

# How to Create and Use a Structure Inventory Database

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The National Flood Insurance Program requires participating communities to adopt rules for addressing structures in mapped special flood hazard areas when those structures experience substantial damage during a disaster event. Substantial damage is defined by local ordinance as damage for which the total cost of repairs is 50 percent or more (or locally stricter standards) of the structure's market value before the disaster occurred.

To enforce these rules, floodplain managers need information on vulnerable properties and the past history of substantial damage. A structure inventory database (SID) is a powerful tool communities can develop to increase the efficiency of substantial damage response and track substantial damage and improvements.

## Building the SID

The SID can be set up in either of the following formats, or a combination of both:

- **Spreadsheet Format**—A sortable spreadsheet organized by associated available data for each property included in the inventory database.
- **Geographic Information System (GIS) Format**—A GIS platform that hosts point-specific data for each property. This data could be used to create maps with visual cues to inform responders as they deploy into impacted areas after a disaster event. For large-scale events, this format could be used to capture data in real-time and allow for analysis in a risk assessment platform.

The SID should include the following field types for each inventoried property:

- Address
- Parcel #
- Date of construction
- Occupancy type
- Area
- Number of stories
- Foundation type
- Market value of the structure
- Flood depth expected to cause 40% damage
- Whether the property has been identified as a repetitive loss property
- Whether the property has a lowest floor below the base flood elevation
- Whether the property has been identified as being out of compliance



## Using the SID to Respond to a Disaster Event That Results in Substantial Damage

The SID can be used to identify the number of properties likely to be impacted by a flooding event and the area where flooding likely took place by comparing predicted or observed flood heights to building elevations. Typical use of the database could be as follows:

- The community experiences a flood event that triggers its emergency response plan (activation of the emergency operations center), and flooding has impacted two neighborhoods.
- As first responders are being deployed, the community's floodplain administrator goes to the SID and sorts the information for the two neighborhoods. The list will provide information by structure on the depth of flooding that would trigger 40 percent damage.
- That depth can be provided to response personnel, with instructions to estimate depths in each subdivision. Simple instructions for estimating depths may include counting steps, estimating depth above top of curb, or knowing how high a stop sign is.
- Ideally, information used for estimating depth would be memorialized with photos or established high-water marks. Following the response, this information would be conveyed back to the floodplain administrator for interpretation.
- If the trigger depths are met in a given subdivision, full inspections will be needed. Otherwise, full inspections may not be warranted.



**Figure 1. A structure inventory database can help identify where to perform inspections after a major flood**

## Updating the SID

Following a substantial damage event, the SID should be updated with new data on structures that were identified as substantially damaged. As repairs are made, and structures are mitigated, the SID should be updated to note that substantial damage has been addressed. If the community also tracks substantial improvements, the SID should also be updated whenever improvements are made to properties in the special flood hazard area.

The SID should be evaluated on an annual cycle to account for changes from mitigation a property owner implements or from grants that become available as a source of funding. The review should address at least the following:

- Annual maintenance tasks
- Removal of structures
- Substantial improvements
- Changes in market values
- Changes to SFHA boundaries
- Mitigation of structures
- New development and compliance

A community can update the SID at any point, including to add new property damage and losses. As a form of document control and for historical reference, any changes to the inventory should be archived and available for later reference as needed.