

**CEAO CSTP SAFETY STUDY PROGRAM**  
**Safety Study Project Prioritization**

<b><u>Project Type</u></b>	<b><u>Code</u></b>	<b><u>Funding Limits</u></b>
<b><u>First Priority Projects</u></b>		
Sign Inventory (Urban)	SI-U	\$185 per mile (control points, inventory & reflectivity)
Sign Inventory (Rural)	SI-R	\$110 per mile (control points, inventory & reflectivity)
Sign Compliance (PE Stamp Required)	SC	\$60\mi (\$30\mi when combined with sign inventory)
Guardrail Location Inventory	GI	\$75 per mile
Guardrail Compliance (PE Stamp Required)	GC	\$60\mi (\$30\mi when combined with Guardrail Location Inventory)
Pavement Marking Inventory	PMI	\$75 per mile
Pavement Marking Compliance/ No Passing Zone Study (PE Stamp Required)	PMC	\$100\mi (\$130\mi when combined with PMI) (rural) \$110\mi (\$140\mi when combined with PMI) (urban)
Curve Advisory Speed Study (PE Stamp Required)	CAS	\$100 per mile
Roadside Hazard Inventory	RHI	\$75 per mile
Roadside Hazard Compliance Plan (PE Stamp Required)	RHC	\$150\mi
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	\$1,667 per signal per location (at 90% = \$1,500 max)
Intersection\Corridor Safety Study	SS	\$12,000 max per intersection (at 90% = \$10,800 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 Compliance/No Passing Zone, 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)**

- Prepare a detailed inventory of existing signs
- Perform a visual inspection of sign, post and breakaway
- Log sign characteristics, including size, height, placement, etc.
- Log the sheeting and blank type of the sign
- Log the post and breakaway type
- Log any visual deficiencies (as defined by the Engineer, this log is not based on OMUTCD compliance)
- Log the number of signs mounted on the post
- Log the road, log point, side of road the sign is on, and direction of face
- Take digital photograph(s) of signs
- Shoot and log the reflectivity of legend (where applicable) and background
- Provide GIS Layer compatible with County's current GIS Software

### **SIGN COMPLIANCE (SC)**

- Determine sign and sign placement conformance to OMUTCD including:
  - o School Zone signage
  - o Speed Zone signage (sign only not speed)
  - o Bridge Signs (one lane, narrow, end markers)
  - o Stop Ahead and Yield Sign placement
  - o Warning sign(s) too close together
  - o Low Clearance Underpass signage
  - o T & Y Intersection signage
  - o Advance Railroad Crossing signage
  - o Other situations where additional signage may be helpful or existing signage may be a hinderance
- Determine additional signs needed to bring roadway into compliance with OMUTCD (Additional signs needed that necessitate a Curve Study are waived from this compliance check)
- Check signs for compliance with OMUTCD standards including size height, placement, etc.
- Compliance Plan SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio

### **GUARDRAIL LOCATION INVENTORY (GI)**

- Inventory Existing Guardrail
- Measure guardrail assemblies
- Provide data that is compatible with County's current software or provide software for viewing and maintaining data
- Provide GIS Layer compatible with County's current GIS software

### **GUARDRAIL COMPLIANCE (GC)**

- Inspect Existing guardrail for compliance with ODOT Traffic Engineering Manual
- Identify Bridge Terminal Assemblies, rail anchor assemblies and main line rail type
- Provide data that is compatible with County's current software or provide software for viewing and maintaining data
- Provide GIS Layer compatible with County's current GIS software
- Compliance Plan SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio

### **PAVEMENT MARKING INVENTORY (PMI)**

- Perform an inventory of existing pavement markings; including, stop bars, crosswalks, transition line, edge line, centerline, railroad and school markings, turn arrows, ONLY markings, channel lines, and others are determined by the Engineer
- Log all lengths of line by road log point or as determined by the Engineer
- Prepare graphic road log to use for T-Marking prior to striping
- Provide data that is compatible with County's current software or provide software for viewing and maintaining data
- Provide GIS Layer compatible with County's current GIS software

### **PAVEMENT MARKING COMPLIANCE PLAN (INCLUDING NO PASSING ZONES) (PMC)**

- Develop a pavement parking plan 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
- Develop a new pavement marking plan
- Prepare graphic road log to use for T-Marking prior to striping
- Provide data that is compatible with County's current software or provide software for viewing and maintaining data
- Provide GIS Layer compatible with County's current GIS software
- Compliance Plan SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio

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

- Follow procedure as established in Chapter 2C (or most current) of the OMUTCD
- Determine beginning and end of every curve in relation to control point\log point data
- Log Curve related signs and assign them to their respective curve
- Determine if existing warning signs are correct and at the proper distance from the curve
- Determine corrective measures if necessary
- Provide data that is compatible with County's current software or provide software for viewing and maintaining data
- Provide GIS Layer compatible with County's current GIS software
- Study SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio

### **ROADSIDE HAZARD INVENTORY (RHI)**

- Drive each route and locate all items that interfere with the specified \*Clear Zone
- Provide data that is compatible with County's current software or provide software for viewing and maintaining data
- Provide GIS Layer compatible with County's current GIS software

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

## **ROADSIDE HAZARD COMPLIANCE PLAN (RHC)**

- Drive each route and locate all items that interfere with the specified \*Clear Zone
  - Develop a plan and recommend countermeasures, including barriers, obstruction removal etc. to address identified roadside hazards within the \*Clear Zone
  - Provide data that is compatible with County's current software or provide software for viewing and maintaining data
  - Provide GIS Layer compatible with County's current GIS software
  - Compliance Plan SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio
- \*The Clear Zone as defined in this Compliance shall conform to Section 600 ODOT L&D Manual (or the most current section). The Clear Zone can be 'As Established by the Engineer'

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

- Set counters on the road to gather ADT, 85<sup>th</sup> 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 years for the section involved
- Take digital photos of the zone
- Data is inputted into ODOT's formula
- County will obtain ODOT approval for the Speed Zone, if applicable
- Compliance Plan SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio

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

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

- 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
- Compliance Plan SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio

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

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

- 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
- Compliance Plan SHALL be signed and sealed by a Professional Engineer licensed in the State of Ohio