


# Identifying At-Risk Roadways And Evacuation Routes



The objective of this analysis is to identify the roadways and evacuation routes that are at the greatest risk of flood damage based on their location and the depth of flooding from the 1-percent-annual-chance flood. The 1-percent-annual-chance flood is also referred to as the base flood, and the area inundated by this flood is also referred to as the Special Flood Hazard Area (SFHA).

The outcomes of this analysis can be used to prioritize hazard mitigation actions for local, state, or federal funding. Roadway flooding can be extremely dangerous. Vehicles can begin to float in as little as 18 to 24 inches of moving water, and motorists driving through floodwaters are a top cause of flood-related fatalities each year. Identifying the roadways that are at the greatest risk of inundation during the 1-percent-annual-chance flood can help communities choose the best hazard mitigation solutions to protect drivers, maintain the functionality of evacuation routes, and reduce loss of life from disasters.

## INSTRUCTIONS

-  **Identify GIS data**, including bridge polygons, roadway centerlines, SFHA polygons, and FEMA Depth and Analysis Grids. Use the 1-percent-annual-chance depth grid.
-  Use the “Erase” tool with inputs of the bridge polygons and roadway centerlines to **exclude bridges from the roadway analysis**.
-  Use the “Clip” tool with inputs of the roadway centerlines and SFHA to **isolate the roadways within the flood zone**. Explode multi-part features in the resulting output.
-  **Analyze the extent and depth of roadway inundation** by using the “Zonal Statistics as Table” tool with the 1-percent depth grid and the roadways within the flood zone, and selecting “ALL” for Statistics type.
-  Use the “Select by Attributes” function to **identify the roadways within the flood zone that are part of an evacuation route**.
-  **Analyze the findings to determine the roadways and evacuation routes at greatest risk of flooding**. Prioritize mitigation actions to reduce the loss of service and develop a communication plan in the event of an emergency.



**Note:** The outcomes of this analysis can be used to communicate the risk and depth of flooding along roadways and evacuation routes. It is important to note that this analysis does not calculate the depth of flooding on bridges.