

## **Scoping/Preliminary Roadside Hazard Design Review List:**

### **Structures and Large Drainage Features:**

If an answer to any of the following questions is yes, Contact Bureau of Structures or Bureau of Project Development prior to proceeding with scoping the project:

1. Parapet built prior to 1964?
2. Non-Standard Parapet on structure (See LRFD Bridge Manual (<http://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrcs/strct/bridge-manual.aspx>) for standard parapets designs)?
3. Parapet has snag points?
4. Parapet damaged or has missing components?
5. Barrier system is on top of retaining wall?
6. Is there brush or safety curb present?
7. Box culvert has beam guard attached to or installed on top of structure?
8. Are there structures that may need structural protection?
9. Are there unprotected blunt ends of the parapets?

If the answer to the following question is yes, additional review prior to proceeding with scoping the project:

1. Are there intersecting roadways or driveways within 125 feet of the structure or large drainage feature?

### **Barrier Systems:**

If the answer to any of the following questions is yes, conduct additional review prior to proceeding with scoping the project:

1. Is the barrier system 15 years or older?
2. Does the barrier system have non-EAT end treatments that can be hit head on?
3. Is a transition from semi-rigid barrier to rigid barrier being used?
4. Are there non-standard barrier systems being used?
5. Is there sufficient grading for the barrier system and end treatments?
6. Is there rigid barrier with a height less than 32 inches on the project?
7. Is there a significant amount of barrier on the project or proposed to be on the project?

### **Grading:**

If the answer to any of the following questions is yes, conduct additional review prior to proceeding with scoping the project:

1. Are there slopes steeper than 4:1?
2. Are ditches traversable?
3. Are slopes perpendicular to the direction of travel traversable?

### **Other Hazards:**

If the answer to any of the following questions is yes, conduct additional review prior to proceeding with scoping the project:

1. Are there drainage features that are hazards?
2. Are there poles that are hazards?
3. Is there a vertical drop of 8 feet or more?
4. Is there water 2 feet deep?

### **Other Issues:**

If the answer to any of the following questions is yes, conduct additional review prior to proceeding with scoping the project:

1. Are there segments with Metamanager ROR flags?

2. Are there areas that violate driver expectations?
3. Are there locations with high pedestrian concentrations?
4. Are there locations with severe consequence of collision?
5. Is the service life of the project 15 years or greater?

To obtain a working copy of this form go to: [FDM 11-45-3 A1 doc1](#)

## Roadside Hazard Analysis

Project I.D. \_\_\_\_\_

Entered by: \_\_\_\_\_

Speed (MPH) = \_\_\_\_\_

AADT = \_\_\_\_\_

Alignment = \_\_\_\_\_

Checked by: \_\_\_\_\_

Hazard ID	Station or Stations	Offset (ft)	L/R	Total length of hazard FT	Description	Action	Discussion
1							
2							
3							
4							
5							
6							
7							
8							

Hazard ID	Station or Stations	Offset (ft)	L/R	Total length of hazard FT	Description	Action	Discussion
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							

**Notes for Roadside Hazard Analysis Form:**

Location information needs to only be accurate enough give a general location of the hazard. For example:

100+35 L 5 is better than 100+35.25 L 4.52

A general description of a hazard is acceptable. For example:

Sign is better than STH 73 shield with Left Turn Arrow

The “Discussion” section should provide a general outline of the actions to be taken, issues that cannot be address or mitigation being used. If detailed analysis was completed or there are other complexities, other sections of the Design Study Report may need to provide further discussion.

Avoid using construction cost to justify non-action. Other costs such as maintenance, and crash cost are to be considered as well as construction cost.

Avoid using aesthetics to justify non-action. AASTHO documentation indicates that crashworthiness is an important feature even in sensitive locations.

Add rows as needed. Change column and row heights to allow for discussion text to be read.

## Roadside Hazard Analysis

Project I.D. \_\_\_\_\_

Entered by: \_\_\_\_\_

Speed (MPH) = \_\_\_\_\_

AADT = \_\_\_\_\_

Alignment = \_\_\_\_\_

Checked by: \_\_\_\_\_

Hazard ID	Station or Stations	Offset (ft)	L/R	Total length of hazard FT	Description	Action	Discussion
1	100+35	3	L	5	Overhead sign support	Shield Hazard	installing crash cushion
2	101+23 to 101+33	9	R	10	Grove of trees	Remove Hazard	Trees average 10 to 8 ft from edge of lane. Average value 9 ft used
3	100+35 to 105+00	4	L	4.5	Light poles 2 ft behind curb	Relocate Hazard	Moving poles to back of sidewalk. Not using breakaway because of concerns of ped. and striking nearby buildings.
4	100+35	4	L	1.5	Light poles 2 ft behind curb	NA	Not possible to move light to behind sidewalk because of building. Not using breakaway because of concern of pole striking building or peds.
5	100+35 to 102+35	6	R	200	Steep slope	Make Traversable	Steep slopes and non traversable ditch. Portions of ditch have water 2' deep. Seen hazard IDs 9 and 10.
6	101+01	4	L	3	Rock	Remove Hazard	
7	101+23 to 101+33	5	L	5	Historical marker/pedestrian trail	NA	Removal, relocation, improving traversability, or installing barrier not possible because these options will interfere with Ped. trail. Trimming trees and bushes to improve sight lines to Ped. trail. Providing delineation and signs
8	101+99 to 102+74	4	R	75	Steep slopes on driveway	Make Traversable	Driveway slope needs to be flatten and a traversable culvert endwall installed.

Notes

1

2

2

3

4

5

Hazard ID	Station or Stations	Offset (ft)	L/R	Total length of hazard FT	Description	Action	Discussion	Notes
9	103+05	8	L and R	7	60" cross drain	Remove Hazard	Lengthen box culvert and Connecting it to a new storm sewer. Inlet of pipe will have traversable grate and grading. Other side will connect into a storm sewer system. See hazard IDs 10 and 5	3
10	103+05 to 104+05	8	R	100	Steep foreslope of ditch and water 2' deep	Remove Hazard	Installing storm sewer, flattening slopes See ID 5 and 9	3
11	104+08	7	L	1	Old plow being used as mail box	NA	Putting mail box information into hazardous mail box report.	6
12	104+05 to 104+40	6	L	35	Driveway	Make Traversable	Driveway slope needs to be flatten and a traversable culvert endwall installed.	
13	104+35	15	L	8	School sign	NA	Sign is just outside analysis area, but within Right-of-Way. Placing this sign on the encroachment list.	7
14	104+52 to 105+07	20	L	150	Playground	Shield Hazard	Playground is just beyond clear zone. However, consequence of errant vehicle getting to play ground severe enough to require barrier.	8
15	105+17	18	L	5	Gas valve	Shield Hazard	Gas valve near playground. Extending barrier for play ground to protect gas valve. Consequence of collision very severe.	8
16	105+63	20	R	2.5	Survey Witness Tree	Delineate Hazard	Tree is a witness tree for section corner. Tree is on the inside of curve and there is no ROR history.	9
17	105+46 to 106+96	16	R	150	Grove of trees and bushes	Remove Hazard	Tree range from 12 to 20 from edge of roadway Average value 16 ft	10
18	107+35 to 108+35	12	L	100	Effigy Mound	NA	Effigy mounds are culturally significant asset. Installing barrier and delineation not options because they would degrade the culturally significant asset.	11

## **Discussion of Notes in Example Roadside Hazard Analysis Form**

### **Note 1:**

Hazard ID 2 has similar hazards (trees) with similar offsets. These hazards are being treated the same and can be grouped within one entry.

Normally an individual hazard would not need discussion (see note 4), but because a group of similar hazards are being grouped together some discussion is provided to clarify that the designer intends on treating similar hazards with similar offsets as a group.

### **Note 2:**

Hazard IDs 3 and 4 have similar hazards (light poles) with similar offsets. However, one pole cannot be moved and is entered in as hazard ID 4. Discussion provides information on why breakaway hardware was not used.

### **Note 3:**

Hazards IDs 5, 9, and 10 are related because of the treatment being used to solve each hazard.

### **Note 4:**

As stated in note 1, individual hazards that are being removed do not need additional discussion.

### **Note 5:**

Hazard ID 7 provides some information on alternatives reviewed at a given location, why alternatives are not practical, and what if any methods are being used to mitigate risk.

### **Note 6:**

Hazard ID 11's description indicates that hazardous mail boxes will follow the procedures in FDM 11-15-1.

### **Note 7:**

Hazard ID 13's description indicates sign is will be identified as a right of way encroachment and will be treated as such.

### **Note 8:**

Hazard IDs 14 and 15 are dealing with areas of concern. Hazard ID 14 deals with pedestrians areas of concern. Hazard ID 15 deals with a consequence of collision concern.

### **Notes 9 and 10:**

Hazard IDs 16 and 17 deal with similar hazards with similar offsets. However, one hazard (Hazard ID 16) cannot be removed because it is a witness tree.

### **Notes 11:**

Hazard ID 18 deals with a significant cultural artifact that prevents the proper use of roadside design principles