327	2.731	N
11955	US	61	S	6	Jefferson	196.327	196.983	0.656	N
12191	US	63	S	2	Macon	63.756	64.765	1.009	N
12192	US	63	S	2	Macon	64.765	65.286	0.521	N
11187	US	50	E	5	Pettis	76.384	77.077	0.693	N
11535	US	60	E	8	Greene	70.630	70.729	0.099	N
12488	US	65	S	8	Taney	302.198	303.285	1.087	N
10271	MO	30	E	6	Franklin	0.882	1.720	0.838	N
10272	MO	30	E	6	Franklin	1.720	1.841	0.121	N
10397	MO	47	S	6	Franklin	66.230	68.424	2.194	N
10398	MO	47	S	6	Franklin	68.424	70.642	2.218	N
15029	BU	67	S	10	Butler	5.302	6.554	1.252	N
15030	BU	67	S	10	Butler	6.554	7.588	1.034	N
15161	RT	K	E	10	Scott	2.109	2.429	0.320	N
RURAL MULTILANE UNDIVIDED HIGHWAYS—Wider markings and shoulder rumble strip with resurfacing									
10273	MO	30	E	6	Franklin	1.841	6.572	4.731	N
RURAL TWO-LANE HIGHWAYS—Wider markings, centerline rumble strip, and edgeline rumble stripe with resurfacing									
11520	US	60	E	7	Lawrence	54.592	56.360	1.768	N
11521	US	60	E	7	Lawrence	56.360	57.389	1.029	N
11522	US	60	E	7	Lawrence	57.389	57.672	0.283	N
11523	US	60	E	7	Lawrence	57.672	59.036	1.364	N
11524	US	60	E	7	Lawrence	59.036	60.108	1.072	N
11525	US	60	E	7	Lawrence	60.108	60.182	0.074	N
11526	US	60	E	7	Lawrence	60.182	60.462	0.280	N
11527	US	60	E	7	Lawrence	60.462	62.075	1.613	N
11528	US	60	E	8	Christian	62.075	65.198	3.123	N
11529	US	60	E	8	Christian	65.198	66.159	0.961	N
11530	US	60	E	8	Christian	66.159	66.353	0.194	N
11533	US	60	E	8	Christian	67.210	69.880	2.670	N
11534	US	60	E	8	Greene	69.880	70.630	0.750	N
10485	MO	79	S	6	St. Charles	77.528	81.559	4.031	N
10486	MO	79	S	6	St. Charles	81.559	83.667	2.108	N
10487	MO	79	S	6	St. Charles	83.667	83.906	0.239	N
URBAN FREEWAYS—Wider markings with resurfacing									
22	IS	29	N	4	Platte	21.255	23.610	2.355	Y
243	IS	44	E	8	Greene	80.383	82.473	2.090	Y
244	IS	44	E	8	Greene	82.473	82.512	0.039	Y
302	IS	44	E	6	Franklin	223.978	223.987	0.009	N
303	IS	44	E	6	Franklin	223.987	224.591	0.604	N
304	IS	44	E	6	Franklin	224.591	225.860	1.269	N
319	IS	44	E	6	St. Louis	260.311	261.558	1.247	N
320	IS	44	E	6	St. Louis	261.558	264.254	2.696	N
321	IS	44	E	6	St. Louis	264.254	265.670	1.416	N
322	IS	44	E	6	St. Louis	265.670	266.640	0.970	N
323	IS	44	E	6	St. Louis	266.640	268.846	2.206	N
324	IS	44	E	6	St. Louis	268.846	270.184	1.338	N
325	IS	44	E	6	St. Louis	270.184	271.250	1.066	N
326	IS	44	E	6	St. Louis	271.250	272.424	1.174	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
327	IS	44	E	6	St. Louis	272.424	273.886	1.462	N
328	IS	44	E	6	St. Louis	273.886	275.815	1.929	N
336	IS	44	E	6	St. Louis	282.428	282.900	0.472	N
337	IS	44	E	6	St. Louis	282.900	283.361	0.461	N
338	IS	44	E	6	St. Louis City	283.361	283.402	0.041	N
339	IS	44	E	6	St. Louis City	283.402	284.224	0.822	N
340	IS	44	E	6	St. Louis City	284.224	284.843	0.619	N
341	IS	44	E	6	St. Louis City	284.843	285.680	0.837	N
352	IS	44	W	6	St. Louis City	4.556	5.387	0.831	N
353	IS	44	W	6	St. Louis City	5.387	5.990	0.603	N
354	IS	44	W	6	St. Louis City	5.990	6.796	0.806	N
355	IS	44	W	6	St. Louis City	6.796	6.843	0.047	N
356	IS	44	W	6	St. Louis	6.843	7.332	0.489	N
357	IS	44	W	6	St. Louis	7.332	7.790	0.458	N
364	IS	44	W	6	St. Louis	14.126	14.393	0.267	N
365	IS	44	W	6	St. Louis	14.393	16.330	1.937	N
366	IS	44	W	6	St. Louis	16.330	16.950	0.620	N
367	IS	44	W	6	St. Louis	16.950	17.794	0.844	N
368	IS	44	W	6	St. Louis	17.794	18.960	1.166	N
369	IS	44	W	6	St. Louis	18.960	20.040	1.080	N
370	IS	44	W	6	St. Louis	20.040	21.391	1.351	N
371	IS	44	W	6	St. Louis	21.391	23.594	2.203	N
372	IS	44	W	6	St. Louis	23.594	24.520	0.926	N
373	IS	44	W	6	St. Louis	24.520	24.951	0.431	N
554	IS	55	N	6	St. Louis	199.791	199.796	1.825	N
555	IS	55	N	6	St. Louis	199.796	200.517	0.721	N
556	IS	55	N	6	St. Louis	200.517	201.334	0.817	N
557	IS	55	N	6	St. Louis	201.334	201.973	0.639	N
577	IS	55	S	6	St. Louis City	4.629	4.920	0.291	N
578	IS	55	S	6	St. Louis City	4.920	5.892	0.972	N
579	IS	55	S	6	St. Louis City	5.892	6.836	0.944	N
580	IS	55	S	6	St. Louis City	6.836	7.507	0.671	N
581	IS	55	S	6	St. Louis City	7.507	7.805	0.298	N
583	IS	55	S	6	St. Louis	8.062	8.653	0.591	N
584	IS	55	S	6	St. Louis	8.653	9.495	0.842	N
585	IS	55	S	6	St. Louis	9.495	10.240	0.745	N
586	IS	55	S	6	St. Louis	10.240	12.333	2.093	N
725	IS	70	E	4	Jackson	7.666	8.315	0.649	N
726	IS	70	E	4	Jackson	8.315	9.324	1.009	N
727	IS	70	E	4	Jackson	9.324	11.108	1.784	N
728	IS	70	E	4	Jackson	11.108	12.583	1.475	N
729	IS	70	E	4	Jackson	12.583	14.080	1.497	N
730	IS	70	E	4	Jackson	14.080	15.445	1.365	N
734	IS	70	E	4	Jackson	20.379	21.612	1.233	Y
735	IS	70	E	4	Jackson	21.612	23.125	1.513	Y
770	IS	70	E	5	Boone	122.764	124.396	1.632	Y
801	IS	70	E	6	St. Charles	207.754	208.234	0.480	Y
808	IS	70	E	6	St. Charles	213.950	215.568	1.618	N
809	IS	70	E	6	St. Charles	215.568	217.321	1.753	N
810	IS	70	E	6	St. Charles	217.321	219.877	2.556	N
811	IS	70	E	6	St. Charles	219.877	221.705	1.828	N
812	IS	70	E	6	St. Charles	221.705	222.972	1.267	N
813	IS	70	E	6	St. Charles	222.972	224.692	1.720	N
814	IS	70	E	6	St. Charles	224.692	226.467	1.775	N
815	IS	70	E	6	St. Charles	226.467	227.855	1.388	N
816	IS	70	E	6	St. Charles	227.855	228.271	0.416	N
823	IS	70	E	6	St. Louis	232.657	234.194	1.537	N
824	IS	70	E	6	St. Louis	234.194	234.760	0.566	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
830	IS	70	E	6	St. Louis	238.392	238.783	0.391	N
831	IS	70	E	6	St. Louis	238.783	239.054	0.271	N
833	IS	70	E	6	St. Louis	239.288	239.815	0.527	N
834	IS	70	E	6	St. Louis	239.815	240.425	0.610	N
835	IS	70	E	6	St. Louis	240.425	240.944	0.519	N
836	IS	70	E	6	St. Louis	240.944	241.710	0.766	N
837	IS	70	E	6	St. Louis	241.710	242.766	1.056	N
838	IS	70	E	6	St. Louis	242.766	243.022	0.256	N
839	IS	70	E	6	St. Louis City	243.022	243.034	0.012	N
840	IS	70	E	6	St. Louis City	243.034	243.121	0.087	N
841	IS	70	E	6	St. Louis City	243.121	243.399	0.278	N
842	IS	70	E	6	St. Louis City	243.399	244.610	1.211	N
843	IS	70	E	6	St. Louis City	244.610	245.038	0.428	N
844	IS	70	E	6	St. Louis City	245.038	245.701	0.663	N
845	IS	70	E	6	St. Louis City	245.701	246.156	0.455	N
846	IS	70	E	6	St. Louis City	246.156	246.652	0.496	N
847	IS	70	E	6	St. Louis City	246.652	247.265	0.613	N
848	IS	70	E	6	St. Louis City	247.265	248.155	0.890	N
849	IS	70	E	6	St. Louis City	248.155	248.540	0.385	N
852	IS	70	E	6	St. Louis City	249.724	250.154	0.430	N
853	IS	70	E	6	St. Louis City	250.154	250.666	0.512	N
854	IS	70	E	6	St. Louis City	250.666	250.842	0.176	N
855	IS	70	E	6	St. Louis City	250.842	251.152	0.310	N
873	IS	70	W	6	St. Louis	8.511	8.720	0.209	N
874	IS	70	W	6	St. Louis	8.720	9.801	1.081	N
875	IS	70	W	6	St. Louis	9.801	10.570	0.769	N
876	IS	70	W	6	St. Louis	10.570	11.090	0.520	N
877	IS	70	W	6	St. Louis	11.090	11.702	0.612	N
878	IS	70	W	6	St. Louis	11.702	12.225	0.523	N
880	IS	70	W	6	St. Louis	12.532	12.721	0.189	N
881	IS	70	W	6	St. Louis	12.721	13.182	0.461	N
887	IS	70	W	6	St. Louis	16.646	17.328	0.682	N
888	IS	70	W	6	St. Louis	17.328	18.836	1.508	N
893	IS	70	W	6	St. Charles	21.602	21.938	0.336	N
896	IS	70	W	6	St. Charles	23.233	23.628	0.395	N
897	IS	70	W	6	St. Charles	23.628	25.074	1.446	N
898	IS	70	W	6	St. Charles	25.074	26.860	1.786	N
899	IS	70	W	6	St. Charles	26.860	28.581	1.721	N
900	IS	70	W	6	St. Charles	28.581	29.828	1.247	N
901	IS	70	W	6	St. Charles	29.828	31.533	1.705	N
902	IS	70	W	6	St. Charles	31.533	34.226	2.693	N
903	IS	70	W	6	St. Charles	34.226	35.933	1.707	N
904	IS	70	W	6	St. Charles	35.933	37.566	1.633	N
911	IS	70	W	6	St. Charles	43.287	43.753	0.466	Y
973	IS	70	W	4	Jackson	228.409	229.945	1.536	Y
974	IS	70	W	4	Jackson	229.945	231.183	1.238	Y
978	IS	70	W	4	Jackson	235.946	236.118	0.172	N
979	IS	70	W	4	Jackson	236.118	237.492	1.374	N
980	IS	70	W	4	Jackson	237.492	238.981	1.489	N
981	IS	70	W	4	Jackson	238.981	240.474	1.493	N
982	IS	70	W	4	Jackson	240.474	242.233	1.759	N
983	IS	70	W	4	Jackson	242.233	243.181	0.948	N
984	IS	70	W	4	Jackson	243.181	243.897	0.716	N
1012	IS	170	E	6	St. Louis	6.820	6.849	0.029	N
1013	IS	170	E	6	St. Louis	6.849	7.843	0.994	N
1014	IS	170	E	6	St. Louis	7.843	8.799	0.956	N
1015	IS	170	E	6	St. Louis	8.799	9.352	0.553	N
1016	IS	170	E	6	St. Louis	9.352	9.898	0.546	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
1017	IS	170	E	6	St. Louis	9.898	10.378	0.480	N
1021	IS	170	W	6	St. Louis	0.452	0.816	0.364	N
1022	IS	170	W	6	St. Louis	0.816	1.204	0.388	N
1023	IS	170	W	6	St. Louis	1.204	1.829	0.625	N
1024	IS	170	W	6	St. Louis	1.829	2.381	0.552	N
1025	IS	170	W	6	St. Louis	2.381	3.335	0.954	N
1026	IS	170	W	6	St. Louis	3.335	4.415	1.080	N
1039	IS	229	N	1	Buchanan	1.742	2.129	0.387	N
1040	IS	229	N	1	Buchanan	2.129	2.950	0.821	N
1043	IS	229	N	1	Buchanan	4.779	5.184	0.405	N
1044	IS	229	N	1	Buchanan	5.184	5.595	0.411	N
1045	IS	229	N	1	Buchanan	5.595	6.110	0.515	N
1046	IS	229	N	1	Buchanan	6.110	6.783	0.673	N
1047	IS	229	N	1	Buchanan	6.783	7.671	0.888	N
1058	IS	229	S	1	Buchanan	7.436	8.329	0.893	N
1062	IS	229	S	1	Buchanan	9.710	9.917	0.207	N
1063	IS	229	S	1	Buchanan	9.917	10.316	0.399	N
1066	IS	229	S	1	Buchanan	12.182	12.976	0.794	N
1067	IS	229	S	1	Buchanan	12.976	13.373	0.397	N
1083	IS	270	E	6	St. Louis	0.545	2.145	1.600	N
1084	IS	270	E	6	St. Louis	2.145	3.915	1.770	N
1085	IS	270	E	6	St. Louis	3.915	6.128	2.213	N
1086	IS	270	E	6	St. Louis	6.128	7.634	1.506	N
1087	IS	270	E	6	St. Louis	7.634	8.734	1.100	N
1088	IS	270	E	6	St. Louis	8.734	10.234	1.500	N
1089	IS	270	E	6	St. Louis	10.234	12.660	2.426	N
1090	IS	270	E	6	St. Louis	12.660	13.847	1.187	N
1091	IS	270	E	6	St. Louis	13.847	15.000	1.153	N
1092	IS	270	E	6	St. Louis	15.000	16.803	1.803	N
1093	IS	270	E	6	St. Louis	16.803	17.937	1.134	N
1094	IS	270	E	6	St. Louis	17.937	20.317	2.380	N
1100	IS	270	E	6	St. Louis	26.361	26.883	0.522	N
1125	IS	270	W	6	St. Louis	8.680	8.877	0.197	N
1126	IS	270	W	6	St. Louis	8.877	9.295	0.418	N
1127	IS	270	W	6	St. Louis	9.295	9.480	0.185	N
1133	IS	270	W	6	St. Louis	15.633	18.019	2.386	N
1134	IS	270	W	6	St. Louis	18.019	19.154	1.135	N
1135	IS	270	W	6	St. Louis	19.154	20.949	1.795	N
1136	IS	270	W	6	St. Louis	20.949	22.108	1.159	N
1137	IS	270	W	6	St. Louis	22.108	23.279	1.171	N
1138	IS	270	W	6	St. Louis	23.279	25.723	2.444	N
1139	IS	270	W	6	St. Louis	25.723	27.229	1.506	N
1140	IS	270	W	6	St. Louis	27.229	28.351	1.122	N
1141	IS	270	W	6	St. Louis	28.351	29.870	1.519	N
1142	IS	270	W	6	St. Louis	29.870	32.071	2.201	N
1143	IS	270	W	6	St. Louis	32.071	33.834	1.763	N
1144	IS	270	W	6	St. Louis	33.834	35.440	1.606	N
1145	IS	435	N	4	Jackson	0.000	0.661	0.661	N
1146	IS	435	N	4	Jackson	0.661	1.416	0.755	N
1147	IS	435	N	4	Jackson	1.416	2.608	1.192	N
1148	IS	435	N	4	Jackson	2.608	3.952	1.344	N
1207	IS	435	S	4	Jackson	51.208	52.552	1.344	N
1208	IS	435	S	4	Jackson	52.552	53.745	1.193	N
1209	IS	435	S	4	Jackson	53.745	54.500	0.755	N
1210	IS	435	S	4	Jackson	54.500	55.160	0.660	N
11118	US	40	E	6	St. Charles	208.441	209.316	0.875	N
11119	US	40	E	6	St. Charles	209.316	211.011	1.695	N
11387	US	54	E	5	Cole	167.336	167.527	0.191	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
11388	US	54	E	5	Cole	167.527	167.659	0.132	N
11389	US	54	E	5	Cole	167.659	168.735	1.076	N
11390	US	54	E	5	Cole	168.735	169.022	0.287	N
11459	US	54	W	5	Cole	103.173	103.459	0.286	N
11460	US	54	W	5	Cole	103.459	104.538	1.079	N
11461	US	54	W	5	Cole	104.538	104.660	0.122	N
11755	US	60	W	8	Greene	253.181	254.161	0.980	N
11760	US	60	W	8	Greene	258.647	261.079	2.432	N
12105	US	63	N	5	Boone	216.537	217.335	0.798	N
12106	US	63	N	5	Boone	217.335	218.214	0.879	N
12107	US	63	N	5	Boone	218.214	219.764	1.550	N
12218	US	63	S	5	Boone	117.474	119.048	1.574	N
12219	US	63	S	5	Boone	119.048	119.954	0.906	N
12220	US	63	S	5	Boone	119.954	120.753	0.799	N
12304	US	65	N	8	Greene	45.561	47.707	2.146	N
12305	US	65	N	8	Greene	47.707	48.723	1.016	N
12308	US	65	N	8	Greene	49.689	51.293	1.604	N
12309	US	65	N	8	Greene	51.293	52.281	0.988	N
12310	US	65	N	8	Greene	52.281	53.289	1.008	N
12311	US	65	N	8	Greene	53.289	54.073	0.784	N
12312	US	65	N	8	Greene	54.073	54.171	0.098	N
12461	US	65	S	8	Greene	258.890	258.970	0.080	N
12462	US	65	S	8	Greene	258.970	259.754	0.784	N
12463	US	65	S	8	Greene	259.754	260.763	1.009	N
12464	US	65	S	8	Greene	260.763	261.771	1.008	N
12465	US	65	S	8	Greene	261.771	263.337	1.566	N
12468	US	65	S	8	Greene	264.327	265.335	1.008	N
12469	US	65	S	8	Greene	265.335	267.474	2.139	N
12644	US	71	N	7	Jasper	53.353	54.052	0.699	N
12645	US	71	N	7	Jasper	54.052	54.348	0.296	N
12647	US	71	N	7	Jasper	55.862	56.881	1.019	N
12794	US	71	S	7	Jasper	259.946	260.966	1.020	N
12796	US	71	S	7	Jasper	262.477	262.776	0.299	N
12797	US	71	S	7	Jasper	262.776	263.497	0.721	N
10140	MO	13	N	8	Polk	86.472	87.703	1.231	N
10141	MO	13	N	8	Polk	87.703	88.049	0.346	N
URBAN FREEWAYS—Wider markings and edgeline rumble stripe with resurfacing									
97	IS	29	S	4	Platte	107.250	109.852	2.602	Y
144	IS	35	N	1	DeKalb	53.834	54.347	0.513	N
145	IS	35	N	1	DeKalb	54.347	54.876	0.529	N
180	IS	35	S	1	DeKalb	59.407	59.933	0.526	N
181	IS	35	S	1	DeKalb	59.933	60.447	0.514	N
182	IS	35	S	1	Clinton	60.447	61.299	0.852	N
196	IS	35	S	4	Clay	94.769	96.335	1.566	N
197	IS	35	S	4	Clay	96.335	97.841	1.506	N
198	IS	35	S	4	Clay	97.841	100.053	2.212	N
212	IS	44	E	7	Newton	2.841	3.990	1.149	Y
213	IS	44	E	7	Newton	3.990	4.478	0.488	Y
290	IS	44	E	9	Phelps	187.265	189.977	2.712	N
301	IS	44	E	9	Crawford	223.156	223.978	0.822	Y
404	IS	44	W	9	Phelps	100.289	100.494	0.205	Y
485	IS	44	W	7	Newton	284.330	286.278	1.948	Y
486	IS	44	W	7	Newton	286.278	287.417	1.139	Y
619	IS	55	S	10	Cape Girardeau	109.705	110.072	0.367	N
620	IS	55	S	10	Cape Girardeau	110.072	113.451	3.379	N
621	IS	55	S	10	Cape Girardeau	113.451	114.685	1.234	N
622	IS	55	S	10	Cape Girardeau	114.685	116.512	1.827	N
623	IS	55	S	10	Cape Girardeau	116.512	117.888	1.376	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
624	IS	55	S	10	Scott	117.888	119.435	1.547	N
694	IS	64	E	6	St. Louis City	11.500	12.318	0.818	N
695	IS	64	E	6	St. Louis City	12.318	13.286	0.968	N
696	IS	64	E	6	St. Louis City	13.286	13.600	0.314	N
703	IS	64	W	6	St. Louis City	1.710	2.020	0.310	N
704	IS	64	W	6	St. Louis City	2.020	2.993	0.973	N
705	IS	64	W	6	St. Louis City	2.993	3.750	0.757	N
760	IS	70	E	5	Cooper	101.119	101.774	0.655	Y
761	IS	70	E	5	Cooper	101.774	103.545	1.771	Y
762	IS	70	E	5	Cooper	103.545	103.895	0.350	Y
817	IS	70	E	6	St. Charles	228.271	228.984	0.713	N
818	IS	70	E	6	St. Charles	228.984	229.624	0.640	N
821	IS	70	E	6	St. Louis	231.221	231.515	0.294	N
822	IS	70	E	6	St. Louis	231.515	232.657	1.142	N
889	IS	70	W	6	St. Louis	18.836	19.999	1.163	N
890	IS	70	W	6	St. Louis	19.999	21.127	1.128	N
891	IS	70	W	6	St. Louis	21.127	21.410	0.283	N
892	IS	70	W	6	St. Charles	21.410	21.602	0.192	N
946	IS	70	W	5	Cooper	147.590	147.970	0.380	Y
947	IS	70	W	5	Cooper	147.970	149.729	1.759	Y
948	IS	70	W	5	Cooper	149.729	149.943	0.214	Y
1095	IS	270	E	6	St. Louis	20.317	21.072	0.755	N
1096	IS	270	E	6	St. Louis	21.072	23.134	2.062	N
1097	IS	270	E	6	St. Louis	23.134	23.828	0.694	N
1098	IS	270	E	6	St. Louis	23.828	25.513	1.685	N
1099	IS	270	E	6	St. Louis	25.513	26.361	0.848	N
1101	IS	270	E	6	St. Louis	26.883	27.853	0.970	N
1102	IS	270	E	6	St. Louis	27.853	28.368	0.515	N
1103	IS	270	E	6	St. Louis	28.368	29.867	1.499	N
1104	IS	270	E	6	St. Louis	29.867	30.571	0.704	N
1105	IS	270	E	6	St. Louis	30.571	30.913	0.342	N
1106	IS	270	E	6	St. Louis	30.913	32.086	1.173	N
1107	IS	270	E	6	St. Louis	32.086	33.066	0.980	N
1108	IS	270	E	6	St. Louis	33.066	34.057	0.991	N
1109	IS	270	E	6	St. Louis	34.057	35.017	0.960	N
1110	IS	270	E	6	St. Louis	35.017	35.043	0.026	N
1111	IS	270	E	6	St. Louis City	35.043	35.170	0.127	N
1112	IS	270	E	6	St. Louis City	35.170	35.752	0.582	N
1113	IS	270	W	6	St. Louis City	0.000	0.583	0.583	N
1114	IS	270	W	6	St. Louis City	0.583	0.714	0.131	N
1115	IS	270	W	6	St. Louis	0.714	0.737	0.023	N
1116	IS	270	W	6	St. Louis	0.737	1.704	0.967	N
1117	IS	270	W	6	St. Louis	1.704	2.693	0.989	N
1118	IS	270	W	6	St. Louis	2.693	3.673	0.980	N
1119	IS	270	W	6	St. Louis	3.673	4.848	1.175	N
1120	IS	270	W	6	St. Louis	4.848	5.196	0.348	N
1121	IS	270	W	6	St. Louis	5.196	5.909	0.713	N
1122	IS	270	W	6	St. Louis	5.909	7.400	1.491	N
1123	IS	270	W	6	St. Louis	7.400	7.912	0.512	N
1124	IS	270	W	6	St. Louis	7.912	8.680	0.768	N
1128	IS	270	W	6	St. Louis	9.480	10.406	0.926	N
1129	IS	270	W	6	St. Louis	10.406	12.101	1.695	N
1130	IS	270	W	6	St. Louis	12.101	12.800	0.699	N
1131	IS	270	W	6	St. Louis	12.800	14.869	2.069	N
1132	IS	270	W	6	St. Louis	14.869	15.633	0.764	N
1213	IS	470	E	4	Jackson	3.732	4.077	0.345	N
1214	IS	470	E	4	Jackson	4.077	7.383	3.306	N
1215	IS	470	E	4	Jackson	7.383	10.321	2.938	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
1216	IS	470	E	4	Jackson	10.321	12.647	2.326	N
1217	IS	470	E	4	Jackson	12.647	14.168	1.521	N
1222	IS	470	W	4	Jackson	2.463	4.443	1.980	N
1223	IS	470	W	4	Jackson	4.443	6.624	2.181	N
1224	IS	470	W	4	Jackson	6.624	9.264	2.640	N
1225	IS	470	W	4	Jackson	9.264	12.968	3.704	N
1226	IS	470	W	4	Jackson	12.968	13.317	0.349	N
1232	IS	635	S	4	Platte	0.000	1.473	1.473	N
1233	IS	635	S	4	Platte	1.473	2.016	0.543	N
1234	IS	635	S	4	Platte	2.016	3.716	1.700	N
11128	US	40	E	6	St. Louis	228.051	230.760	2.709	N
11129	US	40	E	6	St. Louis	230.760	232.396	1.636	N
11130	US	40	E	6	St. Louis	232.396	233.726	1.330	N
11131	US	40	W	6	St. Louis	15.247	16.638	1.391	N
11132	US	40	W	6	St. Louis	16.638	18.271	1.633	N
11133	US	40	W	6	St. Louis	18.271	20.978	2.707	N
11385	US	54	E	5	Cole	166.516	167.299	0.783	N
11463	US	54	W	5	Cole	104.937	105.722	0.785	N
12102	US	63	N	5	Boone	214.218	215.560	1.342	N
12103	US	63	N	5	Boone	215.560	216.514	0.954	N
12221	US	63	S	5	Boone	120.753	121.739	0.986	N
12222	US	63	S	5	Boone	121.739	123.094	1.355	N
12223	US	63	S	5	Boone	123.094	123.595	0.501	N
12672	US	71	N	7	Vernon	106.239	106.676	0.437	N
12673	US	71	N	7	Vernon	106.676	107.987	1.311	N
12765	US	71	S	7	Vernon	208.759	210.149	1.390	N
12766	US	71	S	7	Vernon	210.149	210.703	0.554	N
12767	US	71	S	7	Vernon	210.703	211.237	0.534	N
12768	US	71	S	7	Vernon	211.237	212.326	1.089	N
10911	MO	370	E	6	St. Charles	5.605	7.885	2.280	N
10912	MO	370	E	6	St. Charles	7.885	8.457	0.572	N
10913	MO	370	E	6	St. Louis	8.457	9.430	0.973	N
10914	MO	370	E	6	St. Louis	9.430	11.636	2.206	N
10915	MO	370	E	6	St. Louis	11.636	12.966	1.330	N
10916	MO	370	W	6	St. Louis	0.000	1.140	1.140	N
10917	MO	370	W	6	St. Louis	1.140	3.411	2.271	N
10918	MO	370	W	6	St. Louis	3.411	4.342	0.931	N
10919	MO	370	W	6	St. Charles	4.342	4.918	0.576	N
10920	MO	370	W	6	St. Charles	4.918	7.191	2.273	N
URBAN FREEWAYS—Wider markings and shoulder rumble strip with resurfacing									
80	IS	29	S	1	Buchanan	74.054	75.104	1.050	N
81	IS	29	S	1	Buchanan	75.104	76.147	1.043	N
82	IS	29	S	1	Buchanan	76.147	78.059	1.912	N
83	IS	29	S	1	Buchanan	78.059	79.803	1.744	N
84	IS	29	S	1	Buchanan	79.803	80.197	0.394	N
125	IS	35	N	4	Clay	8.182	8.859	0.677	N
126	IS	35	N	4	Clay	8.859	9.513	0.654	N
127	IS	35	N	4	Clay	9.513	11.029	1.516	N
128	IS	35	N	4	Clay	11.029	12.912	1.883	N
129	IS	35	N	4	Clay	12.912	14.112	1.200	N
199	IS	35	S	4	Clay	100.053	101.173	1.120	N
200	IS	35	S	4	Clay	101.173	103.076	1.903	N
201	IS	35	S	4	Clay	103.076	104.569	1.493	N
202	IS	35	S	4	Clay	104.569	105.222	0.653	N
203	IS	35	S	4	Clay	105.222	105.980	0.758	N
214	IS	44	E	7	Newton	4.478	6.602	2.124	Y
215	IS	44	E	7	Newton	6.602	8.816	2.214	Y
216	IS	44	E	7	Newton	8.816	9.006	0.190	Y

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
483	IS	44	W	7	Newton	281.466	283.693	2.227	Y
484	IS	44	W	7	Newton	283.693	284.330	0.637	Y
506	IS	55	N	10	New Madrid	65.408	65.922	0.514	N
507	IS	55	N	10	Scott	65.922	66.207	0.285	N
508	IS	55	N	10	Scott	66.207	67.513	1.306	N
509	IS	55	N	10	Scott	67.513	69.593	2.080	N
526	IS	55	N	10	Perry	129.514	129.898	0.384	N
527	IS	55	N	10	Perry	129.898	130.017	0.119	N
612	IS	55	S	10	Perry	79.961	80.074	0.113	N
613	IS	55	S	10	Perry	80.074	80.449	0.375	N
629	IS	55	S	10	Scott	140.363	142.435	2.072	N
630	IS	55	S	10	Scott	142.435	143.743	1.308	N
631	IS	55	S	10	Scott	143.743	144.019	0.276	N
632	IS	55	S	10	New Madrid	144.019	144.519	0.500	N
654	IS	57	N	10	Scott	0.247	0.573	0.326	N
669	IS	57	S	10	Mississippi	8.677	9.308	0.631	N
670	IS	57	S	10	Mississippi	9.308	10.003	0.695	N
672	IS	57	S	10	Mississippi	10.477	11.551	1.074	N
673	IS	57	S	10	Mississippi	11.551	11.757	0.206	N
678	IS	57	S	10	Scott	21.782	22.068	0.286	N
1004	IS	170	E	6	St. Louis	0.000	1.066	1.066	N
1005	IS	170	E	6	St. Louis	1.066	1.165	0.099	N
1006	IS	170	E	6	St. Louis	1.165	1.983	0.818	N
1007	IS	170	E	6	St. Louis	1.983	2.572	0.589	N
1008	IS	170	E	6	St. Louis	2.572	3.416	0.844	N
1009	IS	170	E	6	St. Louis	3.416	4.069	0.653	N
1010	IS	170	E	6	St. Louis	4.069	5.304	1.235	N
1011	IS	170	E	6	St. Louis	5.304	6.820	1.516	N
1027	IS	170	W	6	St. Louis	4.415	5.986	1.571	N
1028	IS	170	W	6	St. Louis	5.986	7.047	1.061	N
1029	IS	170	W	6	St. Louis	7.047	7.662	0.615	N
1030	IS	170	W	6	St. Louis	7.662	8.578	0.916	N
1031	IS	170	W	6	St. Louis	8.578	9.156	0.578	N
1032	IS	170	W	6	St. Louis	9.156	9.989	0.833	N
1033	IS	170	W	6	St. Louis	9.989	10.065	0.076	N
1034	IS	170	W	6	St. Louis	10.065	11.040	0.975	N
1072	IS	255	N	6	St. Louis	0.283	0.567	0.284	N
1073	IS	255	N	6	St. Louis	0.567	1.589	1.022	N
1074	IS	255	N	6	St. Louis	1.589	3.253	1.664	N
1075	IS	255	N	6	St. Louis	3.253	3.709	0.456	N
1078	IS	255	S	6	St. Louis	0.286	0.733	0.447	N
1079	IS	255	S	6	St. Louis	0.733	2.399	1.666	N
1080	IS	255	S	6	St. Louis	2.399	3.437	1.038	N
1081	IS	255	S	6	St. Louis	3.437	3.666	0.229	N
11024	US	36	E	1	Buchanan	0.000	0.202	0.202	N
11025	US	36	E	1	Buchanan	0.202	0.311	0.109	N
11026	US	36	E	1	Buchanan	0.311	0.675	0.364	N
11027	US	36	E	1	Buchanan	0.675	1.440	0.765	N
11028	US	36	E	1	Buchanan	1.440	1.960	0.520	N
11029	US	36	E	1	Buchanan	1.960	3.159	1.199	N
11030	US	36	E	1	Buchanan	3.159	3.871	0.712	N
11031	US	36	E	1	Buchanan	3.871	5.063	1.192	N
11092	US	36	W	1	Buchanan	187.611	188.836	1.225	N
11093	US	36	W	1	Buchanan	188.836	189.447	0.611	N
11094	US	36	W	1	Buchanan	189.447	190.728	1.281	N
11095	US	36	W	1	Buchanan	190.728	191.258	0.530	N
11096	US	36	W	1	Buchanan	191.258	192.026	0.768	N
11097	US	36	W	1	Buchanan	192.026	192.402	0.376	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
11098	US	36	W	1	Buchanan	192.402	192.473	0.071	N
URBAN FREEWAYS—Wider markings without resurfacing									
217	IS	44	E	7	Newton	9.006	10.699	1.693	N
218	IS	44	E	7	Jasper	10.699	11.863	1.164	N
481	IS	44	W	7	Jasper	278.419	279.630	1.211	N
482	IS	44	W	7	Newton	279.630	281.466	1.836	N
URBAN MULTILANE DIVIDED HIGHWAYS—Wider markings with resurfacing									
10975	US	24	E	4	Jackson	6.420	6.562	0.142	N
10976	US	24	E	4	Jackson	6.562	6.724	0.162	N
10978	US	24	E	4	Jackson	7.607	7.736	0.129	N
10980	US	24	E	4	Jackson	8.335	8.591	0.256	N
11049	US	36	E	1	DeKalb	33.509	33.845	0.336	N
11050	US	36	E	1	DeKalb	33.845	34.607	0.762	N
11051	US	36	E	1	DeKalb	34.607	35.363	0.756	N
11072	US	36	W	1	DeKalb	157.358	158.111	0.753	N
11073	US	36	W	1	DeKalb	158.111	158.880	0.769	N
11074	US	36	W	1	DeKalb	158.880	159.227	0.347	N
11109	US	40	E	4	Jackson	9.398	12.612	3.214	N
11110	US	40	E	4	Jackson	12.612	13.103	0.491	N
11111	US	40	E	4	Jackson	13.103	14.644	1.541	N
11145	US	40	W	4	Jackson	234.395	234.431	0.036	N
11146	US	40	W	4	Jackson	234.431	234.519	0.088	N
11147	US	40	W	4	Jackson	234.519	236.050	1.531	N
11148	US	40	W	4	Jackson	236.050	236.539	0.489	N
11149	US	40	W	4	Jackson	236.539	239.662	3.123	N
11150	US	40	W	4	Jackson	239.662	239.853	0.191	N
11229	US	50	E	5	Cole	138.739	139.114	0.375	N
11230	US	50	E	5	Cole	139.114	140.324	1.210	N
11231	US	50	E	5	Cole	140.324	140.862	0.538	N
11232	US	50	E	5	Cole	140.862	140.957	0.095	N
11233	US	50	E	5	Cole	140.957	141.052	0.095	N
11234	US	50	E	5	Cole	141.052	141.921	0.869	N
11235	US	50	E	5	Cole	141.921	142.530	0.609	N
11240	US	50	E	5	Cole	146.265	147.237	0.972	N
11275	US	50	W	5	Cole	115.370	116.317	0.947	N
11280	US	50	W	5	Cole	119.872	120.676	0.804	N
11281	US	50	W	5	Cole	120.676	121.546	0.870	N
11282	US	50	W	5	Cole	121.546	121.641	0.095	N
11283	US	50	W	5	Cole	121.641	121.735	0.094	N
11284	US	50	W	5	Cole	121.735	122.279	0.544	N
11285	US	50	W	5	Cole	122.279	123.487	1.208	N
11286	US	50	W	5	Cole	123.487	123.606	0.119	N
11391	US	54	E	5	Cole	169.022	169.235	0.213	N
11392	US	54	E	5	Callaway	169.235	169.867	0.632	N
11393	US	54	E	5	Callaway	169.867	170.330	0.463	N
11394	US	54	E	5	Callaway	170.330	170.955	0.625	N
11395	US	54	E	5	Callaway	170.955	171.315	0.360	N
11396	US	54	E	5	Callaway	171.315	175.532	4.217	N
11456	US	54	W	5	Callaway	101.872	102.326	0.454	N
11457	US	54	W	5	Callaway	102.326	102.961	0.635	N
11458	US	54	W	5	Cole	102.961	103.173	0.212	N
11546	US	60	E	8	Greene	79.703	82.381	2.678	N
11547	US	60	E	8	Greene	82.381	82.594	0.213	N
11552	US	60	E	8	Greene	86.650	87.848	1.198	N
11553	US	60	E	8	Greene	87.848	88.465	0.617	N
11754	US	60	W	8	Greene	252.872	253.181	0.309	N
11770	US	61	N	10	Cape Girardeau	106.892	108.220	1.328	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
11771	US	61	N	10	Cape Girardeau	108.220	108.260	0.040	N
11772	US	61	N	10	Cape Girardeau	108.260	108.643	0.383	N
11776	US	61	N	6	St. Louis	226.081	226.483	0.402	N
11777	US	61	N	6	St. Louis	226.483	226.524	0.041	N
11778	US	61	N	6	St. Louis	226.524	228.304	1.780	N
11779	US	61	N	6	St. Louis	228.304	228.690	0.386	N
11831	US	61	N	3	Marion	331.486	331.827	0.341	N
11833	US	61	N	3	Marion	333.462	333.621	0.159	N
11871	US	61	S	3	Marion	59.645	59.853	0.208	N
11872	US	61	S	3	Marion	59.853	59.976	0.123	N
11877	US	61	S	3	Marion	61.484	62.029	0.545	N
11927	US	61	S	6	St. Louis	164.556	164.774	0.218	N
11928	US	61	S	6	St. Louis	164.774	165.348	0.574	N
11929	US	61	S	6	St. Louis	165.348	167.112	1.764	N
11930	US	61	S	6	St. Louis	167.112	167.172	0.060	N
11946	US	61	S	6	Jefferson	183.189	183.654	0.465	N
11957	US	61	S	6	Jefferson	198.591	199.160	0.569	N
12012	US	61	S	10	Cape Girardeau	284.686	285.068	0.382	N
12013	US	61	S	10	Cape Girardeau	285.068	285.146	0.078	N
12014	US	61	S	10	Cape Girardeau	285.146	286.324	1.178	N
12015	US	61	S	10	Cape Girardeau	286.324	286.431	0.107	N
12025	US	61	S	10	Cape Girardeau	290.513	290.870	0.357	N
12026	US	61	S	10	Cape Girardeau	290.870	292.193	1.323	N
12108	US	63	N	5	Boone	219.764	222.082	2.318	N
12169	US	63	S	2	Adair	30.082	30.297	0.215	N
12170	US	63	S	2	Adair	30.297	30.691	0.394	N
12217	US	63	S	5	Boone	115.194	117.474	2.280	N
12235	US	63	S	5	Callaway	146.940	147.575	0.635	N
12363	US	65	S	2	Livingston	57.396	57.679	0.283	N
12366	US	65	S	2	Livingston	59.018	59.725	0.707	N
12367	US	65	S	2	Livingston	59.725	59.850	0.125	N
12524	US	67	N	6	St. Louis	173.845	175.107	1.262	N
12525	US	67	N	6	St. Louis	175.107	176.780	1.673	N
12526	US	67	N	6	St. Louis	176.780	179.117	2.337	N
12529	US	67	N	6	St. Louis	179.360	179.763	0.403	N
12530	US	67	N	6	St. Louis	179.763	180.130	0.367	N
12535	US	67	N	6	St. Louis	182.350	182.969	0.619	N
12536	US	67	N	6	St. Louis	182.969	183.920	0.951	N
12541	US	67	N	6	St. Louis	194.019	194.102	0.083	N
12549	US	67	S	6	St. Louis	4.403	5.838	1.435	N
12557	US	67	S	6	St. Louis	14.140	15.167	1.027	N
12558	US	67	S	6	St. Louis	15.167	15.700	0.533	N
12562	US	67	S	6	St. Louis	17.750	17.908	0.158	N
12563	US	67	S	6	St. Louis	17.908	18.370	0.462	N
12564	US	67	S	6	St. Louis	18.370	18.868	0.498	N
12566	US	67	S	6	St. Louis	18.936	21.357	2.421	N
12567	US	67	S	6	St. Louis	21.357	23.031	1.674	N
12568	US	67	S	6	St. Louis	23.031	24.280	1.249	N
12569	US	67	S	6	St. Louis	24.280	25.706	1.426	N
12860	US	160	E	8	Greene	88.989	89.256	0.267	N
12888	US	160	W	8	Greene	221.707	223.013	1.306	N
12893	US	160	W	8	Greene	234.235	234.508	0.273	N
12894	US	160	W	8	Greene	234.508	234.555	0.047	N
12898	US	169	N	4	Clay	0.432	0.700	0.268	N
12899	US	169	N	4	Clay	0.700	3.854	3.154	N
12900	US	169	N	4	Clay	3.854	5.260	1.406	N
12907	US	169	N	4	Clay	10.529	12.881	2.352	N
12908	US	169	N	4	Clay	12.881	13.201	0.320	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
12971	US	169	S	4	Clay	110.040	110.500	0.460	N
12974	US	169	S	4	Clay	110.798	111.621	0.823	N
12975	US	169	S	4	Clay	111.621	113.006	1.385	N
12976	US	169	S	4	Clay	113.006	115.053	2.047	N
12977	US	169	S	4	Clay	115.053	115.700	0.647	N
12982	US	169	S	4	Clay	120.100	120.389	0.289	N
12983	US	169	S	4	Clay	120.389	120.511	0.122	N
12984	US	169	S	4	Clay	120.511	122.190	1.679	N
12985	US	169	S	4	Clay	122.190	124.800	2.610	N
12988	US	63C	N	5	Boone	0.000	0.355	0.355	N
12989	US	63C	N	5	Boone	0.956	1.252	0.296	N
12990	US	63C	S	5	Boone	0.000	0.468	0.468	N
12994	US	63C	S	5	Boone	1.069	1.206	0.137	N
10036	MO	7	N	4	Cass	146.836	147.205	0.369	N
10090	MO	9	N	4	Clay	4.082	4.819	0.737	N
10105	MO	9	S	4	Clay	9.408	10.277	0.869	N
10185	MO	13	S	8	Greene	232.861	232.943	0.082	N
10186	MO	13	S	8	Greene	232.943	233.954	1.011	N
10189	MO	13	S	8	Greene	234.780	235.470	0.690	N
10190	MO	13	S	8	Greene	235.470	236.025	0.555	N
10191	MO	13	S	8	Greene	236.025	236.897	0.872	N
10194	MO	13	S	8	Greene	237.103	238.425	1.322	N
10287	MO	30	E	6	Jefferson	27.550	31.363	3.813	N
10296	MO	30	E	6	St. Louis	41.134	41.725	0.591	N
10310	MO	30	W	6	Jefferson	21.278	21.360	0.082	N
10311	MO	30	W	6	Jefferson	21.360	25.020	3.660	N
10457	MO	78	E	4	Jackson	0.395	1.609	1.214	N
10515	MO	94	E	6	St. Charles	110.601	110.734	0.133	N
10516	MO	94	E	6	St. Charles	110.734	110.911	0.177	N
10517	MO	94	E	6	St. Charles	110.911	111.141	0.230	N
10571	MO	100	E	6	St. Louis	95.070	95.861	0.791	N
10572	MO	100	E	6	St. Louis	95.861	97.374	1.513	N
10573	MO	100	E	6	St. Louis	97.374	98.370	0.996	N
10585	MO	100	E	6	St. Louis	106.988	107.017	0.029	N
10586	MO	100	E	6	St. Louis	107.017	107.134	0.117	N
10612	MO	115	N	6	St. Louis	8.866	9.743	0.877	N
10613	MO	115	N	6	St. Louis	9.743	9.963	0.220	N
10614	MO	115	N	6	St. Louis	9.963	10.249	0.286	N
10615	MO	115	S	6	St. Louis	0.000	0.253	0.253	N
10616	MO	115	S	6	St. Louis	0.253	0.506	0.253	N
10617	MO	115	S	6	St. Louis	0.506	1.408	0.902	N
10639	MO	141	N	6	St. Louis	11.075	11.151	0.076	N
10640	MO	141	N	6	St. Louis	11.151	11.827	0.676	N
10641	MO	141	N	6	St. Louis	11.827	11.961	0.134	N
10642	MO	141	N	6	St. Louis	11.961	12.045	0.084	N
10648	MO	141	N	6	St. Louis	16.800	17.482	0.682	N
10649	MO	141	N	6	St. Louis	17.482	17.970	0.488	N
10656	MO	141	S	6	St. Louis	3.381	3.884	0.503	N
10657	MO	141	S	6	St. Louis	3.884	4.760	0.876	N
10663	MO	141	S	6	St. Louis	9.313	9.396	0.083	N
10664	MO	141	S	6	St. Louis	9.396	9.531	0.135	N
10665	MO	141	S	6	St. Louis	9.531	10.210	0.679	N
10666	MO	141	S	6	St. Louis	10.210	10.283	0.073	N
10688	MO	152	E	4	Clay	13.567	14.043	0.476	N
10689	MO	152	E	4	Clay	14.043	16.051	2.008	N
10694	MO	152	W	4	Clay	0.845	2.815	1.970	N
10695	MO	152	W	4	Clay	2.815	3.314	0.499	N
10706	MO	163	N	5	Boone	6.606	7.461	0.855	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
10707	MO	163	N	5	Boone	7.461	7.881	0.420	N
10708	MO	163	N	5	Boone	7.881	9.441	1.560	N
10716	MO	163	S	5	Boone	2.263	3.818	1.555	N
10717	MO	163	S	5	Boone	3.818	4.250	0.432	N
10718	MO	163	S	5	Boone	4.250	5.105	0.855	N
10731	MO	180	E	6	St. Louis	6.360	6.432	0.072	N
10732	MO	180	E	6	St. Louis	6.432	6.529	0.097	N
10733	MO	180	E	6	St. Louis	6.529	8.310	1.781	N
10746	MO	210	E	4	Clay	0.444	1.601	1.157	N
10747	MO	210	E	4	Clay	1.601	3.791	2.190	N
10766	MO	210	W	4	Clay	29.807	29.827	0.020	N
10767	MO	210	W	4	Clay	29.827	32.020	2.193	N
10768	MO	210	W	4	Clay	32.020	32.902	0.882	N
10779	MO	269	S	4	Clay	1.552	1.674	0.122	N
10790	MO	291	N	4	Jackson	27.725	27.872	0.147	N
10791	MO	291	N	4	Jackson	27.872	30.148	2.276	N
10792	MO	291	N	4	Jackson	30.148	31.094	0.946	N
10793	MO	291	N	4	Jackson	31.094	32.910	1.816	N
10794	MO	291	N	4	Jackson	32.910	33.009	0.099	N
10808	MO	291	S	4	Clay	7.858	8.079	0.221	N
10816	MO	291	S	4	Jackson	16.381	16.481	0.100	N
10817	MO	291	S	4	Jackson	16.481	18.278	1.797	N
10818	MO	291	S	4	Jackson	18.278	19.222	0.944	N
10819	MO	291	S	4	Jackson	19.222	21.494	2.272	N
10820	MO	291	S	4	Jackson	21.494	21.636	0.142	N
10838	MO	340	E	6	St. Louis	3.592	4.596	1.004	N
10839	MO	340	E	6	St. Louis	4.596	5.011	0.415	N
10850	MO	340	E	6	St. Louis	11.840	13.973	2.133	N
10858	MO	340	E	6	St. Louis	19.129	19.268	0.139	N
10892	MO	366	E	6	St. Louis	3.541	3.662	0.121	N
10943	MO	740	E	5	Boone	5.321	6.279	0.958	N
15026	BU	67	S	10	Butler	4.532	4.587	0.055	N
15027	BU	67	S	10	Butler	4.587	5.133	0.546	N
15039	BU	65	N	8	Greene	7.014	8.775	1.761	N
15071	BU	63	S	2	Randolph	2.453	2.672	0.219	N
15077	LP	29	N	1	Andrew	11.390	11.594	0.204	N
15098	LP	44	E	8	Greene	4.332	6.931	2.599	N
15118	RT	AC	E	5	Boone	2.037	2.197	0.160	N
15143	RT	H	N	8	Greene	0.000	0.225	0.225	N
15158	RT	Y	E	5	Pettis	28.712	29.123	0.411	N
URBAN MULTILANE DIVIDED HIGHWAYS—Wider markings and edgeline rumble stripe with resurfacing									
11153	US	50	E	4	Jackson	10.999	11.999	1.000	N
11154	US	50	E	4	Jackson	11.999	12.346	0.347	N
11170	US	50	E	4	Johnson	49.966	50.282	0.316	N
11171	US	50	E	4	Johnson	50.282	51.485	1.203	N
11172	US	50	E	4	Johnson	51.485	52.760	1.275	N
11173	US	50	E	4	Johnson	52.760	53.476	0.716	N
11227	US	50	E	5	Cole	137.468	137.508	0.040	N
11228	US	50	E	5	Cole	137.508	138.739	1.231	N
11236	US	50	E	5	Cole	142.530	143.075	0.545	N
11237	US	50	E	5	Cole	143.075	143.854	0.779	N
11238	US	50	E	5	Cole	143.854	145.222	1.368	N
11239	US	50	E	5	Cole	145.222	146.265	1.043	N
11276	US	50	W	5	Cole	116.317	117.442	1.125	N
11277	US	50	W	5	Cole	117.442	118.755	1.313	N
11278	US	50	W	5	Cole	118.755	119.522	0.767	N
11279	US	50	W	5	Cole	119.522	119.872	0.350	N
11287	US	50	W	5	Cole	123.606	125.094	1.488	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
11305	US	50	W	4	Johnson	209.260	209.844	0.584	N
11306	US	50	W	4	Johnson	209.844	211.141	1.297	N
11307	US	50	W	4	Johnson	211.141	212.316	1.175	N
11308	US	50	W	4	Johnson	212.316	212.772	0.456	N
11323	US	50	W	4	Jackson	249.641	250.108	0.467	N
11324	US	50	W	4	Jackson	250.108	250.468	0.360	N
11325	US	50	W	4	Jackson	250.468	251.482	1.014	N
11383	US	54	E	5	Cole	163.467	165.339	1.872	N
11384	US	54	E	5	Cole	165.339	166.516	1.177	N
11464	US	54	W	5	Cole	105.722	106.811	1.089	N
11465	US	54	W	5	Cole	106.811	108.781	1.970	N
11781	US	61	N	6	St. Charles	256.940	257.032	0.092	N
11782	US	61	N	6	St. Charles	257.032	258.140	1.108	N
11783	US	61	N	6	St. Charles	258.140	258.341	0.201	N
11828	US	61	N	3	Ralls	329.440	330.322	0.882	N
11829	US	61	N	3	Marion	330.322	330.738	0.416	N
11830	US	61	N	3	Marion	330.738	331.486	0.748	N
11834	US	61	N	3	Marion	333.621	333.769	0.148	N
11835	US	61	N	3	Marion	333.769	334.019	0.250	N
11870	US	61	S	3	Marion	59.271	59.645	0.374	N
11878	US	61	S	3	Marion	62.029	62.680	0.651	N
11923	US	61	S	6	St. Charles	135.110	135.317	0.207	N
11924	US	61	S	6	St. Charles	135.317	136.580	1.263	N
11925	US	61	S	6	St. Charles	136.580	136.599	0.019	N
12093	US	63	N	5	Callaway	189.478	190.361	0.883	N
12505	US	67	N	10	St. Francois	100.705	101.159	0.454	N
12506	US	67	N	10	St. Francois	101.159	102.574	1.415	N
12509	US	67	N	10	St. Francois	108.111	108.547	0.436	N
12521	US	67	N	6	Jefferson	136.075	136.383	0.308	N
12522	US	67	N	6	Jefferson	136.383	136.731	0.348	N
12571	US	67	S	6	Jefferson	61.612	61.700	0.088	N
12572	US	67	S	6	Jefferson	61.700	62.038	0.338	N
12585	US	67	S	10	St. Francois	89.585	90.027	0.442	N
10181	MO	13	S	8	Greene	231.830	231.989	0.159	N
10286	MO	30	E	6	Jefferson	27.395	27.550	0.155	N
10288	MO	30	E	6	Jefferson	31.363	36.709	5.346	N
10289	MO	30	E	6	Jefferson	36.709	36.936	0.227	N
10290	MO	30	E	6	St. Louis	36.936	37.155	0.219	N
10291	MO	30	E	6	St. Louis	37.155	38.062	0.907	N
10292	MO	30	E	6	St. Louis	38.062	40.686	2.624	N
10293	MO	30	E	6	St. Louis	40.686	40.736	0.050	N
10304	MO	30	W	6	St. Louis	11.891	11.963	0.072	N
10305	MO	30	W	6	St. Louis	11.963	14.593	2.630	N
10306	MO	30	W	6	St. Louis	14.593	15.505	0.912	N
10307	MO	30	W	6	St. Louis	15.505	15.739	0.234	N
10308	MO	30	W	6	Jefferson	15.739	15.958	0.219	N
10309	MO	30	W	6	Jefferson	15.958	21.278	5.320	N
10312	MO	30	W	6	Jefferson	25.020	25.256	0.236	N
10472	MO	79	N	6	St. Charles	0.547	1.070	0.523	N
10489	MO	79	S	6	St. Charles	86.452	86.992	0.540	N
10490	MO	79	S	6	St. Charles	86.992	87.495	0.503	N
10508	MO	94	E	6	St. Charles	103.421	104.673	1.252	N
10509	MO	94	E	6	St. Charles	104.673	105.023	0.350	N
10510	MO	94	E	6	St. Charles	105.023	105.671	0.648	N
10539	MO	94	W	6	St. Charles	30.850	31.582	0.732	N
10540	MO	94	W	6	St. Charles	31.582	31.930	0.348	N
10541	MO	94	W	6	St. Charles	31.930	33.100	1.170	N
10630	MO	141	N	6	Jefferson	0.604	1.771	1.167	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
10631	MO	141	N	6	Jefferson	1.771	3.592	1.821	N
10632	MO	141	N	6	Jefferson	3.592	6.593	3.001	N
10633	MO	141	N	6	Jefferson	6.593	6.688	0.095	N
10634	MO	141	N	6	St. Louis	6.688	7.165	0.477	N
10671	MO	141	S	6	St. Louis	14.191	14.664	0.473	N
10672	MO	141	S	6	Jefferson	14.664	14.748	0.084	N
10673	MO	141	S	6	Jefferson	14.748	17.756	3.008	N
10674	MO	141	S	6	Jefferson	17.756	19.608	1.852	N
10675	MO	141	S	6	Jefferson	19.608	20.774	1.166	N
10874	MO	350	E	4	Jackson	7.007	7.846	0.839	N
10875	MO	350	E	4	Jackson	7.846	8.532	0.686	N
10877	MO	350	W	4	Jackson	0.085	0.732	0.647	N
10878	MO	350	W	4	Jackson	0.732	1.560	0.828	N
URBAN MULTILANE DIVIDED HIGHWAYS—Wider markings and shoulder rumble strip with resurfacing									
11032	US	36	E	1	Buchanan	5.063	5.627	0.564	N
11091	US	36	W	1	Buchanan	187.132	187.611	0.479	N
10214	MO	21	N	6	Jefferson	178.179	180.780	2.601	N
10215	MO	21	N	6	Jefferson	180.780	184.907	4.127	N
10228	MO	21	S	6	Jefferson	9.683	13.763	4.080	N
10229	MO	21	S	6	Jefferson	13.763	16.443	2.680	N
URBAN MULTILANE DIVIDED HIGHWAYS—Wider markings without resurfacing									
12639	US	71	N	7	Jasper	42.449	42.454	0.005	N
12640	US	71	N	7	Jasper	42.454	43.161	0.707	N
12804	US	71	S	7	Jasper	274.242	274.395	0.153	N
URBAN MULTILANE UNDIVIDED HIGHWAYS—Wider markings with resurfacing									
10974	US	24	E	4	Jackson	5.653	6.420	0.767	N
10977	US	24	E	4	Jackson	6.724	7.607	0.883	N
10979	US	24	E	4	Jackson	7.736	8.335	0.599	N
10981	US	24	E	4	Jackson	8.591	10.743	2.152	N
10982	US	24	E	4	Jackson	10.743	12.660	1.917	N
11874	US	61	S	3	Marion	60.015	60.688	0.673	N
11875	US	61	S	3	Marion	60.688	61.332	0.644	N
11876	US	61	S	3	Marion	61.332	61.484	0.152	N
11931	US	61	S	6	St. Louis	167.172	167.261	0.089	N
11932	US	61	S	6	St. Louis	167.261	167.592	0.331	N
11933	US	61	S	6	St. Louis	167.592	167.877	0.285	N
11936	US	61	S	6	St. Louis	169.363	169.421	0.058	N
11937	US	61	S	6	St. Louis	169.421	169.968	0.547	N
11941	US	61	S	6	St. Louis	177.990	179.802	1.812	N
11942	US	61	S	6	St. Louis	179.802	180.399	0.597	N
11943	US	61	S	6	Jefferson	180.399	181.582	1.183	N
11944	US	61	S	6	Jefferson	181.582	182.250	0.668	N
11945	US	61	S	6	Jefferson	182.250	183.189	0.939	N
11947	US	61	S	6	Jefferson	183.654	184.705	1.051	N
11948	US	61	S	6	Jefferson	184.705	187.512	2.807	N
11949	US	61	S	6	Jefferson	187.512	188.894	1.382	N
11956	US	61	S	6	Jefferson	196.983	198.591	1.608	N
11958	US	61	S	6	Jefferson	199.160	199.625	0.465	N
12009	US	61	S	10	Cape Girardeau	281.022	283.339	2.317	N
12010	US	61	S	10	Cape Girardeau	283.339	284.560	1.221	N
12011	US	61	S	10	Cape Girardeau	284.560	284.686	0.126	N
12016	US	61	S	10	Cape Girardeau	286.431	287.164	0.733	N
12017	US	61	S	10	Cape Girardeau	287.164	288.039	0.875	N
12018	US	61	S	10	Cape Girardeau	288.039	288.363	0.324	N
12019	US	61	S	10	Cape Girardeau	288.363	288.700	0.337	N
12020	US	61	S	10	Cape Girardeau	288.700	288.912	0.212	N
12021	US	61	S	10	Cape Girardeau	288.912	289.350	0.438	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
12022	US	61	S	10	Cape Girardeau	289.350	289.595	0.245	N
12023	US	61	S	10	Cape Girardeau	289.595	289.943	0.348	N
12024	US	61	S	10	Cape Girardeau	289.943	290.513	0.570	N
12062	US	62	E	10	Scott	59.474	59.803	0.329	N
12063	US	62	E	10	Scott	59.803	60.764	0.961	N
12064	US	62	E	10	Scott	60.764	61.253	0.489	N
12065	US	62	E	10	Scott	61.253	61.943	0.690	N
12158	US	63	S	2	Adair	26.718	26.985	0.267	N
12159	US	63	S	2	Adair	26.985	27.258	0.273	N
12187	US	63	S	2	Macon	61.084	61.173	0.089	N
12267	US	63	S	9	Howell	308.823	309.477	0.654	N
12362	US	65	S	2	Livingston	56.692	57.396	0.704	N
12364	US	65	S	2	Livingston	57.679	58.332	0.653	N
12365	US	65	S	2	Livingston	58.332	59.018	0.686	N
12411	US	65	S	5	Pettis	149.557	149.769	0.212	N
12412	US	65	S	5	Pettis	149.769	150.225	0.456	N
12413	US	65	S	5	Pettis	150.225	151.231	1.006	N
12414	US	65	S	5	Pettis	151.231	151.388	0.157	N
12551	US	67	S	6	St. Louis	5.928	9.861	3.933	N
12944	US	169	S	1	Buchanan	73.753	73.797	0.044	N
12945	US	169	S	1	Buchanan	73.797	74.370	0.573	N
12946	US	169	S	1	Buchanan	74.370	74.802	0.432	N
12947	US	169	S	1	Buchanan	74.802	75.268	0.466	N
12992	US	63C	S	5	Boone	0.765	0.886	0.121	N
12993	US	63C	S	5	Boone	0.886	1.069	0.183	N
10001	MO	6	E	1	Buchanan	0.000	0.501	0.501	N
10041	MO	7	S	4	Jackson	7.709	7.818	0.109	N
10042	MO	7	S	4	Jackson	7.818	9.268	1.450	N
10063	MO	7	S	4	Cass	39.957	40.326	0.369	N
10183	MO	13	S	8	Greene	232.112	232.279	0.167	N
10184	MO	13	S	8	Greene	232.279	232.861	0.582	N
10187	MO	13	S	8	Greene	233.954	234.459	0.505	N
10188	MO	13	S	8	Greene	234.459	234.780	0.321	N
10218	MO	21	S	6	St. Louis	0.000	2.408	2.408	N
10219	MO	21	S	6	St. Louis	2.408	3.071	0.663	N
10220	MO	21	S	6	St. Louis	3.071	3.605	0.534	N
10221	MO	21	S	6	St. Louis	3.605	3.865	0.260	N
10222	MO	21	S	6	St. Louis	3.865	5.378	1.513	N
10297	MO	30	E	6	St. Louis	41.725	44.832	3.107	N
10298	MO	30	E	6	St. Louis	44.832	45.379	0.547	N
10299	MO	30	E	6	St. Louis	45.379	46.957	1.578	N
10331	MO	43	S	7	Jasper	53.092	55.094	2.002	N
10332	MO	43	S	7	Newton	55.094	56.477	1.383	N
10369	MO	45	S	4	Platte	36.512	36.808	0.296	N
10370	MO	45	S	4	Platte	36.808	36.965	0.157	N
10412	MO	58	E	4	Cass	3.299	4.473	1.174	N
10413	MO	58	E	4	Cass	4.473	5.016	0.543	N
10439	MO	66	E	7	Jasper	3.837	3.959	0.122	N
10440	MO	66	E	7	Jasper	3.959	4.286	0.327	N
10441	MO	66	E	7	Jasper	4.286	4.949	0.663	N
10442	MO	66	E	7	Jasper	4.949	5.290	0.341	N
10443	MO	66	E	7	Jasper	5.290	5.924	0.634	N
10444	MO	66	E	7	Jasper	5.924	6.341	0.417	N
10445	MO	66	E	7	Jasper	6.341	6.946	0.605	N
10446	MO	66	E	7	Jasper	6.946	7.929	0.983	N
10447	MO	66	E	7	Jasper	7.929	8.930	1.001	N
10458	MO	78	E	4	Jackson	1.609	2.783	1.174	N
10459	MO	78	E	4	Jackson	2.783	3.517	0.734	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
10460	MO	78	E	4	Jackson	3.517	4.517	1.000	N
10461	MO	78	E	4	Jackson	4.517	6.441	1.924	N
10579	MO	100	E	6	St. Louis	102.851	103.284	0.433	N
10580	MO	100	E	6	St. Louis	103.284	104.888	1.604	N
10587	MO	100	E	6	St. Louis	107.134	108.596	1.462	N
10588	MO	100	E	6	St. Louis	108.596	109.050	0.454	N
10589	MO	100	E	6	St. Louis	109.050	109.119	0.069	N
10590	MO	100	E	6	St. Louis	109.119	109.175	0.056	N
10591	MO	100	E	6	St. Louis	109.175	111.552	2.377	N
10592	MO	100	E	6	St. Louis	111.552	113.829	2.277	N
10652	MO	141	S	6	St. Louis	0.000	1.352	1.352	N
10653	MO	141	S	6	St. Louis	1.352	1.681	0.329	N
10710	MO	163	S	5	Boone	0.024	0.335	0.311	N
10711	MO	163	S	5	Boone	0.335	0.836	0.501	N
10712	MO	163	S	5	Boone	0.836	1.235	0.399	N
10713	MO	163	S	5	Boone	1.235	1.878	0.643	N
10714	MO	163	S	5	Boone	1.878	2.195	0.317	N
10715	MO	163	S	5	Boone	2.195	2.263	0.068	N
10719	MO	163	S	5	Boone	5.105	5.489	0.384	N
10729	MO	180	E	6	St. Louis	2.505	5.044	2.539	N
10730	MO	180	E	6	St. Louis	5.044	6.360	1.316	N
10734	MO	180	E	6	St. Louis	8.310	8.787	0.477	N
10807	MO	291	S	4	Clay	6.332	7.858	1.526	N
10836	MO	340	E	6	St. Louis	0.000	0.843	0.843	N
10837	MO	340	E	6	St. Louis	0.843	3.592	2.749	N
10840	MO	340	E	6	St. Louis	5.011	5.643	0.632	N
10843	MO	340	E	6	St. Louis	8.287	8.613	0.326	N
10844	MO	340	E	6	St. Louis	8.613	10.374	1.761	N
10855	MO	340	E	6	St. Louis	16.355	16.595	0.240	N
10856	MO	340	E	6	St. Louis	16.595	18.925	2.330	N
10857	MO	340	E	6	St. Louis	18.925	19.129	0.204	N
10893	MO	366	E	6	St. Louis	3.662	5.116	1.454	N
10894	MO	366	E	6	St. Louis	5.116	6.750	1.634	N
10895	MO	366	E	6	St. Louis	6.750	6.874	0.124	N
10896	MO	366	E	6	St. Louis	6.874	6.884	0.010	N
10930	MO	413	S	8	Greene	0.152	0.801	0.649	N
10936	MO	740	E	5	Boone	0.099	0.529	0.430	N
10937	MO	740	E	5	Boone	0.529	1.026	0.497	N
10938	MO	740	E	5	Boone	1.026	2.654	1.628	N
10939	MO	740	E	5	Boone	2.654	2.966	0.312	N
10940	MO	740	E	5	Boone	2.966	3.990	1.024	N
10941	MO	740	E	5	Boone	3.990	4.669	0.679	N
10942	MO	740	E	5	Boone	4.669	5.321	0.652	N
10951	MO	744	E	8	Greene	6.660	7.030	0.370	N
10952	MO	744	E	8	Greene	7.030	8.522	1.492	N
10963	MO	763	S	5	Boone	3.440	3.866	0.426	N
10966	MO	763	S	5	Boone	4.134	4.352	0.218	N
10968	MO	763	S	5	Boone	4.543	5.076	0.533	N
10969	MO	763	S	5	Boone	5.076	5.412	0.336	N
10970	MO	763	S	5	Boone	5.412	6.272	0.860	N
15004	BU	60	E	10	Butler	0.476	0.692	0.216	N
15005	BU	60	E	10	Butler	0.692	1.097	0.405	N
15006	BU	60	E	10	Butler	1.097	2.452	1.355	N
15007	BU	60	E	10	Butler	2.452	2.814	0.362	N
15008	BU	60	E	10	Butler	2.814	3.190	0.376	N
15025	BU	67	S	10	Butler	3.546	4.532	0.986	N
15033	BU	50	E	5	Cole	0.493	1.247	0.754	N
15034	BU	50	E	5	Cole	1.247	1.646	0.399	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
15035	BU	50	E	5	Cole	1.646	2.945	1.299	N
15043	BU	65	S	8	Greene	2.293	2.966	0.673	N
15045	BU	65	S	8	Greene	3.088	3.390	0.302	N
15046	BU	65	S	8	Greene	3.390	3.742	0.352	N
15049	BU	65	S	8	Greene	4.407	4.858	0.451	N
15056	BU	71	S	7	Jasper	8.803	9.132	0.329	N
15057	BU	71	S	7	Jasper	9.132	10.021	0.889	N
15058	BU	71	S	7	Jasper	10.021	10.759	0.738	N
15059	BU	71	S	7	Jasper	10.759	11.753	0.994	N
15060	BU	71	S	7	Jasper	11.753	12.717	0.964	N
15061	BU	71	S	7	Jasper	12.717	13.152	0.435	N
15062	BU	71	S	7	Jasper	13.152	13.728	0.576	N
15063	BU	71	S	7	Jasper	13.728	14.736	1.008	N
15069	BU	63	S	2	Randolph	1.097	1.264	0.167	N
15070	BU	63	S	2	Randolph	1.264	2.453	1.189	N
15074	BU	63	S	2	Randolph	4.308	4.411	0.103	N
15084	LP	70	E	5	Boone	0.071	0.427	0.356	N
15085	LP	70	E	5	Boone	0.427	0.733	0.306	N
15086	LP	70	E	5	Boone	0.733	1.009	0.276	N
15087	LP	70	E	5	Boone	1.009	1.503	0.494	N
15088	LP	70	E	5	Boone	1.694	2.347	0.653	N
15089	LP	70	E	5	Boone	2.347	2.782	0.435	N
15095	LP	44	E	8	Greene	3.123	3.501	0.378	N
15096	LP	44	E	8	Greene	3.501	4.258	0.757	N
15097	LP	44	E	8	Greene	4.258	4.332	0.074	N
15101	LP	44	E	8	Greene	7.195	7.806	0.611	N
15102	LP	44	E	8	Greene	7.806	8.128	0.322	N
15103	LP	44	E	8	Greene	8.128	8.253	0.125	N
15105	LP	44	E	8	Greene	8.310	8.693	0.383	N
15108	LP	44	E	8	Greene	8.943	9.180	0.237	N
15110	LP	44	E	8	Greene	9.204	9.251	0.047	N
15125	RT	B	S	5	Boone	7.737	8.154	0.417	N
15126	RT	B	S	5	Boone	8.154	9.959	1.805	N
15129	RT	B	S	5	Boone	11.352	12.923	1.571	N
15136	RT	D	E	8	Greene	0.093	0.851	0.758	N
15137	RT	D	E	8	Greene	0.851	2.090	1.239	N
15155	RT	Y	E	5	Pettis	27.923	28.352	0.429	N
15156	RT	Y	E	5	Pettis	28.352	28.703	0.351	N
15157	RT	Y	E	5	Pettis	28.703	28.712	0.009	N
15177	RT	N	S	6	St. Louis	0.030	1.883	1.853	N
15178	RT	N	S	6	St. Louis	1.883	2.022	0.139	N
15180	RT	N	S	6	St. Louis	2.721	3.894	1.173	N
15181	RT	N	S	6	St. Louis	3.894	5.247	1.353	N
15182	RT	P	S	6	St. Louis	0.000	2.144	2.144	N
URBAN MULTILANE UNDIVIDED HIGHWAYS—Wider markings and edgeline rumble stripe with resurfacing									
10845	MO	340	E	6	St. Louis	10.374	10.785	0.411	N
10846	MO	340	E	6	St. Louis	10.785	11.280	0.495	N
URBAN MULTILANE UNDIVIDED HIGHWAYS—Wider markings and shoulder rumble strip with resurfacing									
15128	RT	B	S	5	Boone	10.881	11.352	0.471	N
URBAN TWO-LANE HIGHWAYS—Wider markings with resurfacing									
11188	US	50	E	5	Pettis	77.077	78.251	1.174	N
11189	US	50	E	5	Pettis	78.251	78.494	0.243	N
11190	US	50	E	5	Pettis	78.494	78.861	0.367	N
11191	US	50	E	5	Pettis	78.861	79.083	0.222	N
11192	US	50	E	5	Pettis	79.083	79.583	0.500	N
11193	US	50	E	5	Pettis	79.583	79.835	0.252	N
11194	US	50	E	5	Pettis	79.835	80.273	0.438	N

**Table B-1. List of SRI Project Evaluation Sites by Roadway Type and Project Type
(Continued)**

Site Number	Route type	Route Number	Direction of Travel*	District	County	Continuous Log		Length (mi)	Cable Barrier**
						Beginning	End		
11195	US	50	E	5	Pettis	80.273	80.397	0.124	N
11196	US	50	E	5	Pettis	80.397	80.585	0.188	N
11197	US	50	E	5	Pettis	80.585	81.429	0.844	N
11198	US	50	E	5	Pettis	81.429	82.433	1.004	N
11256	US	50	E	6	St. Louis	253.189	253.404	0.215	N
11257	US	50	E	6	St. Louis	253.404	255.514	2.110	N
11258	US	50	E	6	St. Louis	255.514	257.263	1.749	N
11259	US	50	E	6	St. Louis	257.263	257.735	0.472	N
11536	US	60	E	8	Greene	70.729	71.326	0.597	N
12007	US	61	S	10	Cape Girardeau	280.410	280.531	0.121	N
12008	US	61	S	10	Cape Girardeau	280.531	281.022	0.491	N
12045	US	61	S	10	Scott	322.294	322.315	0.021	N
12066	US	62	E	10	Scott	61.943	62.225	0.282	N
12160	US	63	S	2	Adair	27.258	27.570	0.312	N
12161	US	63	S	2	Adair	27.570	28.137	0.567	N
12162	US	63	S	2	Adair	28.137	28.301	0.164	N
12163	US	63	S	2	Adair	28.301	28.576	0.275	N
12164	US	63	S	2	Adair	28.576	28.802	0.226	N
12165	US	63	S	2	Adair	28.802	29.055	0.253	N
12166	US	63	S	2	Adair	29.055	29.303	0.248	N
12167	US	63	S	2	Adair	29.303	29.553	0.250	N
12168	US	63	S	2	Adair	29.553	30.082	0.529	N
12188	US	63	S	2	Macon	61.173	61.539	0.366	N
12189	US	63	S	2	Macon	61.539	63.258	1.719	N
12190	US	63	S	2	Macon	63.258	63.756	0.498	N
12266	US	63	S	9	Howell	308.368	308.823	0.455	N
12268	US	63	S	9	Howell	309.477	310.708	1.231	N
12269	US	63	S	9	Howell	310.708	311.636	0.928	N
12270	US	63	S	9	Howell	311.636	311.722	0.086	N
12861	US	160	E	8	Greene	89.256	89.327	0.071	N
12991	US	63C	S	5	Boone	0.468	0.765	0.297	N
10002	MO	6	E	1	Buchanan	0.501	0.604	0.103	N
10043	MO	7	S	4	Jackson	9.268	9.355	0.087	N
10044	MO	7	S	4	Jackson	9.355	10.769	1.414	N
10395	MO	47	S	6	Franklin	64.897	65.377	0.480	N
10396	MO	47	S	6	Franklin	65.377	66.230	0.853	N
10448	MO	66	E	7	Jasper	8.930	9.111	0.181	N
10777	MO	269	S	4	Clay	0.536	0.694	0.158	N
10778	MO	269	S	4	Clay	0.694	1.552	0.858	N
10962	MO	763	S	5	Boone	3.349	3.440	0.091	N
15028	BU	67	S	10	Butler	5.133	5.302	0.169	N
15064	BU	36	E	2	Macon	0.000	0.339	0.339	N
15068	BU	63	S	2	Randolph	0.000	1.097	1.097	N
15138	RT	D	E	8	Greene	2.090	2.254	0.164	N
15170	RT	N	E	6	St. Charles	14.201	15.841	1.640	N
15171	RT	N	E	6	St. Charles	15.841	19.335	3.494	N
15185	RT	AC	S	6	St. Louis	2.636	3.869	1.233	N
15189	RT	AC	S	6	St. Louis	5.609	5.884	0.275	N
15190	RT	AC	S	6	St. Louis	5.884	6.539	0.655	N
15191	RT	AC	S	6	St. Louis	6.539	7.809	1.270	N
15192	RT	AC	S	6	St. Louis	7.809	8.581	0.772	N
15193	RT	AC	S	6	St. Louis	8.581	8.873	0.292	N
URBAN TWO-LANE HIGHWAYS—Wider markings, centerline rumble strip, and edgeline rumble stripe with resurfacing									
11518	US	60	E	7	Lawrence	53.968	54.126	0.158	N
11519	US	60	E	7	Lawrence	54.126	54.592	0.466	N
10488	MO	79	S	6	St. Charles	83.906	86.452	2.546	N

* Direction of travel for continuous log beginning and end points is shown. Sites on divided highways include one direction of travel only. Sites on undivided highways include both directions of travel.

** Cable barrier codes:

Y = Cable barrier added in median during 2005 or 2006

N = No change in cable barrier during 2005 or 2006