

CEAO CSTP SAFETY STUDY PROGRAM  
Safety Study Project Prioritization

<u>Project Type</u>	<u>Code</u>	<u>Funding Limits</u>
<b><u>First Priority Projects</u></b>		
Sign Inventory (Urban)	SI-U	\$110 per mile
Sign Inventory (Rural)	SI-R	\$80 per mile
Sign Compliance/Inspection (Urban)	SC-U	\$140 per mile
Sign Compliance/Inspection (Rural) (PE Stamp Required)	SC-R	\$130 per mile
Guardrail Inventory	GI	\$75 per mile
Guardrail Compliance/Inspection (PE Stamp Required)	GC	\$110 per mile
Pavement Marking Inventory/ Inspection/Centerline Compliance (PE Stamp Required)	PMI	\$155 per mile
Curve Advisory Speed Study (PE Stamp Required)	CAS	\$150 per mile (Shall be Limited by Note 1 below)
Roadside Hazard Inventory/Inspection/ Compliance Plan (PE Stamp Required)	RHI	\$180 per mile
Sign Upgrade	SU	\$62,500 maximum (at 80% = \$50,000 federal max)
Curve Sign Upgrade	CSU	\$45,000 maximum (at 100% federal)
<b><u>Second Priority Projects</u></b> (PE Stamp Required)		
Speed Zone Study	SZ	\$1,400 per location (at 90% = \$1,260 federal max)
Traffic Signal Warrants	TSW	\$1,800 per signal per location (at 90% = \$1,620 max)
Intersection\Corridor Safety Study	SS	\$13,000 max per location (at 90% = \$11,700 max)
<b><u>Other</u></b>		
Software recommended for Sign Inventory, No Passing Zone, Curve Advisory Speed, Guardrail Inventory and Compliance, Roadside Hazard Inventory and Compliance Plan		\$2,500 for 1 module + \$500 per each additional module (at 90% = \$2,250 + \$450 each federal max) Overall software max of \$5,000 per County within a 10-year period

\*Urban Mileage consists of multilane (3 lane), existing speed zones, and intersection turn lanes.

Note 1: Counties may pick and choose which routes to include in the above studies. However, if a route is to be included, the entire mileage of that route (or other logical termini) must be included for pricing purposes. For example, if a route includes five curves that add up to a total distance of a mile, counties would need to apply for a curve advisory speed study for the entire mileage of the route that includes the curves rather than just for one mile. (This note does not apply to the Second Priority Projects listed above.)

Note 2: Counties may only request funding for each study once in a 10-year period unless there are extenuating circumstances. Requests with extenuating circumstances will be considered on a case-by-case basis by the CSTP Committee.

Note 3: All safety studies/inventories are for county roads only with the following exceptions:

- Guardrail Location Inventory, Guardrail Compliance, Sign Inventory, Sign Compliance, and Roadside Hazard Compliance Plan studies may be performed on all county-maintained bridges. Payable mileage is to be determined by multiplying the number of bridges on township roads x 0.15 added to requested County Road mileage
- Safety Studies and Traffic Signal Warrants may be performed at intersections where at least one of the roadways is a County Road
- Pavement Marking Inventory/Centerline Compliance, Speed Zone, and Curve Advisory Speed Studies may be performed on Township Roads since it is the County Engineer's responsibility to assist with these tasks. However, these studies on Township Roads are the lowest funding priority and will only be funded after all studies on County Roads are funded.

Note 4: To qualify for Speed Zone Study, ADT MUST exceed requirements in ODOT Traffic Engineering Manual 1203-2.6 Narrow and Low-Volume Rural Roads (Form 1296-1)

Note 5: Professional Engineer Certification – When applicable, the Professional Engineer responsible for the review of project requiring Engineering Certification SHALL include the following statement. This may be substituted by language approved by the Ohio PE/PS Board.

*"Professional Certification. I hereby certify that these documents were prepared and/or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Ohio, License No. XXXXX"*

## **SIGN INVENTORY (SI-U/SI-R)**

- Catalog a detailed inventory of existing signs. Include the following attributes for each:
  - ❖ Placement: Road number, road name, log point, GPS coordinates, side of road
  - ❖ Characteristics: Sign number, signcode, height, width
  - ❖ Post/Assembly: Post type
  - ❖ Perform a visual inspection of each sign, post and breakaway
  - ❖ Log the number of signs mounted on the post
  - ❖ Take digital photograph(s) of signs or provide video
- Provide data importable into the County's current software or provide software for viewing and maintaining the data.
- Provide GIS layer/s, geo-database, or dynamic API database connection for compatibility with the County's current GIS platform

## **SIGN INSPECTION/COMPLIANCE (SC)**

The Sign Inspection & Compliance study SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio.

- Catalog and add the following attributes to the existing sign inventory:
  - ❖ Placement: Direction facing
  - ❖ Characteristics: Sheeting type, blank type
  - ❖ Post/Assembly: Breakaway type, quantity of posts, quantity of signs on post
- Perform a visual inspection of each sign, post, and breakaway
- Catalog any visual deficiencies (as defined by the Engineer, this log is not based on OMUTCD compliance)
- Record retro-reflectivity readings for each sign's legend (where applicable) and background (within a reachable distance)
- Apply a serialized adhesive sign label to each reachable and non-double-sided sign
- Provide video for all contracted roadways or take digital photograph(s) of each sign
- Determine sign and sign placement conformance to OMUTCD including:
  - ❖ School Zone signage
  - ❖ Speed Zone signage (sign checks only)
  - ❖ Bridge Signs (one lane, narrow, end markers)
  - ❖ Stop Ahead and Yield Sign placement
  - ❖ Warning sign(s) too close together
  - ❖ Low Clearance Underpass signage
  - ❖ T & Y Intersection signage
  - ❖ Advance Railroad Crossing signage
  - ❖ Other situations where additional signage may be helpful or existing signage may be a hindrance
- Determine additional signs needed to bring roadway into compliance with OMUTCD (Additional signs needed which necessitates a Curve Study are waived from this compliance check)
- Check signs for compliance with OMUTCD standards including, but not limited to: size, height from pavement, and placement.
- Provide data importable into the County's current software or provide software for viewing and maintaining the data.
- Provide GIS layer/s, geo-database, or dynamic API database connection for compatibility with the County's current GIS platform

## **GUARDRAIL INVENTORY (GI)**

- Catalog a detailed inventory of existing guardrail assemblies. This includes lone guardrail assemblies, bridge guardrail, and approach guardrail assemblies.
- Include the following attributes for each guardrail assembly:
  - ❖ Placement: Road number, road name, begin log point, end log point, begin GPS coordinates, end GPS coordinates, side of road
  - ❖ Characteristics: Rail number, rail type
- Provide data importable into the County's current software or provide software for viewing and maintaining the data.
- Provide GIS layer/s, geo-database, or dynamic API database connection for compatibility with the County's current GIS platform

## **GUARDRAIL INSPECTION/COMPLIANCE (GC)**

The Guardrail Inspection & Compliance study SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio.

- Catalog the following above and beyond the existing guardrail inventory assemblies: bridge terminal assemblies, rail anchor assemblies.
- Include the following attributes above and beyond the existing guardrail inventory attributes:
  - ❖ Placement: Edge of pavement offset
  - ❖ Characteristics: Bridge number (match with County bridge information when requested), height of rail, hazard which guardrail protects, post spacing, post material
- Perform a visual inspection of each guardrail assembly including rail end hardware
- Perform a visual inspection of each guardrail for compliance with ODOT Traffic Engineering Manual
- Catalog any visual deficiencies
- Provide data importable into the County's current software or provide software for viewing and maintaining the data.
- Drive each route to determine any recommended locations of new or extension-based guardrail barrier installation. These recommended locations are to follow the ODOT Traffic Engineering Manual and 'As Established by the County Engineer.'
- Provide data importable into the County's current software or provide software for viewing and maintaining the data.
- Provide GIS layer/s, geo-database, or dynamic API database connection for compatibility with the County's current GIS platform

## **PAVEMENT MARKING INVENTORY, INSPECTION, AND CENTERLINE COMPLIANCE PLAN (INCLUDING NO PASSING ZONES) (PMI)**

The Pavement Marking Inventory, Inspection, Centerline Compliance study SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio.

- Catalog a detailed inventory of existing pavement markings. These existing pavement markings include: stop bars, crosswalks, transition line, edge line, lane line, centerline, railroad and school markings, turn arrows, ONLY markings, channel lines, and other markings requested by the Engineer.
- Include the following inspection-based attributes:
  - ❖ Placement: Road number, road name, begin log point, end log point, begin GPS coordinates, end GPS coordinates
  - ❖ Characteristics: Marking type, material type, status
- Provide digital reports containing footage for line-based markings and quantity totals for auxiliary based markings

- Perform a recommended centerline compliance study (no-passing, passing, blank/none, two-way left turn lanes, etc..) based on current OMUTCD and ODOT Traffic Engineering Manual Specifications
- Establish No Passing Zones in accordance with Chapter 3B.02(or most current) of the OMUTCD and any County specific requirements
- Provide graphical representation and a spreadsheet of the recommended centerline compliance data to be used for T-Marking prior to centerline striping.
- Provide data importable into the County's current software or provide software for viewing and maintaining the data.
- Provide GIS layer/s, geo-database, or dynamic API database connection for compatibility with the County's current GIS platform

### **CURVE ADVISORY SPEED STUDY (CAS)**

The Curve Advisory Speed study SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio.

- Follow procedure as established in Chapter 2C (or most current) of the OMUTCD
- Determine safe speed recommendations for each curve
- Determine beginning and ending of every curve in relation to control point data
- Catalog curve related signs and assign them to their respective curve
- Determine if existing warning signs are correct and at the proper distance from curve/s
- Determine corrective measures when necessary
- Provide data importable into the County's current software or provide software for viewing and maintaining the data.
- Provide GIS layer/s, geo-database, or dynamic API database connection for compatibility with the County's current GIS platform

### **ROADSIDE HAZARD INVENTORY, INSPECTION, AND COMPLIANCE PLAN (RHI)**

The Roadside Hazard study SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio.

The Clear Zone as defined in this inventory is the distance from the edge of existing pavement 'As Established by the County Engineer'

- Drive each route and locate all items which interfere with the specified Clear Zone
- Catalog the following: guardrail installation recommendation locations, slope grading recommendation locations
- Develop a plan and recommend countermeasures, including but not limited to: barriers such as guardrail installation recommendation (guardrail compliance), obstruction removal and movement and slope grading to address identified roadside hazards within the Clear Zone
- Provide data importable into the County's current software or provide software for viewing and maintaining the data.
- Provide GIS layer/s, geo-database, or dynamic API database connection for compatibility with the County's current GIS platform

### **SPEED ZONE STUDY (SZ)** (See Note 4 in Prioritization)

The Speed Zone study SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio.

- Set counters to gather ADT, 85th percentile, and pace speed(s)
- Gather profile on the road showing driveways, business entrances, intersections, horizontal and vertical curves, signs, existing striping, etc.
- Acquire crash data for the latest three (3) years for the section involved
- Take digital photographs of the zone
- Data is inputted into ODOT's formula
- County will obtain ODOT approval for the Speed Zone, if applicable

### **TRAFFIC SIGNAL WARRANTS (TSW)**

*(Consultants MUST be ODOT Pre-Qualified to perform this Study)*

Traffic Signal Warrants SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio.

- Follow procedure as outlined in Chapter 4C of the OMUTCD (or most current)
- Determine if location meets any of the eight possible warrants
- Determine if the installation of the signal will improve the overall safety and/or operation of the intersection
- Determine if the control signal will seriously disrupt progressive traffic flow

### **INTERSECTION\CORRIDOR SAFETY STUDY (SS)**

*(Consultants MUST be ODOT Pre-Qualified to perform this Study)*

The Safety Study SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio.

- Follow procedure as outlined in ODOT Safety Study Guidelines
- Document history of problems or crashes at location and reason for the study
- Prepare a condition diagram
- Prepare a collision diagram
- Compile crash data
- Analyze crash data
- Take digital photos of the location
- Identify possible causes or deficiencies in the roadway through analysis of crash patterns, roadway conditions, traffic control, traffic volumes, vehicle speeds, etc.
- Recommend countermeasures, rate of return, and cost