

**North Carolina's**  
**2012**  
**Highway Safety Improvement Report**  
**&**  
**Five Percent Report**

**August 2012**

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## PURPOSE

*The purpose of the North Carolina Highway Safety Improvement Program (HSIP) is to provide a continuous and systematic procedure that identifies, investigates and addresses specific safety concerns throughout the state. The ultimate goal of the HSIP is to reduce the number of traffic crashes, injuries, and fatalities by reducing the potential for and the severity of these incidents on public roadways.*



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August 24, 2012

Signature:

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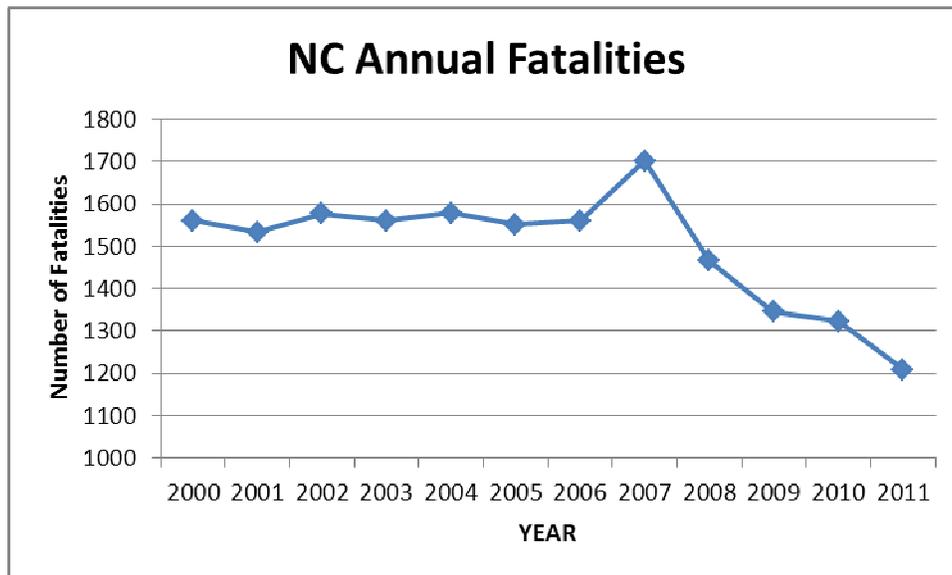
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## PREFACE

North Carolina recognizes traffic crashes as a significant problem that continues to challenge the state. In 2011, there were 232,600 reported traffic crashes that resulted in 1,208 persons killed and 106,423 injuries on our roadways. The socioeconomic impact of these crashes is severe, resulting in a loss of over \$9.6 billion to the economy of North Carolina annually. This impact translates to a crash cost to the state of over \$1 million every hour and approximately \$26 million every day and a staggering social impact as well.

North Carolina has established a vision to have a multi-disciplinary, multi-agency highway safety approach to research, planning, investigation, design, construction, maintenance, operation and evaluation of transportation systems, which results in reduced fatalities, injuries and economic losses, related to crashes. In addition, there is a coordinated strategic effort to address emerging safety issues. In January 2008 the Executive Committee for Highway Safety met to reexamine their goals. The committee agreed to adopt a 2.5% reduction in annual fatalities each year over the next 20 years as the new goal.



The plans, accomplishments, and other information about the Executive Committee for Highway Safety are attached to the following web site. This web site also includes a link to the *North Carolina Strategic Highway Safety Plan*.

<http://www.ncdot.org/doh/preconstruct/traffic/ECHS/>

This “HSIP Report” describes North Carolina DOT’s implementation and effectiveness of its Highway Safety Improvement Program. This submission also includes information required for the “5 Percent Report”. These reports satisfy the requirements under Title 23 of the Code of Federal Regulations, Part 924 (23 CFR 924). The NCDOT Rail Division is developing the “Railway-Highway Crossing Report” as a separate report submission.

North Carolina DOT has opted to use the 2011 Calendar Year as the reporting period for the “HSIP Report” and the “5 Percent Report”; however, some of our 2012 plans, goals, and methods are included in this report.

# THE NC HSIP REPORT

## A. PROGRAM STRUCTURE

### **Program Administration**

The Highway Safety Improvement Program Group of the Traffic Safety Unit has developed and continues to refine a systematic procedure that identifies traffic safety concerns throughout the state. A system of safety warrants has been developed to identify locations that are possibly deficient. The safety warrants are based on five to ten years of crash data. The criteria include crash frequency, severity, conditions, and percentage of target crashes. Safety warrants have been devised to identify intersections, roadway segments, and bike/pedestrian intersections. Locations that meet warrants are categorized as potentially hazardous (PH) locations. Our network screening process has the capability of identifying locations on all NC public roadways. The Traffic Safety Unit continually strives to improve the identification of relevant traffic safety issues and the location selection process. Detailed information on warranting criteria can be found in *Appendices A through C*.

After the locations have been flagged by the safety warrants, the PH locations are ranked by a weighting factor. Typically the weighting factor is a function of crash frequency, severity and percentage of target crashes. The rankings help determine which PH locations will receive priority for the analysis and investigation process.

In 2011 over 100 HSIP locations were analyzed by the Highway Safety Improvement Group and sent to the Regional Traffic Engineering Office for investigation. Several other HSIP locations were analyzed by Regional Traffic Engineering and Highway Division staff. These locations are in various states of investigation or project development. Some locations did not warrant investigation once the crash analysis was completed. The locations analyzed by the Highway Safety Improvement group are as follows:

- 63 intersection locations
- 48 section locations
- 32 bike and pedestrian intersection locations

The Traffic Safety Unit utilizes the Traffic Engineering Accident Analysis System (TEAAS) to retrieve crash data for the PH location of interest. TEAAS provides several important crash data such as crash rates, severity index, light and road conditions, crash types and crash milepost locations. Collision diagrams are also created to determine which crash patterns are the most prevalent at a location.

After a detailed crash study is completed, a Regional Traffic Engineer investigates the identified PH location. The Regional Traffic Engineers use engineering expertise, regional familiarity, countermeasure knowledge and decision support tools such as Benefit to Cost ratios to develop countermeasures to reduce the frequency and severity of crashes at the identified PH location. Depending on the size and cost of the selected countermeasures, the investigations may result in recommendations that range from requesting our Division maintenance forces to make adjustments or repairs, to developing Spot Safety projects,

Hazard Elimination projects, other Transportation Improvement Program (TIP) projects, or utilizing other funding sources to initiate projects.

The Regional Traffic Engineering Staff investigates other locations generated by external requests. The requestors may include the following: law enforcement, emergency response personnel, NCDOT Division offices, citizens, county commissioners, public school officials, and metropolitan/rural planning organizations. After an investigation, Regional Traffic Engineers may request HSIP funds to improve the safety of these locations. These locations are eligible to compete for the safety related funds without being flagged by NC's HSIP warrants.

### **Program Methodology**

The NC Safety Oversight Committee was established to help select the candidate safety projects that will receive funds from the Hazard Elimination Program or the Spot Safety Fund. The committee is composed of NCDOT engineers and representatives from the Highway Patrol, the Governors Highway Safety Program, and the Board of Transportation. The mission of this Committee is to systematically and objectively administer the allocation of limited safety-related funds to those candidate safety projects across the State that provide the most benefit to the traveling public in terms of reducing injuries, fatalities, and motor vehicle crashes.

The Committee meets quarterly to review and make recommendations from the list of proposed projects on the "On Hold" lists. Several tools are used for project selection. One major tool is the *Spot Safety Index (SSI)*. As of June 2012, the *SSI* is composed of two parts: *Safety Factor points*, and *Division/Region Priority points*. However, the *Safety Factor* accounts for 70% of the *SSI*. The *Safety Factor* is composed of three parts: *Severity Index*, *Benefit-to-Cost Ratio*, and *HSIP Listing or Road Safety Review location*. The Safety Oversight Committee submits their list of recommended projects to the Board of Transportation. The projects approved for funding depends on the availability of funds and the policies and guidelines of the Board of Transportation including Division Equity Formula.

## **B. PROGRESS IN IMPLEMENTING THE HSIP PROJECTS**

### **Hazard Elimination Program**

NC's Hazard Elimination Program funded 71 Transportation Improvement Program projects in 2011. The total amount of federal and state funds allocated to these projects was \$19,502,073. An additional \$925,290 was used for preliminary engineering. Attached as APPENDIX D is a list indicating the location, project description, and allocated amount for each project. In addition, there were 43 unfunded Hazard Elimination projects on hold at the end of 2011. The estimated total funds needed for these projects are \$50,729,276. Attached as APPENDIX E is a list of these projects including a project description and estimated costs.

The estimated project costs of the funded 2011 Hazard Elimination Program Projects ranged from \$13,500 to \$2,556,450. The funds have or will be utilized to: convert four-legged

intersection to two offset T- intersections, construct roundabout, improve vertical and/or horizontal grade to increase intersection sight distance, reduce skew at intersections, construct continuous left turn lanes, construct turn lanes, install traffic signal, improve left turn offset, install raised median, reduce access points, construct directional crossovers, construct U-turn locations with bulb-outs, upgrade signing, widen travel lanes, install/widen paved shoulders, install centerline raised pavement markers, install pavement markings, install Vibraline, install LED reflectors on lane lines, install median barrier, install collapsible posts at emergency crossover points, install rumble strips, reduce horizontal curvature, improve super elevation, install guardrail, overlay with friction treatments, groove pavement or provide pedestrian accommodations.

### **Spot Safety Program**

The Spot Safety Program receives money from state funds. In 2011, NCDOT's Spot Safety Program funded 134 new projects totaling \$13,157,270.

An additional 121 Spot Safety projects have been submitted for funding consideration and are on hold. The unfunded projects total an estimated \$17,637,990. Attached is a list of the funded and "on hold" projects, APPENDICES F and G respectively. The list also includes project descriptions and estimated costs.

The estimated project costs of the funded 2011 Spot Safety Fund Projects ranged from \$7,500 to \$250,000. The requested funds would be utilized to: revise approach grade to increase sight distance, clear intersection sight triangles, reduce skew at intersections, upgrade/construct turn lanes, improve intersection turning radius, upgrade to dual left turn lanes, install traffic signal, revise permissive phasing with flashing yellow arrow indication, revise left turn phasing to fully protected, install additional or near-side supplemental signal heads, install intersection flasher, install/upgrade to actuated warning flashers, revise to positive offset left turn lanes, convert intersection to all-way stop control, install pedestrian crosswalks and signal heads, install HAWKS beacon, install concrete medians, install concrete islands, install directional crossovers, construct roundabout, install/upgrade warning signs, widen travel lanes, traffic calming pavement markers, install centerline and shoulder rumble strips, install centerline and edgeline, install/widen paved shoulders, install raised pavement markers, reduce horizontal curvature, improve super elevation, relocate utility poles, install shoulder guardrail, overlay with special friction treatments, and install bridge approach guardrail.

## **C. ASSESSMENT OF THE HSIP**

### **General Highway Safety Trends**

While major strides and enhancements have been made in the areas of highway safety within North Carolina, there is still much room for improvement. Over the past few years North Carolina has averaged on an annual basis over 230,000 crashes, over 110,000 injuries and over 1400 deaths. Highway safety for the travelling public, our highway workers, emergency responders and law enforcement personnel is a top priority for NCDOT.

**North Carolina Highway Crash Trends**

<b>Year</b>	<b>Crashes</b>	<b>Fatalities</b>	<b>Injuries</b>	<b>VMT (100MVM)<sup>1</sup></b>	<b>Crash Rate</b>	<b>Fatality Rate</b>	<b>Injury Rate</b>
2007	241947	1702	120093	1035.98	233.54	1.64	115.92
2008	235348	1466	112574	1014.63	231.95	1.44	110.95
2009	231470	1345	109763	1025.9	225.63	1.31	106.99
2010	237652	1323	109067	1023.85	232.12	1.29	106.53
2011	232600	1208	106423	1014.86	229.19	1.19	104.86
<b>5 Year Average</b>	<b>235803</b>	<b>1409</b>	<b>111584</b>	<b>1023.04</b>	<b>230.49</b>	<b>1.37</b>	<b>109.05</b>

1. Rates shown as crashes per 100 million vehicle-miles travelled.

### **Overall HSIP Effectiveness**

The North Carolina Highway Safety Improvement Program (HSIP) is an organized and systematic safety process developed to identify, analyze, investigate and improve potentially hazardous locations with concentrations and patterns of correctable crashes. The program is able to determine locations that exceed minimum warranting criteria that are based on multiple factors that, in most cases, include severity, frequency, and crash type. The program is presently structured into six distinct phases:

- I. Development of warranting criteria
- II. Identification of potentially hazardous locations meeting minimum warrant criteria
- III. Detailed crash analysis of program locations
- IV. Engineering field investigation of program locations and evaluation of potential recommendations (where appropriate)
- V. Project development
- VI. Implement countermeasures
- VII. Evaluation of countermeasures implemented with HSIP funds

The warrants developed by the Traffic Safety Systems Section (TSSS) have consistently shown the ability to identify intersections, sections, and bicycle/pedestrian intersections with severe injuries and chronic crash patterns. The Regional Traffic Engineers utilize thorough investigations, traffic operations and safety expertise and proven tools such as signal warrant

studies, sight distance measurements, Crash Reduction Factors and Benefit to Cost analysis to ensure to effective projects are developed.

The Safety Evaluation Group of the Traffic Safety Systems Section is tasked with performing scientific and statistically sound evaluations of safety-related projects to determine the effectiveness of the selected countermeasure(s) at treated locations. The larger goal in this effort is to build crash modification factors based on North Carolina data and projects to aid in future decision making and project development. The methods utilized in the evaluations have continued to be developed and refined. The current methodologies include naïve before and after evaluations, treatment group versus comparison group evaluations, and empirical bayesian techniques.

The Safety Evaluation Group has completed many Spot Safety Project evaluations and Hazard Elimination Project Evaluations. The crash reductions have varied at each project location that has been evaluated. The results of the evaluations will be used for the further development of crash reduction factors for safety countermeasures. Completed Spot Safety Project and Hazard Elimination Project evaluations are attached to the following web site:

<http://www.ncdot.gov/doh/preconstruct/traffic/safety/Reports/completed.html>

## **D. HIGH RISK RURAL ROADS PROGRAM**

### **1. Program Implementation**

In 2011 NCDOT utilized funding from the HRRR Program to fund twenty projects which cost a total of \$1,000,350. Attached is a list of the funded projects, APPENDIX H. The list also includes project descriptions and costs.

The requested funds would be utilized to: widen travel lanes, widen paved shoulders, improve skew angle, construct turn lanes, install guardrail delineation, install shoulder guardrail, install centerline rumble strips, upgrade centerline and edgelines, improve super elevation, realign horizontal curves and install truck restriction signs with flashers.

### **2. Methodology Used to Identify HRRR Locations**

North Carolina's Traffic Safety Systems Section (TSSS) administers the Road Safety Review Program. The purpose of the program is to reduce the rates of severe injury crashes that occur on North Carolina's rural two-lane highways. The program accomplishes this by identifying rural two-lane highways in North Carolina with "severe injury" crash rates above the statewide average, compiling multi-disciplinary road safety review teams, conducting safety reviews for selected roadways, and reporting the conclusions and recommendations of the teams.

As of August 2012, TSSS has initiated and/or completed thirty road safety reviews throughout the state. The project locations completed in 2011 are listed on Page 8. Some RSR recommendations have been developed into Division Maintenance/Construction, Hazard

Elimination or Spot Safety Program Projects. NCDOT will also use available HRRRP funds to improve safety deficiencies identified by the Road Safety Reviews. Also division staff can submit projects to be approved for HRRRP funding. Like the Spot Safety Program projects, all HRRRP projects must be approved by NC Oversight Committee.

**3. Assessment of HRRRP Project Effectiveness**

According to NCDOT’s 2008-2010 Three Year Statewide Crash Rates, the fatal crash rate for rural secondary roads is over seven times the rate for rural interstate routes, 3.38 crashes per 100mvm vs. 0.43. The non-fatal injury crash rate for rural secondary roads is 112.58 crashes per 100mvm compared to 16.73 for rural interstates, over six times higher.

The Traffic Safety Systems Section will determine the actual effectiveness of HRRRP projects when appropriate. However, we are confident that future HRRRP-funded projects will be effective, because of two major reasons. First, our identification process utilizes crash severity and density data. Second, we utilize Road Safety Review methods that are promoted by the Federal Highway Administration.

Previous efforts in NC utilizing traditional HSIP and Fatal Investigations have yielded good results; however, NCDOT must utilize new approaches to reduce the number of severe crashes that are occurring on our rural highways. The Road Safety Review process will allow NCDOT to better identify deficiencies and develop improved mitigating strategies, while the HRRRP and other programs will provide us with the funds necessary to address identified safety concerns throughout the state.

**2011 Road Safety Review Project Locations**

COUNTY	ROUTE
ALLEGHANY	NC 18
BURKE	5 locations
CUMBERLAND	3 pedestrian locations near Fayetteville
DARE	Outer Banks pedestrian locations
GATES	1 section and 1 intersection
LEE/MOORE	10 locations
UNION	SR 1006 and SR 1751
WAYNE	4 locations

# THE NC FIVE PERCENT REPORT

## Introduction

This “5 Percent Report” provides an overview of the intersections, sections, and bicycle/pedestrian intersections identified as potentially hazardous by our Highway Safety Improvement Program (HSIP). The North Carolina Crash Data System allows us to clearly identify specific locations with severe but correctable crash patterns. The screening process includes all public roads within our state. In May 2012, the higher ranked locations were listed in *the 2012 North Carolina Highway Safety Improvement Program report*, a listing of potentially hazardous (PH) locations. The 2012 edition of this report is available on the web at <http://www.ncdot.gov/doh/preconstruct/traffic/safety/programs/data/phreports/2012/2012HSIP.pdf>

North Carolina’s HSIP and the PH locations mentioned in this “5% Report” are integrated into the [Strategic Highway Safety Plan \(SHSP\)](#). As mentioned in our [SHSP report](#), the [NC Executive Committee for Highway Safety](#) has developed Working Groups to tackle such safety issues as lane departure, incident management, older driver safety and bicycle & pedestrian safety. The Traffic Safety Systems Section has also developed location listings and safety data for older driver crashes, utility pole crashes, closed loop signal systems, roadway departures and other key emphasis area from the AASHTO SHSP in support of our [Strategic Highway Safety Plan](#).

## Methodology

The listing of Potentially Hazardous locations covers from 5 to 10 percent of the locations within the state. These locations were flagged for exhibiting the most severe safety needs because these locations showed the strongest pattern of severe and correctable crashes. The criteria used to identify our PH locations are outlined in Appendices A through C. The Potentially Hazardous locations are ranked by location type. The ranking criteria include crash severity, crash frequency, target crash percentage and crash density.

## Locations Identified

The safety warrants from the 2011 Cycle of the HSIP flagged the following number and type of locations:

- 1983 potentially hazardous intersections
- 542 potentially hazardous section locations
- 80 potentially hazardous bicycle and pedestrian intersection locations

The [North Carolina Highway Safety Improvement Program Report](#) lists only the top 400 and top 200 potentially hazardous locations in the intersection and section categories, respectively and it lists all bicycle and pedestrian intersections. However, the county reports on our website contain all the locations within a specified county.

## **Remedies**

The 2011 North Carolina Highway Safety Improvement Program Report listed 2605 locations in May 2011. Due to the lack of resources, the crash data verification and an engineering investigation has not been completed for the majority of the PH locations listed. Crash data verification and the engineering investigations are necessary to fully assess conditions and select the best safety countermeasure. Possible remedies for these locations include: add/upgrade/remove traffic signal and/or phasing, construct/improve channelization, widen pavement and/or shoulder, install rumble strips, install/upgrade guardrails and/or barriers, construct traffic calming features, install flashing beacons, install lighting, etc.

## **Costs**

The estimated cost of all the potential remedies can not be fully determined until the countermeasures are selected by engineering investigations. Signage improvement recommendations can cost a few hundred dollars to implement while recommendations to upgrade an at-grade intersection to an interchange can cost several million dollars to complete. Furthermore, some PH locations do not warrant safety improvements or are not constructable but these decisions can not be made until engineering analyses and investigations are completed.

At the end of Calendar Year 2011, 121 locations were listed on the “On Hold List” of the Spot Safety Program. The total estimated cost of the 121 projects was \$17,637,990. This averages to \$145,739 per project. The traditional maximum allocation for Spot Safety Projects is \$400,000.

At the end of Calendar Year 2011, 43 locations were listed on the “On Hold List” of the Hazard Elimination Program. The total estimated cost of the 43 projects was \$50,729,276. This averages to \$1,179,276 per project.

The 2011 HSIP Cycle flagged 2605 locations in May 2011. During calendar year 2011, the Spot Safety Program (SSP) and the Hazard Elimination Program (HEP) funded 204 projects in total. There are 164 projects remaining on the two “On Hold Lists” totaling an estimated \$68.4 million. It should be noted that not all of the funded and/or programmed locations originated from the 2011 HSIP. It should also be noted that an undetermined number of PH locations were improved with operation/maintenance funds, discretionary funds and other funding sources during 2011 or other recent years. However, this leaves 2237 PH assumed locations that were flagged by the 2011 HSIP cycle and have not been programmed for traditional safety funds.

For the purposes of this report only, rough estimates for potential remedies can be calculated using the average cost of projects on the “On Hold Lists”, assuming that the remaining 2237 PH locations warrant safety improvements. If we use the current ratio of Spot Safety projects to Hazard Elimination Projects, then we can assume that the remaining PH locations will create a total of 768 HEP projects and 1469 SSP projects. Utilizing the current project averages, the roughly estimated cost of the safety remedies would be approximately \$214

million for Spot Safety projects and approximately \$906 million for Hazard Elimination projects. These calculations assume that the number of 2011 Cycle PH locations funded by non-HSIP sources is equal to the number of Spot Safety and Hazard Elimination Program locations not listed by the 2011 HSIP cycle. When the amounts above are added to the cost of projects on the “On Hold Lists”, the total amount of the potential remedies would be over *\$1.1 billion*. It should be noted that this estimate for potential remedies is not based on a detailed engineering study. Therefore, these estimates should not be used for planning or programming purposes.

**Other Impediments to Remedies**

The impediments to implementation of the remedies other than costs can not be determined until they are discovered during an engineering investigation. The list of possible impediments includes environmental permits, right of way acquisition, resident/property owner opposition, local government opposition, and utility conflicts. Other possible impediments include competent engineering and technical manpower necessary for investigation, design, construction and evaluation of safety projects.

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Protection of Data from Discovery & Admission into Evidence

Section 148(g)(4) stipulates that data compiled or collected for the preparation of the HSIP Report "...shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in an action for damages arising from any occurrence at a location identified or addressed in such reports..." This information is also protected by 23 USC 409 (discovery and admission as evidence of certain reports and surveys).

**APPENDIX A**  
**INTERSECTION WARRANTS (2011 HSIP)**

All warrants are based on five years of crash data unless specifically noted.

**Warrant I-1: Frontal Impact**

Locations with a minimum of 25% of the total crashes occurred in the last 2 years AND at least one of the following conditions:

- (a) A minimum of 25 total crashes AND a minimum of 50% of all crashes were frontal impact crashes.
- (b) A minimum of 50 frontal impact crashes.

For the purposes of this warrant, a frontal impact crash is considered to be one of the following crash types:

- Angle
- Left Turn (same or different roads)
- Right Turn (same or different roads)
- Head On

**Warrant I-2: Last Year Increase**

Locations with a minimum of 25 total crashes AND a minimum of 35% of the total crashes occurred in the last year.

**Warrant I-3: Frequency with a Severity Index Minimum**

Locations with a minimum of 25 total crashes AND a minimum severity index of 6.0 AND a minimum of 40% of the total crashes occurred in the last 2 years.

<b>Crash Severity</b>	<b>EPDO Constant</b>	<b>Description</b>
K	76.8	One or more people are killed at the scene or die within 30 days of the crash due to injuries received from the crash.
A	76.8	One or more people receive incapacitating injuries that prevent the individuals from performing their normal activities for 24 hours or longer.
B	8.4	One or more people receive non-incapacitating injuries that are apparent at the scene and will not prevent the individual from performing their normal activities for more than 24 hours.
C	8.4	One or more people complain of pain or momentary unconsciousness; however, the injuries are not visible or obvious at the scene of the crash.
O	1	No one is injured and only property is damaged.

**Table A-1. North Carolina Crash Severity Scale**

**Warrant I-4: Night Location**

Locations with a minimum of 12 crashes that occurred during dark conditions AND a minimum of 38% of the total crashes occurred during dark conditions AND a minimum of 25% of the total crashes occurred in the last 2 years.

**Warrant I-5: Chronic Crossing Pattern**

(NOTE – this warrant is only used if warrants I-1 through I-4 are not met)

(NOTE – this warrant is based on ten years of data)

Locations with a minimum of 20 crashes, 15% of the total crashes occurring in the last 3 years AND a minimum of 80% of the total crashes were crossing pattern crashes. For the purposes of this warrant, a crossing pattern crash is considered to be one of the following crash types:

- All Left Turn
- Angle
- Head On

**APPENDIX B**  
**SECTION WARRANTS (2011 HSIP)**

For each valid warrant location, it is required that for the analysis period of 5 years, a minimum number of crashes and crashes/per mile rates are met. These minimum required values were defined by facility type as follows:

Facility Type	Minimum Total Crashes	Minimum Crashes/Mile Rate
All Freeway Sections	30	60
US Non-Freeway Route	20	40
NC Non-Freeway Route	15	30
SR Non-Freeway Route	15	30
City Non-Freeway Street	20	40

For the purposes of warrants F-1, F-2, N-1, and N-2 a run off road (ROR) type crash is considered to be one of the following crash types:

- Run Off Road (right, left or straight)
- Fixed Object
- Overturn/Rollover

In addition, the following crash types are reviewed and may be considered as run off road crashes for the purpose of these warrants

- Sideswipe Opposite Direction
- Parked Motor Vehicle
- Head On

Currently, the animal crash type has been removed from the section warrant analysis to assist in identifying target crash locations. This is done because animal crashes, predominately deer crashes on North Carolina rural routes, are not applicable to the current warrants. Eliminating these crashes helps to focus the attention on to crash locations that countermeasures can be applied based upon the current warrants.

**Warrant F-1: Run Off Road during Wet Road Conditions (Freeway Facilities)**

Freeway locations that met the minimum total crash and crash rate for freeways AND a minimum of 45% of the total crashes were run off road crashes occurring during wet road conditions.

**Warrant F-2: Run Off Road (Freeway Facilities)**

Freeway locations that met the minimum total crash and crash rate for freeways AND a minimum of 70% of the total crashes were run off road crashes.

**Warrant F-3: Wet Road Condition (Freeway Facilities)**

Freeway locations that met the minimum total crash and crash rate for freeways AND a minimum of 55% of the total crashes occurred during wet road conditions.

**Warrant F-4: Night Location (Freeway Facilities)**

Freeway locations that met the minimum total crash and crash rate for freeways AND a minimum of 42% of the total crashes occurred during dark lighting conditions.

**Warrant N-1: Run Off Road during Wet Road Conditions (Non-Freeway)**

Non-freeway locations that met the minimum total crash and crash rate for the respective facility type AND a minimum of 35% of the total crashes were run off road crashes occurring during wet road conditions.

**Warrant N-2: Run Off Road (Non-Freeway)**

Non-freeway locations that met the minimum total crash and crash rate for the respective facility type AND a minimum of 60% of the total crashes were run off road crashes.

**Warrant N-3: Wet Road Condition (Non-Freeway)**

Non-freeway locations that met the minimum total crash and crash rate for the respective facility type AND a minimum of 45% of the total crashes occurred during wet road conditions.

**Warrant N-4: Non-Intersection Night Location (Non-Freeway)**

Non-freeway locations that met the minimum total crash and crash rate for the respective facility type AND a minimum of 40% of the total non-intersection crashes occurred during dark lighting conditions.

**APPENDIX C**  
**BICYCLE AND PEDESTRIAN INTERSECTION WARRANT**

**Warrant BP-1:      Chronic Location**

Locations with a minimum of 5 crashes involving pedestrians or bicyclists reported in the last 10 years AND a minimum of 50% of all crashes involving pedestrians or bicyclists must have occurred in the last 5 years.

## APPENDIX D

### Hazard Elimination Program Projects that Received Federal Funds in 2011

County	Description	TIP Number	Amount Allocated
Anson	US 74 and NC 218. Install directional crossovers at the intersection and construct U-turn locations with bulb-outs downstream in both directions.	W-5326	\$45,000
Bladen	NC 41 at NC 131. Realign one leg of NC 131 and construct a continuous left turn lane on NC 41 between the two newly constructed "T" intersections of NC 41 and NC 131.	W-5121	(\$190,010)
Bladen	SR 1004 (Tarheel Road) from SR 1314 (Armfield Road) to SR 1315 (Red Oak Farm Road). Wedge four horizontal curves and resurface the roadway to improve the superelevation.	W-5206J	\$27,000
Bladen	NC 131, curve located south of Tarheel, midway between SR 1354 and SR 1344. Realignment of curve.	W-5505	\$45,000
Buncombe	NC 197 from US 19-23 (Future I-26) to a point 0.1 mile west of SR 2172. Install 2' paved shoulders on NC 197 from US 19-23 to a point 0.1 mile west of SR 2172. (Length = 9.5 miles.)	W-5308	\$2,398,454
Carteret	US 70 from 1000 feet west of Willis Road to Banks Street. Construct an 18' raised median from 1000' west of Willis Road to Mansfield Parkway, and a 16' raised median from Mansfield Parkway to Banks Street. (Length = 2.71 miles.)	W-5319	\$171,000
Caswell	NC 86 from just south of NC 119 to the Orange County line. Install shoulder rumble strips.	W-5207F	\$20,700
Caswell	NC 62 from the PC north of SR 1111 (Byrds Sawmill Rd.) to PT south of SR 1759 (Roscoe Dameron Rd.)  Improve horizontal alignment of the compound curves on NC 62 in the vicinity of SR 1759 and SR 1111. Add 2' paved shoulders and resurface. (Length = 1.10 miles.)	W-5325	\$198,000
Catawba	NC 127 from SR 1128 to SR 1176 (0.5 miles). Construct continuous left turn lane.	SF-5112A	\$468,000
Cleveland	US 74 @ SR 2090, US 74 @ SR 2325, and US 74 @ SR 2089 Construct a limited movement crossover at all three intersections.	W-5212E	\$454,500
Cleveland	US 74 Bypass @ Gold St./Mark Dr. (Non System streets) Construct a limited movement crossover (Leftover)	W-5212F	\$22,500
Cleveland	US 74 Bypass at US 74 Business (western intersection). Realign US 74 Business approach to improve skew. Improve curve superelevation.	W-5320	\$270,000
Cumberland	US 401 Business/NC 87 (Martin Luther King, Jr. Freeway) from SR 2212 (Doc Bennett Road) to US 401 Business (Ramsey Street). Install milled shoulder rumble strips.	W-5206E	\$72,000
Cumberland	SR 1403 (Reilly Road) at SR 3569 (Old Raeford Road). Realign the intersection to make SR 1403 the through movement, and place the stop condition to SR 3569. Left and right turn lanes are also proposed.	W-5206F	\$40,500
Cumberland	SR 1007 (All-American Freeway) from Owen Drive/Walter Reed Road to the turnaround at the Fort Bragg entrance gate. Construct milled rumble strips along the inside and outside shoulders.	W-5206H	\$34,650

<b>County</b>	<b>Description</b>	<b>TIP Number</b>	<b>Amount Allocated</b>
Cumberland	SR 1141 (Cumberland Road) at SR 1169 (Camden Road). Construct a single-lane roundabout and realign the east leg of Cumberland Road.	W-5206I	\$90,000
Cumberland	SR 1003 (Camden Rd) from SR 1112 (Rockfish Rd) to the Hoke Co. line. Wedging and resurfacing in curves, widen roadway 2' each side (to provide paved shoulders), and construct left turn lane at SR 3690 (Jack Britt School Rd)	W-5206K	\$13,500
Cumberland	SR 1409 (71st School Rd) at SR 1410 (Old Bunce), in the City of Fayetteville Widen SR 1409 for left turn lane, clear sight distance triangle, and improve super along curve	W-5206M	\$27,000
Davidson	NC 150 from south of South Village Drive to SR 1515 (Mt. Olivet Church Road) approximately 2850 feet. Construct continuous center left turn lane. Proposed cross section to be three 12' lanes with a minimum of 6' shoulders in which 4' of the shoulders should be paved.	W-5115	\$648,000
Durham	NC 55 (Alston Avenue) at Lawson Street. Construct left turn lanes on NC 55.	W-5110	\$517,500
Forsyth	SR 2692 (Gumtree Road) at SR 2693 (Sawmill Road), and SR 2692 at SR 4203 (Reid Road). Improve intersection alignment by converting a skewed crossroad type intersection into two offset T-intersections. A left turn lane will also be constructed on SR 2692 between SR 4203 and SR 2692.	W-5304	\$45,000
Franklin	NC 96 from US 1 westward to the Granville County line. Install 2 foot paved shoulders, resurface, and install thermoplastic markings and raised reflectors. (Length is approx. 5 miles.)	W-5112	\$1,333,658
Granville	NC 96 0.50 mile south of SR 1705 (Old Franklinton Road.) Realign NC 96 to reduce the horizontal curvature of the roadway.	W-5136	\$382,500
Greene	US 258 from 330' north of SR 1117 to 0.5 mile south of SR 1101. Widen to provide a left turn lane.	W-5329	\$105,750
Guilford	Improve intersection alignment by converting a curved Y-type intersection into a T-type intersection. Realign curve at intersection of SR 1129 at SR 4019 in order to convert the north and south legs of SR 1129 to the through traffic movement. Design flattened curve for at least 50 mph. SR 4019 will then become the stem of the T-intersection and will be under stop sign control. Dead end SR 4019 so that it no longer has access to NC 62. Provide vehicle turn around at the end of SR 4019.	W-5305	\$31,500
Harnett	NC 27 in the vicinity of SR 1285 and SR 1209 (Barbecue Church Road). Remove SR 1285 entirely, relocate/realign SR 1209 at NC 27, and widen NC 27 to provide a left turn lane.	W-5206G	\$40,500
Harnett	SR 1719 (Powell Avenue) at SR 1725 (Ashe Avenue). Construct a single-lane roundabout with a northbound right turn slip lane. An additional \$200,000 in funding needed for this project is being provided by the City of Dunn.	W-5501	\$90,000
Haywood	NC 215 from Bridge #418 northward to US 276 (6.61 miles) and from the western intersection with US 276 northward to the southern intersection with SR 1829 (6.42 miles). Install shoulder guardrail.	W-5214C	\$22,500
Henderson	US 25 from north of the NC/SC state line northward to SR 1858. Install median barrier. (Length = 5.5 miles.)	W-5214A	\$533,220
Henderson	NC 191 from SR 1381 (Mountain Road) to 500' north of SR 1365 (N. Rugby Road) Construct a continuous three lane section, extend right turn lanes into schools, revise and install guardrail, and construct paved shoulders.	W-5506	\$171,000

<b>County</b>	<b>Description</b>	<b>TIP Number</b>	<b>Amount Allocated</b>
Henderson, Polk	I-26 at ten official use crossovers in Henderson and Polk Counties. Install collapsible delineator posts at all of the crossovers and install actuated emergency x-over warning signs/flashers at two of the crossovers. The warning systems will be installed at the official use crossover just to the northwest of the Green River Gorge and one just to the northwest of the Saluda Grade.	W-5214B	\$180,000
Iredell	I-40. Install shoulder rumble strips from Catawba County to Davie County and groove pavement in two sections: from US 21 eastward to 0.5 mile west of SR 2158 and from 0.15 mile east of SR 2155/2167 eastward to SR 2210/2145.	W-4711	\$297,000
Lenoir	US 258 beginning 0.34 mile south of SR 1141 northward for 1.61 miles to Bridge #510016. Improve superelevation through curves, overlay with open-graded friction course and install pavement markings.	W-5202A	\$765,000
McDowell	I-40 from the Buncombe County line to US 70. Install a taller single-slope median wall. Install solar powered LED reflectors on all lane lines. Install three median gate systems to alleviate detour delays during highway incidents. (Length is approx. 4.8 miles.)	W-5117	\$1,357,692
McDowell	US 221 (Marion Bypass) from NC 226 to US 70. Install concrete median barrier. (Length is approx. 5.1 miles.)	W-5321	\$54,000
Moore	NC 24/27 at SR 1809 (Grady Road)/SR 1814 (Bryant Road). Lower the grade on western leg of NC 24/27 and install left turn lanes on both approaches on NC 24/27.	W-5144	\$58,500
Moore	US 1 from SR 2080 (US 1 Business) northward to the southern intersection of SR 1871 (St. Joseph Road/Aro Road). Install median barrier and 2' median paved shoulders (to help with maintenance).	W-5302	\$963,000
New Hanover	NC 132 (College Road) from US 117 (Shipyard Boulevard) to US 421 (Carolina Beach Road). Install directional median left-overs with off-set left turn lanes at existing full movement crossovers. Convert specific intersections to off-set left turn lanes with bulb-outs which will function under traffic signal control to allow tractor trailer U-turns. Close specified locations entirely to reduce the number of access points along the corridor. (Length is approx. 4.4 miles.)	W-5104	(\$2,407,532)
Onslow	(1) US 17 (N. Marine Blvd.) @ NC 53 (Western Blvd.) and (2) NC 53 @ SR 1403 (Country Club Road). Install high visibility crosswalks with actuated pedestrian heads along with new pavement markings, wheel chair ramps, and refuge islands.	W-5147	\$720,291
Onslow	NC 24 at SR 1744 (Hubert Blvd.)/SR 1587 (Waterfront). Construct a superstreet design.	W-5203C	\$54,000
Onslow	US 17 Business (Marine Blvd.) at NC 24 ramps and Driveway to NCDMV and NCDOT Jacksonville District office. Install offset lefts.	W-5203D	\$31,500
Orange	SR 1734 (Erwin Road) and SR 1791 (Mt. Mariah Road) near Chapel Hill. Installation of a left turn lane on Erwin Road and a traffic signal.	W-5207E	\$67,500
Orange	NC 86 from NC 57 north for 12.24 miles to the Caswell County line. Construct paved shoulders, shoulder rumble strips, centerline milled rumble strips for various locations within limits. Increase super elevation on two curves.	W-5318	\$90,000
Pamlico	NC 306 between NC 55 in Grantsboro and the Minnesott Ferry Terminal. Widen existing 22' pavement to 28' and stripe for 12' lanes and 2' paved shoulders.	W-5202C	\$45,000
Pender	SR 1520 (Old Mapel Hill Road) from SR 1523 (Shaw Highway) to NC 50. Install spiral widening throughout the curves and install Vibraline along both edgelines for 8.5 miles.	W-5135	\$744,300
Pitt	SR 1708 (Firetower Road), SR 1726 (Portertown Road) and SR 2236 (Robin Road). Construct a roundabout.	W-5202B	\$229,500

<b>County</b>	<b>Description</b>	<b>TIP Number</b>	<b>Amount Allocated</b>
Pitt	Bridge #28 over Fork Swamp on SR 1711 (Worthington Road) between SR 1700 (Old Tar Road) and SR 1709 (Corey Road). Replace the existing functionally obsolete bridge with a wider structure and appropriate guardrail treatments.	W-5504	\$45,000
Randolph	SR 2237 (Salisbury St) at SR 2184 (Coleridge)/ SR 2194 (Dublin Square Road). Modify the grade on the eastern leg of SR 2237 due to angle type pattern.	SF-4908L	\$27,000
Robeson	SR 1515 (St. Anna Road) at SR 1563 (Union Chapel Road). Construct a left turn lane on the eastbound SRW-5139 1563 approach and a right turn lane on the westbound SR 1515 approach.	SRW-5139	\$297,000
Robeson	SR 1515 (St. Anna Road) at SR 1540 (Sally's Road). Realign SR 1515 to provide a continuous movement, and realign SR 1540 to tie into SR 1515 with SR 1540 being under STOP sign control.	W-5140	\$504,000
Robeson	SR 1339 (Deep Branch Road) from NC 711 to NC 710. Construct 2' paved shoulders along both sides of roadway. (Length = 10.2 miles.)	W-5141	\$630,000
Robeson	NC 72 curves located south of Lumberton. Curve 1 - Approx. 1.1 mile south of SR 2225 towards US 74. Curve 2 - At SR 2114. Curve 3 - At SR 2202. Construct wedging, add 2' paved shoulders, and resurface approx. 1400' on both sides of roadway at each location.	W-5206D	\$270,000
Rockingham	US 158 at SR 2422 (Monroeton Road)/SR 2426 (Cunningham Mill Road). Widen for left turn lanes and install traffic signal.	W-5003	\$225,000
Rockingham	US 220 from NC 68 northward for approx. 18.26 miles to the Virginia State line. Install two lines of single face guardrail in the median of US 220.	W-5324	\$2,556,450
Rowan	SR 1221 (Old Beatty Ford Road) and SR 1006 (Organ Church Road). Convert the intersection from a four-legged crossroad type intersection into two T- intersections. Align each T-intersection so that SR 1221 intersects with SR 1006 at an angle closer to 90 degrees. Grade SR 1006 and provide protected intersection sight triangles to provide for adequate intersection sight distance in all directions.	W-5146	\$346,500
Rowan	SR 1526 (Sherrill's Ford Road) at SR 1728 (Briggs/Barringer Roads). Install a modern roundabout.	W-5209D	\$144,450
Rowan	SR 1002 (Bringle Ferry Road) at SR 2144 (Surrat Road). Reconstruct curve to improve both horizontal and vertical alignment to a minimum design speed of 40 mph.	W-5209E	\$63,000
Rowan	NC 801 at SR 2048 (Cool Springs Road/Woodleaf Road), SR 1951 (Parks Road) at SR 2048 (Woodleaf Road), and NC 801 at SR 2004 (Woodleaf Barber Road) aka Quarry Road. Symmetrical widening on NC 801 to construct left turn lanes on NC 801 at SR 2048. Realignment of intersections of NC 801 at SR 2048, NC 801 at SR 2004, and SR 1951 at SR 2048 to improve intersection geometrics and improve intersection sight distance. Adjust vertical grade on NC 801 to provide for greater than the minimum required sight distance for both trucks and passenger vehicles.	W-5314	\$90,000
Stanly	SR 1650 (NE Connector) and SR 1542 (Ridge Street). Convert the existing stop sign/flasher controlled intersection to a roundabout. (Reference file 10-09-217).	W-5210D	\$114,750
Stanly	SR 1650 (NE Connector) and SR 1535 (Mountain Creek Road). Convert the existing stop sign controlled intersection to a roundabout. Reference file 10-09-218.	W-5210E	\$49,500
Statewide	Preliminary Engineering for Spot Safety projects.	Various	\$925,290
Statewide	Signal retiming to improve safety.	W-5300	\$900,000

<b>County</b>	<b>Description</b>	<b>TIP Number</b>	<b>Amount Allocated</b>
Surry	US 52 from Stokes County line to US 52 Business. (12.5 miles) Install shoulder rumble strips.	SF-4911E	\$45,000
Surry	NC 89 from 1.1 miles south of NC 18 to 0.9 mile south of NC 18 (0.2 mile). Curve realignment, pavement widening to 12 foot lanes, and construct 2 foot paved shoulders.	W-5307	\$94,500
Union	SR 1520 (Indian Trail Fairview Road) and SR 1514 (Rocky River Road). Convert existing intersection to a roundabout.	W-5309	\$585,000
Union	SR 1364 (Pleasant Plains Road) at SR 1357 (Potters Road). Install left turn lanes on all four approaches and modify existing two phase traffic signal.	W-5502	\$74,250
Wake	SR 1301 (Sunset Lake Road) between SR 4701 (Cypress Ford Road) and Quarry Rock Drive. Cut the vertical crest by two feet, improve the super-elevation, install a left-turn lane, and improve the cross-slope just south of the curve.	W-5137	\$49,500
Wake	SR 1010 (Ten-Ten Road) from SR 3851 (South Mountain Drive) to Cary Lee Road. Realign SR 1010 to flatten two horizontal curves. (Length = 0.23 mile.)	W-5138	\$54,000
Wayne	(1) US 70 at SR 1234 (Ebenezer Church Road/Capps Bridge Road). (2) US 70 Crossover 0.35 mile west of SR 1234. Construct mainline directional crossovers at both locations with appropriate bulb-outs at adjacent crossovers to accommodate U-turns in accordance with the US 70 corridor study.	W-5010	\$103,500
Wayne	SR 1556 (Wayne Memorial Drive) between SR 1622 (Woodside Drive) and SR 1572 (Saulston-Patetown Road). (1) Widen to 26' with 4' soil shoulders, 6' ditch, and correct superelevation as required for horizontal curves, (2) overlay and remark providing 11' lanes and 2' paved shoulders, (3) (Interim) Install additional and upgrade existing warning signs including chevron signs to meet current MUTCD standards at curves and intersections.	W-5500	\$225,000
Wilkes	NC 16/18 from the intersection of NC 16 and NC 18 north to SR 2545 (Plaza Drive). New Description: Install a two-way left turn lane from NC 16 and NC 18 north to SR 2545 (Plaza Drive) and install a SB left turn lane on NC 16/18 at SR 2545. Old Description: Widen NC 16/18 to provide a left turn lane. Old ROW Cost = \$1K, Old Const. Cost = \$150K.	SF-4911D	\$90,000
Wilkes	Four segments of NC 268 east of North Wilkesboro (from SR 2081 to SR 1986), (from SR 2330 to SR 1989/1993), (from SR 2144 to SR 2015), (from SR 2019 to SR 2064). Widen existing pavement to 24 feet with four foot grass shoulders and 6 foot ditch section.	W-5503	\$540,000

**Total Number of Projects:** 72

**Total Cost for PE:** \$20,427,363

## APPENDIX E

### Hazard Elimination Program Projects On Hold at End of 2011

County	Division	Description of Location	File Number	Total Project Cost
Alamance	07	US 70 (S. Church St.) from approx. 295 feet west of the US 70 and Carolina Ave./Willowbrook Dr. intersection eastward to approx. 245 feet east of the US 70 and Fountain Place intersection. (Length = 870 feet.)  Construct a two-way left turn lane on US 70 from approx. 50 feet west of Carolina Ave./Willowbrook Dr. eastward to Fountain Place.	07-00-215	\$1,287,500
Brunswick	03	SR 1130 is a 2-lane,2-way road that connects US 17 to NC 130 near Shallotte and Holden Beach. It is a cut through road for residents and seasoned tourists. The location is in a curved section. Speed limit is 55 mph.  The project will realign SR 1130 and install the proper super elevation to improve safety along this corridor.	03-11-10910	\$685,000
Buncombe	13	NC 63 from SR 1389 to the Madison County line near Asheville.  Install 2' paved shoulders and resurface NC 63 from SR 1389 to the Madison County line.	13-07-213	\$1,600,000
Cabarrus	10	SR 1335 (Old Charlotte Road) and Union Cemetery Road in Concord.  Install left turn lanes on all approaches of intersection and add protected-permitted left turns as warranted when constructed.	10-07-005	\$945,000
Cabarrus	10	SR 1766 (Rogers Lake Rd.) at railroad crossing in Kannapolis  Grading, drainage, pavement marking and erosion control	10-11-88004	\$2,130,272
Carteret	02	US 70 from SR 1301 (Shell Landing Road) to 0.15 mile south of SR 1238 (E. Carteret High School Entrance).  Widen to provide for a continuous left turn lane. (Length = 2.45 miles.)	02-02-208	\$2,950,000
Cleveland	12	US 74 Bypass @ Gold St./Mark Dr. (Non System streets)  Construct a limited movement crossover (Leftover)	12-11-400	\$475,000
Columbus	06	US 701 Bypass (J. K. Powell Blvd.) from US 74 to Business 74/76/NC 130 (Washington Street).  Widen existing three-lane shoulder section to a four-lane curb and gutter with raised median.	06-08-226	\$1,978,000
Columbus	06	US 74 at SR 1574 (Old US 74)  Construct Directional Crossover with Median U-turns	06-11-15365	\$802,000
Cumberland	06	SR 1615 (Rosehill Road) from Foster Drive to Rutledge Drive.  Widen existing two lane road to a three lane section and install signal at SR 1615 and Tamarack Drive.	06-02-210	\$670,000
Cumberland	06	SR 1003 (Camden Rd) from SR 1112 (Rockfish Rd) to the Hoke Co. line.  Wedging and resurfacing in curves, widen roadway 2' each side (to provide paved shoulders), and construct left turn lane at SR 3690 (Jack Britt School Rd)	06-11-11728	\$1,050,000
Cumberland	06	SR 1007 (Owen Drive) from I-95 Business/US 301 to Walter Reed Road.  Construct a median.	06-11-12756	\$125,000
Cumberland	06	SR 1409 (71st School Rd) at SR 1410 (Old Bunce), in the City of Fayetteville  Widen SR 1409 for left turn lane, clear sight distance triangle, and improve super along curve	06-11-13055	\$350,000

County	Division	Description of Location	File Number	Total Estimated Cost
Duplin	03	Location is at the intersection of US 117 Connector and US 117/SR1006/SR1417 (W Trade Street). US 117 Connector is a 4-lane divided facility with partially controlled access (only at intersextions).  The project will convert a full movement crossover into a superstreet with bulb outs at the u-turn points.	03-11-11790	\$476,000
Durham	05	SR 1978 (Hopson Rd.) at railroad crossing 734746Y and SR 1980 (Church St.) at railroad crossing 734748M and SR 1978 (Hopson Rd.) from NC 54 (Miami Blvd.) to Church St.  Close railroad crossing at Church St. and construct grade separation at Hopson Rd. railroad crossing and widen Hopson Rd.	05-11-88003	\$4,586,150
Franklin	05	NC 98 at SR 1001 (Pearces Road).  Realign SR 1001 to form a 90 degree intersection with NC 98, reduce the vertical crest curve on NC 98 east of the intersection, install left turn lanes on NC 98, and reduce the embankments on NC 98. Re-install flasher.	05-08-210	\$947,000
Greene/Pitt	02	US 264 from the Wilson county line to US 13/NC 11-903.  Overlay existing pavement with an open-graded friction course. (Length = 23.7 miles.)	02-08-203	\$4,225,000
Harnett	06	SR 2215 (Harnett Central Road) from NC 210 to 600 feet east of SR 1513 (Neils Creek Road).  Widen to provide a left turn lane.	06-08-222	\$930,000
Harnett	06	SR 1790 (McKay Avenue/Chicken Farm Rd), reverse curve located south of Dunn between SR 1844 and SR 1780.  Realign curve	06-11-11740	\$775,000
Harnett	06	NC 210 from SR 2047 to SR 2048  Widen to three lanes, and construct 2' paved shoulders	06-11-14603	\$995,000
Haywood	14	NC 215 from Bridge #418 northward to US 276 and from the western intersection with US 276 northward to the the southern intersection with SR 1829.  Install shoulder guardrail on NC 215.	14-11-205	\$975,000
Iredell	12	Penske Way at NS railroad crossing near Mooreville  Revise existing rail crossing signals and install gates at railroad crossing	12-11-88013	\$211,026
Johnston	04	Two sections of NC 210: 1) SR 1309 (Old Fairground Road) to NC 50 (1.16 miles); 2) Between 0.25 and 0.5 mile west of I-40 eastbound ramps (0.25 mile).  Section 1) extend culvert, pipe ditches around culvert, widen pavement to 28', widen soil shoulders to 6', construct 6' ditch, improve superelevation and resurface with OGAF; Section 2) widen pavement to 28', widen soil shoulders to 6', construct 6' ditch, improve superelevation and resurface	04-10-7954	\$850,000
Johnston	04	SR 1700 (Covered Bridge Road) between 800 feet west and 1100 feet east of SR 1709 (City Street) and SR 1768 (Smith Drive)  Realign and increase the curve radius, improve the superelevation, and construct left turn lanes on both approaches of SR 1700.	04-11-4377	\$1,061,440
Lenoir	02	US 70 at SR 1603 (Washington Street)  Close median crossover on US 70 and relocate SR 1603 to intersect SR 1690 north of US 70	02-11-14500	\$375,000
Mecklenburg	10	US 21 (Statesville Road) and SR 2136 (Gilead Road).  Install dual left turn lanes on Gilead Road for both approaches. Install dual left turn lanes on NB US 21. Install additional through lanes on US 21 to support dual lefts from Gilead Road. Upgrade existing signal.	10-07-006	\$3,450,000

County	Division	Description of Location	File Number	Total Estimated Cost
New Hanover	03	SR 1411 (Wrightsville Ave.) at Country Club Road/Colonial Drive. Widen for left turn lanes along Wrightsville Ave. and revise traffic signal phasing to include protected/permitted phasing.	03-03-206	\$2,650,000
New Hanover	03	SR 1100 forms a Y-intersection with SR 1187. SR 1187 is under stop sign control. The project is going to instal a roundabout.	03-11-5850	\$760,000
Pitt	02	NC 43 between the US 264 eastbound ramps and the easternmost town limit of Falkland, a length of 6.6 miles. Construct a 0.73 mile three-lane section between SR 1212 (VOA Site C Road) and the southern intersection of Aaron Circle/Blue Banks Farm Road (non-system) with 12-foot travel lanes and two-foot paved shoulders; regrade the soil shoulders and remark with six-inch thermoplastic markings along the entire 6.6-mile length of the project.	02-11-14811	\$1,363,240
Robeson	06	SR 1529 (Mt Olive Church Rd), from US 301 to NC 211 Construct 2' paved shoulders along section, wedging in the curve at church (near bridges 299 & 300).	06-11-13085	\$1,350,000
Rockingham	7	Intersection of SR 1914 (Oregon Hill Road) and SR 2023 (Guerrant Springs Road) Realignment of vertical curvature on SR 1914 (Oregon Hill Road) and installation of a splitter island with supplemental stop sign on westbound approach (Gurrant Springs Road) of intersection to improve intersection sight distance and geometry.	07-11-637	\$688,750
Rowan	09	Kerns St. at railroad crossing 724348S and Depot St. at railroad crossing 724344P in Granite Quarry Install rail crossing signals and gates at both Kerns St. and Depot St. crossings in Granite Quarry	09-11-88012	\$401,336
Transylvania	14	US 178 from the South Carolina State line to SR 1132, near Rosman. Install approximately ' of steel beam guardrail along the steep fill sections along US 178.	14-11-2	\$0
Transylvania	14	US 178 from the South Carolina State line to US 64, near Rosman. Length = +/- 6.76 miles. Install approximately 20,760' of steel beam guardrail along the steep fill sections along US 178.	14-11-223	\$610,000
Union	10	SR 1008 (Waxhaw Indian Trail Road) and SR 1346 (Beulah Church Road). Convert existing intersection to a roundabout.	10-10-01	\$725,000
Union	10	SR 1001 (Sikes Mill Road) at SR 1001 (Love Mill Road) at SR 1637 (Lawyers Road) at SR 1618 (Tom Heims Road) at SR 1606 (Sikes Mill Road). Install a roundabout to be utilized by all approaches except SR 1637. SR 1637 will be realigned to form a "T" type intersection with SR 1001 (Sikes Mill Road) just south of the roundabout.	10-10-220	\$750,000
Union	10	NC 205 (Elm St.) at railroad crossing 631776E and NC 205 (Elm St.) at Main St. in Marshville Revise crossing signals, gates and track circuitry and preemption of traffic signal	10-11-88002	\$315,658
Wake	05	NC 50 from I-540 northward to the Granville County line. Install guardrail.	05-04-204	\$2,150,000
Wake	05	SR 1371 (Lake Wheeler Road) just south of Yates Mill Park Realign horizontal curve just south of Yates Mill Park	05-11-6700	\$805,000
Wake	05	SR 3060 (Morrisville Parkway) between Quail Fields Ct. and Crabtree Crossing Pkwy. Re-align Morrisville Parkway and grade separate railroad crossing	05-11-88001	\$2,000,000
Wayne	04	SR 1947 (County Rd.) at Railroad Crossing 628829X Revision of Rail Crossing Signals; Installation of gates; curb & gutter; pavement markings	04-11-88011	\$235,128

County	Division	Description of Location	File Number	Total Estimated Cost
Wayne	04	SR 1941 (NE Church Rd.) at CSX rail crossing 628842L and SR 1941 (NE Church Rd.) at 1938 (NW Center St./Old Mount Olive Highway) near Mount Olive Revise rail crossing signals, install gates; and revise traffic signal	SR04-11-88014	\$220,776
Wilson	04	NC 42 from SR 1500 (Bullard Court) to SR 1502 (Tartt's Mill Road), a length of 0.99 mile Improve superelevation through curves, overlay with open-graded asphalt friction course (OGAFC, FC-2 Modified), mark with thermoplastic for 12' lanes and 3' paved shoulders, install snowplowable pavement markers, grade and stabilize soil shoulders to provide proper drainage.	04-11-6730	\$800,000

**Total Number of Projects:** 43

**Total Cost for PE:** \$50,729,276

## APPENDIX F: 2011 Funded Spot Safety Projects (All Funding Sources)

<i>County</i>	<i>Division</i>	<i>Description of Location</i>	<i>File No.</i>	<i>Amount Requested</i>	<i>Funding Source</i>
Alamance	07	NC 87 at SR 1005 (Greensboro-Chapel Hill Road) near Graham. There is an existing flasher at the intersection. Install Traffic Signal	07-10-234	\$55,000	State
Ashe	11	US 221 at NC 163/US 221 Business. Revise signal to provide flashing yellow arrow display for NW approach of US 221/NC 194.	11-10-200	\$10,000	State
Ashe	11	US 221 Business and SR 1248 (Beaver Creek School Road). Revise signal to provide flashing yellow arrow display for WB US 221 Business.	11-10-201	\$10,000	State
Beaufort	02	NC 33 between 1000' east and 1000' west of NC 306 Widen existing 24' pavement to 32' for 4' paved shoulders	02-11-12675	\$162,500	State
Brunswick	03	NC 130 at SR 1132 (Shell Point Rd/Civietown Rd.) Four legged intersection with left turn lanes on NC 130. Intersection is under stop sign control.  The project consists of buying and clearing sight triangles. Monuments will be set by NCDOT to permanently mark sight triangles.	03-11-8816	\$56,000	State
Buncombe	13	SR 1003 (Reem's Creek Road) at SR 2127 (South Main Street). Lower vertical curve to the northeast of the intersection in order to improve sight distance.	13-10-203	\$170,000	State
Buncombe	13	US 25A (Sweeten Creek Road) at SR 3187 (Pensacola Road). Install a traffic signal.	13-10-205	\$60,000	State
Buncombe	13	SR 3116 (Mills Gap Rd.) at SR 3121 (Pinners Cove Rd.) in Royal Pines. Install an actuated flasher on SR 3116.	13-11-201	\$8,000	State
Buncombe	13	SR 3556 (Meadow Road) between Amboy Road and Victoria Road. Resurface roadway in a sharp curve to improve the superelevation and install centerline rumblestrips throughout the section.	13-11-204	\$240,000	State
Burke	13	I-40 Westbound ramps at SR 1001 (Malcolm Boulevard) in Rutherford College. Install a traffic signal with black metal poles and mast arms.	13-10-207	\$122,500	State
Burke	13	SR 1405 (Brown Mountain Beach Road) from NC 181 to Caldwell County. Install shoulder guardrail on SR 1405.	13-10-210	\$210,000	State
Burke	13	SR 1726 from US 70 to SR 1843 and SR 1843 from US 1726 to SR 1737, near Valdese. Install shoulder guardrail on SR 1726 and SR 1843.	13-11-203	\$125,000	State
Burke	13	SR 1653 from just east of SR 1658 to +/- 0.36 mile north of SR 1625. Length = +/- 0.30 mile. Install 2-4' paved shoulder, upgrade and extend guardrail throughout the curve, and install additional warning signs	13-11-207	\$50,000	State
Burke	13	SR 1956 from SR 2002 to SR 2021. Length = 1.2 miles Widen roadway to 20' and install warning signs in the low speed curves.	13-11-208	\$240,000	State
Cabarrus	10	NC 3 and Mt. Olivet Road in Kannapolis. Install a left turn lane on NC 3 and a full actuated traffic signal with protected/permitted left turn phase.	10-09-208	\$156,000	State

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Cabarrus	10	NC 3 (Dale Earnhardt Boulevard) between US 29 and Sharon Street/ Pennsylvania Avenue in Kannapolis.  Install median curbing to prevent cross or left turn movements from PVA's in this area.	10-09-223	\$27,000	State
Cabarrus	10	US 29 and SR 1432 (Concord Farms Road) in Concord.  Install a directional crossover at the intersection using a ballard/curb system. Widen radius at intersection of US29 and Samuel Adams Circle to allow for easier U-turn movement at this location.	10-11-208	\$80,000	State
Caldwell	11	Bridge # 130077 on SR 1143 (Rocky Road), approx. 0.15 miles south of US 64.  Installation of guardrail on bridge approaches.	11-11-200	\$18,250	State
Carteret	02	NC 58 at SR 1259 (Taylor Notion Road).  Intersection improvements.	02-07-213	\$15,000	State
Catawba	12	NC 127 at SR 1400 (Cloninger Mill Road/SR 1351 (Kool Park Road).  Revise signal to change SB NC 127 protected-permitted left-turn phase to fully protected.	12-11-203	\$10,000	State
Cherokee	14	US 129 from the Georgia State line to US 64.  Install shoulder guardrail on US 129.	14-10-208	\$245,000	State
Cherokee	14	US 74 and SR 1388 (Beaver Creek Road).  Install "RED" LED "signal ahead" signs on the westbound approach to the intersection and install loops for 60 or 65 mph design speed.	14-11-202	\$16,000	State
Cherokee/Clay	14	Bridge #223 on SR 1548/SR 1100. DN00064  Install bridge approach guardrail.	14-11-211	\$75,000	State
Cleveland	12	SR 2033 in the vicinity of bridge numbers 220025 and 220034.  Install bridge approach guardrail and guardrail at various segments along SR 2033.	12-11-202	\$175,000	State
Cleveland	12	NC 180 at SR 1908 (New Prospect Church Road).  Install actuated flashing beacons on Intersection Warning signs on NC 180.	12-11-204	\$35,000	State
Cleveland	12	SR 2263 (Margrace Road) at SR 2487 (Dixon School Road).  Install actuated flashing beacons on Intersection Warning signs on SR 2487.	12-11-206	\$35,000	State
Columbus	06	Bridge #69 on SR 1112 (Big Cyprus Road).  Install approach and trailing guardrail at Bridge #69 on SR 1112.	06-08-224	\$50,000	State
Columbus	06	US 701 (J K Powell) at Smith Street in Whiteville.  Close crossover at intersection by constructing concrete channelization along US 701 at Smith Street; then utilize closed intersection to extend US 701 NB left turn lane storage for signalized intersection at Washington Ave.	06-10-10314	\$75,000	State
Columbus	06	SR 1001 (Hallsboro Rd), curve located approximately 0.5 mile south of SR 1915  Wedging along the curve; resurfacing	06-11-10524	\$80,000	State
Cumberland	06	SR 1403 (Reilly Road) at SR 1400 (Cliffdale Road) in Fayetteville.  Install concrete island channelization on all four legs of the intersection.	06-09-203	\$75,000	State
Cumberland	06	SR 1007 (Owen Drive/All American) at Walter Reed/Owen Drive Extension in Fayetteville.  Revise signal to provide fully protected left turn for WB SR 1007 (Owen Drive), add an additional WB 3-section head for the thru lanes, and extend the WB left turn storage	06-10-10312	\$25,500	State

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Cumberland	06	SR 1402 (Rim Road) south of SR 1400 (Cliffdale Road). Install a 2' monolithic center island for approximately 300 feet.	06-10-202	\$16,000	State
Cumberland	06	US 401 (Raeford Road) at SR 1256 (Revere Street). Provide protected/permitted left turn phase for both approaches of US 401 (Raeford Road).	06-10-7958	\$55,000	State
Cumberland	06	SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road). Install 4-section FYA signal head for southbound SR 1102 (Gillis Hill Road). Utilize time-of-day programming to run LT phase fully protected during selected times.	06-11-11596	\$7,000	State
Davidson	09	SR 3010 (Old US 52) and SR 1499 (Enterprise Road)/SR 3262 (Welcome Center Boulevard) near Lexington. Installation of a flashing yellow arrow for the protected/permitted left turn phases on SR 3010.	09-09-208	\$46,000	State
Davidson	09	SR 1508 (Hickory Tree Rd) and SR 1601 (Mendenhall Road) near Winston-Salem. Installation of left turn lane on Hickory Tree Road, with a 100 feet of storage.	09-10-005	\$200,000	State
Davie	09	NC 801 at SR 1801 (Deadmon Road) southeast of Mocksville. Installation of approximately 780 feet of guardrail and necessary shoulder/drainage work for guardrail installation on a fill section embankment.	09-10-196	\$35,000	State
Davie/Davidson	09	US 64 east of Mocksville from Deer Run Road in Davie County to SR 1615 (Happy Hill Road) in Davidson County. Install 12 inch wide shoulder rumble strips on both shoulders, centerline rumble strips, and snow plowable raised centerline markers.	09-10-980	\$250,000	State
Duplin	03	NC 24 (Kenansville Bypass) at three signalized intersections NC 11, NC 50, NC 903. Install long vehicle detection and shoulder mounted actuated yellow flashing beacons (mounted on signal ahead warning signs) that flash when signal changes to red.	03-10-8570	\$156,000	State
Forsyth	09	SR 1891 (Peacehaven Road) and SR 1101 (Harper Road) in Clemmons. Associated with new school and developer funds. Install Roundabout Associated with new school and developer funds. Needs to be picked in January to provide funds for fall completion.	09-10-236	\$100,000	State
Gaston	12	US 321 NB at 2nd Avenue. Redesign signal to semi-actuated operation. Add a near-side signal head.	12-10-202	\$10,000	State
Gaston	12	SR 2439 (Lowell Bethesda Road) in the vicinity of Carrie Elizabeth Road. Wedge asphalt at the culvert to improve superelevation throughout curve. Adjust and extend guardrail as needed for wedging.	12-11-201	\$115,000	State
Gaston	12	SR 1106 (Freedom Mill Road) at SR 1125 (Sparrow Springs Road). Realign side street to improve skew angle to main street. Install crosswalks and pedestrian flashers.	12-11-205	\$105,000	State
Gaston	12	SR 2416 (Robinson Rd.) @ SR 2420 (Forbes Rd.)/ SR 2625 (Robinson Circle). Install a continuous flasher.	12-11-209	\$31,000	State
Gates	01	US 158 at SR 1002 (Acorn Hill Road). Install painted delineation islands on both approaches of SR 1002.	01-11-0583	\$7,500	State

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Graham, Swain	14	Seven spot locations on NC 143 in Graham County, US 129 in Swain County, and NC 28 in Graham and Swain Counties.  Safety improvements which include additional warning signs, paved shoulders (select locations), speed reduction pavement markings (select locations) and guardrail (select locations).	14-11-210	\$240,000	State
Guilford	07	SR 1539 (Willard Road) and SR 1523 (Hickwood Road) in High Point. Widen radii, move utilities, install a four-way stop and flasher.	07-09-203	\$148,500	State
Guilford	07	SR 1278 (College Drive) and SR 1300 (Green Drive) in High Point. Install pedestrian signal heads with pushbuttons, new handicap ramps, crosswalks and two new loop detectors in the eastbound approach.	07-09-208	\$23,000	State
Guilford	07	SR 3303 (Vandalia) and SR 3307 (Riverdale Road) near Greensboro. Install flasher and relocate utility pole to improve sight distance.	07-10-892	\$30,000	State
Guilford	07	Six intersection locations. (1) US70/E. Wendover Ave. @ N. English St.; (2)07-11-010 SR 1008(Market St.) @ N. Lindell Rd.; (3) SR 1008 (Market St.) @ Muirs Chapel Rd./Spring Garden St.; (4) SR 1008 (Market St.)@ Montrose St.; (5) SR 1008 (Market St.) @ Norwalk St.; (6) SR 1008 (Market St.) @ SR 2175 (Green Valley Rd.).  US 70 @ N. English -Install Additional thru lane signal heads, Convert English St to FYA. SR 1008 @ Muirs Chapel - Replace 5-section heads over left turn lanes on SR1008 w/FYA. SR 1008 @ Norwalk- Replace 5-Section Heads over left turn lane on SR 1008 w/FYA. SR1008 @ Montrose - Replace 5-section heads over left turn lane on SR 1008 w/FYA. SR 1008 @ Green Valley -Replace 5-Section head over left turn lane on SR 1008 w/FYA. SR 1008 @ N. Lindell-Replace 5-section head over left turn lane on SR 1008 w/FYA.		\$14,000	State
Guilford	07	SR 2515 (Brown Summit Road) 0.5 mile south of NC 150 near Brown Summit.  Correct superelevation in curve approaching culvert. Install guardrail as needed on approaches and at culvert.	07-11-600	\$54,000	State
Halifax	04	NC 125 at SR 1683 (American Legion Road). Construct left turn lane on NC 125	04-10-9740	\$175,000	State
Halifax	04	SR 1804 (Shields Commissary Road) 0.5 mile north of NC 903 Improve superelevation through the curve	04-11-11526	\$75,000	State
Halifax	04	NC 4, between 0.68 mile south of SR 1308 (Stansbury Road) and 1.39 miles north of SR 1309 (Spruills Bridge Road). Improve superelevation through the curve.	04-11-2631	\$150,000	State
Harnett	06	SR 1006 (Old Stage Road) at SR 1505 (Pearidge Road). Convert to an All-Way Stop	06-10-10039	\$8,500	State
Harnett	06	NC 210 at SR 2215 (Harnett Central Road). Remove outdated flasher, and replace with updated dual mounted actuated (bouncing ball) flasher with "Vehicles Entering When Flashing" signs	06-10-10248	\$14,000	State
Harnett	06	SR 1718 (Dunn-Erwin Rd) at Powell Avenue, in the Town of Dunn Change lane marking pattern from 4 lanes to an offset left turn lane and one through lane in each direction. Project includes resurfacing to improve marking visibility, addition of a signal head for the left turn lane, and relocation of the through heads.	06-11-12859	\$173,000	State
Harnett	06	US 401 (Main St) intersections at NC 27 and SR 2016 (McNeil), in the Town of Lillington Signalize intersection of Main St at NC 27. Close W McNeil leg. Combine new signal with the signal at McNeil, and operate as one signal.	06-11-12988	\$225,000	State
Haywood	14	US 276 from SR 1102 to SR 1105 (MP 9.16 - 13.78). DN00047 Install shoulder guardrail on US 276.	14-09-203	\$130,000	State

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Haywood	14	US 19-23 at SR 1532/SR 1800 (Jones Cove Road) Channelize and install median divider to restrict movements on the side streets.	14-11-214	\$150,000	State
Henderson	14	SR 1783 (Upward Road)/(Ridge Road) at SR 1525 (Dana Road)/(Oleta Road). Install actuated traffic signal with split side streets.	14-10-201	\$125,000	State
Henderson	14	SR 1171 (Finley Cove/Hebron Road) at SR 1192 (Indian Cave Road) near Hendersonville. Install an actuated flasher.	14-10-209	\$26,000	State
Henderson	14	NC 191 near SR 1350 and SR 1351 in Mills River. Improve the sight distance on NC 191 by cutting down the vertical curve.	14-11-204	\$240,000	State
Henderson	14	SR 1722 (Old Spartanburg Hwy) at SR 1775 (Brooklyn Ave.) Install an actuated flasher that warns both the sidestreets and the mainline.	14-11-206	\$40,000	State
Iredell	12	NC 115 and SR 1138 (Presbyterian Road). Install a two phase traffic signal.	12-09-201	\$55,000	State
Iredell	12	US 70 at SR 2362 (Triplett Road). Construct limited movement crossover.	12-11-200	\$177,000	State
Jackson	14	US 441 in the vicinity of SR 1543. Length = 0.50 mile. Install centerline rumble stripes along a 0.50 mile section of US 441.	14-08-212	\$10,000	State
Jackson	14	NC 107 from SR 1345 (River Road) to a point +/- 0.20 mile south of SR 1330 (N. Country Club Drive/Forest Hills Road) near Sylva. Length = 3.4 miles. Install median rumble strips on this section of NC 107. Length = +/- 3.4 miles	14-10-214	\$70,000	State
Johnston	04	NC 42 from 1050' west of NC 50 to 300' west of SR 1651 (Kasey Circle), a total length of 0.30 mile. Widen the shoulder on the north side of NC 42 by piping the ditch, regrading and stabilizing the soil shoulder. Relocate existing mailboxes to allow mail carrier to pull completely off the roadway.	04-10-5417	\$160,000	State
Johnston	04	US 70 Business at SR 1501 (Swift Creek Road). Install shoulder mounted "Be Prepared to Stop" signs with beacons on US 70 Business actuated by the signal clearance phase.	04-11-0409	\$40,000	State
Johnston	04	US 301 (Brightleaf Blvd) between SR 1921 (Hospital Road) and North Street Install a center median with a mainline directional leftover into both Turner Drive and the Medical Mall northern access.	04-11-11991	\$150,000	State
Johnston	04	SR 1706 (Loop Road) between both intersections with SR 1700 (Covered Bridge Road), a total length of 2.72 miles Widen 2' on each side and overlay with BST	04-11-1314	\$247,500	State
Macon	14	NC 106 at SR 1628 (Old Mud Creek Road) near Sky Valley. Install an actuated flasher that warns both the side street and the mainline and make sight distance improvements in the southeast quadrant.	14-10-213	\$60,000	State
Martin	01	NC 11/42 at NC 903. Install advance actuated shoulder mounted "Vehicle Entering" signs with beacons on both approaches of NC 11/42 and improve pavement markings on both approaches of NC 903.	01-10-7824	\$8,000	State

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Martin	01	SR 1142 (Prison Camp Road) between 0.3 mile south of Bridge #53 and 0.2 mile north of SR 1155 (Race Track Road), a length of 0.7 mile. Regrade soil shoulders, install guardrail at Bridge #53, and install warning signs.	01-11-1319	\$51,000	State
Mecklenburg	10	NC 24/27 and SR 3102 (Cabarrus Road). Install directional crossover and jug handle on NC 24/27 at Cabarrus Road.	10-08-216	\$106,000	State
Mecklenburg	10	I-85 NB Ramp at WB SR 2472 (Mallard Creek Church Road) near Charlotte. Install dual right turn lanes on I-85 NB Ramp to WB Mallard Creek Church Road. Install a fully actuated signal with a protected/permitted phases for SB Mallard Creek Church Road traffic onto I-85 NB Ramp.	10-09-211	\$233,000	State
Mecklenburg	10	SR 2805 (Harrisburg Road) at SR 5047 (Cambridge Commons Drive) near Harrisburg. Install a roundabout with a slip lane for motorists heading north on Harrisburg Road towards I-485.	10-10-016	\$225,000	State
Mecklenburg	10	I-277 (Brookshire Freeway) Outer Loop at I-77 Northbound Ramp in Charlotte. Install advance queue detection on I-277 at I-77 NB Ramp.	10-10-204	\$138,000	State
Mecklenburg	10	I-85 southbound ramp onto I-77 southbound in Charlotte. Install microsurfacing along the entire ramp beginning at the I-85 SB gore area to the bridge on I-77 SB.	10-11-205	\$115,000	State
Moore	08	NC 690 at curve west of SR 2011. Increase the radius of the curve to improve the horizontal alignment.	08-11-2424	\$185,000	State
Nash	04	NC 58 at SR 1145 (Old Spring Hope Road). Construct left turn lanes on both approaches of NC 58 and install a two-phase signal.	04-07-221	\$180,000	State
Nash	04	US 301 from 0.053 mile south of Main Street to 0.04 mile north of SR 1733 (Mill Branch Road), a total length of 700'. Install a combination of concrete islands and a curb and delineator system, allowing full movement at the signalized intersection of US 301 and SR 1733.	04-09-1108	\$18,750	State
New Hanover	03	Bridge #30 on US 421 (Carolina Beach Road) over Intracoastal Waterway (Snow's Cut). Install bridge approach guardrail.	03-09-218	\$185,000	State
New Hanover	03	SR 1276 (Cathay Road) between US 421(Carolina Beach Rd.) and SR 110003-10-209 (River Rd.). 2' symmetrical widening to provide a 2' paved shoulder.	03-10-209	\$197,940	State
New Hanover	03	SR 1175 (Kerr Avenue) between south of Infantry to SR 1327 (Gordon Road). 2' symmetrical widening to provide a 2' paved shoulder.	03-10-2207	\$161,830	State
New Hanover	03	Racine at US 74 (Eastwood Rd.) in Wilmington. Install Flashing Yellow Arrow heads on Eastwood Road.	03-10-8571	\$12,000	State
Onslow	03	SR 1503 (Bear Creek Rd.) between SR 1566 (Old Sandridge Rd.) and Bridge No. 21. The project is to widen road 2 feet on each side to provide paved shoulders.	03-11-11606	\$235,000	State
Orange	07	US 70 Bus./Alt. and SR 1709 (Lawrence Road) near Hillsborough. Widen radii and install 4-way stop.	07-09-1320	\$25,000	State

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Orange	07	RSA Two intersections US 70 at SR 1561/1709 (Lawrence Rd), near Hillsboro US 70 at SR 1002 (St Marys Rd), near Hillsboro.  Revising signal at Lawrence Rd to Split-Phasing for Lawrence Rd. Revising signal at St. Marys to Protected/Permitted with FYA in both directions.	07-11-573	\$40,000	State
Pamlico	02	Bridge #24 on NC 304, 0.25 mile north of NC 55.  Install a single guardrail end treatment on the right side of the northbound approach to the bridge.	02-10-10134	\$7,500	State
Pasquotank	01	SR 1333 (Main Street Extended) in the vicinity of SR 1338 (Berea Church Road).  Pave the inside of the curve through the driveway at 3137 Main Street Extended across from SR 1338, overlay, and remark.	01-10-6176	\$31,000	State
Pasquotank	01	SR 1101 (Peartree Road) at SR 1169 (Pitts Chapel Road/Four Forks Road).  Convert existing intersection to all-way stop condition.	01-11-3850	\$10,000	State
Pitt	02	SR 1530 (Airport Road/Mumford Road) at SR 1531 (Greene Street).  Replace existing 5-section left turn heads on SR 1531 with Flashing Yellow Arrows and replace existing 12-position cabinet with 16-position cabinet. Remove existing blank-out sign for railroad preemption on northbound SR 1531.	02-09-0747	\$25,000	State
Pitt	02	SR 1467 (Stantonsburg Road) at SR 1203 (Allen Road).  Construct right turn lane for eastbound SR 1467 onto SR 1203. Upgrade signal 02-0500 including flashing yellow arrow for westbound SR 1467. Set back left turn lane stop bars on both approaches of SR 1467.	02-09-0762	\$165,000	State
Pitt	02	NC 43 at NC 102.  Actuate existing overhead warning flasher so yellow heads are activated by approaching side street vehicles. Install actuated sign-mounted flashers to intersection warning signs on NC 43.	02-09-203	\$41,000	State
Pitt	02	NC 43 (Charles Boulevard) from US 264A (Greenville Boulevard) to Red Banks Road.  Construct a landscaped median island.	02-09-205	\$200,000	State
Pitt	02	SR 1755 (Galloway Crossroads Road) at SR 1760 (Moble's Bridge Road).  Widen radii and construct islands to improve the skew angle on both approaches of SR 1760.	02-09-206	\$45,000	State
Pitt	02	NC 11 at SR 1113 (Old Snow Hill Road) and Snow Hill Street.  Install advance actuated shoulder mounted warning flashers and "Vehicle Entering When Flashing" warning signs on both NC 11 approaches to SR 1113.	02-10-6806	\$50,000	State
Polk	14	NC 9 and SR 1159.  Upgrade the existing continuous flasher to an actuated flasher that warns both the mainline and side street of approaching cross street traffic.	14-09-211	\$15,000	State
Randolph	08	US 64 at SR 2235 (Andrew Hunter Road)/SR 2261 (Foxfire Road)  Install a Prepare to Stop When Flashing sign with actuated flasher on both approaches of US 64.	08-11-2427	\$20,000	State
Robeson	06	NC 71 from SR 1752 to NC 20.  Apply bituminous surface treatment (BST), followed by thermoplastic pavement markings along the section. [Note: District office continues to work with manufacturer to prevent future spills.]	06-10-10121	\$120,000	State
Robeson	06	SR 1752 (Rennert Road) at SR 1758 (McDuffie Crossing Road).  Convert intersection to all-way stop control.	06-10-8042	\$8,500	State

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Robeson	06	NC 41 (MLK Blvd) at SR 2207 (Popes Crossing Road) / SR 2316 (Sanchez06-11-10554 Road). Remove a large tree that is causing a sight obstruction for motorists entering the intersection from eastbound SR 2316 (Sanchez Road).		\$21,000	State
Robeson	06	Four median gap locations along I-95 in the vicinity of: SR 1723, SR 1718, 06-11-13006 SR 1726, SR 1529. Construct cable guiderail.		\$135,000	State
Rowan	09	US 29 and SR 1210 (Old Beatty Ford Road / E. Ryder Avenue) in Landis. Provide positive offset for existing left turn lanes. Install flashing yellow arrow.	09-11-337	\$177,000	State
Rutherford	13	US 64/US 74A at SR 1341/SR 1182. Install an actuated flasher that warns both the side street and mainline. Also, place flashers on the stop signs on SR 1341 and SR 1182.	13-10-209	\$40,000	State
Rutherford	13	SR 2179 (Oak St.) at SR 2178 (Hardin Rd.) in Forest City. Remove concrete island and positive offset the left turn lane on westbound SR 2179.	13-11-205	\$60,000	State
Rutherford	13	US 74 Business at the western intersection of SR 1595 (Old US 74), near Forest City. Construct a left turn on US 74 Business.	13-11-206	\$150,000	State
Sampson	03	US 701 (Hobbton Highway) and SR 1724 (Kenan Weeks Road). Install a left turn lane along US 701 in the southbound direction and resurface.	03-08-212	\$177,000	State
Scotland	08	US 74 at SR 1251 (Murdock Street)/SR 1312 (Church Street). Construct a directional crossover and provide a u-turn point approximately 1000 feet east of the intersection.	08-11-1536	\$148,000	State
Stanly	10	US 52 at NC 740/NC 8 (West Gold Street) - SR 1440 (Steakhouse Road). Install traffic signal.	10-05-204-1	\$50,000	State
Stanly	10	US 52 in the vicinity of North Stanly High School and the intersections with SR 1214 (Austin Road) and SR 1529 (Gene Road) in New London. Signalize US 52 at each of the state road intersections with one controller so that the two intersections will function as one, consolidate some drives at the NSHS, close private drive, and remark US 52 accordingly. The school will be responsible for the traffic flow modifications needed on campus in order to make the signalization and traffic flow work.	10-11-212	\$177,000	State
Stanly	10	NC 24/27 from SR 1731 (Sweet Home Church Road) to the Montgomery County line for a distance of 4.6 miles near Albemarle. Mill up the existing centerline and edgeline, mill in rumble stripes on both edgelines and centerline, and reinstall pavement markings.	10-11-218	\$211,000	State
Swain	14	SR 1140 (Alarka Road) from US 74 to 4.5 miles eastward, near Bryson City. Install shoulder guardrail on SR 1140.	14-11-203	\$240,000	State
Swain	14	NC 28, 0.15 mile south of SR 1133. Pavement rehabilitation.	14-11-212	\$60,000	State
Transylvania	14	SR 1388 (Old Rosman Hwy/Old US 64) from US 64 to US 178. Install approximately 8,000 feet of guardrail along this section of roadway.	14-09-210	\$200,000	State
Transylvania	14	US 64 at SR 1518 (Davidson River Road). Install an actuated flasher that warns both the sidestreets and mainline.	14-11-207	\$40,000	State

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Union	10	SR 1003 (White Store Road) and SR 1941 (Old Pageland Monroe Road). Convert the intersection to a 4-way stop and cut down side slope in southwest quadrant.	10-09-202	\$35,000	State
Union	10	NC 218 at SR 1525 (Mill Grove Road). Upgrade the existing flasher to a semi-actuated flasher.	10-09-231	\$36,500	State
Union	10	SR 1501 (Secrest Shortcut Rd) and SR 1518 (Faith Church Road) in Hemby Bridge. Install a left turn lane along SR 1501, install a right turn lane on SB SR 1501, and install a traffic signal.	10-10-207	\$237,500	State
Wake	05	Northbound US 70/US 401/NC50/SR1513 (McDowell Street) Exit Ramp at SR 1012 (Western Blvd/Martin Luther King, Jr. Parkway). Install approximately 220 feet of steel beam guardrail along north shoulder of exit ramp.	05-07-211	\$52,500	State
Wake	05	SR 1009 (Lake Wheeler Road), just north of SR 1370 (Tryon Road). Install a 4 ft. concrete island.	05-09-1217	\$146,000	State
Wake	05	SR 1381 (Yates Mill Pond Road) at SR 1380 (Countryview Lane). Improve the skew angle of the intersection, install a concrete island, flatten the horizontal curve.	05-09-209	\$69,000	State
Wake	05	US 64 at Shepherds Vineyard Drive and US 64 at SR 1521 (Lake Pine Drive). Install a directional crossover on US 64 at Shepherds Vineyard Drive, and construct a dual left on northbound SR 1521 (Lake Pine Drive) at US 64 to accommodate additional left turning traffic.	05-10-6749	\$205,000	State
Wake	05	SR 2697 (New Hope Road) at Rogers Lane. Install a traffic signal with metal strain poles and pedestrian heads on all approaches.	05-11-1461	\$65,000	State
Wake	05	SR 1002 (Aviation Parkway) at Dominion Drive. Install a traffic signal with metal strain poles.	05-11-1547	\$60,000	State
Watauga	11	NC 105 south in Boone near the Studio West Apartments. Installation of a HAWK Pedestrian Crossing Beacon to provide access across NC 105 to the Appalcart bus stop. This is a temporary measure until Appalcart can provide bus service for the south side of NC 105.	11-10-202	\$30,000	State
Wayne	04	NC 55 at NC 403, SR 1745, and SR 1754. Disconnect SR 1754 from intersection and realign SR 1754 to intersect approx. 700' east of NC 403. Upgrade flasher #04-0481 with advance actuated shoulder mounted flashers.	04-07-233	\$230,000	State
Wayne	04	NC 111 at SR 1547 (Stoney Creek Church Road). Install actuated shoulder mounted flashers on both approaches of NC 111.	04-09-2778	\$22,000	State
Wayne	04	US 117 at SR 1141 (Main Street). Revise existing median crossover to only allow left turns from southbound US 117 onto eastbound SR 1141 (Main Street).	04-10-10465	\$175,000	State
Wayne	04	SR 1744 (Indian Springs Road) from NC 55 to 0.1 mile west of SR 1941 (Northeast Church Road). Upgrade warning signs to 2009 MUTCD standards to enhance horizontal alignment safety	04-10-5726	\$7,500	State
Wayne	04	US 70 at I-795 and NC 581 Connector northbound ramps. Relocate the right turn lane on the northbound NC 581 Connector exit ramp to allow for removal of the louvers from the eastbound US 70 signal heads and install near side heads on both approaches of US 70.	04-11-14176	\$90,000	State

<u>County</u>	<u>Division</u>	<u>Description of Location</u>	<u>File No.</u>	<u>Amount Requested</u>	<u>Funding Source</u>
Wilson	04	SR 1165 (Forest Hills Road) from NC 42 (Tarboro Street) to Wooten Boulevard, a length of 0.18 mile. Install a median on SR 1165 between NC 42 and Wooten Boulevard and install a traffic signal at the intersection of SR 1165 and Wooten Boulevard.	04-09-1131	\$100,000	State

**Total Number of Projects:** 134

**Total Cost for PE:** \$13,157,270

# ***APPENDIX G: "On Hold" (Unfunded) Spot Safety Program Projects at end of 2011***

<i><b>County</b></i>	<i><b>Division</b></i>	<i><b>Description of Location</b></i>	<i><b>File No.</b></i>	<i><b>Requested</b></i>
Alamance	07	NC 62 and SR 1179 (Eric Lane) in Burlington. Convert SB NC 62 from permitted only to protected/permitted phasing. Install flashing yellow arrows on NC 62 approaches.	07-11-330	\$15,000
Beaufort	02	NC 33 at SR 1936 (Old Sandhill Road). Realign SR 1936 to reduce the skew angle and construct an eastbound right turn lane on NC 33.	02-11-13823	\$125,000
Buncombe	13	SR 3412 (Sandhill Road) at SR 1224 (Sandhill School Road/Oakview Road). Install an actuated traffic signal.	13-09-205	\$100,000
Burke	13	I-40 EB from Exit 119 (SR 1002) to the Catawba County line Mill and resurface roadway for approximately 2,200' to improve surface water runoff.	13-11-216	\$360,000
Cabarrus	10	NC 73 (Davidson Highway) at Chadbourn Avenue and Hanover Streets. Install left turn lane on NC 73 at Chadbourn Ave. and install a 3' concrete median at NC 73 and Hanover Street.	10-09-229	\$144,000
Cabarrus	10	SR 1430 (George Liles Parkway) and Grand Canyon Road/Village Drive in Concord. Install a fully actuated traffic signal on wood poles.	10-09-232	\$55,000
Cabarrus	10	NC 73 from SR 1529 (Riding Trail) to SR 1507 (LaForest Road) near Kannapolis. Install a continuous left turn lane along this current two lane, two-way roadway.	10-11-219	\$240,000
Caldwell	11	SR 1001 (Connelly Springs Rd.) @ SR 1130 (Cajah Mtn. Rd.) Install a left-turn lane on the southbound approach of SR 1001. Revise existing signal to provide a flashing yellow arrow for the southbound SR 1001 left turn.	11-11-201	\$352,000
Carteret	02	US 70 at Campen Road Reduce the skew angle and construct a left turn lane on the east approach of Campen Road, and revise existing traffic signal.	02-11-13826	\$75,000
Catawba	12	SR 1453 (Springs Rd.) @ SR 1484 (County Home Road). Realign horizontal curve on SR 1453, improve skew angle of SR 1484, install a SB left turn lane for SR 1453, and signalize the intersection.	12-11-212	\$390,000
Catawba	12	SR 1005 (McDonald Parkway at the intersections of the I-40 EB ramps and SR 3003/Fifteenth Ave. SE) At the I-40 EB ramps: install FYA for SB left turns, add additional 3 section signal head for SB through approach. Install back plates with reflective borders for NB and SB approaches. Convert right turn slip lane to signal control. At the SR 3003/ Fifteenth Ave SE intersection, construct an additional SB left turn lane to provide dual left turns.	12-11-213	\$300,000
Cherokee	14	US 64 (proposed US 64 Alternate) at SR 1531 (Hendrix Road). Construct a left turn lane on US 64 and install guardrail along fill slopes.	14-09-205	\$210,000
Cherokee	14	SR 1326 (Joe Brown Hwy) from Bridge #159 to southern intersection with SR 1363 (Mileposts 16.996 - 20.180) near Murphy. Install approximately 9,150' of steel beam guardrail along the steep fill sections along SR 1326.	14-11-221	\$214,000
Chowan	01	NC 32 between the southern intersection with SR 1316 (Greenhall Road) at Hancock and the northern intersection with SR 1317 (Brayhall Road). Overlay with open-graded asphalt friction course.	01-11-13184	\$280,000
Clay	14	US 64 at SR 1300. Construct a + 300' left turn lane at the intersection and channelize the drive into the convenience store.	14-10-212	\$170,000

<i>County</i>	<i>Division</i>	<i>Description of Location</i>	<i>File No.</i>	<i>Requested</i>
Columbus	06	SR 1585 curved section at Bridge #207, located just north of SR 1557. Wedge curve & 2' widening (both sides of roadway). [NOTE: Bridge 207 is scheduled to be replaced. These improvements could not be included in the project, but it is the intention of the Division to implement these improvements directly following the completion of the bridge replacement project.]	06-11-11730	\$200,000
Columbus	06	SR 1820 (Fertilizer Rd) at SR 1878 (Old NC 87) and SR 18 70 (Cronly Rd). Revise intersection to make SR 1820 (Fertilizer Road) the through movement to eliminate the skewed intersection with SR 1878 (Old NC 87).	06-11-14709	\$76,000
Cumberland	06	SR 2220 (Tom Starling Road) and SR 2333 (Corporation Drive) near Fayetteville. Widen southbound SR 2220 (Tom Starling Road) to provide a left turn lane.	06-08-206	\$117,000
Cumberland	06	US 401 (Ramsey Street) at SR 1607 (Elliott Bridge Road) with SR 1607 being under stop sign control. Extend turn lanes and provide channelization on SR 1607 (Elliott Bridge Road).	06-08-212	\$160,000
Cumberland	06	SR 1104 (Strickland Bridge Road) from SR 1105 (Graham Road) to a point just south of Brookmere Place. Construct a left turn lane on SR 1104 at SR 1105, and grade/wedge curved section in the vicinity of Brookmere Place, in the City of Fayetteville.	06-10-7788	\$215,000
Cumberland	06	NC 24/87/Bragg Blvd at the intersections of Barrington Cross and McPherson Avenue; in the City of Fayetteville. Construct Directional Crossovers at both locations	06-11-13090	\$100,000
Cumberland	06	US 401 (Pamalee Drive) from the intersection with Cain Rd / Helen Drive eastward towards Commonwealth; within the City of Fayetteville. Construct concrete median.	06-11-14831	\$135,000
Cumberland	06	US 401/Pamalee Drive, from Commonwealth Drive westward for approximately 0.2 mile, in the City of Fayetteville Install drop inlets along curved/sag section of Pamalee Drive, and install a driveway drop inlet at the intersection with Commonwealth, to improve drainage.	06-11-16574	\$51,000
Davidson	09	NC 150 and SR 1453 (West Center Street) near Lexington. Construct a left turn lane with 150 feet of storage on NC 150.	09-07-211	\$360,000
Davidson	09	SR 1762 (Joe Moore Road) in the vicinity of SR 1972 (Cub Drive) near Thomasville. Install 825 lf of guardrail on SR 1762 (Joe Moore Road) just north of the intersection of SR 1762 @ SR 1972 (Cub Drive).	09-10-099	\$15,290
Duplin	03	I-40 and NC 24 at Exit 364. Install four-section FYA heads for left turn lanes on NC 24 onto I-40. SINS: 03-670 and 03-671.	03-11-11286	\$53,000
Durham	05	SR 1004 (Old Oxford Road) at SR 1648 (Danube Lane) Install a traffic signal and construct left turn lanes on SR 1004 (Old Oxford Road).	05-11-5025	\$368,000
Durham	05	SR 1158 (Cornwallis Road) at Hope Valley Road Install a traffic signal and include in Durham Signal System.	05-11-6420	\$65,000
Edgecombe	04	Bridges #3 and 4 on SR 1404, #41 on SR 1003, #54 on SR 1243, #68 on SR 1108 , and #87 on NC 97. Install guardrail and end treatments at each bridge site.	04-11-12259	\$155,000
Forsyth	09	Two cross-line culverts on SR 1173 (Williams Road). One culvert is located 377' east of SR 3652 (Cresthaven Drive), and the other culvert is 2070' west of SR 1175 (Hauser Road). Install approximately 125 lf of guardrail on both sides of SR 1173 at the culvert located approximately 377' east of SR 3652. Install 450 lf of guardrail on one side of SR 1173 and 560 lf of guardrail on the other side of SR 1173 at the culvert located approximately 2070' west of Hauser Road.	09-11-349	\$57,000

<i>County</i>	<i>Division</i>	<i>Description of Location</i>	<i>File No.</i>	<i>Requested</i>
Gaston	12	NC 279 from Camp Sertoma Rd. to SR 1456 (White Jenkins Rd.). NC 274 from 500' north of SR 1443 (Dameron Rd.) to 1200' south of SR 1405 (Ramseur Rd.)	12-11-211	\$100,000
		Install centerline rumble strips and apply high visibility markings to centerline and edge lines.		
Granville	05	NC 56 at Robertson Creek. Install approximately 700 ft. guardrail along NC 56 at Robertson Creek.	05-11-4729	\$84,000
Guilford	07	SR 2565 (Hicone Road) and SR 2835 (McKnight Mill Road) near Greensboro. Install flasher.	07-09-206	\$20,000
Guilford	07	SR 3505 (Pleasant Garden Road) at SR 3307 (Riverdale Road), Dutch. Relocate utility pole located in southwest quadrant of intersection. Fill in deep hole located off of southbound shoulder of SR 3505 just south of utility pole to be relocated. Remove the two pole stubs that are currently protecting the guy wire of the pole that is to be relocated.	07-10-624	\$89,600
Halifax	04	NC 43 at SR 1346 (Rosser Home Road). Wedge curve on NC 43 to improve superelevation.	04-07-232	\$110,000
Haywood	14	SR 1004 (Newfound Rd.) near SR 1612 (MP 2.14 - 2.62) near Canton. Install shoulder guardrail on SR 1004.	14-11-217	\$40,000
Henderson	14	SR 1316 (Ray Hill Road) from SR 1328 (Turnpike/Gash Road) to SR 1317 (Brannon/Maple Swamp Road). Install guardrail along the steep fill sections along SR 1316.	14-08-209	\$60,000
Henderson	14	SR 1534 (Naples Road) and Park Ridge Hospital Drive/Homestead Farm Circle. Install an actuated traffic signal on wood poles along with some minor realignment of Homestead Farm Circle.	14-08-210	\$100,000
Henderson	14	SR 1513 (Nix Road) from SR 1503 (Clear Creek Road) to SR 1006 (Howard Gap Road). Length = 1.1 miles. Install approximately 3,500' of single faced guardrail along with 100' of triple corrugated steel beam guardrail.	14-09-202	\$110,000
Henderson	14	US 25 Business at SR 1366 (Cureton Place) near Naples. Remove part of concrete island to install a left turn lane and extend deceleration lane onto I-26 Eastbound.	14-10-204	\$75,000
Henderson	14	SR 1359 (Rutledge Road) between Wiltshire Circle and the Buncombe County Line. Length = +/- 0.20 mile. Install actuated flashers (only flash when vehicles are approaching) on the existing curve warning signs, reset and extend guardrail, and place delineators/markers throughout the 15 mph curve.	14-11-220	\$30,000
Henderson	14	SR 1602 from US 64 to 0.5 mi north of SR 1604 (Mileposts 5.97 - 11.01), near Edneyville. Install approximately ' of steel beam guardrail along the steep fill sections along SR 1602.	14-11-222	\$170,000
Iredell	12	I-40 Westbound off ramp and US 64/NC 90. Install traffic signal.	12-10-200	\$50,000
Iredell	12	US 64 at Mulberry Street. Upgrade signal to actuated operation. Upsize signal heads to 12"	12-11-210	\$25,000
Iredell	12	SR 2362 (Triplett Rd.) in the vicinity of Bridge # 480001 Install guardrail on bridge approaches.	12-11-214	\$35,000
Jackson	14	US 441 at SR 1424 (Olivet Church Rd.) near Cherokee. Install a right turn lane on US 441.	14-11-218	\$86,000
Johnston	04	SR 1010 (Cleveland Road) at SR 1514 (McLemore Road) near Smithfield. Install a traffic signal.	04-05-210	\$51,000
Johnston	04	SR 1330 (Raleigh Road) at SR 1517 (Sanders Road). Construct a left turn lane on SR 1330 (Raleigh Road) at SR 1517 (Sanders Road).	04-09-205	\$280,000

<u>County</u>	<u>Division</u>	<u>Description of Location</u>	<u>File No.</u>	<u>Requested</u>
Johnston	04	NC 42 at NC 222 and SR 1934 (Old Beulah Road)/SR 2113 (Raper Road) Realign both approaches of NC 222, construct right turn deceleration lanes on both approaches of NC 42, reconnect the driveway for the existing convenience store to NC 222 and/or SR 2113, resurface and restripe.	04-11-12532	\$235,000
Johnston	04	NC 42 at SR 1628 (Cleveland Crossing Drive)/Son-Lan Parkway Improve the turning radius in the southwest quadrant from existing 30' to 70'	04-11-14063	\$65,000
Lee	08	SR 1140 (Frank Wicker Rd) / McDougald Rd at SR 1144 (Swanns Station Rd) Revise existing overhead actuated flasher to an all way stop operation with appropriate signs and pavement markings	08-11-4840	\$15,000
Lenoir	02	NC 11 at SR 1161 (Albrittons Road/Greene Haynes Road) Install advance actuated shoulder-mounted "Vehicle Entering When Flashing" warning system on both NC 11 approaches to SR 1161, and lengthen the existing concrete monolithic island on the northern leg of NC 11 by 500'.	02-11-16465	\$97,000
Lenoir	02	NC 11 at SR 1143 (Liddell Road) Install advance actuated shoulder-mounted "Vehicle Entering When Flashing" warning system on both NC 11 approaches to SR 1143.	02-11-16466	\$50,000
Madison	13	US 25-70 at SR 1582 (Long Branch Road). Construct a left turn lane on US 25-70.	13-10-208	\$200,000
McDowell	13	US 221 Bypass at US 70, near Marion Remove concrete island and lengthen the left turn lane on northbound US 221 Bypass.	13-11-202	\$50,000
McDowell	13	I-40 EB offramp at SR 1001-Sugar Hill Road (Exit 81). Lengthen the EB off ramp and add additional warning signs. Construct a left turn lane on SR 1001.	13-11-209	\$150,000
Mecklenburg	10	NC 160 and I-485 Inner Loop Ramp in Charlotte. Install a fully actuated traffic signal.	10-09-209	\$51,000
Mecklenburg	10	NC 160 and I-485 Outer Loop Ramp in Charlotte. Install a fully actuated traffic signal and install a concrete monolithic island on NC 160 at the Outer and Inner Loop Ramps to/from I-485.	10-09-210	\$70,000
Mecklenburg	10	SR 2459 (Eastfield Road) and SR 2461 (Highland Creek Parkway) in Charlotte. Install traffic signal.	10-09-222	\$50,000
Mecklenburg	10	SR 2004 (Mt. Holly Huntersville Road) and SR 2042 (Oakdale Road) near Charlotte. Install left turn lane on SR 2004 and install a fully actuated traffic signal.	10-09-226	\$235,000
Mecklenburg	10	SR 4982 (Old US 52 /Lancaster Highway) at SR 4039 (Lullingstone Road/Wynhollow Downs Lane) in Charlotte. Convert the exiting single lane approaches along SR 4982 to have an exclusive left turn lane and a thru-right lane in each direction.	10-10-208	\$225,000
Mecklenburg	10	SR 2820 (Pence Road) and SR 2805 (Harrisburg Road) in Charlotte. Install a fully actuated traffic signal	10-10-214	\$56,000
Mecklenburg	10	I-485 from MM 31.0- MM 33.5 and MM 38.1- MM 43.2 in Charlotte. Install NovaChip surface skid treatment	10-11-206	\$250,000
Mecklenburg	10	I-485 from MM 36.3 to MM 38.1. Install NovaChip surface skid treatment	10-11-207	\$250,000
Mecklenburg	10	NC 24/27 and SR 2810 (Rocky River Church Road) near Mint Hill Modify existing left turn lanes to be off-set left turn lanes.	10-11-220	\$182,000
Mecklenburg	10	SR 1441 (Carowinds Blvd) and SR 1124 (Choate Circle/ Catawba Avenue) in Charlotte. Extend the WB left turn lane storage along SR 1441, install positive offset left turn lanes in both the EB and WB directions along SR 1441.	10-11-224	\$168,500

<i>County</i>	<i>Division</i>	<i>Description of Location</i>	<i>File No.</i>	<i>Requested</i>
Mecklenburg	10	NC 24 (WT Harris Blvd) EB ramp and SR 2939 (Old Concord Road) Install fully actuated traffic signal	10-11-225	\$50,000
Mitchell	13	US 19E from just east of SR 1122 to east of SR 1142. Length = +/- 0.28 mile. Extend the existing three lane section through the SR 1137 and SR 1142 intersections.	13-11-212	\$150,000
Moore	08	NC 211 at SR 2063 (Pee Dee Road) Install a traffic signal	08-11-6604	\$70,000
Nash	04	NC 43/48 (Benvenue Road) from NC 48 (Gold Rock Road) to the US 301 southbound ramps, a length of 0.44 mile. Construct monolithic islands and install delineators between each existing signalized intersection.	04-07-222	\$130,000
Nash	04	SR 1544 (Halifax Road) at SR 1765 (Community Drive). Construct a left turn lane on northbound SR 1544 (Halifax Road).	04-07-224	\$81,000
Nash	04	SR 1004 (Taylor's Store Road) at SR 1310 (Taylor's Gin Road). Install a "Vehicle Entering" actuated flasher.	04-08-211	\$22,500
Nash	04	US 64 at NC 58 (Washington Street) Install interchange lighting.	04-11-16545	\$250,000
Onslow	03	NC 53 and SR 1109 (Holly Shelter Road). Install a left turn lane along NC 53 and realign SR 1109 to form more of a "T" intersection instead of a skewed intersection.	03-06-202	\$195,000
Onslow	03	The intersection of US 258/ NC 24 and NC 111 north of Jacksonville. This is a three legged unsignalized intersection. US 258/ NC 24 is a five lane section with a 55 mph speed limit. NC 111 is a two lane, two way roadway with a 45 mph speed limit. The project is to improve safety by installing a traffic signal. The traffic signal should reduce the number of the left turn same road crashes. It should also improve congestion on NC 111 thus reducing the number of rear end collisions on NC 111.	03-11-11786	\$135,700
Orange	07	NC 54 @ SR 1010 (W. Main St) in Carrboro, Orange County Install near-side supplemental signal heads on NC 54 approaches.	07-11-209	\$2,000
Pender	03	Signalized intersection of US 117 at NC 133 (Winding Creek Road). Both roads are two-lane two-way ditch section Project will update the US 117 northbound five section head to a four section flashing yellow arrow.	03-11-15448	\$26,400
Pitt	02	NC 903 at SR 1524 (Brown Road) Construct a left turn lane on southbound NC 903 and a concrete channelization island on the SR 1524 approach to improve the skew angle.	02-11-13129	\$188,000
Pitt	02	US 258 at SR 1239 (Old 258 Road) and SR 1239 (Old 258 Road) at SR 1238 (Morgan Road) Realign SR 1239 so it intersects US 258 at close to a 90-degree angle, and realign SR 1238 so it intersects SR 1239 at close to a 90-degree angle.	02-11-14465	\$125,000
Polk	14	SR 1151-Green River Cove Road from SR 1150 to Bridge #202. Length = 3.42 miles. Install guardrail along the steep fill sections along this section of roadway.	14-11-215	\$100,000
Rockingham	07	SR 1604 (Old 770/Washington Street) and SR 1565/2281 (Old 135) near Eden. Realign SR 2281 to intersect SR 1604 at approximately 75-80 degrees.	07-10-889	\$61,000
Rowan	09	US 29/US70/ NC 150 (Main Street) at SR 1910 (11th Street) in Salisbury. Upgrade all signal heads at the intersection from 8" heads to 12" heads. In addition to the upgraded signal heads, "LEFT TURN YIELD ON GREEN Ball" signs will be placed on the signal span wire over the combination left-turn/through lanes on US 29. Please note that in order to maintain the minimum clearance required under the signal heads, the signal poles will need to be replaced at this intersection. Some of these poles are combination utility and signal poles. This project will also involve moving the existing utilities off the existing poles and then placing them on the new signal poles.	09-09-483	\$55,500

<i>County</i>	<i>Division</i>	<i>Description of Location</i>	<i>File No.</i>	<i>Requested</i>
Rowan	09	SR 1006 (Faith Road) at SR 1007 (Jake Alexander Blvd). Install 4 section head FYA for left turn lanes on SR 1007 (Jake Alexander Blvd). Install 3 section head FYA for left turn lanes on SR 1006 (Faith Road). Project will entail the installation of 4 FYA heads, changing out the conflict monitor in the signal cabinet, and providing new signal plans.	09-11-357	\$10,000
Rutherford	13	SR 1306 (Buffalo Creek Road) from SR 1314 eastward for 0.60 mile Install approximately 1,400' of steel beam guardrail along the steep fill sections.	13-11-211	\$35,000
Rutherford	13	US 221A at SR 2210 (Chase High School Road) Realign intersection to improve skew angle, construct right turn lane, install actuated traffic signal, and install paved shoulders.	13-11-213	\$190,000
Rutherford	13	SR 2159 (Piney Ridge Rd.) at SR 2241 (Oak St. Ext) near Forest City. Install a traffic signal and construct a left turn lane on SR 2241.	13-11-214	\$175,000
Rutherford	13	SR 1510 (Hudlow Rd.) and SR 1538 (Whitesides Rd.) near Rutherfordton. Install a four-way stop and concrete raised islands for channelization.	13-11-215	\$37,000
Scotland	08	US 15-501 at NC 144. Install shoulder mounted "Vehicle Entering When Flashing" on both approaches on US 15-501.	08-11-4758	\$35,000
Scotland, Hoke,	08	US 15-501 from Laurinburg to Aberdeen. Install centerline and shoulder rumble strips.	08-11-4731	\$200,000
Swain, Graham	14	US 129 in Swain County and northern Graham County. Install truck regulatory/restriction signs with flashers in three locations along US 129. The signs will give the truck size restrictions for this section of US 129.	14-11-216	\$45,000
Union	10	SR 1365 (Stallings Road) and SR 1524 (Stevens Mill Road) in Stallings. Install fully actuated 2 phase traffic signal.	10-08-214	\$70,000
Union	10	SR 1501 (Idlewild Road/ Seacrest Shortcut Rd) and SR 1525 (Mill Grove Rd) in Hemby Bridge. Install a fully actuated traffic signal and add pavement to improve the radius in the SE corner of the intersection.	10-10-011	\$62,000
Union	10	SR 1524 (Stevens Mill Road) and SR 1501 (Idlewild Road) in Stallings. Install a right turn lane along SB Stevens Mill Road.	10-11-201	\$107,500
Union	10	SR 1751 from SR 1002 to SR 1772. Widen the overall pavement width from 18' to 22' utilizing safety edge.	10-11-214	\$725,000
Union	10	SR 1006 from SR 1630 to 0.5 mile NE of SR 1645. Widen the overall pavement width from 18' to 22' utilizing safety edge.	10-11-215	\$665,000
Union	10	A median crossover located along US 74 (Roosevelt Blvd) between SR 1223 (Dickerson) and Hanover Street in Monroe. Install a bollard system eliminating EB left turn and U-turn movements in the crossover.	10-11-223	\$140,000
Wake	05	NC 50 (Benson Road) at SR 3718 (Turner Farm Road)/Wakefield Lane). Construct left turn lanes on NC 50 at this intersection.	05-04-225	\$235,000
Wake	05	NC 97 at SR 2329 (Marshburn Road). Construct left turn lanes on NC 97.	05-04-406	\$240,000
Wake	05	US 70 Business at SR 2558 (Guy Road). Widen the northbound approach of Guy Road to accommodate dual left turn lanes with 250 ft. of storage, and revise signal to accommodate split side street phasing.	05-06-206	\$229,500
Wake	05	SR 1375 (Lake Wheeler Road) just north of SR 1390 (Optimist Farm Road). Realign horizontal curve just north of intersection.	05-08-203	\$235,000
Wake	05	NC 42 at SR 2749 (Johnny Baker Road). Construct a left turn lane for eastbound NC 42 at this intersection.	05-08-213	\$123,500

<i>County</i>	<i>Division</i>	<i>Description of Location</i>	<i>File No.</i>	<i>Requested</i>
Wake	05	US 401 at SR 2301 (Barham Siding Road)/SR 2037 (Moore's Pond Road). Construct left turn lanes on US 401 at this intersection.	05-09-1233	\$207,000
Wake	05	SR 1010 (Ten Ten Road) at SR 2723 (Fanny Brown Road). Install a traffic signal and construct a westbound left turn lane on SR 1010.	05-09-205	\$162,000
Wake	05	NC 98 at South Franklin Street. Install a traffic signal.	05-11-0469	\$50,000
Wake	05	SR 1822 (Leesville Road) at SR 1836 (Fairbanks Drive) Install a traffic signal and interconnect with Raleigh Signal System. Include pedestrian heads and crosswalk across Fairbanks leg due to existing sidewalk network along the west side of Leesville Road.	05-11-4372	\$60,000
Wake	05	US 401 at SR 1375 (Simpkins Rd). Extend the NB left turn lane storage and construct a SB right turn lane. Install "Prepare to stop when flashing" for the NB approach. Revise the traffic signal to "Flashing Yellow Arrow". Improve radii and shoulders and extend cross-drain pipes as required.	05-11-4730	\$300,000
Wake	05	SR 1010 (Ten Ten Rd.) from SR 1377 (Blaney Franks Rd.) to SR 1404 (Johnson Pond Rd.) Construct a three-lane section on SR 1010 from SR 1377 to SR 1404.	05-11-4841	\$205,000
Wake	05	US 401 over Swift Creek (Bridges 86 and 89) and paved median just north of the bridges Regrade shoulders in area of guardrail, reset guardrail to proper height and install flexible delineator posts in paved median area just north of bridges.	05-11-4842	\$260,000
Wake	05	SR 1901 (Old Weaver Trail) at SR 1904 (Stool Tree Road) Improve the skew of the intersection by installing a concrete island and removing extra pavement.	05-11-5024	\$37,500
Wake	05	US 1 Southbound Off Ramp at NC 55 Widen US 1 southbound off ramp at NC 55 for a two lane exit.	05-11-6493	\$94,000
Wake	05	SR 2012 (Litchford Road) and Scouting Trail in Raleigh. Install a fully actuated traffic signal.	05-99-202	\$50,000
Wayne	04	SR 1003 (New Hope Road) at SR 1570 (Hare Road) and the entrance to the Goldsboro Church of God. Install a two-phase traffic signal.	04-07-225	\$60,000
Wayne	04	US 117 from 0.3 mile south of NC 55 to 0.5 mile south of SR 1135 (Country Club Road). Overlay 1.8 miles of US 117 with open-graded asphalt friction course, remark with thermoplastic pavement markings, and replace raised centerline pavement markings.	04-10-4455	\$100,000
Wayne	04	SR 1930 (Outlaw Road) between SR 1932 (Emmaus Church Road) and US 117 Alternate Widen 2' on each side, overlay with chip seal, and restripe; improve shoulders; and update signing to 2009 MUTCD standards.	04-11-14780	\$238,000
Wayne	04	SR 1927 (Genoa Road) between SR 1930 (Outlaw Road) and US 13/117 (1) Widen 2' each side between SR 1918 (Pecan Road) and SR 1926 (Old Mt. Olive Road), improve superelevation, overlay with chip seal, and restripe. (2) Update the signing along the total length of the project to 2009 MUTCD standards.	04-11-14781	\$251,000
Wayne	04	SR 1130 (Woodland Church Road) between SR 1219 (Old Grantham Road) and SR 1120 (Oberry Road) Widen 2' on each side, overlay with chip seal, and restripe; improve shoulders; and update signing to 2009 MUTCD standards.	04-11-14782	\$395,000
Wayne	04	US 13 between SR 1006 (Corbett Hill Road) and US 117/SR 1927 (Genoa Road) Remove existing pavement markings as needed, install 6" thermoplastic pavement markings, and upgrade signing to 2009 MUTCD standards.	04-11-14783	\$138,500

<i>County</i>	<i>Division</i>	<i>Description of Location</i>	<i>File No.</i>	<i>Requested</i>
Wayne	04	US 117 at US 13 and SR 1927 (Genoa Road) 1) Upgrade signal with metal strain poles, add near-side heads on both approaches of US 117 and northbound US 13, and revise southbound US 13/117 right turn overlap; 2) Extend southbound US 13/117 right turn lane; 3) Improve radii in northwest and southwest quadrants; 4) Restripe entire intersection including pavement arrows; 5) Remove vegetation in northwest quadrant to improve sight distance; 6) Upgrade signing to 2009 MUTCD standards.	04-11-16441	\$180,000
Wayne	04	US 117 Alternate South in front of the U.S. Post Office near Dudley. Construct a left turn lane for motorists entering the post office.	04-98-209	\$180,000
Wilkes	11	US 421 Bus./NC 115 at SR 2318 (Old 60) Construct SB left turn lane on US 421 Bus. at SR 2318 (Old 60)	11-11-202	\$390,000
Wilson	04	US 301 0.1 mile south of SR 1368. Install guardrail at median culverts along both approaches of US 301.	04-08-217	\$6,000

**Total Number of Projects:** 121

**Total Cost for PE:** \$17,637,990

## *High Risk Rural Road Projects that Received Federal Funds in CY 2011*

<u>County</u>	<u>Description of Location</u>	<u>TIP</u>	<u>Amount Allocated</u>
Alleghany	NC 18, from 0.37 miles north of SR 1150 (Hoppers Rd) to 0.87 miles south of SR 1141 (Meadow Fork Rd). SF-4911G (Total Length is 0.53 miles) Construct lane and shoulder widening.		\$400,500
Beaufort	NC 33 at SR 1936 (Old Sandhill Road). Realign SR 1936 to reduce the skew angle and construct an eastbound right turn lane on NC 33.	SF-4902I	\$13,500
Cumberland	SR 1102 (Gillis Hill Road) at SR 3791 (Celtic Drive) and horizontal curves on SR 11102 (Gillis Hill Road). Construct Left Turn Lane on SR 1102 at SR 3791. Install Linear Delineation System (LDS) panels on w-beam guardrail along both sides of roadway and install guardrail delineators.	SF-4906M	\$189,000
Davidson	NC 150 and SR 1453 (West Center Street) near Lexington. Construct a left turn lane with 150 feet of storage on NC 150.	SF-4909G	\$45,000
Forsyth	Two cross-line culverts on SR 1173 (Williams Road). One culvert is located 377' east of SR 3652 (Cresthaven Drive), and the other culvert is 2070' west of SR 1175 (Hauser Road). Install approximately 125 lf of guardrail on both sides of SR 1173 at the culvert located approximately 377' east of SR 3652. Install 450 lf of guardrail on one side of SR 1173 and 560 lf of guardrail on the other side of SR 1173 at the culvert located approximately 2070' west of Hauser Road.	SF-4909F	\$450
Gaston	NC 279 from Camp Sertoma Rd. to SR 1456 (White Jenkins Rd.). NC 274 from 500' north of SR 1443 (Dameron Rd.) to 1200' south of SR 1405 (Ramseur Rd.) Install centerline rumble strips and apply high visibility markings to centerline and edge lines.	SF-4912H	\$4,500
Granville	NC 56 at Robertson Creek. Install approximately 700 ft. guardrail along NC 56 at Robertson Creek.	SF-4905C	\$5,400
Guilford	NC 68 and SR 2269 (Alcorn Road) in Oak Ridge Construct turn lanes on Alcorn Road approaches and upgrade signal. The T intersection north of Alcorn, SR 2132, will be closed due to history of rearend collisions.	SF-4907D	\$70,200
Halifax	NC 43 at SR 1346 (Rosser Home Road). Wedge curve on NC 43 to improve superelevation.	SF-4904H	\$4,500
Harnett	SR 1790 (McKay Avenue/Chicken Farm Rd), reverse curve located south of Dunn between SR 1844 and SRW-5206L 1780. Realign curve.		\$45,000
Haywood	SR 1004 (Newfound Rd.) near SR 1612 (MP 2.14 - 2.62) near Canton. Install shoulder guardrail on SR 1004.	SF-4914A	\$2,700
Henderson	SR 1316 (Ray Hill Road) from SR 1328 (Turnpike/Gash Road) to SR 1317 (Brannon/Maple Swamp Road). DN00087 Install guardrail along the steep fill sections along SR 1316.	SF-4914C	\$1,800
Johnston	SR 1330 (Raleigh Road) at SR 1517 (Sanders Road). Construct a left turn lane on SR 1330 (Raleigh Road) at SR 1517 (Sanders Road).	SF-4904G	\$9,000
Onslow	NC 53 and SR 1109 (Holly Shelter Road). Install a left turn lane along NC 53 and realign SR 1109 to form more of a "T" intersection instead of a skewed intersection.	SF-4903F	\$22,500
Onslow	SR 1436 (Deppe Road) between US 17 and SR 1428 (Riggs Road) near Swansboro. Widen the roadway by 2 feet on each side.	W-5203E	\$40,500

<i>County</i>	<i>Description of Location</i>	<i>TIP</i>	<i>Amount Allocated</i>
Onslow	SR 1518 (Old Folkstone Road) between SR 1528 (Winery Road) and approximately 0.5 mile east of Bridge W-5203F #181 near Snead's Ferry. Widen the roadway by 2 feet on each side and install guardrail on bridge approaches.		\$22,500
Polk	SR 1151-Green River Cove Road from SR 1150 to Bridge #202. Length = 3.42 miles. DN00093 Install guardrail along the steep fill sections along this section of roadway.	SF-4914D	\$4,500
Robeson	NC 211 at SR 1001 (Shannon Road) Construct left and right turn lanes, improve intersection skew, and widen inside paved shoulder by 2 feet.	W-5206N	\$45,000
Robeson	NC 71 culvert within a curve located between SR 1316 and SR 1317. Replace existing culvert, wedge curve, widen shoulders/pavement, and install guardrail along culvert.	W-5206O	\$67,500
Swain, Graham	US 129 in Swain County and northern Graham County. Install truck regulatory/restriction signs with flashers in three locations along US 129. The signs will give the truck size restrictions for this section of US 129.	SF-4914B	\$6,300

***Total Number of Projects:*** 20

***Total Cost for PE:*** \$1,000,350