

Highway Safety Improvement Program 2013 National Summary Report



FHWA Safety Program



U.S. Department of Transportation
Federal Highway Administration



<http://safety.fhwa.dot.gov>

Disclaimer/Quality Assurance

Notice

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in this document. This report does not constitute a standard, specification or regulation. The U.S. Government does not endorse products or manufacturers. Trademarks or manufacturers' names may appear in this report only because they are considered essential to the objective of the document.

Quality Assurance Statement

The Federal Highway Administration (FHWA) provides high –quality information to serve Government, industry, and the public in a manner that promotes public understanding. Standards and policies are used to ensure and maximize the quality, objectivity, utility, and integrity of its information. FHWA periodically reviews quality issues and adjusts its programs and processes to ensure continuous quality improvement.

Technical Documentation Page

1. Report No. FHWA-SA-14-030	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle HSIP 2013 National Summary Report		5. Report Date July 2014	
		6. Performing Organization Code	
7. Author(s) Sarah Smith and Daniel Carter		8. Performing Organization Report No.	
9. Performing Organization Name and Address University of North Carolina Highway Safety Research Center 730 ML King Jr Blvd, CB #3430 Chapel Hill, NC 27599		10. Work Unit No. (TRAVIS)	
		11. Contract or Grant No. DTFH61-11-C-00050	
12. Sponsoring Agency Name and Address Federal Highway Administration (FHWA) Office of Safety 1200 New Jersey Ave, SE Washington, DC 20590		13. Type of Report and Period Covered Summary Report 2013	
		14. Sponsoring Agency Code FHWA	
15. Supplementary Notes			
16. Abstract The HSIP 2013 National Summary Report compiles and summarizes aggregate information related to the States' progress in implementing HSIP projects. Progress in implementing HSIP projects is described based on the amount of HSIP funds available and the number and general listing of projects initiated during the 2013 reporting cycle. The HSIP 2013 National Summary Report is not intended to compare states; rather to illustrate how the states are collectively implementing the HSIP to reduce fatalities and serious injuries on all public roads across the nation.			
17. Key Words: Highway Safety Improvement Program, reporting guidance, improvement category, Strategic Highway Safety Plan, emphasis area, national summary		18. Distribution Statement No restrictions.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 29	22. Price N/A

Form DOT F 1700.7 (8-72)

Reproduction of form and completed page is authorized

Table of Contents

Background	1
HSIP Funding Approach.....	1
HSIP Projects Overview	3
Project Cost.....	4
Functional Class and Ownership	5
Improvement Categories and Subcategories.....	9
AASHTO SHSP Emphasis Areas.....	16
Summary	18
References	19
Appendix A: Full Description of HSIP Improvement Categories and Sub Categories for 2013 HSIP Reporting Guidance	20
Appendix B: Full Title of SHSP Emphasis Areas.....	26
Appendix C. Detailed Tables of Project Costs Summaries	27

List of Tables

Table 1: Total Number and Cost of Projects by Year	18
Table 2: Number and Cost of 2013 Projects by Improvement Category	27
Table 3: Number and Cost of Projects by Subcategory for Intersection Geometry	28
Table 4: Number and Cost of Projects by Subcategory for Intersection Traffic Control	28
Table 5: Number and Cost of Projects by Subcategory for Pedestrians and Bicyclists.....	28
Table 6: Number and Cost of Projects by Subcategory for Roadway	29
Table 7: Number and Cost of Projects by Subcategory for Non-Infrastructure	29

List of Figures

Figure 1: MAP-21 Program Apportionments	2
Figure 2: Number of Projects by Project Cost.....	4
Figure 3. Number of Projects by Functional Class	5
Figure 4. Average Total Cost of Projects by Functional Class	6
Figure 5. Number of Projects by Road Ownership.....	7
Figure 6. Average Total Cost of Projects by Road Ownership	8
Figure 7. Number of Projects by Improvement Category.....	9
Figure 8. Average Total Cost of Projects by Improvement Category.....	10
Figure 9: Number of Intersection Geometry Projects by Subcategory.....	11
Figure 10: Number of Traffic Control Projects by Subcategory	12
Figure 11: Number of Pedestrian and Bicyclist Projects by Subcategory	13
Figure 12: Number of Roadway Projects by Subcategory	14
Figure 13: Number of Non-Infrastructure Projects by Subcategory.....	15
Figure 14: Number of Projects by AASHTO SHSP Emphasis Area	17

Background

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with an objective of achieving a significant reduction in traffic fatalities and serious injuries on all public roads through the implementation of highway safety improvement projects. The HSIP, similar to other Federal-aid programs, is a federally-funded, state administered program. The FHWA establishes the HSIP requirements via 23 CFR 924, and the States develop and administer a program to best meet their needs.

The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. To obligate HSIP funds, each State shall:

- Develop, implement, and update a State strategic highway safety plan;
- Produce a program of projects or strategies to reduce identified safety problems; and
- Evaluate the SHSP on a regularly recurring basis.

States are also required to submit a report that describes the progress being made to implement highway safety improvement projects and the effectiveness of those improvements. The [HSIP MAP-21 Reporting Guidance](#) outlines the content and schedule for the annual HSIP report. The HSIP report should include, at a minimum, a discussion of each State's:

- Program Structure
- Progress in Implementing the HSIP projects
- Progress in Achieving Safety Performance Targets
- Assessment of the Effectiveness of the Improvements (Program Evaluation)

The HSIP 2013 National Summary Report compiles and summarizes aggregate information related to the States progress in implementing HSIP projects during the 2013 reporting cycle. Progress in implementing HSIP projects is described based on the amount of HSIP funds available and the number and general listing of projects obligated as documented in the [2013 HSIP reports](#). The HSIP 2013 National Summary Report is not intended to compare states; rather to illustrate how the states are collectively implementing the HSIP to reduce fatalities and serious injuries on all public roads across the nation.

A summary of available funding and the number and general listing of projects from prior years is available in the [HSIP National Summary Baseline Report: 2009 -2012](#). A summary of the 2013 data is provided below.

HSIP Funding Approach

Prior to MAP-21, each apportioned program had its own formula for distribution, and the total amount of Federal assistance a State received was the sum of the amounts it received for each program. MAP-21 instead provides a total apportionment for each State and then divides that apportionment amount among individual apportioned programs.

MAP-21 authorizes a total combined amount (\$37.5 billion in FY13 and \$37.8 billion in FY14) in contract authority to fund five formula programs (including certain set-asides within the programs described below):

- National Highway Performance Program (NHPP);
- Surface Transportation Program (STP);
- **Highway Safety Improvement Program (HSIP);**
- Congestion Mitigation and Air Quality Improvement Program (CMAQ); and
- Metropolitan Planning Program.

Figure 1 illustrates the distribution of funds across program under MAP-21.

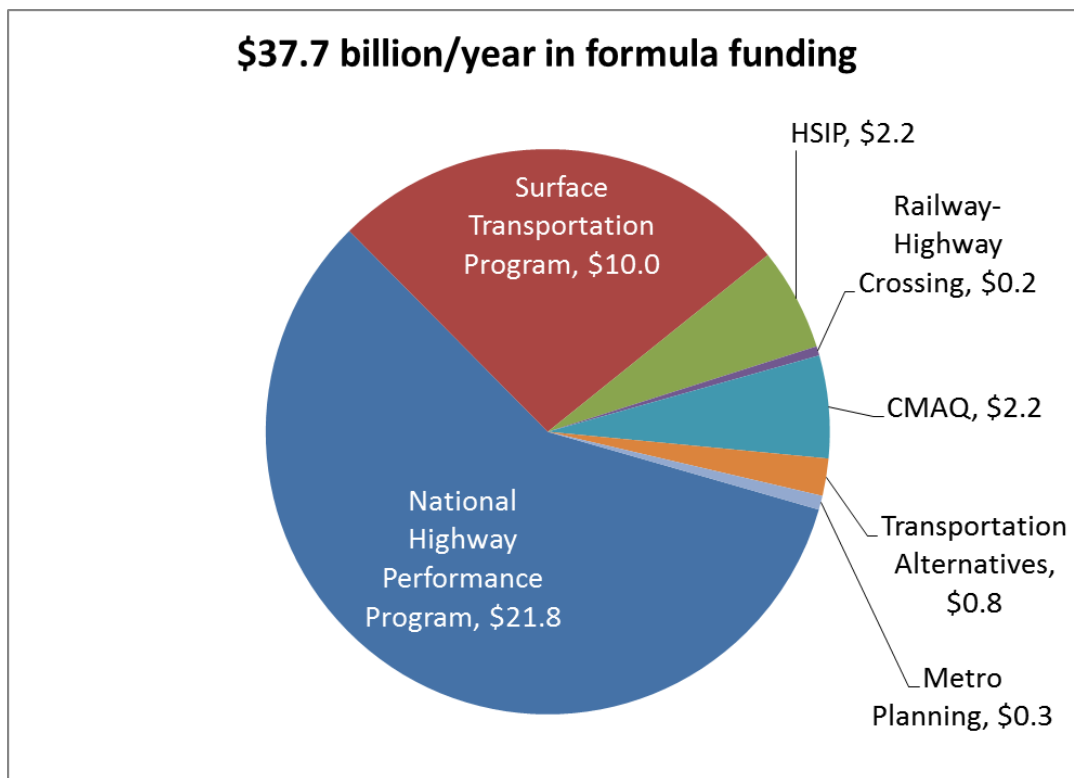


Figure 1: MAP-21 Program Apportionments

HSIP receives 7% of the States apportionment remaining after allocations to CMAQ and Metropolitan Planning, which amounts to approximately \$2.4 billion each year, nearly double the amount apportioned to HSIP under SAFETEA-LU. The following sums are set-aside from the State's HSIP apportionment:

- Railway-highway crossings -- \$220 million;
- A proportionate share of funds for the State's Transportation Alternatives (TA) program; and
- 2% for State Planning and Research (SPR).

In addition, if the High Risk Rural Roads Special rule applies to a State, then in the next fiscal year the State must obligate an amount at least equal to 200% of its FY 2009 HRRR set-aside for high risk rural roads.

The final HSIP apportionment represents the amount of funding available to States for the advancement of highway safety improvement projects.

HSIP Projects Overview

States provide project specific information for all projects obligated with HSIP funds during the state-defined reporting period in their annual HSIP reports. The reporting period is defined by the State and can be calendar year, state fiscal year or federal fiscal year. For 2013, the States obligated \$3.09B for 3,292 total projects. These obligations utilized funds apportioned during the 2013 fiscal year as well as HSIP funds available from previous years' apportionments.

As per the 2013 HSIP MAP-21 Reporting Guidance, project specific information includes:

- Improvement Category and Sub Category (see Appendix A for complete descriptions)
- Project output (e.g., miles of rumble strips)
- Project cost (both HSIP cost and total cost)
- Funding category
- Functional classification
- AADT
- Posted speed limit
- Roadway ownership
- Relationship to the State's strategic highway safety plan (SHSP) (i.e. emphasis area, strategy) (see Appendix B for complete descriptions of the AASHTO SHSP emphasis areas)

The following sections present various summaries of the nationwide HSIP project obligations for the 2013 reporting cycle. It should be noted that limited analysis of the project information can be done because not all states have included all of the above information for each project in their annual HSIP reports. Full use of the HSIP online reporting tool and compliance with the most recent HSIP reporting guidance will enable more complete and accurate reporting of national HSIP project data. In addition, HSIP projects come in all shapes and sizes. For example, some HSIP projects may be much bigger in scope than others, countermeasure installations across multiple sites, or non-infrastructure projects (i.e. transportation safety planning, data improvements). Nonetheless, the summaries in the following sections provide a broad scale analysis of HSIP spending in 2013.

Project Cost

The cost per HSIP project in 2013 ranged widely. Some projects were small in scope and cost, such as replacing signs on a particular route. Others were higher cost projects, such as widening a highway or reconfiguring an intersection. Figure 2 shows the breakdown by project cost, grouped into general categories with breakpoints at \$100,000, \$500,000, and \$1,000,000.

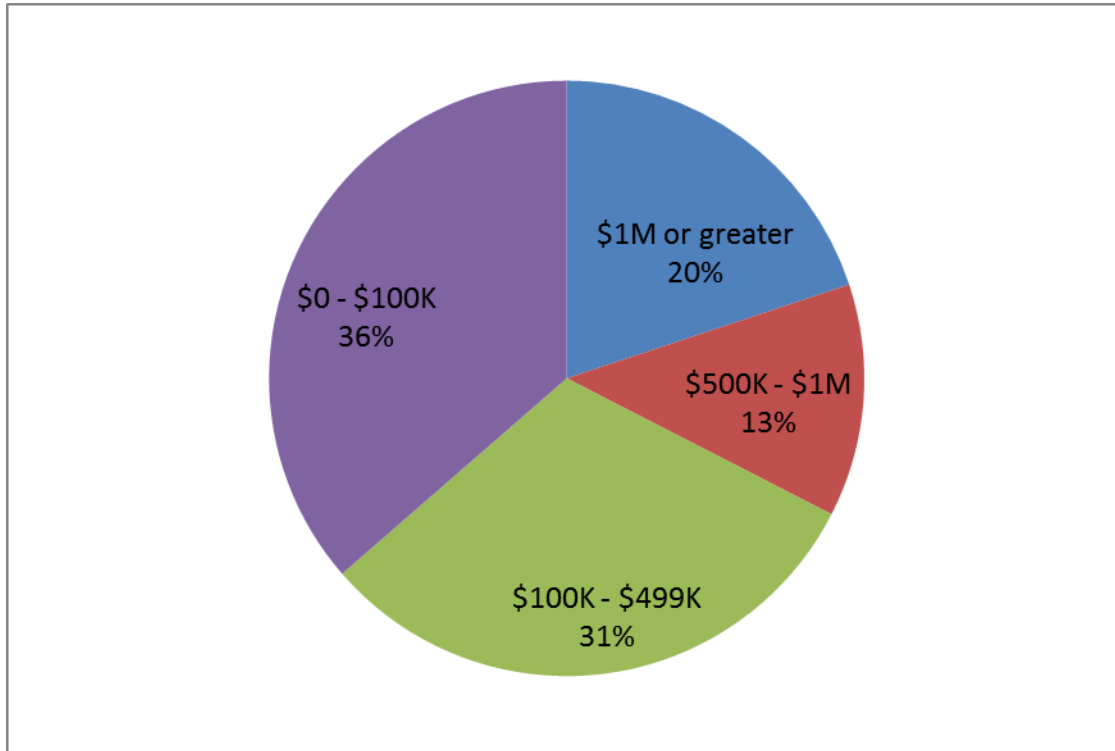


Figure 2: Number of Projects by Project Cost

Roughly two-thirds of the projects had costs less than \$500K. A small percentage (13 percent) fell into the \$500-\$1M category. The remaining 20 percent were high cost projects totaling \$1M or more.

Functional Class and Ownership

Figure 3 through Figure 6 illustrate the distribution of projects by the types of roads on which they were conducted. Figure 3 shows number of projects by functional class, following the HPMS classification scheme; Figure 4 shows average total cost of projects by functional class; Figure 5 shows projects by the agency who owns the road; and Figure 6 shows average total cost of projects by the agency who owns the road. If the functional class or road ownership was not indicated, the project is counted under the “unknown” category.

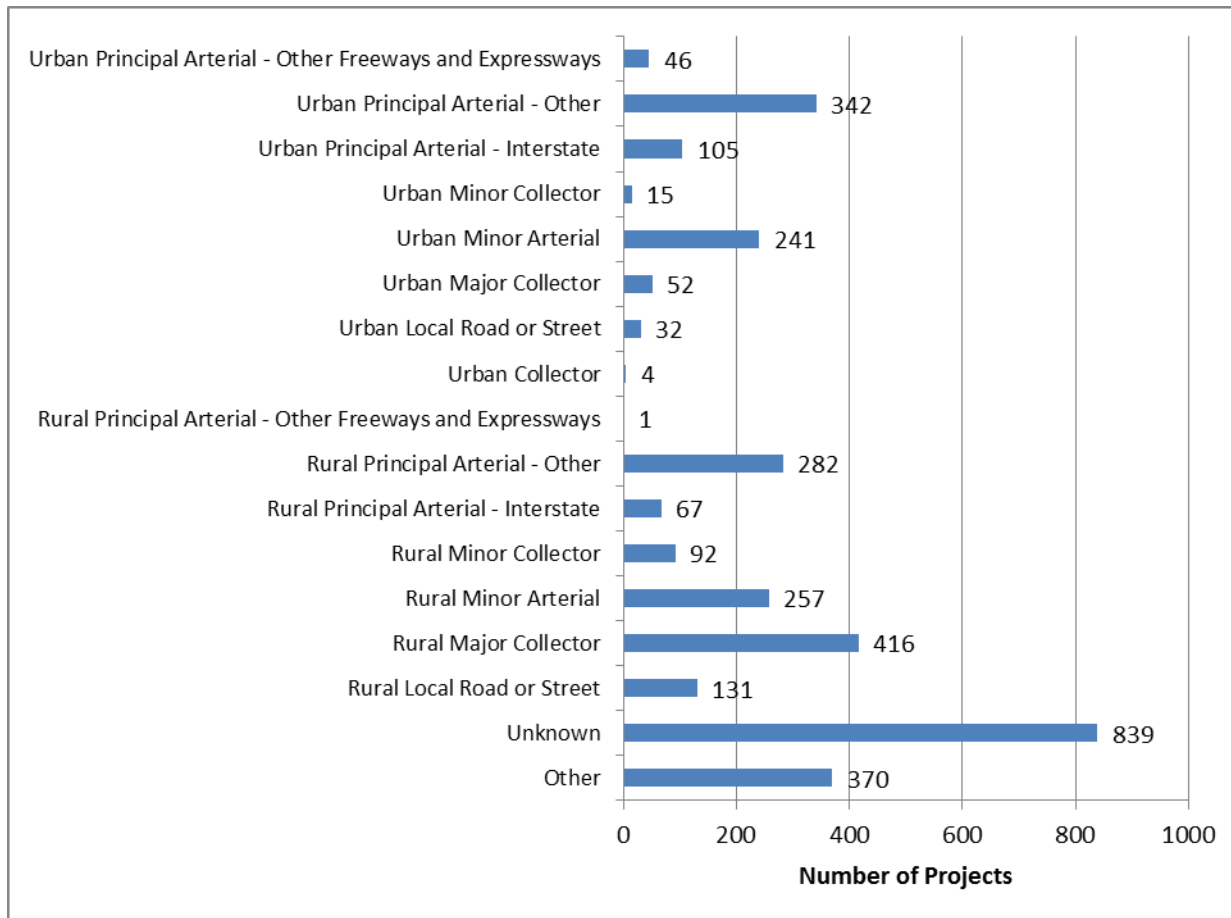


Figure 3. Number of Projects by Functional Class

Most projects were categorized as “Unknown” indicating that the State did not associate a functional class for a particular project. Projects that were associated with a functional class were most often categorized as “Rural Major Collector” or “Urban Principal Arterial – Other”. There were 370 projects categorized as “Other” and of those, roughly 220 were categorized as multiple classes or systemic. Roughly another 25 were categorized as “n/a” due to the fact that they were non-infrastructure projects.

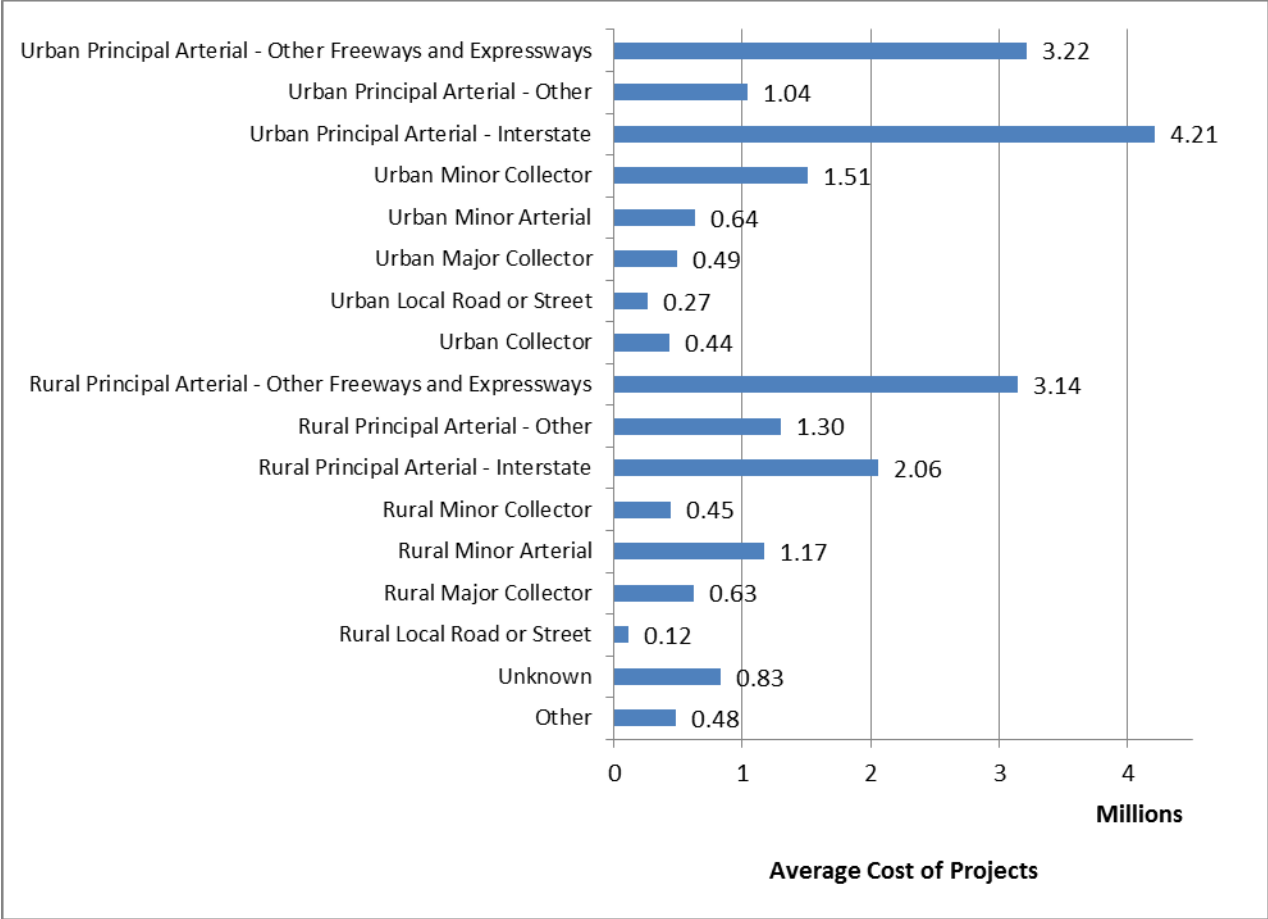


Figure 4. Average Total Cost of Projects by Functional Class

Figure 4 shows the average total cost of projects by functional class. It is important to note that not every project had an associated cost so the average is based on the number of projects which had cost information available. Projects categorized as “Urban Principal Arterial – Interstate” had the highest average total cost per project of \$4.21 million and projects categorized as “Rural Local Road or Street” had the lowest average total cost per project of \$0.21 million.

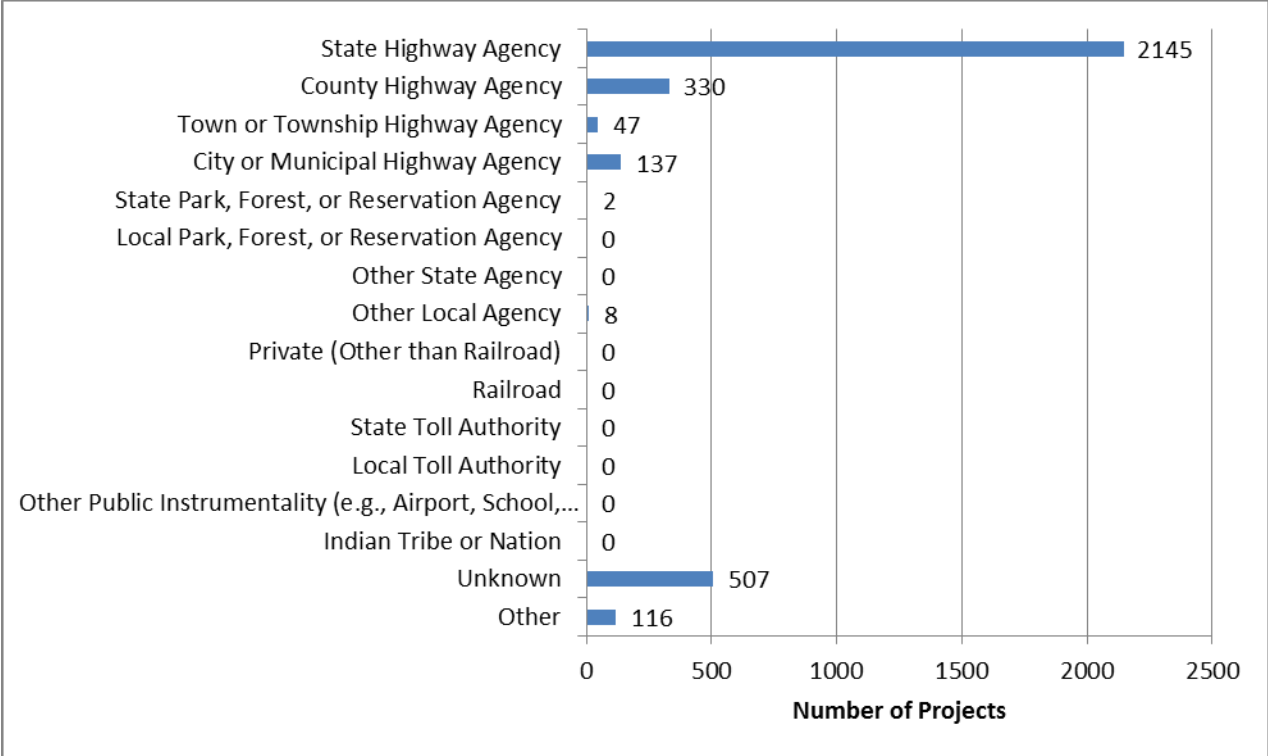


Figure 5. Number of Projects by Road Ownership

Most projects were conducted on roads owned by a “State Highway Agency” or “Unknown” (indicating that the State did not indicate road ownership for a particular project). There were 116 projects categorized as “Other” and of those, roughly 80 were categorized in state-specific ownership categories.

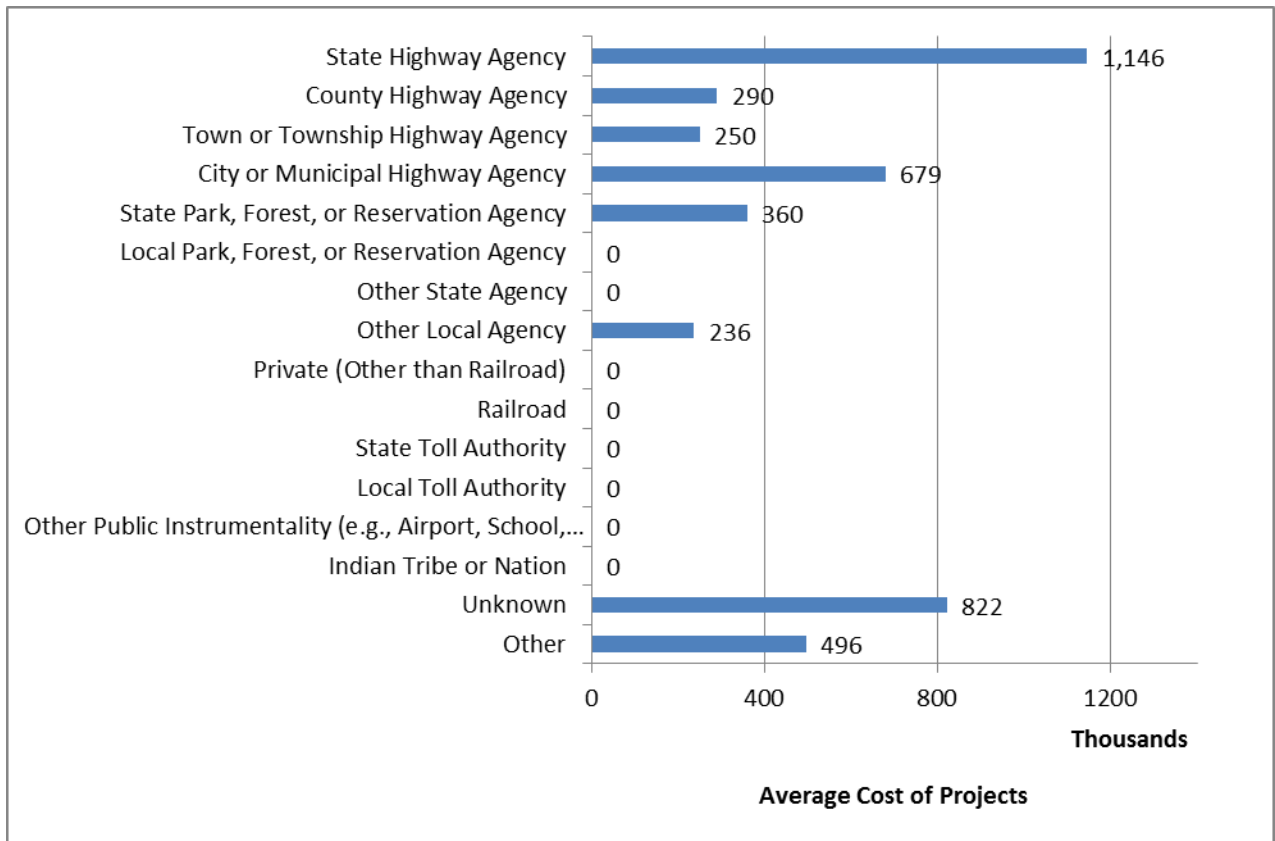


Figure 6. Average Total Cost of Projects by Road Ownership

Figure 6 shows the average total cost of projects by road ownership. It is important to note that not every project had an associated cost so the average is based on the number of projects which had cost information available. Projects categorized as “State Highway Agency” had the highest average total cost per project of \$1.15 million and projects categorized as “Other Local Agency” had the lowest average total cost per project of \$0.24 million.

Improvement Categories and Subcategories

Under the 2013 HSIP reporting guidance, each project should be assigned a general improvement category and a subcategory under that general category. While a single project may consist of multiple project types, States are directed to assign each project to only one category. The category chosen should align with the primary purpose of the project. Figure 7 and Figure 8 show the distribution of the number and total cost of projects by general improvement category. Projects categorized as “Unknown” indicate that there was no general improvement category assigned by the State. Figure 9 through Figure 13 show the breakdown of the number of projects by subcategory for five improvement categories of note: Intersection geometry, Intersection traffic control, Pedestrians and bicyclists, Roadway, and Non-infrastructure. More detailed tables with the cost spent in each subcategory are available in Appendix C. For ease of reporting, similar sub categories were grouped together. For example, in Figure 9 below, “Auxiliary lanes – other” combines adding acceleration lanes, adding auxiliary through lanes, adding two way left turn lanes, and several other related subcategories.

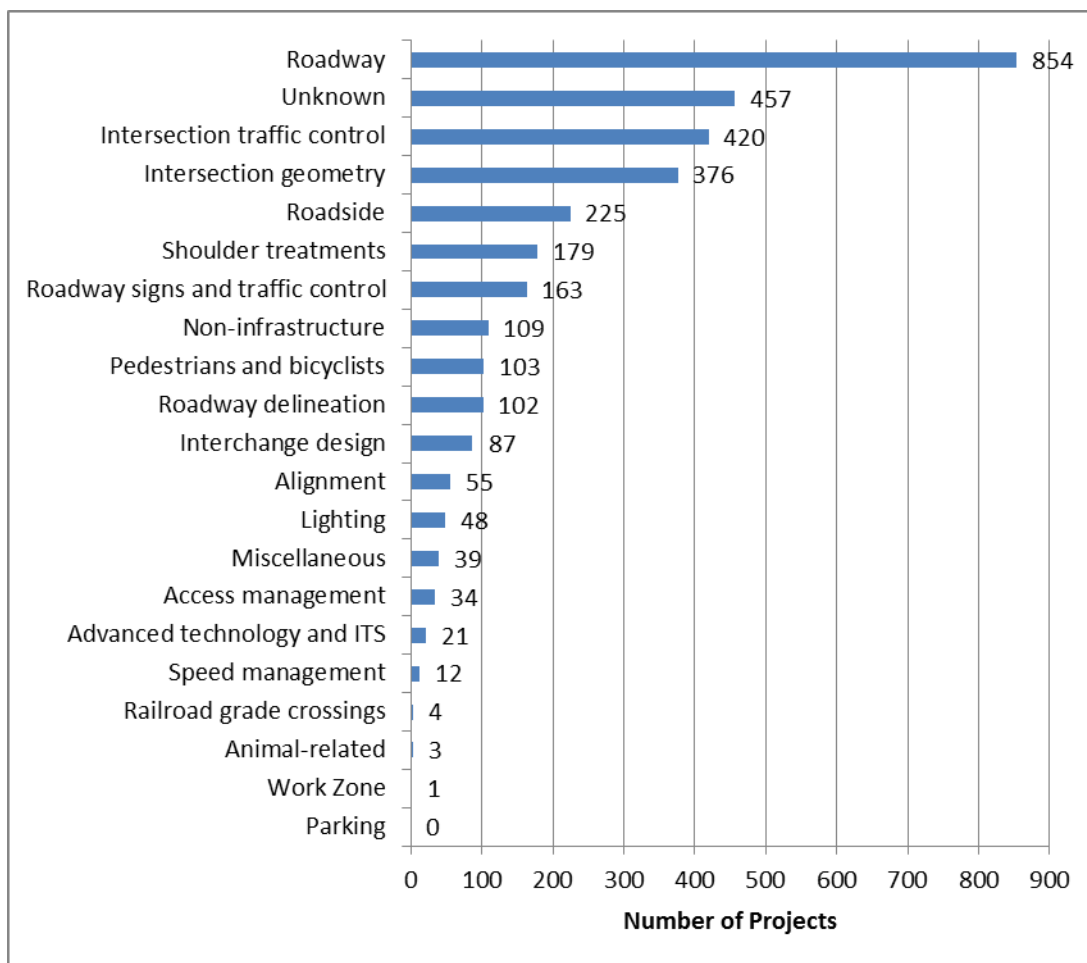


Figure 7. Number of Projects by Improvement Category

Figure 7 shows the number of projects by improvement category as classified in the 2013 HSIP Reporting Guidance. Based on the project information reported by the States, the top five improvement categories are:

- Roadway; 854 projects

- Intersection traffic control; 420 projects
- Intersection geometry; 376 projects
- Roadside; 225 projects
- Shoulder treatments; 179 projects

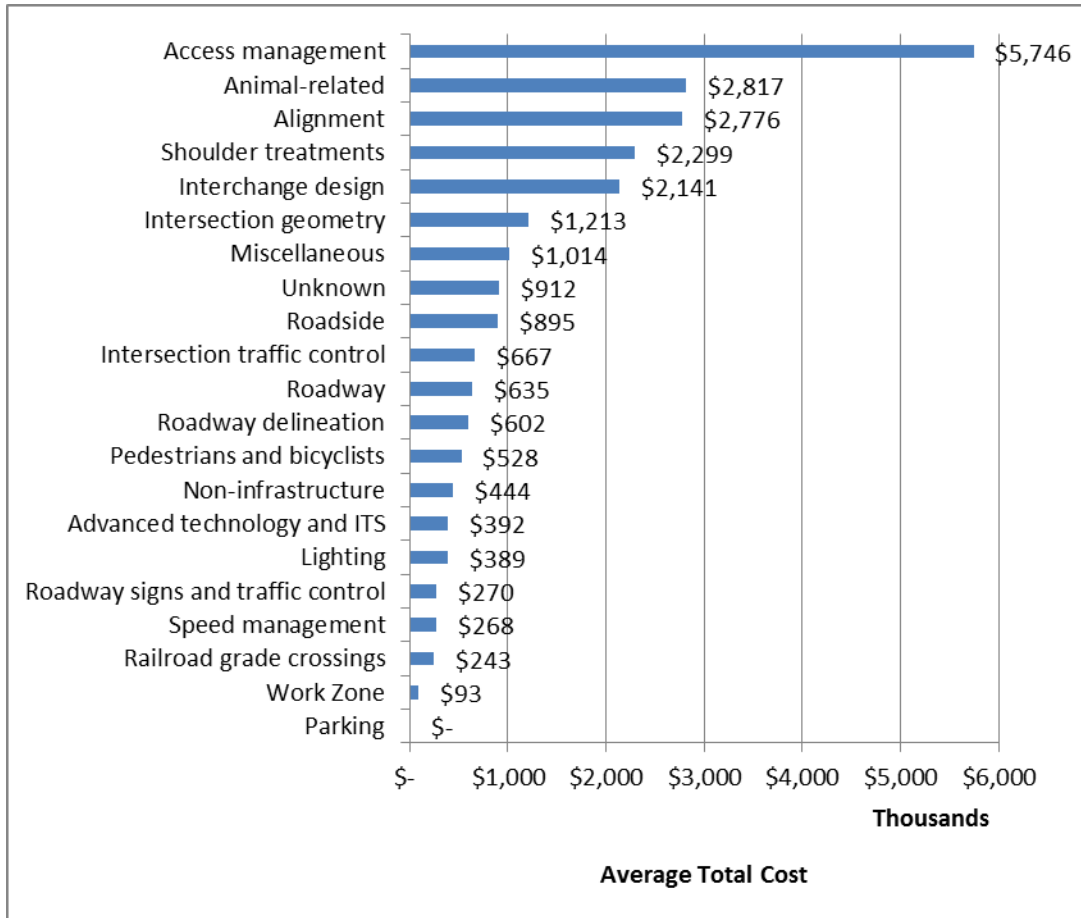


Figure 8. Average Total Cost of Projects by Improvement Category

Figure 8 shows the average total cost of projects by improvement category. Again, it is important to note that not every project had an associated cost so the average is based on the number of projects with cost available. Based on project information reported by the States, the lowest average HSIP cost projects are in the following categories:

- Parking; no projects listed
- Work zone; 1 project with HSIP cost information
- Railroad grade crossings; 4 projects with HSIP cost information
- Speed management; 12 projects with HSIP cost information
- Roadway signs and traffic control; 163 projects with HSIP cost information

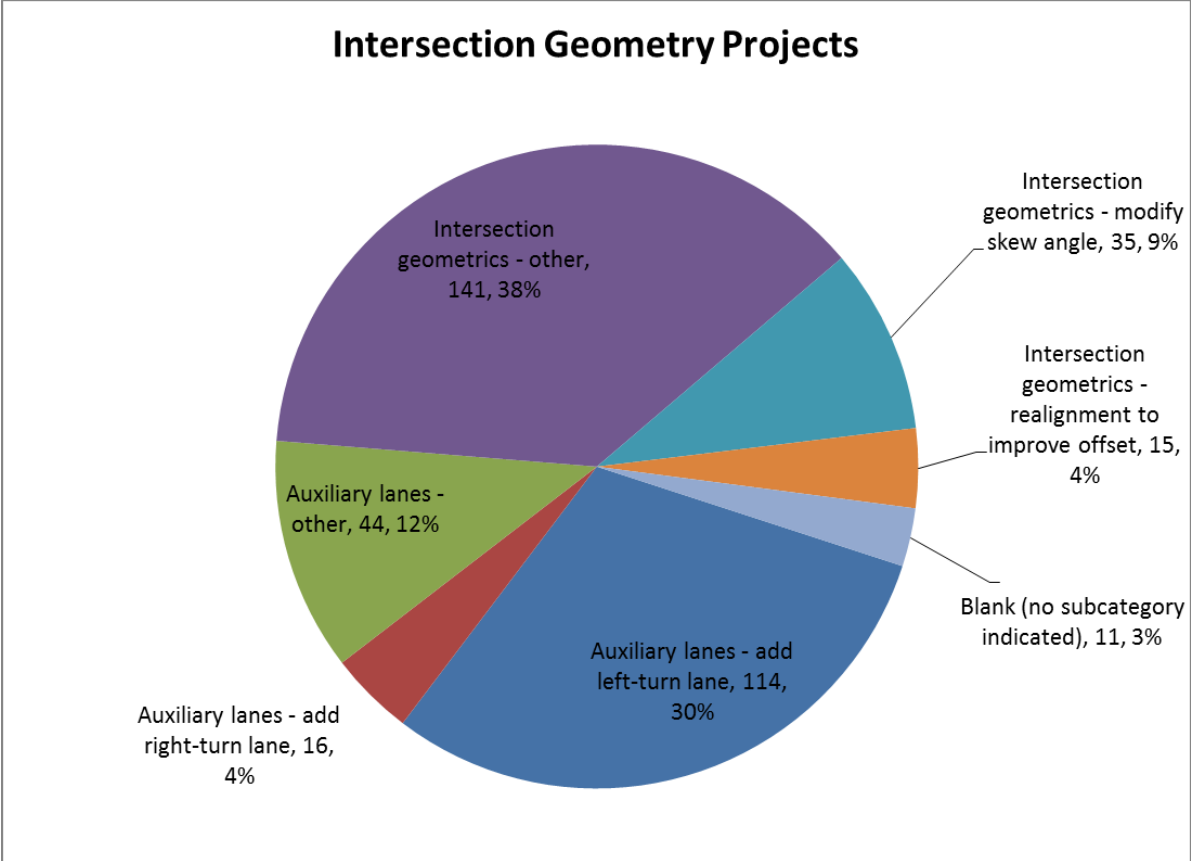


Figure 9: Number of Intersection Geometry Projects by Subcategory

For the Intersection geometry category, most projects were sub categorized as “Auxiliary lanes – add left-turn lane” (114 of 365 projects) and “Intersection geometrics - other” (141 of 365 projects). Examples of projects in the “Intersection geometrics – other” subcategory include roundabout installation and general intersection safety improvement projects.

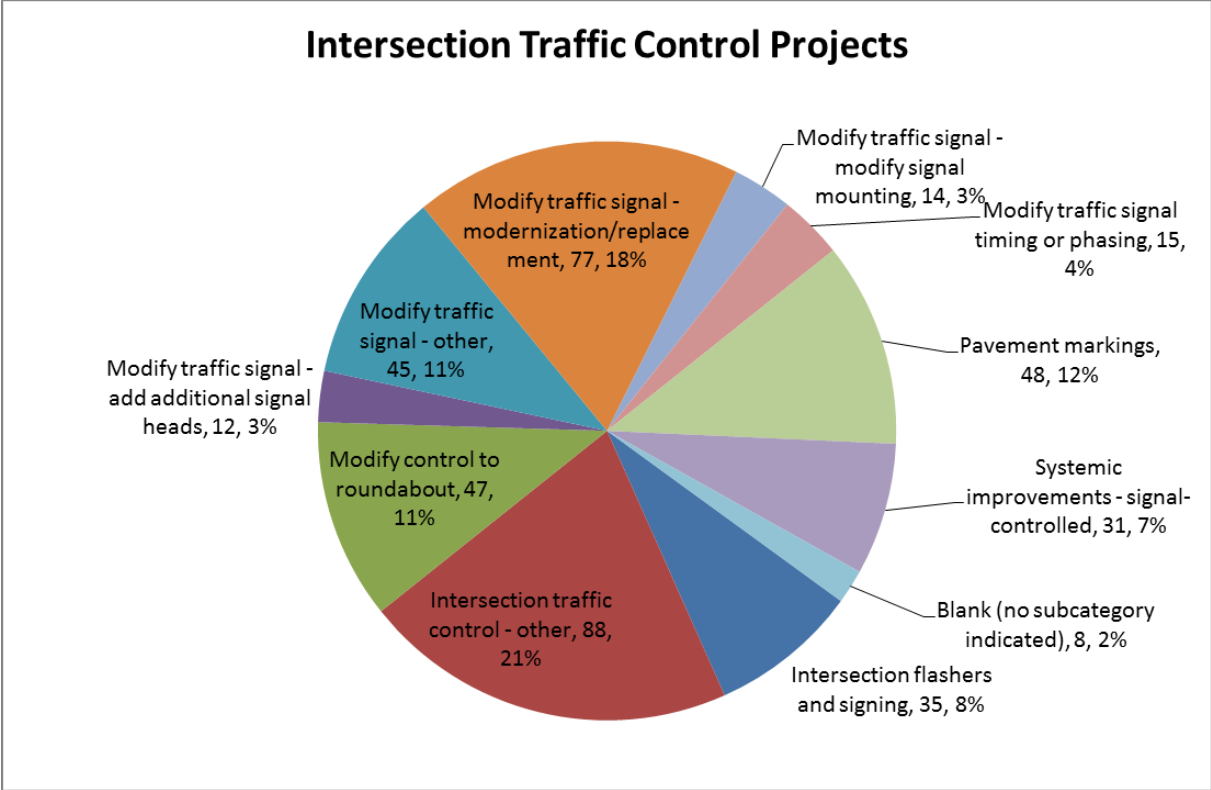


Figure 10: Number of Traffic Control Projects by Subcategory

For the Intersection traffic control category, most projects were subcategorized as “Intersection traffic control - other” (88 of 412 projects) and “Modify traffic signal – modernization/replacement” (77 of 412 projects). Examples of projects in the “Intersection traffic control – other” sub category include controller updates, wrong way driving mitigation strategies, and projects described as general intersection safety improvement projects.

Pedestrians and Bicyclists

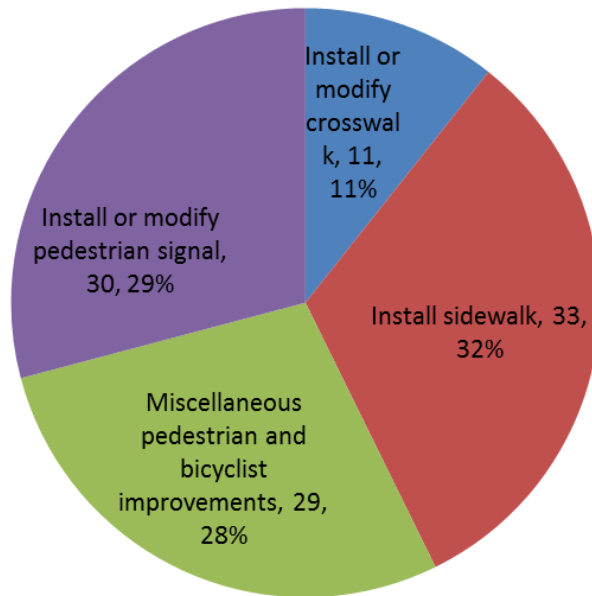


Figure 11: Number of Pedestrian and Bicyclist Projects by Subcategory

For the Pedestrians and bicyclists category, most projects were subcategorized as “Install sidewalk” (33 of 103 projects) and “Miscellaneous pedestrians and bicyclists” (29 of 103 projects). An example of a project in the “Miscellaneous pedestrian and bicyclist improvements” subcategory includes ADA facility improvements.

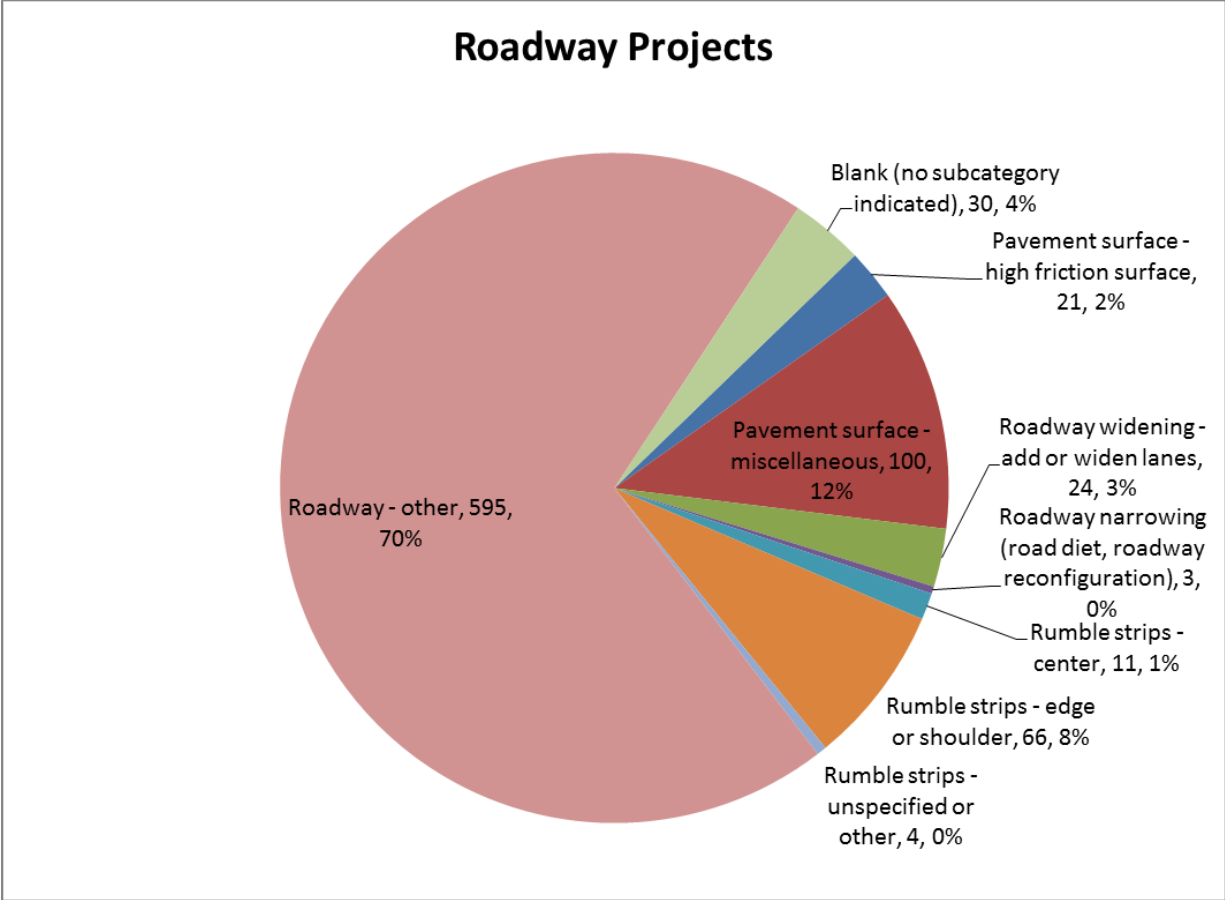


Figure 12: Number of Roadway Projects by Subcategory

For the Roadway category, most projects were subcategorized as “Roadway - other” (595 of 824 projects) and “Pavement surface - miscellaneous” (100 of 824 projects). An example of a project in the “Roadway – other” subcategory was guardrail aprons. The “Roadway-other” subcategory was predominately used without any project description, therefore, no other information is available for these projects.

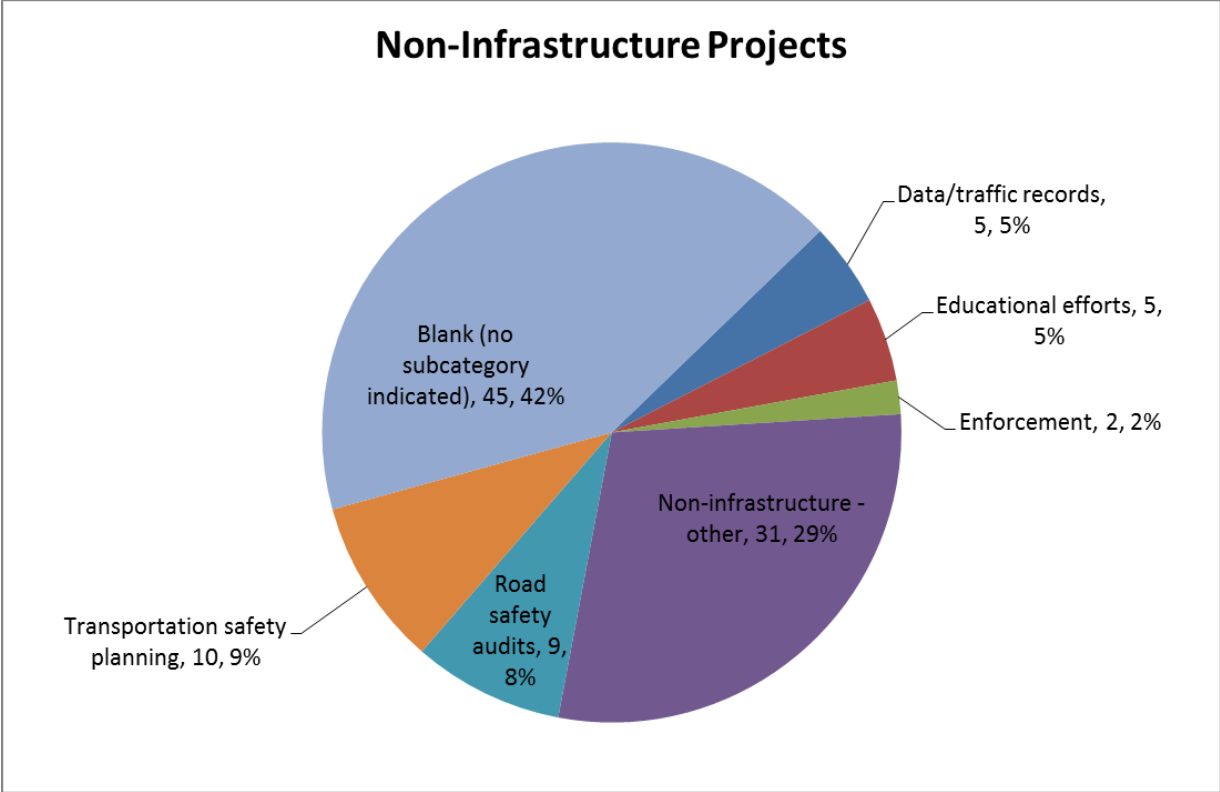


Figure 13: Number of Non-Infrastructure Projects by Subcategory

For the Non-infrastructure category, most projects were subcategorized as “Non-infrastructure - other” (31 of 62 projects) and “Transportation safety planning” (10 of 62 projects). Projects in the “Non-infrastructure – other” subcategory are largely undescribed. A few examples include pedestrian upgrades and Safe Routes to School coordinator positions and website development. Examples of projects in the “Blank (no subcategory indicated)” subcategory include safety campaigns, training programs, and enforcement mobilization projects.

AASHTO SHSP Emphasis Areas

The [AASHTO Strategic Highway Safety Plan](#) describes twenty-two emphasis areas. Figure 14 presents the number of HSIP projects categorized by AASHTO SHSP emphasis area. For consistency and national reporting purposes, each State's SHSP emphasis areas were assigned to the AASHTO SHSP emphasis areas, where possible. A complete description of each emphasis area is included in Appendix B. Please note that States often times categorize a single project by several SHSP Emphasis Areas. Therefore, for the purpose of Figure 14, a single project may be counted more than once. For example, the State recently completed an intersection improvement project that enhanced safety for pedestrians. This project could be categorized as EA 9 Making Walking and Street Crossing Safer as well as EA 17 Improving the Design and Operation of Intersections and is therefore counted once in each category.

The top five SHSP Emphasis Areas guiding HSIP investments for 2013 were:

- EA 17 Improving the Design and Operation of Intersections
- EA 16 Minimizing the Consequences of Leaving the Roadway
- EA 15 Keeping Vehicles on the Roadway
- EA 9 Making Walking and Street Crossing Safer
- EA 21 Improving Information and Decision Support Systems

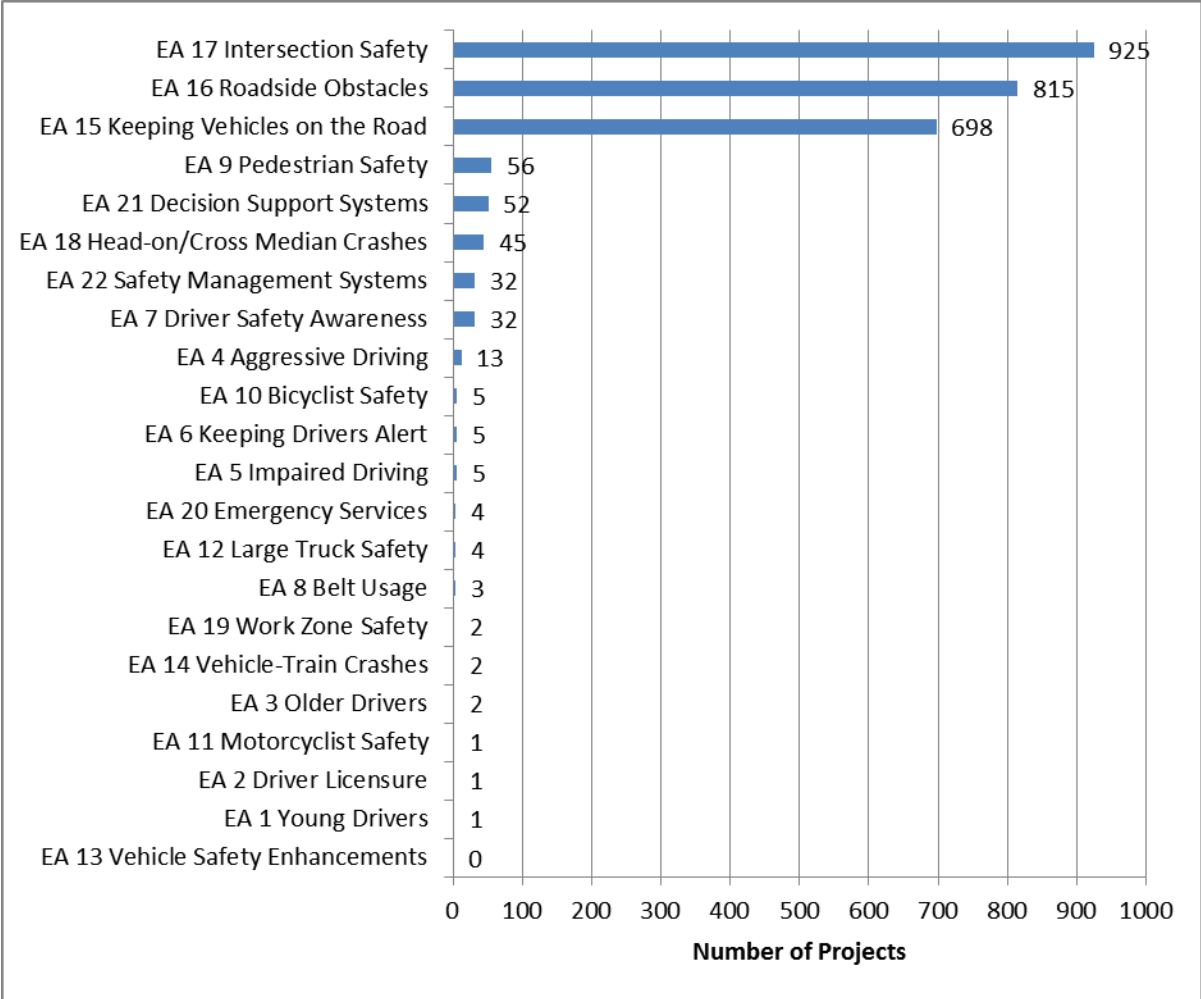


Figure 14: Number of Projects by AASHTO SHSP Emphasis Area

Summary

The HSIP is a strategic program that uses data and analysis to target safety resources. This HSIP 2013 National Summary Report shows that in 2013 (similar to the 2009-2012 HSIP National Summary Baseline Report), States directed HSIP funds to address the predominant infrastructure -related crash types - roadway departure, intersection and pedestrian crashes.

The HSIP National Summary Baseline Report 2009-2012 reported project and cost information for HSIP reports submitted by the States for years 2009-2012. The information from the baseline report is summarized below with the purpose of comparing basic cost and project information to the 2013 reports. Table 1 below shows that States obligated \$9.59B for more than 12,000 projects over the five-year period. These obligations include not only HSIP funds apportioned during the reporting period (2009-2013), but also HSIP funds available from previous years' apportionments.

Table 1: Total Number and Cost of Projects by Year

Year	2009	2010	2011	2012	2013	Total
Number of Projects	1684	2386	2523	2429	3292	12314
Number of Projects (with cost info.)*	1609	2348	2449	2374	3254	12034
Cost of projects	\$1.61B	\$1.46B	\$1.78B	\$1.65B	\$3.09B	\$9.59B
Avg. Cost Per Project	\$1.00M	\$620,684	\$725,550	\$695,721	\$950,834	\$797,206

*Not all states provided cost data for all projects.

As shown above, the number and funding of HSIP projects increased in 2013. The number of HSIP projects increased from approximately 2,300 projects per year to 3,292 projects in 2013. In addition, HSIP project obligations increased from approximately \$1.6B per year to \$3.09B in 2013. The increased investment in highway safety improvement projects demonstrates the States' commitment to improving the safety of our nation's roadways.

References

AASHTO, Strategic Highway Safety Plan, 2005.

<http://safety.transportation.org/doc/Safety-StrategicHighwaySafetyPlan.pdf>

FHWA, MAP-21 Apportionment Fact Sheet

<http://www.fhwa.dot.gov/map21/factsheets/apportionment.cfm>

FHWA, HSIP Apportionment Notices

<http://www.fhwa.dot.gov/legsregs/directives/notices/>

FHWA, HSIP MAP-21 Fact Sheet

<http://www.fhwa.dot.gov/map21/factsheets/hsip.cfm>

FHWA, HSIP MAP-21 Reporting Guidance, February 13, 2013

<http://www.fhwa.dot.gov/map21/guidance/guidehsipreport.cfm>

FHWA, HSIP Online Reporting Tool

<http://safety.fhwa.dot.gov/hsip/resources/onrpttool/>

FHWA, HSIP National Summary Baseline Report 2009-2012

http://safety.fhwa.dot.gov/hsip/reports/nsbrpt_2009_2012.cfm

2013 State HSIP Reports

<http://safety.fhwa.dot.gov/hsip/reports/>

Appendix A: Full Description of HSIP Improvement Categories and Sub Categories for 2013 HSIP Reporting Guidance

Category	Sub-category
Access management	Access management - other
	Change in access – close or restrict existing access
	Change in access – miscellaneous/unspecified
	Grassed median - extend existing
	Median crossover - close crossover
	Median crossover - directional crossover
	Median crossover - relocate existing
	Median crossover - unspecified
	Raised island - install new
	Raised island - modify existing
	Raised island - remove existing
	Raised island – unspecified
Advanced technology and ITS	Advanced technology and ITS - other
	Congestion detection / traffic monitoring system
	Dynamic message signs
	Over height vehicle detection
Alignment	Alignment - other
	Horizontal curve realignment
	Horizontal and vertical alignment
	Vertical alignment or elevation change
Animal-related	Animal related
Interchange design	Acceleration / deceleration / merge lane
	Convert at-grade intersection to interchange
	Extend existing lane on ramp
	Improve intersection radius at ramp terminus
	Installation of new lane on ramp
	Interchange design - other
	Ramp closure
	Ramp metering
Intersection geometry	Auxiliary lanes – add acceleration lane
	Auxiliary lanes – add auxiliary through lane
	Auxiliary lanes – add left-turn lane
	Auxiliary lanes – add right-turn lane
	Auxiliary lanes – add right-turn lane (free-flow)
	Auxiliary lanes – add slip lane
	Auxiliary lanes – add two-way left-turn lane
	Auxiliary lanes – extend acceleration/deceleration lane
	Auxiliary lanes – extend existing left-turn lane
	Auxiliary lanes – extend existing right-turn lane
Auxiliary lanes – miscellaneous/other/unspecified	

	Auxiliary lanes – modify acceleration lane
	Auxiliary lanes – modify auxiliary through lane
	Auxiliary lanes – modify free-flow turn lane
	Auxiliary lanes – modify left-turn lane offset
	Auxiliary lanes – modify right-turn lane offset
	Auxiliary lanes – modify turn lane storage
	Auxiliary lanes – modify turn lane taper
	Auxiliary lanes – modify two-way left-turn lane
	Intersection geometrics – miscellaneous/other/unspecified
	Intersection geometrics – modify intersection corner radius
	Intersection geometrics – modify skew angle
	Intersection geometrics – realignment to align offset cross streets
	Intersection geometrics – realignment to increase cross street offset
	Intersection geometrics – re-assign existing lane use
	Intersection geometry - other
	Splitter island – install on one or more approaches
	Splitter island – remove from one or more approaches
	Splitter island – unspecified
	Through lanes – add additional through lane
Intersection traffic control	Intersection flashers – add “when flashing” warning sign-mounted
	Intersection flashers – add advance emergency vehicle warning sign-mounted
	Intersection flashers – add advance heavy vehicle warning sign-mounted
	Intersection flashers – add advance intersection warning sign-mounted
	Intersection flashers – add miscellaneous/other/unspecified
	Intersection flashers – add overhead (actuated)
	Intersection flashers – add overhead (continuous)
	Intersection flashers – add stop sign-mounted
	Intersection flashers – modify existing
	Intersection flashers – remove existing
	Intersection signing – add basic advance warning
	Intersection signing – add enhanced advance warning (double-up and/or oversize)
	Intersection signing – add enhanced regulatory sign (double-up and/or oversize)
	Intersection signing – miscellaneous/other/unspecified
	Intersection signing – relocate existing regulatory sign
	Intersection traffic control - other
	Modify control – all-way stop to roundabout
	Modify control – modifications to roundabout
	Modify control – no control to roundabout
	Modify control – no control to two-way stop
	Modify control – remove right-turn yield

	Modify control – reverse priority of stop condition
	Modify control – traffic signal to roundabout
	Modify control – two-way stop to all-way stop
	Modify control – two-way stop to roundabout
	Modify control – two-way yield to two-way stop
	Pavement Markings – add advance signal ahead
	Pavement markings – add advance stop ahead
	Pavement markings – add dashed edge line along mainline
	Pavement markings – add lane use symbols
	Pavement markings – add stop line
	Pavement markings – add yield line
	Pavement markings – miscellaneous/other/unspecified
	Pavement markings – refresh existing pavement markings
	Modify traffic signal – add additional signal heads
	Modify traffic signal – add backplates
	Modify traffic signal – add backplates with retroreflective borders
	Modify traffic signal – add closed loop system
	Modify traffic signal – add emergency vehicle preemption
	Modify traffic signal – add flashing yellow arrow
	Modify traffic signal – add long vehicle detection
	Modify traffic signal – add railroad preemption
	Modify traffic signal – add wireless system
	Modify traffic signal – miscellaneous/other/unspecified
	Modify traffic signal – modernization/replacement
	Modify traffic signal – modify signal mounting (spanwire to mast arm)
	Modify traffic signal – remove existing signal
	Modify traffic signal – replace existing indications (incandescent-to-LED and/or 8-to-12 inch dia.)
	Modify traffic signal timing – left-turn phasing (permissive to protected/permissive)
	Modify traffic signal timing – left-turn phasing (permissive to protected-only)
	Modify traffic signal timing – adjust clearance interval (yellow change and/or all-red)
	Modify traffic signal timing – general retiming
	Modify traffic signal timing – signal coordination
	Systemic improvements – signal-controlled
	Systemic improvements – stop-controlled
Lighting	Continuous roadway lighting
	Intersection lighting
	Lighting - other
	Site lighting – horizontal curve
	Site lighting – intersection
	Site lighting – interchange

	Site lighting – pedestrian crosswalk
Miscellaneous	Miscellaneous
Non-infrastructure	Educational efforts
	Enforcement
	Data/traffic records
	Non-infrastructure - other
	Outreach
	Road safety audits
	Training and workforce development
	Transportation safety planning
Parking	Modify parking
	Parking - other
	Remove parking
	Restrict parking
	Truck parking facilities
Pedestrians and bicyclists	Crosswalk
	Install new "smart" crosswalk
	Install new crosswalk
	Install sidewalk
	Medians and pedestrian refuge areas
	Miscellaneous pedestrians and bicyclists
	Modify existing crosswalk
	Pedestrian beacons
	Pedestrian bridge
	Pedestrian signal
	Pedestrian signal - audible device
	Pedestrian signal – Pedestrian Hybrid Beacon
	Pedestrian signal - install new at intersection
	Pedestrian signal - install new at non-intersection location
	Pedestrian signal - modify existing
	Pedestrian signal - remove existing
	Pedestrian warning signs - add/modify flashers
	Pedestrian warning signs – overhead
Railroad grade crossings	Grade separation
	Model enforcement activity
	Protective devices
	Railroad grade crossing gates
	Railroad grade crossing signing
	Railroad grade crossings - other
	Surface treatment
	Upgrade railroad crossing signal
Widen crossing for additional lane	
Roadside	Barrier end treatments (crash cushions, terminals)
	Barrier transitions

	Barrier - cable
	Barrier - concrete
	Barrier - metal
	Barrier - other
	Barrier - removal
	Curb or curb and gutter
	Drainage improvements
	Fencing
	Removal of roadside objects (trees, poles, etc.)
	Roadside grading
	Roadside - other
Roadway	Install / remove / modify passing zone
	Pavement surface – high friction surface
	Pavement surface - miscellaneous
	Roadway narrowing (road diet, roadway reconfiguration)
	Roadway - other
	Roadway - restripe to revise separation between opposing lanes and/or shoulder widths
	Roadway widening - add lane(s) along segment
	Roadway widening - curve
	Roadway widening - travel lanes
	Rumble strips - center
	Rumble strips – edge or shoulder
	Rumble strips - transverse
	Rumble strips – unspecified or other
	Superelevation / cross slope
Roadway delineation	Improve retroreflectivity
	Longitudinal pavement markings - new
	Longitudinal pavement markings - remarking
	Delineators post-mounted or on barrier
	Raised pavement markers
	Roadway delineation - other
Roadway signs and traffic control	Curve-related warning signs and flashers
	Sign sheeting – upgrade or replacement
	Roadway signs and traffic control - other
	Roadway signs (including post) – new or updated
Shoulder treatments	Widen shoulder – paved or other
	Pave existing shoulders
	Shoulder grading
	Shoulder treatments - other
Speed management	Modify speed limit
	Radar speed signs
	Speed detection system / truck warning
	Speed management - other

	Traffic calming feature
Work Zone	Work zone

Appendix B: Full Title of SHSP Emphasis Areas

- EA 1 Instituting Graduated Licensing for Young Drivers
- EA 2 Ensuring Drivers are Fully Licensed and Competent
- EA 3 Sustaining Proficiency in Older Drivers
- EA 4 Aggressive Driving
- EA 5 Reducing Impaired Driving
- EA 6 Keeping Drivers Alert
- EA 7 Increasing Driver Safety Awareness
- EA 8 Increasing Safety Belt Usage and Improving Air Bag Effectiveness
- EA 9 Making Walking and Street Crossing Safer
- EA 10 Ensuring Safer Bicycle Travel
- EA 11 Motorcycle Safety Awareness
- EA 12 Making Truck Traffic Safer
- EA 13 Increasing Safety Enhancements in Vehicles
- EA 14 Reducing Vehicle-Train Collisions
- EA 15 Keeping Vehicles on the Roadway
- EA 16 Minimizing the Consequences of Leaving the Roadway
- EA 17 Improving the Design and Operation of Intersections
- EA 18 Reducing Head-on and Cross Median Crashes
- EA 19 Design Safer Work Zones
- EA 20 Enhancing Medical Capabilities to Increase Survivability
- EA 21 Improving Information and Decision Support Systems
- EA 22 Creating More Effective Processes and Safety Management Systems

Appendix C. Detailed Tables of Project Costs Summaries

Table 2: Number and Cost of 2013 Projects by Improvement Category

Improvement Category	Number of Projects	Total Cost of Projects*	Average Total Cost*	Total HSIP Cost of Projects*	Average HSIP Cost*
Access management	34	\$195,352,612.42	\$5,745,665.07	\$30,737,148.44	\$1,097,755.30
Advanced technology and ITS	21	\$7,835,018.00	\$391,750.90	\$6,755,822.66	\$321,705.84
Alignment	55	\$149,902,498.19	\$2,775,972.19	\$35,993,363.80	\$679,120.07
Animal-related	3	\$8,450,107.00	\$2,816,702.33	\$7,043,972.40	\$2,347,990.80
Interchange design	87	\$177,683,228.85	\$2,140,761.79	\$48,053,087.31	\$586,013.26
Intersection geometry	376	\$445,306,021.01	\$1,213,367.90	\$243,071,648.34	\$655,179.65
Intersection traffic control	420	\$279,443,365.54	\$666,929.27	\$190,167,790.03	\$475,419.48
Lighting	48	\$18,678,171.44	\$389,128.57	\$18,462,105.44	\$384,627.20
Miscellaneous	39	\$39,536,487.75	\$1,013,756.10	\$16,663,845.81	\$462,884.61
Non-infrastructure	109	\$42,545,671.00	\$393,941.00	\$44,806,151.00	\$443,625.00
Parking	0	n/a	n/a	n/a	n/a
Pedestrians and bicyclists	103	\$53,892,611.32	\$528,358.93	\$35,694,976.78	\$346,553.17
Railroad grade crossings	4	\$972,389.00	\$243,097.25	\$992,389.00	\$248,097.25
Roadside	225	\$195,970,161.86	\$894,840.92	\$166,283,887.36	\$766,285.20
Roadway	854	\$541,384,359.69	\$635,427.65	\$290,915,274.31	\$342,656.39
Roadway delineation	102	\$59,644,608.12	\$602,470.79	\$43,313,203.01	\$424,639.25
Roadway signs and traffic control	163	\$43,409,123.45	\$269,621.88	\$41,413,281.27	\$254,069.21
Shoulder treatments	179	\$411,469,681.42	\$2,298,713.30	\$211,374,731.00	\$1,180,864.42
Speed management	12	\$3,214,173.15	\$267,847.76	\$3,111,752.04	\$259,312.67
Work Zone	1	\$93,273.00	\$93,273.00	\$93,273.00	\$93,273.00
Unknown	457	\$416,019,421.66	\$912,323.29	\$26,054,849.35	\$234,728.37
Total	3292	\$3,093,063,463.87	\$950,834.14	\$1,458,742,072.10	\$504,580.45

* Not all states provided cost data for all projects in a given improvement category.

Table 3: Number and Cost of Projects by Subcategory for Intersection Geometry

Subcategory	Number of Projects	Total Cost
Auxiliary lanes - add left-turn lane	114	\$ 126,343,935
Auxiliary lanes - add right-turn lane	16	\$ 6,702,633
Auxiliary lanes - other	44	\$ 88,956
Intersection geometrics - other	141	\$ 176,292,446
Intersection geometrics - modify skew angle	35	\$ 15,305,107
Intersection geometrics - realignment to improve offset	15	\$ 23,366,776
Blank (no subcategory indicated)	11	\$ 8,338,568
Total	376	\$ 356,438,422

Table 4: Number and Cost of Projects by Subcategory for Intersection Traffic Control

Subcategory	Number of Projects	Total Cost
Intersection flashers and signing	35	\$ 4,924,215
Intersection traffic control - other	88	\$ 51,598,810
Modify control to roundabout	47	\$ 56,973,072
Modify traffic signal - add additional signal heads	12	\$ 12,050,242
Modify traffic signal - other	45	\$ 21,692,152
Modify traffic signal - modernization/replacement	77	\$ 60,115,452
Modify traffic signal - modify signal mounting	14	\$ 15,604,417
Modify traffic signal timing or phasing	15	\$ 21,663,179
Pavement markings	48	\$ 9,248,702
Systemic improvements - signal-controlled	31	\$ 23,105,395
Blank (no subcategory indicated)	8	\$ 2,467,729
Total	420	\$ 279,443,366

Table 5: Number and Cost of Projects by Subcategory for Pedestrians and Bicyclists

Subcategory	Number of Projects	Total Cost
Install or modify crosswalk	11	\$ 6,110,617
Install sidewalk	33	\$ 10,619,125
Miscellaneous pedestrian and bicyclist improvements	29	\$ 22,545,047
Install or modify pedestrian signal	30	\$ 14,617,823
Total	103	\$ 53,892,611

Table 6: Number and Cost of Projects by Subcategory for Roadway

Subcategory	Number of Projects	Total Cost
Pavement surface - high friction surface	21	\$ 9,761,102
Pavement surface - miscellaneous	100	\$ 38,737,373
Roadway widening - add or widen lanes	24	\$ 126,677,292
Roadway narrowing (road diet, roadway reconfiguration)	3	\$ 337,903
Rumble strips - center	11	\$ 3,962,583
Rumble strips - edge or shoulder	66	\$ 143,286,118
Rumble strips - unspecified or other	4	\$ 818,892
Roadway - other	595	\$ 194,671,135
Blank (no subcategory indicated)	30	\$ 23,131,961
Total	854	\$ 541,384,360

Table 7: Number and Cost of Projects by Subcategory for Non-Infrastructure

Subcategory	Number of Projects	Total Cost
Data/traffic records	5	\$ 581,791
Educational efforts	5	\$ 1,226,474
Enforcement	2	\$ 2,895,444
Non-infrastructure - other	31	\$ 13,143,650
Road safety audits	9	\$ 2,649,500
Transportation safety planning	10	\$ 4,112,108
Blank (no subcategory indicated)	45	\$ 20,197,184
Total	109	\$ 44,806,151

* There were two additional projects labeled as "Outreach" and "Training and workforce development" that did not have a cost indicated.

For More Information:

Visit <http://safety.fhwa.dot.gov/hsip>

FHWA, Office of Safety

Karen Scurry

karen.scurry@dot.gov

609-637-4207