



Transect Data and Field Reconnaissance: Important Mapping Process Inputs

Overview

FEMA is committed to continuing the recovery process in New Jersey by providing the best available flood risk assessments to help guide communities in their efforts to reduce the impact of flood events and protect lives and property from future damages. To accomplish this, FEMA is implementing a comprehensive outreach initiative to share data and to ensure that affected communities are fully informed and engaged throughout the Flood Insurance Rate Map (FIRM) development process.

FEMA has prepared a series of fact sheets that provide important information regarding the specific types of data that communities will receive. In addition to describing the data, these fact sheets provide guidance on how communities can use the data to better understand their own flood risk, as a tool in the decision making process, and to plan for mitigation activities. Other fact sheets available in this series include:

- Storm Surge GIS Data: Important Mapping Process Input
- Coastal Hazard Analysis Modeling Program (CHAMP) Database Interpretation
- New Jersey Preliminary Work Map Interpretation

Transect Data

One of the primary objectives of a coastal flood study is to understand the predicted extent and force of floodwaters over land. The coastal models used in developing the study need to account for land features throughout the study area such as coastline bluffs, dunes, man-made coastal flood and erosion control structures, and beaches. In addition, the study takes into consideration storm surge and wave action, which are modeled as part of the coastal flood study (please refer to detailed fact sheets for these study elements).

FEMA uses cross-shore transects, or lines that are drawn on maps and are placed at specific intervals along the shoreline of open coast areas and bays, to help coastal engineers focus their data collection effort. In addition to these main (“primary or published”) transects that will be on the final effective FIRMs, the modeling team develops additional (“mapping”) transects that are used to provide more detail and guide the mapping process.



Transect Placement along Shoreline

Field reconnaissance is not conducted at the mapping transect locations; however, the modeling results at these locations will be available in the modeling database and will be shown digitally in the final mapping data, but not on the effective FIRMs. These transects vary in length and are placed at varying intervals from one another to ensure that changes in topography, bathymetry (underwater features), shoreline orientation, and land cover are captured. Other features, such as variations in land use and development, and population density are also considered in published transect placement.



Field Reconnaissance

Field reconnaissance is an important part of the coastal flood study process and is performed by trained coastal engineers and scientists who collect land use and shoreline information that cannot be determined solely from studying remote sense data. The field reconnaissance process involves physically visiting representative locations along the published transects to assess and verify the following:

- Shoreline information including beach type and condition; presence and condition of shore protection structures, such as bulk heads, dunes, and bluffs; erosion; approximate elevation; and any tidal high water indicators;
- Structure information including type of building, approximate first floor elevation relative to the local adjacent grade, and foundation type;
- Vegetation information including type; representative tree diameter, height, spacing between trees, presence of undergrowth; and
- Marsh information including grass type(s), grass density, and height.

All data collected is recorded on transect data sheets to help verify ground conditions, delineate the primary frontal dunes, and conduct the hazard modeling.



Example of Transect Data

Interpreting the Field Reconnaissance and Transect Data

Selecting transect locations and accurately categorizing the features along them are essential components of the coastal flood study and mapping process. Local community and county officials, planners, and floodplain managers are often the best sources to help validate that transect locations adequately represent the terrain and variability of coastal features within the study area. These individuals will also play an important role through their active participation in the Flood Risk Review meetings that will be held to review and provide comments on the preliminary work maps.

How the Data can be Used

Coastal hazard analysis and overland wave modeling require information on land cover and obstructions, such as buildings, within the study area. Dunes, buildings, plant types, and their density control how quickly and how far waves travel over land. This over land feature characterization, which is accomplished through transect and field reconnaissance activities, is used by FEMA to correctly attribute potential obstruction to waves as one of the inputs into subsequent modeling and analyses. The transect and field reconnaissance data may also be helpful for communities in managing floodplains, mitigation and comprehensive planning efforts, and to see how mitigation or flood protection projects may reduce the overall flooding and wave damage risks.

Where to Go for More Information

The New Jersey Department of Environmental Protection in coordination with FEMA will be hosting a series of webinars and community meetings to further explain the data that is received and answer questions about next steps. Please visit <http://www.Region2Coastal.com> for more information on FEMA's data sharing initiative with New Jersey's coastal communities.