

# Rapid Disaster Recovery Housing Program



**BUENA VIDA SUBDIVISION, MISSION, TX**  
 SEPTEMBER, 2014 (1-2 inches of rainfall)



**What kind of flooding problems do you have?**  
 [¿Qué tipo de problemas de inundación tiene ?]



Flooding during a Hurricane  
 [Inundación durante un Huracán]




Flooding during a big rain  
 [Inundación durante una lluvia fuerte]




Flooding during a small rain  
 [Inundación durante una lluvia leve]

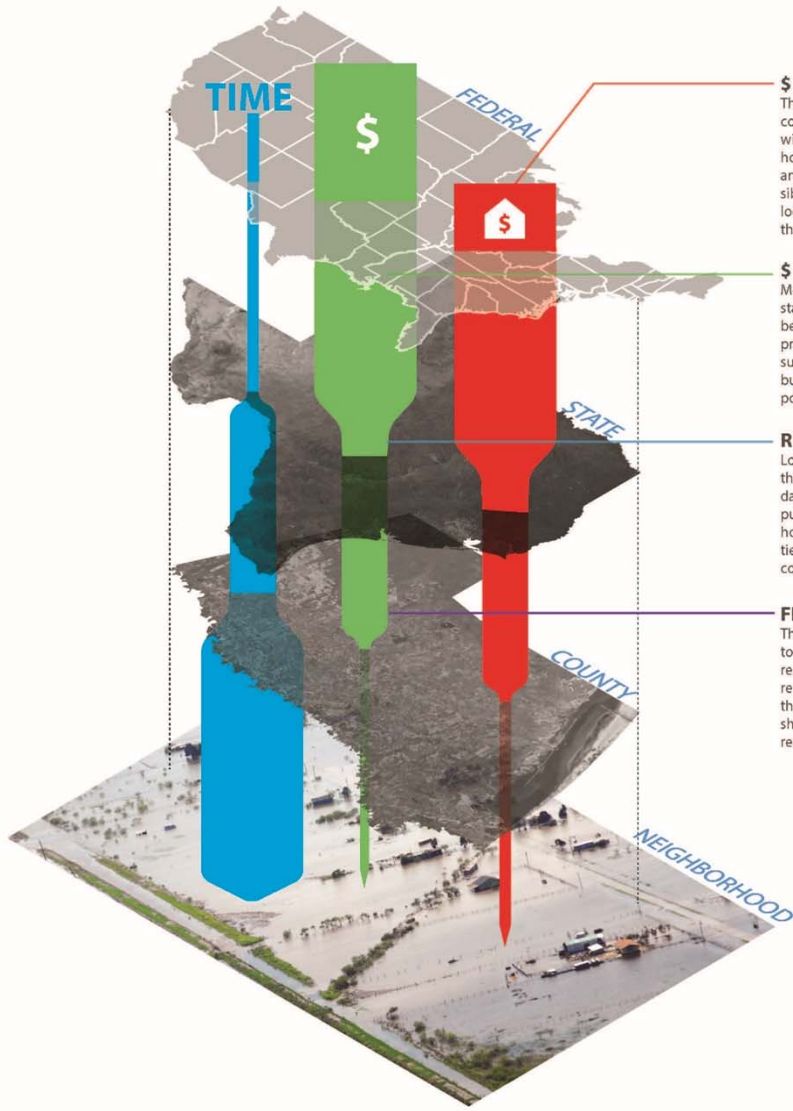



How Often?  
 [Cuán frecuente?]

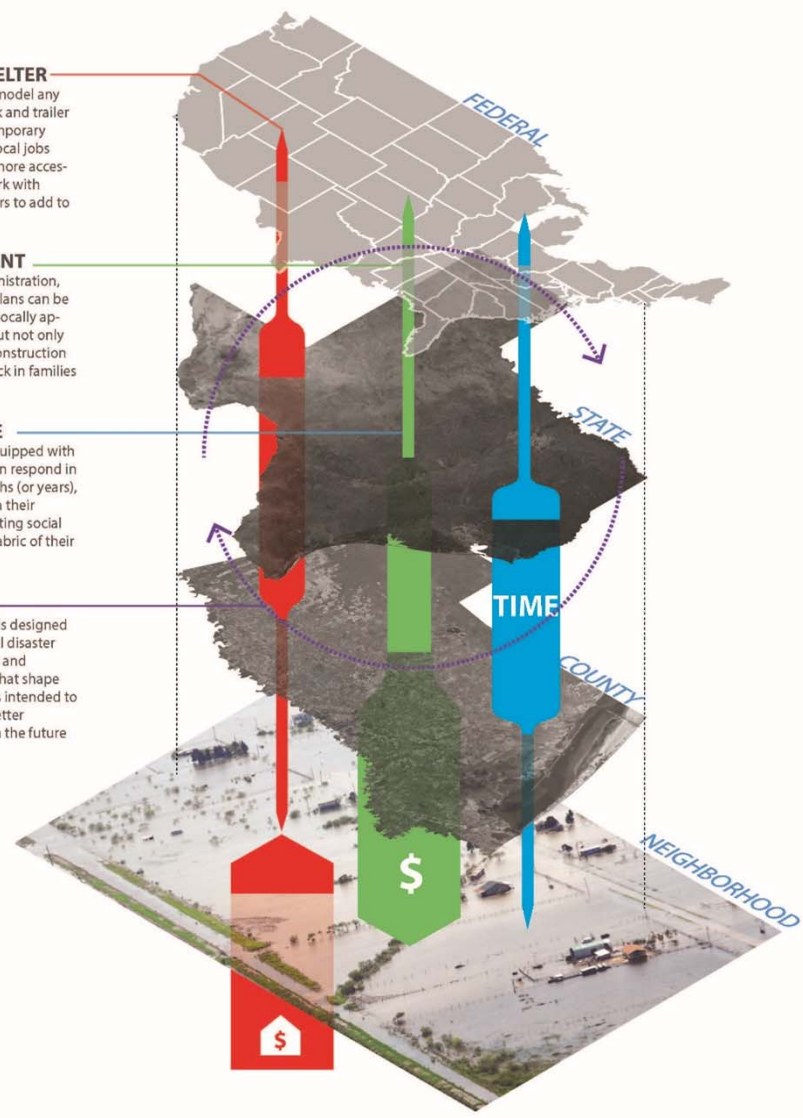
- Once every month  
 [Una vez cada mes]
- Once every 2-6 months  
 [Una vez cada 2-6 meses]
- Once every 6-12 months  
 [Una vez cada 6-12 meses]
- Once every year  
 [Una vez cada año]
- Once every 2 years  
 [Una vez cada 2 años]
- Other  
 [Otro]

Photos from bcWORKSHOP/Texas Low-Income Housing

## EXISTING MODEL



## RAPIDO MODEL



**\$ SPENT ON SHELTER**  
Through the RAPIDO model any contractor with a truck and trailer will be able supply temporary housing, supporting local jobs and making housing more accessible. Families can work with local CDC's and builders to add to their homes.

**\$ SPENT ON MGNT**  
Money spent on administration, staffing, and federal plans can be better spent on more locally appropriate plans that put not only support relief and reconstruction but all puts money back in families pockets.

**RESPONSE TIME**  
Local governments equipped with the tools they need can respond in days rather than months (or years), putting people back in their homes without disrupting social ties and keeping the fabric of their communities in tact.

**FEEDBACK**  
The RAPIDO program is designed to test and re-test local disaster response mechanisms and re-shape the policies that shape them. This feedback is intended to shape legislation to better respond to disasters in the future

the idea

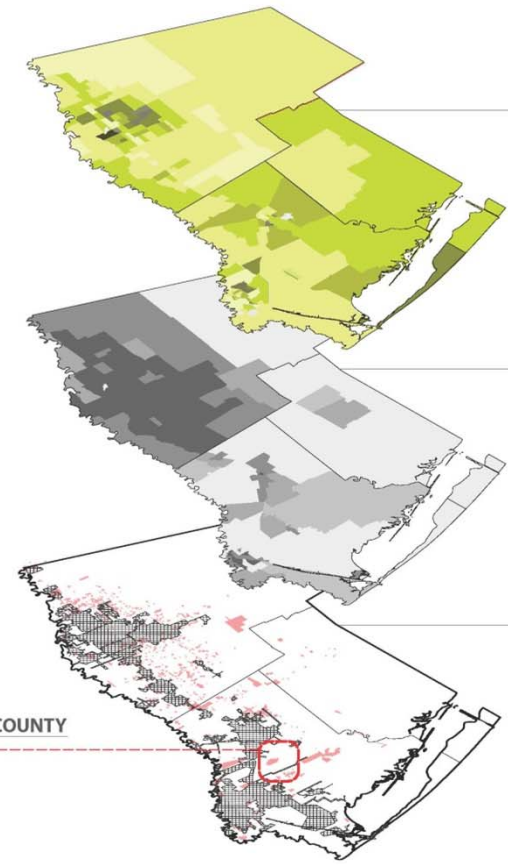
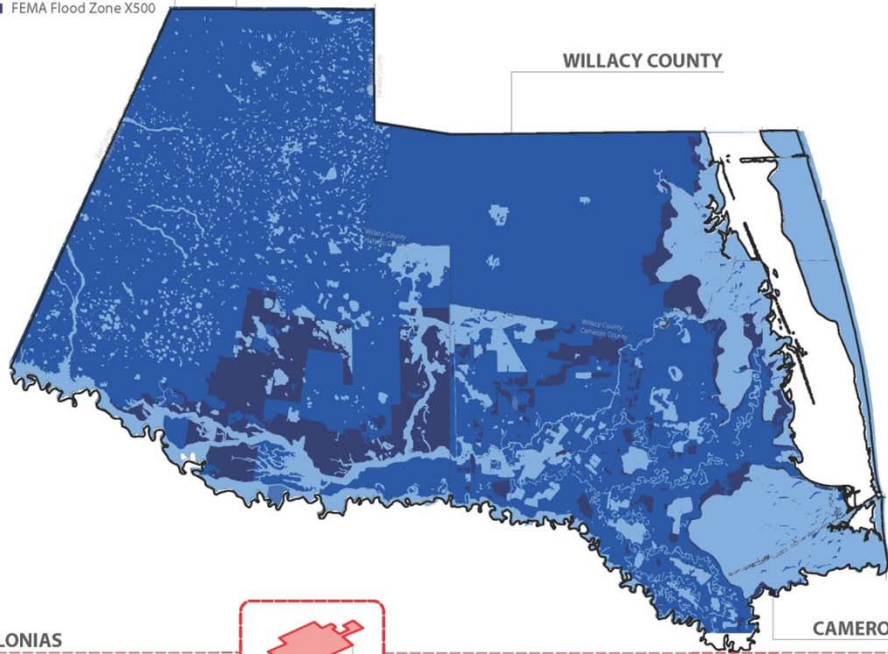
**FLOOD ZONES**

- FEMA Flood Zone A
- FEMA Flood Zone ANI
- FEMA Flood Zone X
- FEMA Flood Zone X500

**HIDALGO COUNTY**

**WILLACY COUNTY**

**CAMERON COUNTY**



**POPULATION AREA MEDIAN INCOME**

- < \$10,000
- \$10,000 - \$19,999
- \$20,000 - \$29,999
- \$30,000 - \$39,999
- \$40,000 - \$49,999
- \$50,000 - \$59,999
- \$60,000 - \$69,999
- \$70,000 - \$79,999

**DENSITY (PERSONS PER SQUARE MILE)**

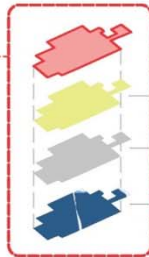
- < 60
- 60 - 249
- 250 - 999
- 1000 - 4999
- > 5000

**REGIONAL URBAN STRUCTURE**

- Urban Areas
- Colonias

**COLONIAS**

The Rio Grande Valley is comprised of the highest concentration of poverty in the United States and contains a substantial number of substandard developments known as colonias. These developments are socially strong, but highly economically and environmentally vulnerable.



**AREA MEDIAN INCOME**  
\$20,000 - \$29,999

**DENSITY**  
60 - 249  
PERSONS / SQ MILE

**FLOOD ZONE**  
A

**SOCIAL VULNERABILITY**

Social vulnerability and adaptive capacity is central to estimating disaster impacts. Though communities may experience similar storm events, the local social, political, and physical environment can make for very different disaster experiences.

Variables that influence the social vulnerability of a community include: personal wealth, age, development density, sector economic dependence, housing stock, race and ethnicity, occupation, and infrastructure dependence.



the place

### 1. PROGRAM DESIGN & DELIVERABLES

documented guidelines are developed based on research, outreach and engagement

### 2. PROCESSES

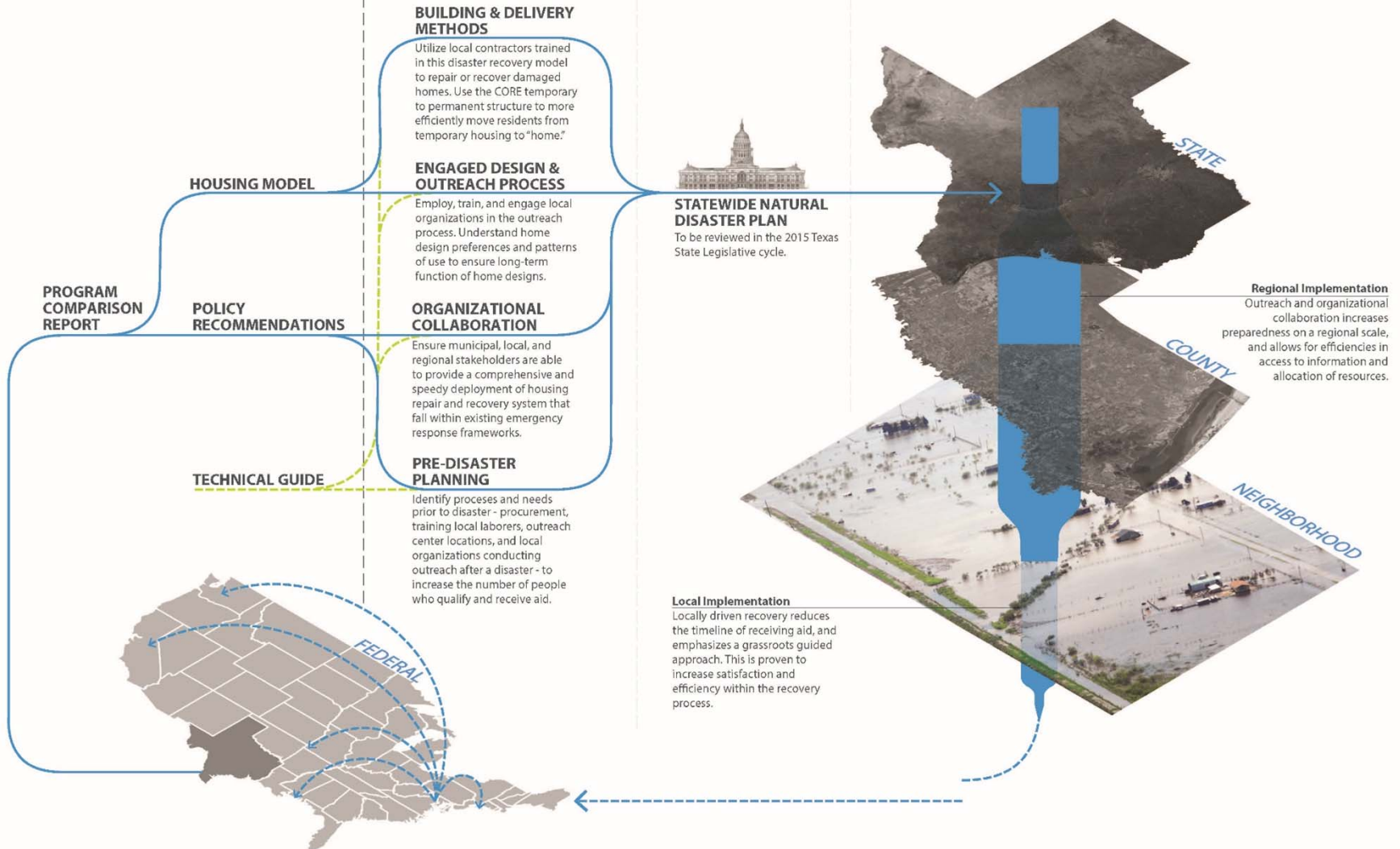
recommended processes for systemic disaster preparedness

### 3. INTEGRATION

adoption of processes and recommendations as statewide policy

### 4. IMPLEMENTATION

occurs on state, county, and local levels and can be replicated nationwide



# policy design and implementation

# Housing Recovery- State

Four typical phases of housing recovery, identified by researcher EL. Quarantelli, are:

- emergency sheltering,
- temporary sheltering,
- temporary housing, and
- permanent housing (1995; see Figure 3).

States have been referred to as the 'linchpin' between federal policies and funding and local need during disasters (Sandler and Smith 2013; Smith and Flatt 2011).

- First, states can influence resources to address local needs. States take the role of distributing federal funds and their own share of funds to local governments.
- Second, states affect the timing of recovery through their own pre-event capacity, their ability to address and assist socially vulnerable populations, and the equitable access and distribution of funding (Smith 2011).
- Third, states can influence resources through the vertical and horizontal linkages they connect with.

# Housing Recovery- Local

Local governments take the lead role in managing disaster recovery.

- From an emergency response perspective, disasters occur at the level.
- At the local level, residents interact with their government more frequently.

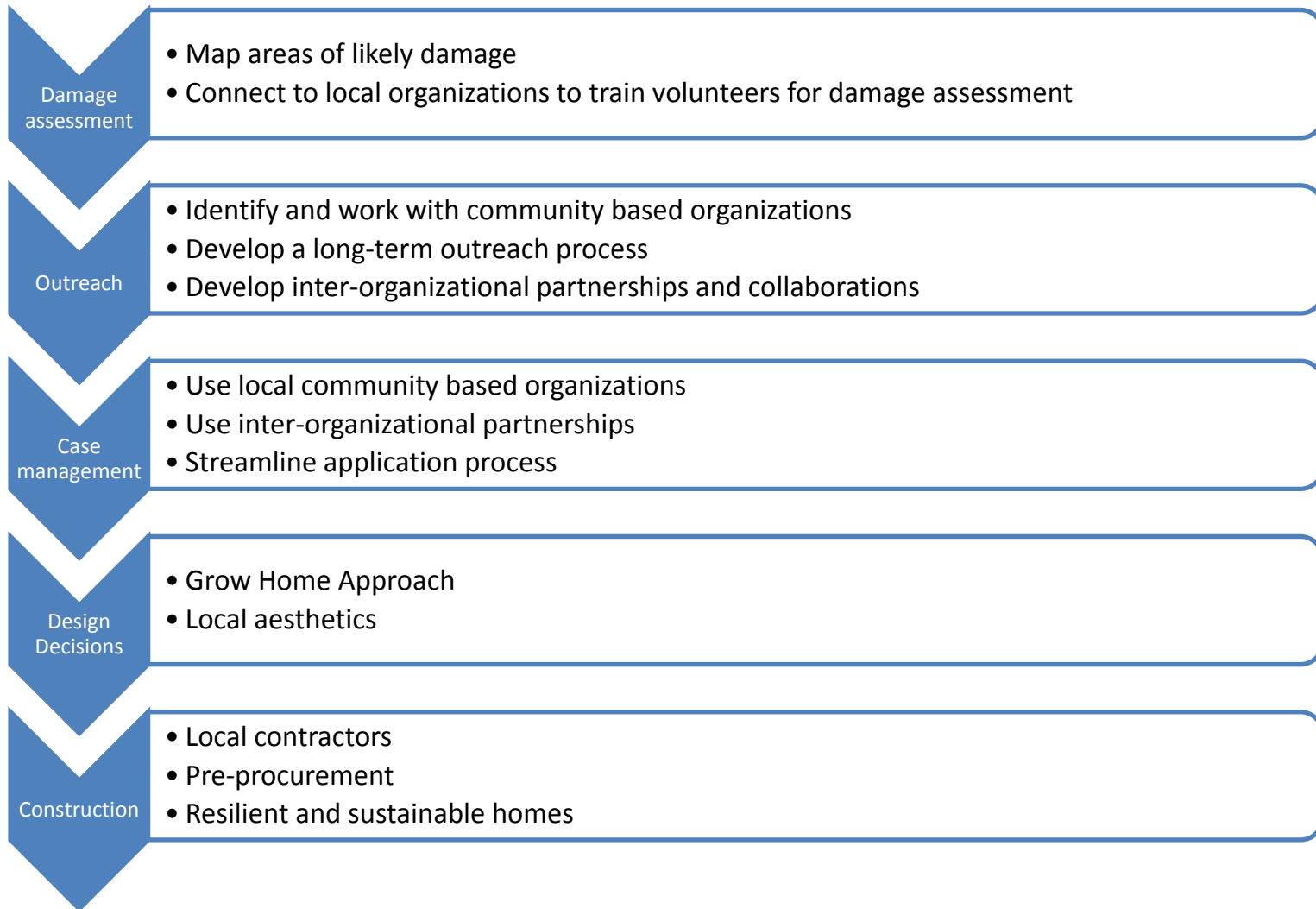
Local governments also play a key role in executing and implementing plans.

- The majority of mitigation measures and state and federal requirements are adopted, codified and enforced at the local level.
- local government to adopt and enforce state and federal standards (i.e. NFIP, IBC, IRC).
- Unfortunately, the capacity of local governments varies widely.

No established standards or mandates for local governments to play a role in recovery. According to standard emergency management actions by phases, recovery for local governments entails:

- Identifying unsafe structures and the recommendation of structures for condemnation,
- monitoring restoration activities,
- reviewing building codes and land use regulations for possible improvements, and
- communicating effectively with disaster victims

# Housing Recovery Gaps



**OFF-SITE CONSTRUCTION**

begins prior to construction and continues after storm

**1. PRE-DEVELOPMENT / PRE-DESIGN**

community engagement and research

**2. OUTREACH AND CASE MANAGEMENT**

assessment of damaged and intake of families

**3. SITE ASSESSMENT AND**

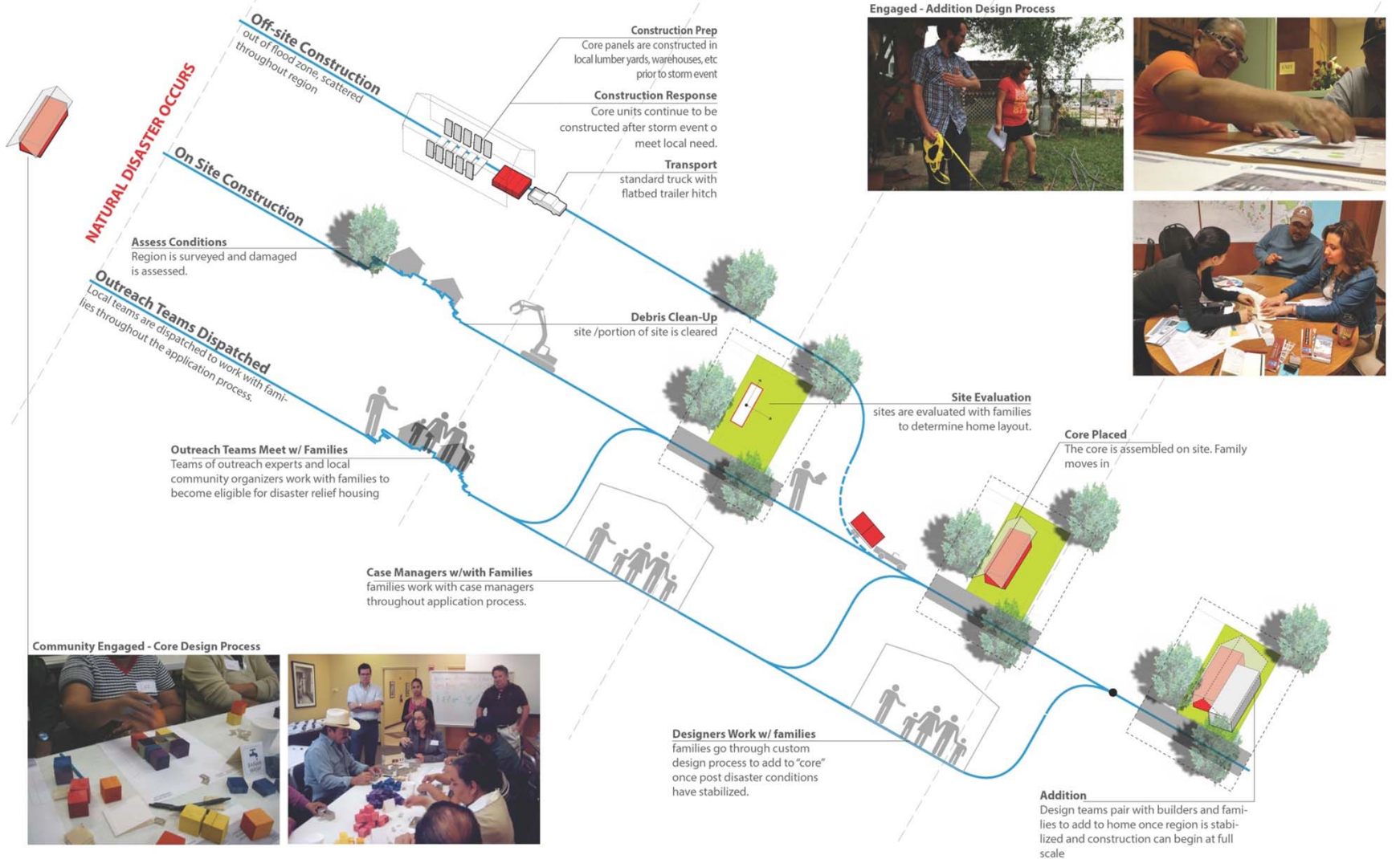
assessment of sites and preparation for construction

**4. DELIVER AND ASSEMBLE**

occurs locally / assembled in one week

**5. EXPANSION**

dependent upon resident's choice and resources

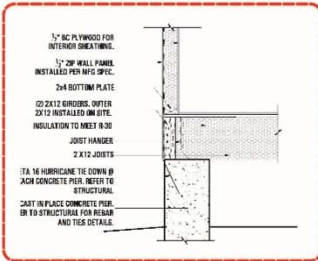


making process



### TEMPORARY ROOF

A durable/temporary roof is designed to last if families are forced to rely on the CORE for an extended period of time. The area can double as storage space, and the material can be reused post-storm to clad the home or an additional shed.

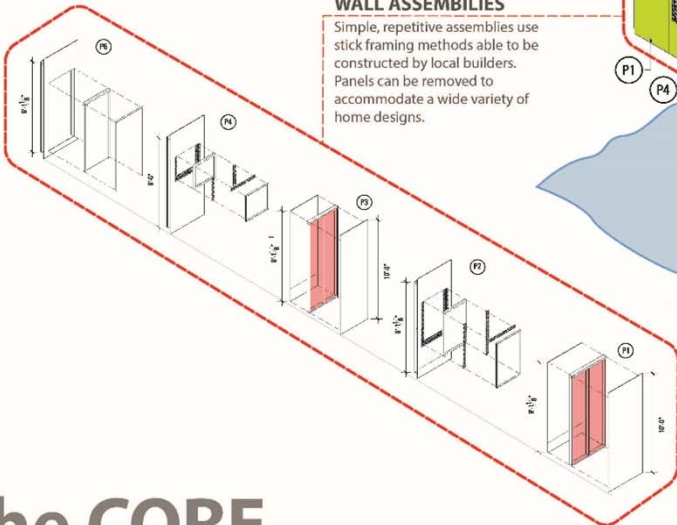


### SAFE HOUSE

The CORE is built as a "safe house" with extra rigid shear walls and connections, should "aftershock" disaster occur while families are particularly vulnerable.

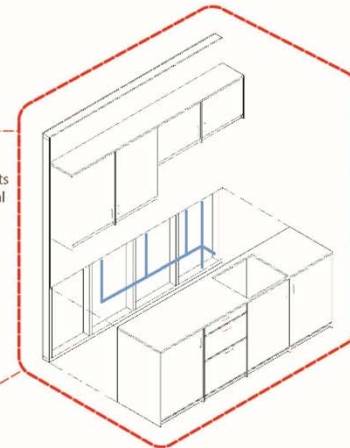
### WALL ASSEMBLIES

Simple, repetitive assemblies use stick framing methods able to be constructed by local builders. Panels can be removed to accommodate a wide variety of home designs.



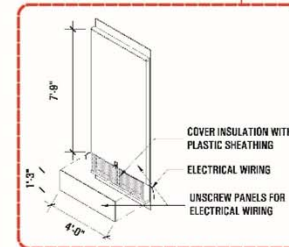
### WET WALL

Plumbing and a majority of electrical components are located in the "wet wall." Cabinets are installed last to allow for final connections to be made.



### ELECTRICAL

Electrical chases are built into the wall panels to ensure flexibility of the CORE design. Families and contractors are able to modify these connections at any point in the construction of additional space.



### GATHERING PLACE

Gathering places are integral to the CORE design. The porch components are able to be reused or relocated for future additions to the home.

### ELEVATED CONSTRUCTION

Elevated construction allows for flexibility if flood plain elevations are revised post-disaster. This reduces environmental risks for families.

# the CORE

**STORAGE/SHADE**  
Double roof acts as a badly needed storage space as well as shading the structure.

**DURABLE/FLEXIBLE**  
Rubberized "zip-wall" panels keep the house dry without the need for siding, leaving the family the flexibility to add whatever they like later on.

**GATHERING SPACE**  
The number one priority is to get people back in their homes. But with limited interior space, families need a place to gather.

**CUSTOM DESIGN FOR FAMILIES**

Once conditions have stabilized families can work with local CDC's and designers to add to their homes.

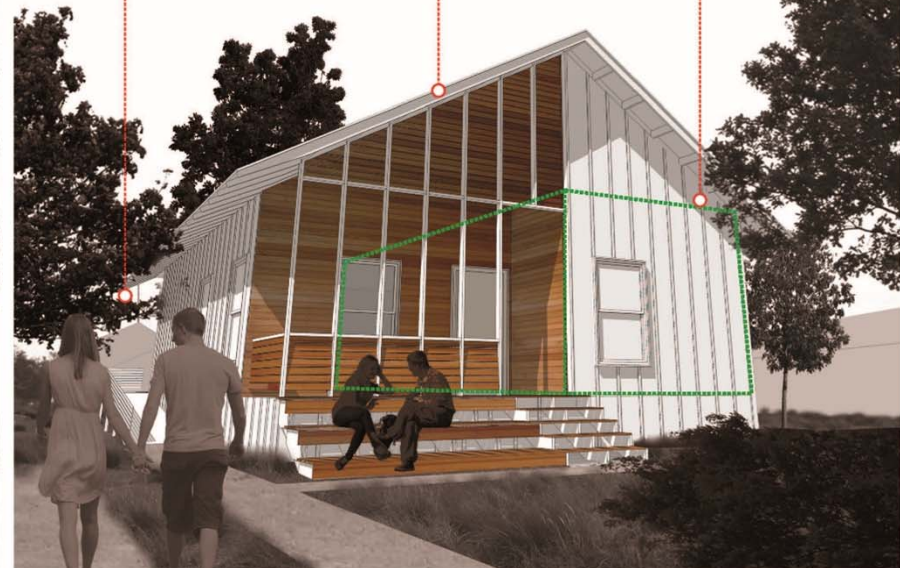
**EXISTING CORE**  
The core is designed to facilitate expansion.

**COMMUNITIES KEPT INTACT**

With families back in their neighborhoods quickly, familial and social ties are kept intact.



the house





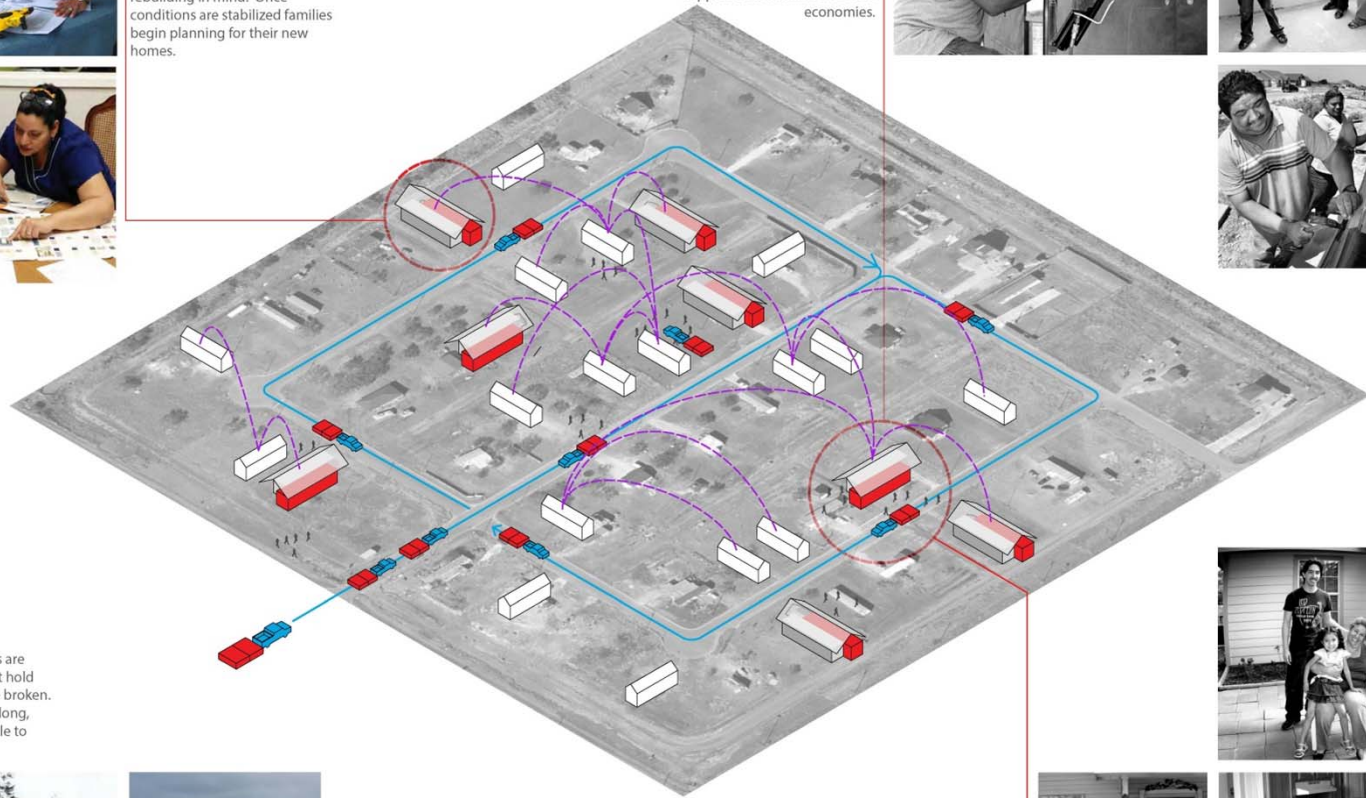
### 2. FAMILIES MAKE CHOICES

From the get-go, families are able to make choices to affect their situations. Designers and contractors work with them to ensure that when cores are placed on site, it is done so with future rebuilding in mind. Once conditions are stabilized families begin planning for their new homes.



### 3. ECONOMIES ARE REINFORCED

The RAPIDO program is designed to not only help families but build the economies that support these families. The construction system is built to give local contractors the ability to use their skills to support their families and local economies.



### 1. COMMUNITIES ARE TORN APART

When a storm hits families are displaced and the ties that hold communities together are broken. If people are displaced to long, this ties become impossible to repair.



### 4. COMMUNITIES ARE STRENGTHENED

An open-sourced and grassroots approach not only gives communities access to shelter and resources but builds strength by allowing people to control their own outcomes.

# the neighborhood



# GENERAL PRINCIPLES

- Interject the term “social vulnerability” into existing and new disaster-related policies. Use it to prioritize support and funding.
- Enhance local capacity to anticipate, prepare for, respond to, and recover from disasters through identification of responsible parties and ongoing training and education.
- Improve and institutionalize regular and ongoing data gathering and reporting on risk and vulnerability (social and physical).
- “Pre-covery” planning institutionalizes temp-to-perm solutions. Enhances resilience by mitigating population displacement, maintaining social networks, speeding recovery and rebuilding, and providing cost-effective solutions.
- Make mitigation and pre-covery planning part of regular and ongoing comprehensive planning efforts.

# MITIGATION AND PRE-DISASTER PLANNING

- Encourage (i.e., incentivize through a grant program) pre-disaster planning in high-risk regions (COGs). Integrate hazard mitigation into comprehensive planning efforts. Emphasize recovery for socially vulnerable populations to address pre-existing inequities. Extend existing Local Emergency Management Plans to include plans for long-term housing reconstruction policies and guidelines.
- Develop advisory board of engineers, design experts, and insurance risk assessors to evaluate the cost-benefit tradeoffs between insurance provision and construction of hardened structures.
- Empower counties with more regulatory authority over land use, zoning, and building codes to allow them to enact stronger and locally-appropriate hazard mitigation techniques
- Fund and coordinate the collection and availability of geospatial data capturing risk and vulnerability (e.g., Community Planning Atlas) to facilitate resilience and recovery planning. Data must include socio-demographic data to assess social vulnerability, as well as physical vulnerability including critical and environmental infrastructure that can facilitate recovery and reduce vulnerability.

# MITIGATION AND PRE-DISASTER PLANNING

- Prioritize through funding mechanisms infrastructure investments that will reduce vulnerability and increase resilience, emphasizing/prioritizing investments that serve socially vulnerable populations.
- Create incentives and/or requirements that high-capacity COGs in high-risk regions work with local architects to pre-permit a set of housing designs and pre-bid winning designs to contractors under the Emergency Housing Procedures Manual.
- Create training and continuing education programs at the state level to identify, pre-train, and pre-qualify professionals (inspectors, assessors, case managers, navigators, grants managers, designers, builders, etc.) for disaster recovery teams.

# RECOVERY

- Fund communities with higher levels of vulnerability. In application for funds, community (or unit requesting funding) must demonstrate partnerships and capacity that will lead to the allocation of funds based on need. Formula should be weighted to emphasize socially vulnerable households.
- Create appointment guidelines to establish administrative infrastructure for recovery, including a recovery committee, grant manager/disaster manager, case management team (including navigators), design team.
- Create recovery program for locally-owned businesses that serve and employ local residents. The expedient return of these businesses will have spillover effects in helping local residents return and rebuild homes.
- Streamline case management to be based on needs assessment triage to determine clients' severity of needs and capacity to recover.
- Create a centralized (state-level) list of case managers to access all community resources available (e.g., One-stop-shop).