



SUBSTANTIAL IMPROVEMENT/SUBSTANTIAL DAMAGE (SI/SD)

Substantial Damage Fundamentals

For communities participating in the National Flood Insurance Program (NFIP), structures located in the Special Flood Hazard Area (SFHA) that are substantially modified (either damaged or improved) more than 50 percent are required to comply with local building and floodplain requirements. Local community officials (typically floodplain administrators) are responsible for substantial damage and improvement (SI/SD) determinations. These determinations are required to be in compliance for participation in the NFIP.

This document is meant to serve as a quick resource for Substantial Improvement/Substantial Damage (SI/SD) requirements and opportunities. There is also a Guided Community Self- Assessment and Administrative Procedure Template that accompany this document.

1		RECOGNIZING REGULATORY & LEGISLATIVE AUTHORITY	This section is for identifying what regulatory authority your community has and may need to complete the SI/SD process.
2		COMMUNITY ENGAGEMENT & THE CURRENT STRUCTURE	You may already have structures in place for permitting and outreach; this section is to review what you have.
3		DETERMINING IMPACT AREA	The purpose of this step is to think about what you will use as a base (maps, list of addresses in the floodplain, or otherwise) to figure out the extent of the impact.
4		IDENTIFYING AVAILABLE PERSONNEL	This is a critical step to think through for any size disaster: who can manage the teams, complete the assessments, input the data, and analyze for consistency. Do they have the training and contracts in place to do so?
5		DETERMINING TIMEFRAMES	Based on the people, training, and extent of damage, this section includes guidance about how to estimate how long the process will take and what thresholds you will use to maximize efficiency and get your residents information quickly.
6		ESTABLISHING SUBSTANTIAL IMPROVEMENT/SUBSTANTIAL DAMAGE DETERMINATION PROCESS AND METHODOLOGY	Whether you use FEMA's Substantial Damage Estimator (SDE) Tool or some other process, this section is to look at how you can consistently set up and implement an SI/SD determination process in your community.
7		COMMUNICATING DAMAGE TO PARTNERS (LOCAL/STATE/FEDERAL)	This section includes guidance on when and how your community will coordinate with Federal, State, and other local partners.
8		COMMUNICATING SUBSTANTIAL IMPROVEMENT/SUBSTANTIAL DAMAGE INFORMATION TO PROPERTY OWNERS	It is important to identify how your community will communicate SI/SD information to property owners.
9		MONITORING & REINTEGRATION	This is the last part of the "emergency permitting and development" process and includes guidance on how your community can return to the day-to-day after disaster support demobilizes.

OVERVIEW

When a structure in the SFHA is more than 50% modified (damaged and repaired or improved), the structure must be brought into compliance with NFIP requirements and local floodplain ordinance standards. Modifications can come after disasters such as floods or wildfires or they can happen when a structure undergoes general repairs or improvements. Any modification to a structure in the SFHA is an opportunity for structure owners and floodplain management programs to reduce future risk of flooding or otherwise.

How a community and FEMA assess the structure owner's compliance with these requirements is part of the process referred to as Substantial Improvement (SI) and Substantial Damage (SD). After a disaster, communities are required to complete damage assessments for structures in the SFHA. The goal of this document is to provide a brief overview to the SI/SD process, as well as the steps and resources that a community can use to conduct the SI/SD determination process.

In addition to decreasing long term flood risk, communities are required to execute the SI/SD process to remain in compliance with the minimum NFIP requirements. Within the NFIP, one of the primary mechanisms a community can use to ensure risk reduction is including an SI/SD provision in their floodplain management ordinance. According to this provision, when the cost to repair or improve a structure equals or exceeds 50 percent (or less, if specified by the community) of the structure's pre-damage value (market, assessed, or otherwise), the structure must be brought into compliance with current NFIP standards, local building codes, and other requirements. Additional information on the NFIP regulations can be found online: <http://www.fema.gov/national-flood-insurance-program/laws-and-regulations>.

Additional FEMA SI/SD documents that will be referenced throughout this SD Fundamentals document, the Guided Community Self-Assessment, and the Administrative Procedures Template include the following:

- FEMA 758: Substantial Improvement/Substantial Damage Desk Reference This Desk Reference provides practical guidance and suggested procedures to implement the NFIP requirements for SI/SD. It is the principal source of guidance for how to define and regulate SI/SD and provides detailed information about the inspection and determination process.
- FEMA 784 (The Substantial Damage Estimator Tool - 2017) FEMA developed the Substantial Damage Estimator (SDE) Tool to assist State and local officials in estimating SD for residential and non-residential structures in accordance with the requirements of the NFIP. The tool can be used to assess flood, wind, wildfire, seismic, and other forms of damage. It provides a standardized approach to data collection management and the determination of substantially damaged structures for local officials and helps communities provide timely SD determinations so that reconstruction can begin quickly following a disaster. This tool also includes template determination letters communities can utilize.
- National Incident Management System (NIMS)/Incident Command System (ICS) Resource Center For integrating SI/SD inspectors into the response and recovery operations, it is helpful to review ICS. In large events, this guidance can also assist the SI/SD field inspection lead in determining team structure.



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RECOGNIZING REGULATORY & LEGISLATIVE AUTHORITY

As outlined in NFIP regulations, local officials are required to identify the limits of the SFHA, issue floodplain development permits for all development in the regulatory floodplain, and enforce SI/SD requirements for improvements and repairs of buildings. The process for ensuring that SI/SD structures are in compliance, or are brought into compliance, must be outlined and properly executed in a community's floodplain ordinance, building permit process, and anywhere else this information is formally captured. This will help ensure consistent and accurate information is provided to property owners, providers, volunteer agencies, local media, and elected officials during and after a disaster or incident.

Each community participating in the NFIP must formally document in the floodplain ordinance or otherwise the following:

- Communicate the floodplain management requirements clearly and uniformly to community members.
- Include a procedure for conducting SI/SD determinations that occur during and outside disasters or incidents.
- Include guidance for elected officials regarding their roles and responsibilities.

Following a disaster, a community may need to work with neighboring communities, counties, state, tribal authorities, and/or FEMA to identify what resources are needed and available. This coordination should be outlined in the SI/SD process.

The community is responsible for making SI/SD determinations and notifying impacted property owners about those determinations, but a community also has the authority to delegate SI/SD responsibilities if in-house resources are not available. Memorandums of Understanding can be established with neighboring communities to step in and help after a disaster, third party contractors can be hired on an emergency, as-needed basis, and in the event of a large scale disaster, FEMA damage assessment teams may be asked to respond to local requests to assess the extent of disaster-caused damage to some structures.

By determining the SI/SD process before an event that requires Federal assistance, a community can work with FEMA through the State NFIP Coordinator and State Insurance Administration to determine staffing and technical needs that are available at the Federal level. When possible, FEMA may conduct a needs assessment prior to a disaster or event. This allows FEMA to understand a community's capabilities and challenges in advance of the formal requests for assistance. To conduct a needs assessment, FEMA typically works in concert with the community to identify critical gaps and potential areas for FEMA support.

It is important remember that Federal disaster assistance is available only after flood or other events have been declared a major disaster by the President through a Disaster Declaration. FEMA is available to advise local officials responsible for administering floodplain management regulations and can help assess NFIP compliance, but it is the community's responsibility to enforce the SI/SD process and NFIP regulations to ensure property owners are able to receive the assistance they need.



PRO-TIP: Communities providing SI/SD determinations should complete the process as efficiently and effectively as possible so that property owners may receive information in a timely manner. Property owners want to return to normal as quickly as possible and may be frustrated when guidance is delayed or unclear.



Timely inspection and data collection are critical to facilitate recovery from a disaster. Communities should have a plan and procedure in place, outlined in existing floodplain ordinance standards, for identifying structures within their regulatory floodplain and monitoring development activities within the regulatory floodplain. Your community most likely has a structure in place for permitting and outreach. Responsible parties should revisit the community's current structure to make sure it is taking SI/SD into account. A critical component of the current structure is ensuring pre-disaster messaging is clear about post-disaster operations.

Most property owners understand that building permits are required when they want to have work done on their structures. However, they are rarely aware of the requirements that apply when buildings are located in SFHA. Informing the public about the requirements may alleviate some of the difficulties that can occur when uninformed owners invest in repairs or improvements, especially immediately following a disaster. Successful outreach methods employed by communities include:

- Permit staff and inspectors are trained and familiar with the SI/SD requirements and other requirements for development in the SFHA and they convey consistent, unified messaging when talking with property owners and contractors.
- Permit application forms or supplements to applications are designed specifically to capture information about work proposed for buildings in the SFHA.
- Information is posted online about permit requirements, including SI/SD requirements in the SFHA.
- Newsletters and brochures are used for periodic mailings, such as those described in guidance materials developed for the NFIP's Community Rating System.

The SI/SD team lead should be aware that an influx of permits may be requested following an event or disaster if a large number of structure owners were affected. The permit process does not stop after a disaster - it should be enforced just as carefully as pre-disaster to ensure homes are rebuilt in a way that decreases future risk.

Encountering structure owners or occupants is common during inspections. Even if property owners become familiar with a community's permitting process, they will be curious or possibly suspicious of the inspection objectives. Therefore, the inspector should set guidelines for interactions with residents and structure occupants. The SI/SD Manager should develop a written set of guidelines for contact with owners or occupants, review it with the inspectors prior to the start of inspections, and provide a hard copy of the guidelines to each team of inspectors.



PRO-TIP: Incorporate creative solutions in your community's SI/SD plan to better lend a hand for community members that have been affected by a disaster. For example, set up a permit tent in an heavily affected area within the SFHA post-disaster. This could alleviate one more headache for homeowners (who want to begin rebuilding their homes) by eliminating the need to travel to City Hall to request a permit. This approach also puts permit staff and inspectors nearby to monitor the work being done after a disaster.

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DETERMINING IMPACT AREA

Knowing the area that will need to be evaluated prior to an event will make execution of the SI/SD process much quicker. For planning and evaluating purposes, communities often identify the damaged areas using property-specific information such as address or tax parcel information. The SI/SD process must be considered for any properties in the Special Flood Hazard Area (SFHA) to comply with the NFIP. Some communities have higher standards and may require properties that are close enough to the SFHA boundaries to follow similar procedures.

Determine the approximate percentage of damaged structures.

A preliminary evaluation of several representative structures may be necessary to determine the average interior flood depth and extent of damage to structures in that area. Evaluating the damage to structures before they are inspected allows communities to determine where inspection resources are needed most. This initial screening of structures is based on the following criteria:

- Structures damaged between 50 and 100 percent are considered substantially damaged and are required to be brought into compliance with both the local building code and the local floodplain development regulations.
- Structures damaged between 0 and 49 percent will not be subject to rebuilding requirements triggered by an SI/SD determination.
- Structures that are not substantially damaged are still subject to all repair and replacement requirements of the local building code.

Depending on the size of the event, community officials will undertake an initial "windshield survey" of the damage after a disaster. A community will be able to see approximately where the impacted structures are based on the preliminary damage assessment results. The initial Preliminary Damage Assessment is usually a precursor to a decision regarding whether to seek a declaration of the event as a major disaster. The SI/SD Manager may be able to use the PDA data to refine impact area and determine where in the SFHA resources should be devoted to further assessing substantially damaged structures.



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IDENTIFYING AVAILABLE PERSONNEL

It is important to select an SI/SD Manager who is familiar with the community. The manager may be a local floodplain management official, chief building inspector, head of the permitting department, or other staff member.

To determine the number of inspection teams needed for data collection, the SI/SD Manager must estimate the size of the inventory, the number of inspections a team can complete per day, and the target date for completion of the fieldwork. The SI/SD manager must also keep in mind that staff allocated to the SI/SD team may have been affected by the disaster and should use sensitivity in assuming affected individual's availability.

If local staffing resources are insufficient to complete the required number of inspections by a specific date, the SI/SD Manager should obtain additional staff from neighboring communities or extend the completion date.



PRO-TIP: If staff resources allow, inspectors with damage assessment or construction experience should be paired with less experienced staff. Staff should be physically able to navigate from structure to structure and be able to make the assessments necessary for the SI/SD evaluation.

The SI/SD Manager should identify the local resources that will be needed to collect field data and prepare SI/SD determinations.

Identifying available resources includes:

- Designating the SI/SD inspection, non-field SI/SD data, and Quality Assurance review leads.
- Identifying the points-of-contact for police and local officials.
- Reviewing Flood Insurance Rate Maps and other maps for floodplain boundary, street, and structure locations.
- Compiling tax data (if available) and reviewing how to use it with the inspectors.

It may be necessary to provide training to staff on SI/SD plans and procedures. Training should be scheduled on a regular occurrence to account for any overturn in staff that may occur. Regularly providing training to SI/SD team members will also allow a community to evaluate the standards and procedures that are in place. Training is great for new recruits, but is also a way to reflect on what could be made better thanks to input from those with experience. There may be tweaks or changes to SI/SD procedures after staff have been through the SI/SD determination process due to a recent event or disaster.

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DETERMINING TIMEFRAMES

Local officials should initiate evaluations for SI/SD determinations as soon as possible after the disaster, and no later than 2 weeks after the disaster to ensure structure owners understand the procedures of SI/SD before they take action to rebuild or repair their structure. If this is not possible, officials need to alert structure owners in the impacted areas that permits must be obtained and SI/SD determinations must be made before repairs or reconstruction can begin. It may also be worthwhile to meet with the tax assessor as soon as possible to discuss the SI/SD data needs and determine time frames and level of involvement for data sharing.

Calculate the number of days it will take to collect the data based on the number of structures to inspect and the number of available inspectors. The inspection rate for non-residential structures is likely to vary depending on the size of the structures and the complexity of the structure.



PRO-TIP: A general estimate for the number of residential inspections per two-person team per day is 20 to 35 for areas where the inspectors can walk between structures.

It may be helpful to develop an equation to estimate how long it will take to conduct SI/SD determinations. A sample equation is included below:

$$\begin{array}{ccccccc} \img alt="Icon of a house and a building." data-bbox="198 558 268 593" & \times & \img alt="Icon of a hand holding a clock face." data-bbox="371 563 458 588" & \div & \img alt="Icon of two people." data-bbox="591 561 628 593" & = & \img alt="Icon of a clock face." data-bbox="763 558 814 598 \\ \text{Number of Homes} & & \text{Number of Minutes} & & \text{Number of Teams} & & \text{Number of Hours} \\ & & \text{Inspection Team(s)} & & & & \\ & & \text{Need per Home} & & & & \end{array}$$

Keep in mind that this simple equation does not take into account the specifics of your community - how many staff members will you have available per team, how large are the properties in your community and how long will it take to travel between properties, are properties still accessible after the disaster, etc. There are some of variables that may alter the results of this equation.

The initial screening should also identify areas that may either need to be prioritized later or require coordination and approval for entrance into the area. Areas such as gated communities, industrial sites, schools, or State or Federal facilities will require advanced notice, coordination, and approval before the inspections can be started.



Before the SI/SD inspections are conducted, planning for the inspections will help ensure that they are effective and conducted as efficiently as possible. The five steps involved in SI/SD inspection planning are as follows:

STEP 1: SELECT AN SI/SD MANAGER

The community should designate an SI/SD Manager before SI/SD data collection is initiated. The SI/SD Manager's seven key responsibilities are to:

- Identify available resources.
- Notify elected officials and community departments including fire, police, and emergency services, planning, and building code of the upcoming fieldwork.
- Plan the SI/SD field inspections.
- Organize and train the inspectors.
- Supervise field operations.
- Ensure follow-up coordination with structure owners is completed.
- Coordinate final storage of SI/SD files.

STEP 2: IDENTIFY GENERAL LIMITS AND SCOPE OF THE IMPACTED AREA

Delineate the general limits of the impacted area on a community map that has address information, tax parcel or property boundaries. Determine the appropriate teams that will work on SI/SD determinations and the required timeline to do so during and after a disaster. The SI/SD team should compare the impacted area with a community's SFHA. SI/SD standards are only required in the floodplain, unless a community has adopted higher standards.

STEP 3: PERFORM AN INITIAL SCREENING OF STRUCTURES IN THE IMPACTED AREA

The data collected in the initial screening will help define the scope of the field inspection and the number of days that are needed to complete the SI/SD inventory:

- Collect information about the natural hazard – duration and level of impact.
- Perform a curbside screening of damaged structures – number of structures and the percentage of damage.
- Determine whether representative inspections are appropriate – similar environment and structure type.
- Refine delineation of the SI/SD inventory area(s) – based on inventory results.

The local standards must be applied uniformly to all structures within a jurisdiction. Local officials determine if a building in their jurisdiction has been substantially damaged. FEMA damage assessment teams may be asked to respond to local requests to assess the extent of disaster-caused damage to structures. When FEMA assists communities in the collection of structure damage data to make an SI/SD determination, it is important to note that the data do not constitute a determination. FEMA provides the results to local jurisdictions. Communities are responsible for making SI/SD determinations (based on their own ordinances) and sharing that determination with the structure owner.

STEP 4: DEFINE STANDARDS TO DETERMINING SUBSTANTIALLY DAMAGED STRUCTURES

It is important to outline and document the process being used to identify substantially damaged structures during and after an event. With various staff members, third party vendors, and potentially volunteers, being delegated to assess damaged structures throughout the inventory area, detailed guidelines should be given to ensure consistency.

Here are a few considerations your community should reflect on while defining SI/SD standards:

- How will SI/SD team members be identified and trained?
- How soon after a disaster will teams be sent into the field to make substantial damage determinations?
- Will properties be assessed for substantial damage using value-added tax rate or market rate?
- If a structure is determined to be over 60 percent damaged and requires condemnation, how will the community enforce this?
- Structures that are less than 40 percent damaged and more than 60 percent damaged may be more easily identified by the SI/SD team. How will your team determine the less obvious 40 percent to 60 percent damaged structures?
- How will your community define restoration of a damaged building to its pre-damage condition as substantial improvement?
- How will your SI/SD team coordinate with property owners during an initial "windshield survey" if inspectors are unwanted on private property?

STEP 5: FINALIZE PLANNING

A well-planned data collection effort will increase the efficiency of the inspectors while ensuring the accuracy and consistency of the data. These four tasks should be followed to ensure that the data collection is accurate and complete:

Task 1. Determine whether the inspectors will utilize the SI/SD tool or SI/SD worksheets.

Task 2. Divide inspection areas among the teams and plan the approximate sequence of inspections.

Task 3. Prepare guidance and any training materials.

Task 4. Identify all tools and resources that are needed and assign someone to begin collecting.

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COMMUNICATING DAMAGE TO PARTNERS (LOCAL/STATE/FEDERAL)

Communities that have extensive floodplains and significant numbers of flood-prone structures are encouraged to plan ahead to handle the workload. Thresholds should be set by the community to help determine when to enlist outside help.

Even with good planning, support may be necessary to handle large numbers of damage inspections and permit applications. In addition to support from the State and FEMA, resources may be available from other communities, State floodplain management associations, State building code associations, and organizations that represent engineers and architects. Some States and communities develop mutual aid agreements, inter-local agreements, or other mechanisms to facilitate this post-disaster support.

The SI/SD process begins and ends at the local level. While help may be offered to perform inspections and gather data, perhaps using the FEMA SDE, making final SI/SD determinations and permit decisions remain the responsibility of local officials in affected communities.

FEMA mitigation experts continue to coordinate with local State and local officials, especially floodplain managers, to provide detailed information and expert advice on repairing and rebuilding damaged homes in the floodplain. Bringing homes and businesses into compliance with local floodplain ordinances is not only required but may reduce individual flood insurance premiums.

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COMMUNICATING SI/SD INFORMATION TO PROPERTY OWNERS

Communities must be prepared to explain to property owners how they make SI/SD determinations. Local officials should develop written procedures that can help them make and document consistent determinations and improve efficiency.

An official determination from a community serves as the catalyst for a broad range of mitigation programs and actions including the following:

- Requirement to bring a building into compliance.
- Insurance rating adjustment.
- Increased Cost of Compliance (ICC) coverage under the NFIP.

Posted signs, fliers, notices on damaged structures, press releases, and letters mailed to property owners can all be used to provide information on local floodplain ordinance and SI/SD requirements. The building inspector or local official should educate themselves on the damage assessment process, reconstruction methods, and available mitigation programs.

Officials should be aware that not every property or structure owner is going to be happy with a SI/SD determination. An owner may appeal the local official's finding or determination that the proposed work constitutes SI/SD. The owner may appeal an SI/SD determination on the basis of insufficient information, errors, repair/improvement costs that should be included/excluded, inappropriate valuations of costs for the proposed work, or an inappropriate method to determine the market value of the building.

Outreach regarding SI/SD *before* an event happens can help to reduce the number of appeals. Local officials should work to inform homeowners, who are located within the community's SFHA, that SI/SD determinations will apply to them. A process should be in place to communicate the permit process and inform structure owners that any and all improvements made to their structure counts towards the percentage of substantial modification. Once they hit the 50% mark, they will be required to comply with local building and floodplain requirements. Providing this information pre-disaster can help reduce confusion and frustration post-disaster.

The ultimate goal is to reduce risk to life and property. Determining a strong SI/SD process can help to reduce risk before an event happens. A great window of opportunity to ensure that flood damages do not occur again is after a flood. Federal or State mitigation programs may be available and there are experts on mitigation who can discuss recovery options and funding programs. Public meetings can be arranged to introduce impacted communities to all the options that are available.

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MONITORING AND REINTEGRATION

Consistent record keeping and enforcement of SI/SD requirements is crucial. It is the community's responsibility to maintain records of issued permits, elevation data, inspections, and enforcement actions. If a property or structure owner is in violation of any SI/SD requirements, action should be to enforce ordinance codes and standards. The NFIP expects communities to attempt all reasonable actions to bring violations into compliance. When such attempts are unsuccessful, the community should contact the NFIP State Coordinator or the FEMA Regional Office for advice.

Once SI/SD determinations are made and communicated, and the appeals are complete, the community may be able to return to their standard permitting and ordinance procedures. FEMA will continue to work with the community on SI/SD activities to determine ongoing compliance with the NFIP.

Now that your community is back to pre-disaster operations, it is a good time to go back to Section 2 and re-evaluate your current structure. What worked? What could use some fine-tuning? Preparing now can help to reduce risk in the future.