EXAMPLE

ASSESSING CLIMATE RISK

of an Individual Property

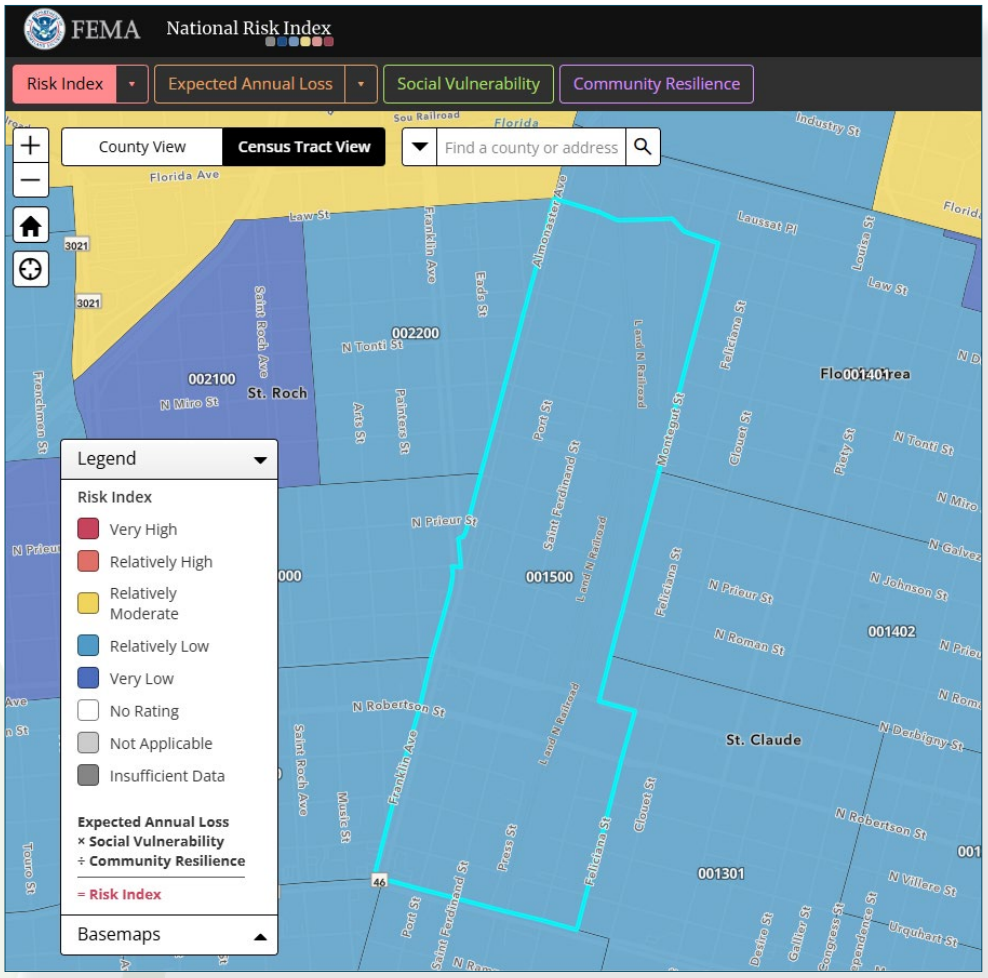
STEWARDS OF AFFORDABLE HOUSING FOR THE FUTURE

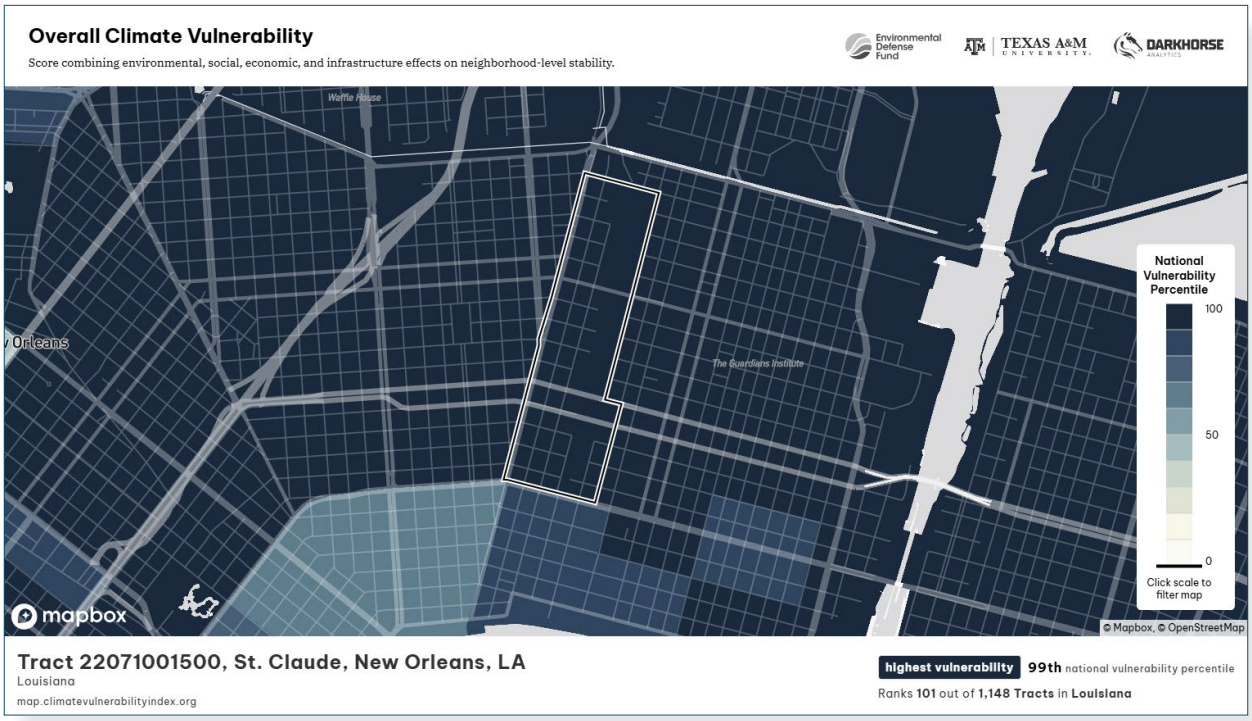
EXAMPLE

Below is an example to walk through how information is collected for an individual property, and is for illustrative purposes only. This example focuses on a hypothetical property located in New Orleans, LA in Census Tract 22071001500.

STEP 1 FEMA NRI

This census tract in New Orleans, LA has a risk index of "Relatively Low" and would receive a numerical score of a 2.





STEP 2 EDF CVI

This census in New Orleans, LA has an overall climate vulnerability result of "Highest Vulnerability" and would receive a numerical score of a 5.

STEP 3 Combine FEMA NRI and EDF CVI Scores

The combined score of this census tract in New Orleans, LA is 7, indicating that it has a higher than average overall risk score.

STEP 4 FEMA NRI Hazard Type Risk Rating

For this census tract in New Orleans, LA, there are no natural hazards that have a relatively high or very high risk. However, if there is history of impacts from natural hazards and they have a relatively moderate risk, SAHF recommends noting it. This census tract has two natural hazards that have relatively moderate risk: Heat Wave and Hurricane.

Figure 1: This table is available by clicking on the "Create Report" button in the lower lefthand corner of the webpage.

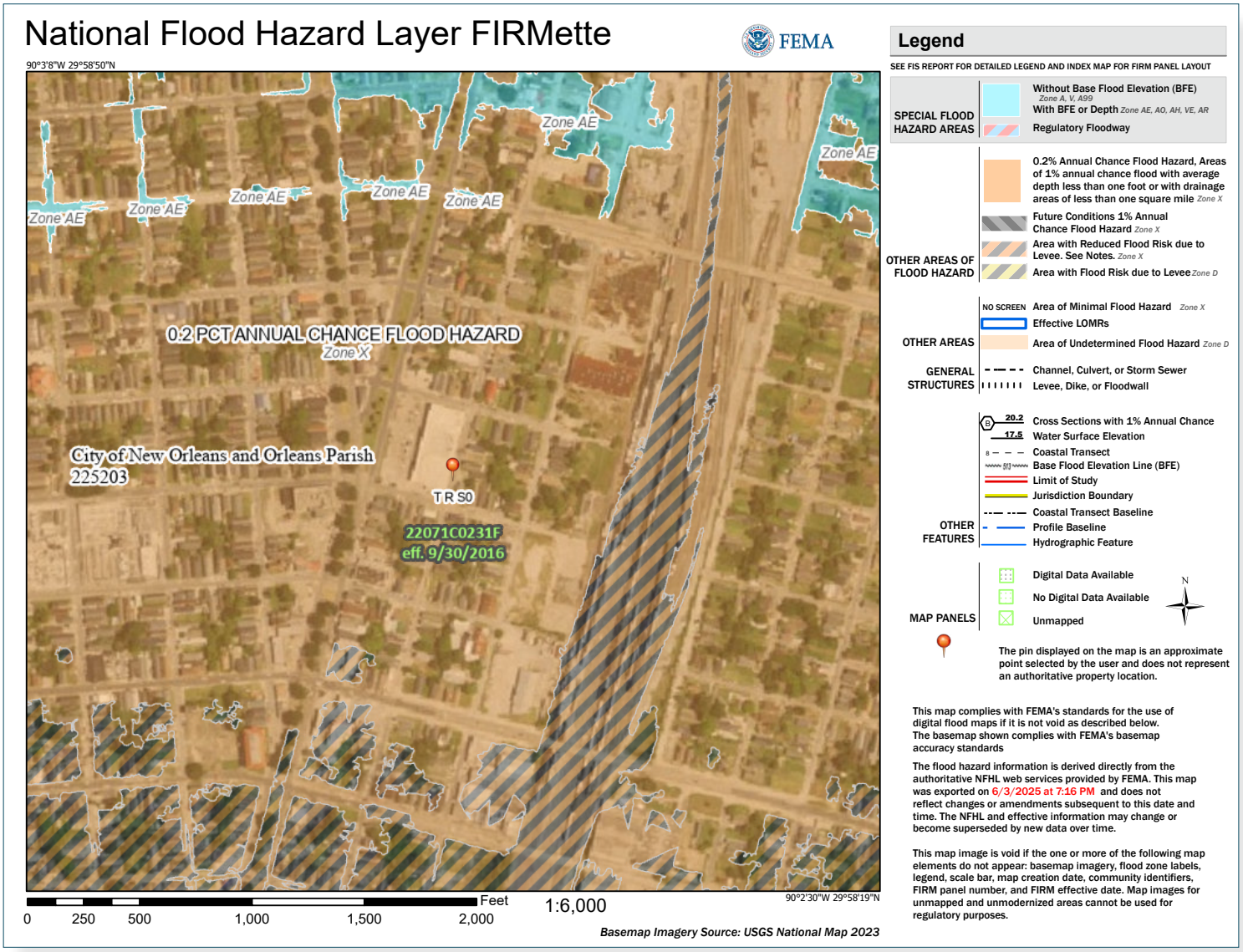
Hazard Type	Risk Index Rating	Risk Index Score	National Percentile
Avalanche	Not Applicable	--	
Coastal Flooding	Relatively Low	84.9	0 100
Cold Wave	No Rating	0	0 100
Drought	No Rating	0	0 100
Earthquake	Very Low	24.8	0 100
Hail	Relatively Low	70.3	0 100
Heat Wave	Relatively Moderate	61.3	0 100
Hurricane	Relatively Moderate	84.3	0 100
Ice Storm	Very Low	14.6	0 100
Landslide	No Rating	0	0 100
Lightning	Relatively Moderate	51.4	0 100
Riverine Flooding	Very Low	32.5	0 100
Strong Wind	Very Low	17.6	0 100
Tornado	Very Low	22.1	0 100
Tsunami	Insufficient Data	--	
Volcanic Activity	Not Applicable	--	
Wildfire	No Rating	0	0 100
Winter Weather	Very Low	21.9	0 100

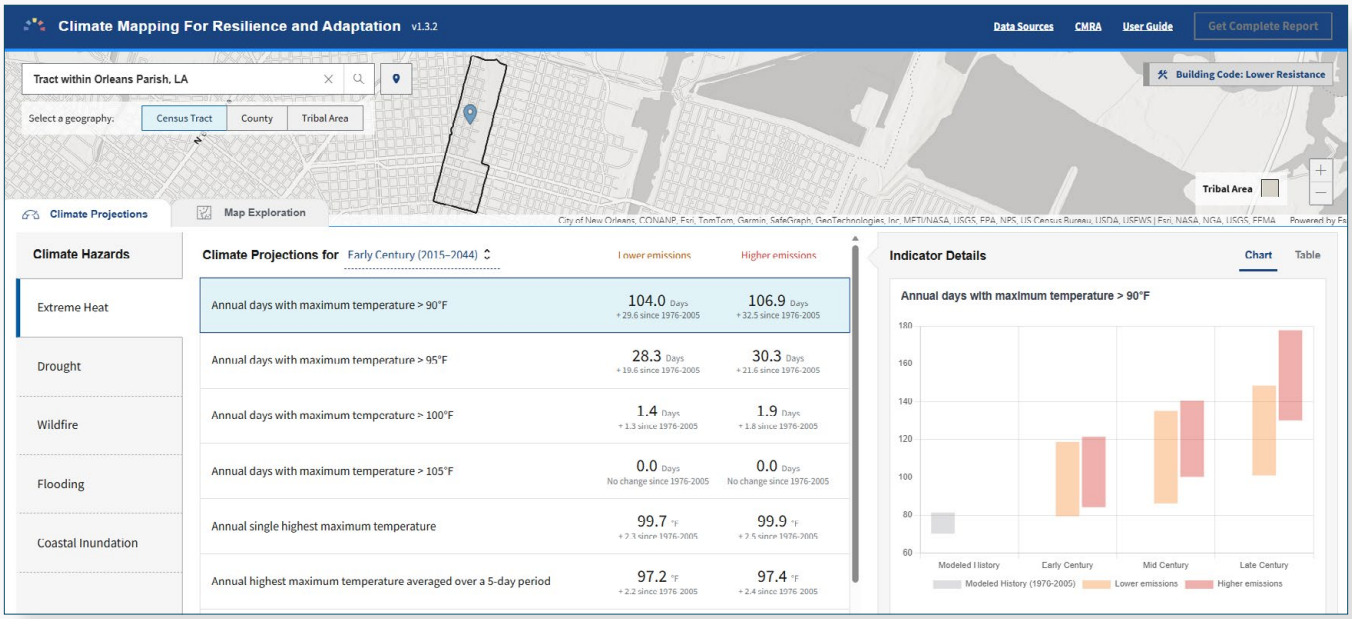
STEP 5 FEMA Flood Map

This census tract in New Orleans, LA receives a very low risk for Riverine Flooding and relatively low risk score for Coastal Flooding via the FEMA NRI, however, when viewing via the FEMA Flood Map, the census tract geography falls into three categories:

- Special Flood Hazard Areas
- Other Areas of Flood Hazard
  * Area with reduced flood risk due to levee
  * 0.2% Annual Chance Flood Hazard

According to the FEMA Flood Map, this census tract has areas that have higher than average risk. In this case, the risk is much higher than indicated in the FEMA NRI and should be noted in the property summary.

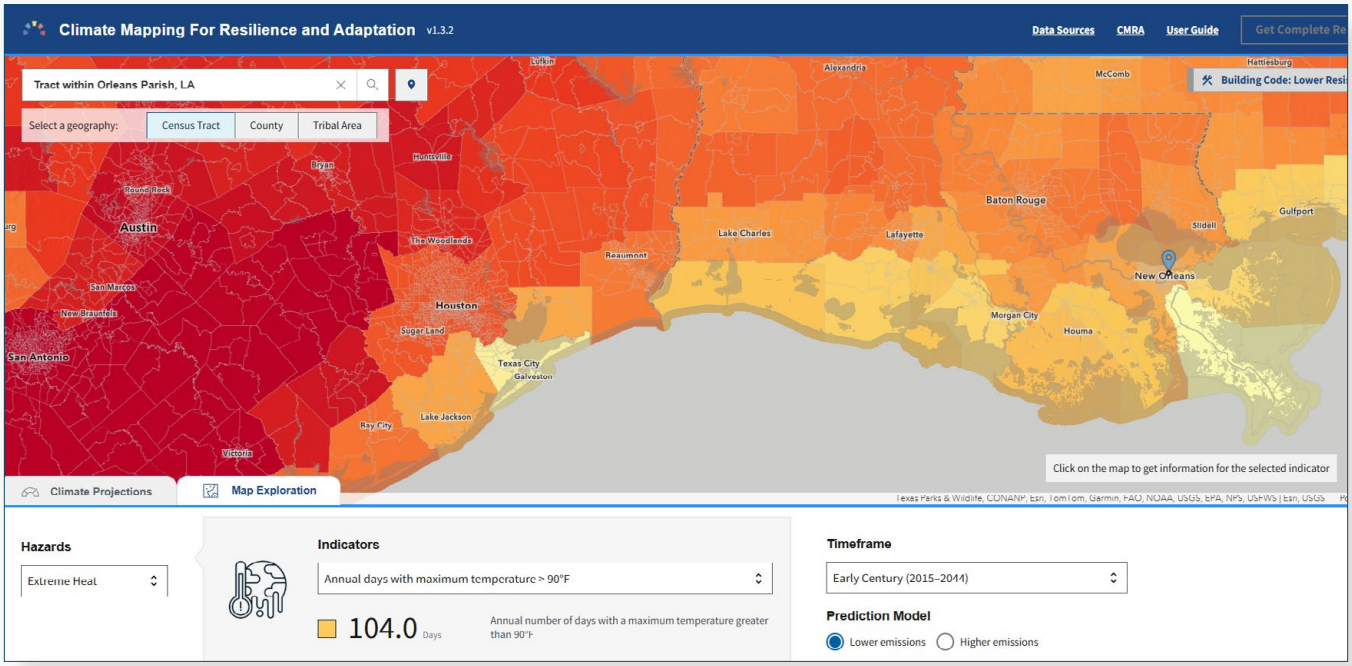




STEP 6 NOAA CMRA

This census tract in New Orleans, LA shows that majority of the climate projections for extreme heat will increase in Early Century (2015-2044). In addition to providing a table, the tool also provides a useful graph to quickly gauge the current records to projections.

The Map Exploration tool can be helpful to understand how this census tract is projected to change compared to other areas of the country. In this case, the darker the area, the greater the number of days exceeding 90 degrees F. For this census tract in New Orleans, LA, annual days above 90 degrees F are projected to increase by approximately 30 days in the near future. This information, coupled with the FEMA NRI Natural Hazard risk for Heat Waves can provide additional context, especially when considering capital planning, like HVAC upgrades.



Property Climate Risk Summary

This information is most helpful when assembled together so that can be shared with others and to compare multiple properties. Below is an example of simple table **for this census tract** in New Orleans.

Climate Risk Summary		
Property Name & Address	Census Tract 22071001500	
Overall Climate Risk		
FEMA NRI Overall Score (1-5 score)	2	
EDF CVI Score (1-5 score)	5	
Combined Risk Score (0-10 scale)	7	
Individual Natural Hazards		
Natural Hazards (with relatively or very high risk)	None, but Heat Waves and Hurricanes have relatively moderate risk	
FEMA Flood Map	There is higher flood risk than most locations	
Projected Climate Risk (NOAA CMRA)		
Extreme Heat	**Current**	**2015-2044**
Annual days with maximum temperature > 90 degrees F	74.4 days	104.0 days
Annual single highest maximum temperature	97.4 degrees F	99.7 degrees F
Annual highest maximum temperature averaged over a 5-day period	95 degrees F	97.2 degrees F
Cooling-degree days (CDD)	2,876 days	3,374.8 days
Flooding*	**Current**	**2015-2044**
Maximum number of consecutive wet days	16.1 days	16.0 days
Annual days with total precipitation > 1 inch	13.4 days	13.6 days
Annual days with total precipitation > 2 inches	2.2 days	2.4 days
Annual days with total precipitation > 3 inches	0.6 days	0.8 days
Annual days that exceed 99th percentile precipitation	7.8 days	9.2 days

** Flooding is included in this table due to the increased risk highlighted by the FEMA Flood Map*

It is also important to identify strategies for mitigating and adapting to natural hazards that may impact the property or portfolio. Below is an example of a simple table that shares some best practices that may be appropriate to adopt during development, rehabilitation, operations and resident engagement **for this census tract** in New Orleans, LA:

Prevalent Individual Hazards	New Construction	Rehabilitation	Existing Property Operations	Resident Engagement
Heat Wave/ Extreme Heat	Newly constructed properties that have efficient building envelopes and air sealing can maintain cooler air for longer while balancing the energy load. Building to PHIUS and DOE ZERH standards allows for this by reducing energy usage while increasing passive survivability.	The Louisiana Housing Corporation runs the Weatherization Assistance Program for the state and can offer no-cost energy-efficiency upgrades to qualified low-income residents and multifamily properties. Some utilities in the state also offer programs to support energy upgrades.	The Louisiana Housing Corporation's Energy Assistance program provides cooling assistance to eligible low-income households to reduce their energy burden by subsidizing the cost of their summer home energy bills and/or paying for in-unit A/C. Shade trees planted on the east or west sides of a building are one of the most effective measures in reducing heat gains. Trees and vegetation that directly shade buildings also decrease the demand for air conditioning.	Creating a heat-resilient community includes providing ways for residents to cool during heat waves such as public cooling spaces in common areas like lobbies, community rooms, vacant dwelling units, offices, or other spaces with water, first aid, and other necessary information in case of heat-related emergency. Ensuring that residents have access to public transportation can also help provide cooling solutions. This is especially important for those with low mobility, or without access to a car.
Hurricane	The Louisiana Housing Corporation's QAP requires new affordable housing to build to the FORTIFIED Multifamily standard which strengthens roofs, walls, and requires impact-resistant windows and shutters that increase storm resistance. Building to this standard has been proven to lower insurance claims. Les Maison de Bayou Lafourche is a multifamily housing development that was the first project to utilize FORTIFIED design standards in Louisiana.	The FORTIFIED standard also provides a pathway for reroofing. The HUD Green and Resilient Retrofit Program (GRRP) identified this standard as an applicable and appropriate mitigation strategy.	Enterprise Community Partners developed a Business Continuity Toolkit to support affordable housing organizations in addressing disaster preparedness.	The City of New Orleans adopted an ordinance that requires all senior and supportive housing owners and property managers to create robust emergency preparedness plans for their properties and residents.

Prevalent Individual Hazards	New Construction	Rehabilitation	Existing Property Operations	Resident Engagement
Flooding	The Louisiana Housing Corporation's QAP does not allow new construction in Special Flood Hazard Area, unless there are extenuating circumstances. If a new construction project is moving forward in a flood zone, the LSU AgCenter provides valuable resources and recommendations. Some suggestions include: • Build above anticipated flood levels • Use damage-resistant materials • Elevate and secure mechanical (HVAC) systems) • Slope paved surfaces away from the building	TThe Louisiana Housing Corporation's QAP states that a rehabilitation project can only proceed if the lowest existing floor elevation of each building in the floodplain is at least three (3) feet above the FEMA designated floodplain elevation. Additionally, Enterprise Green Communities Criteria 2.1 Sensitive Site Selection and 5.9 Resilient Energy Systems: Floodproofing have guidance and resources for rehab projects.	The NFIP Mitigation Measures for Multi-Family Buildings Appendix D provides a checklist for property owners to use and identify property vulnerabilities.	The [now-revoked] HUD FFMRS requires that during the execution of a new lease or renewal, property owners need to collect signed acknowledgement from residents which share that the property is in a floodplain, and that residents can purchase flood insurance for their personal property.