



RAIN READY

Flood and Drought: Adapting to Extreme Precipitation

Harriet Festing | Center for Neighborhood Technology

Resilient Chicago | Sept 30th, 2014

Prepared by Harriet Festing)

May, 2014

A large crowd of people is gathered outdoors, many holding colorful umbrellas. The umbrellas are in various colors including red, blue, green, yellow, and black. The people are dressed in casual attire, and the scene suggests a public event or protest. The background is slightly blurred, focusing attention on the umbrellas and the people in the foreground.

CNT

Innovations: urban sustainability

- Research — cost of no action
- Services & tools
- Policy Advocacy





The cost of 'no action'





FLOODING IN MAJOR U.S. CITIES

- Flash flooding warning: “imminent” or “in progress” between 2007-11 in the counties of 10 major U.S. cities,



CHICAGO 198 flood warnings



BOSTON 133 flood warnings



DENVER 81 flood warnings



HOUSTON 145 flood warnings



KANSAS CITY 192 flood warnings



LOS ANGELES 136 flood warnings



MEMPHIS 227 flood warnings



NEW YORK 222 flood warnings



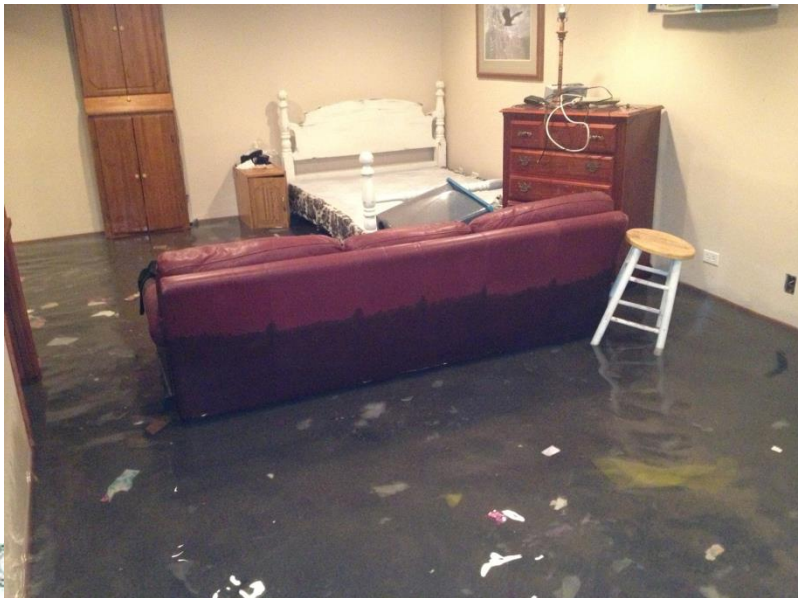
PHILADELPHIA 199 flood warnings



SEATTLE 82 flood warnings

Cost & prevalence of flooding

- 2007- 2011: Cook County, IL
- \$773mil Total Insurance Claims
- 1 in 6 Properties Affected
- \$4,000 average claim
- Understates the risk!

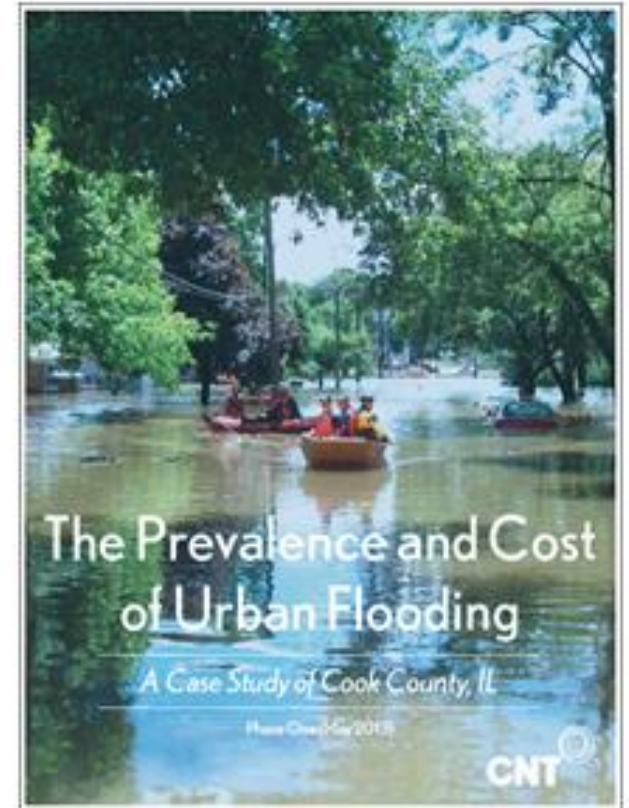




70% flooded 3 or more times in 5 years

Wider impacts

- 84% suffered stress
- 13% ill health
- 41% lost the use of part of their property
- 76% invested in preventative measures
- 6% believed that the investment had solved their flooding problem





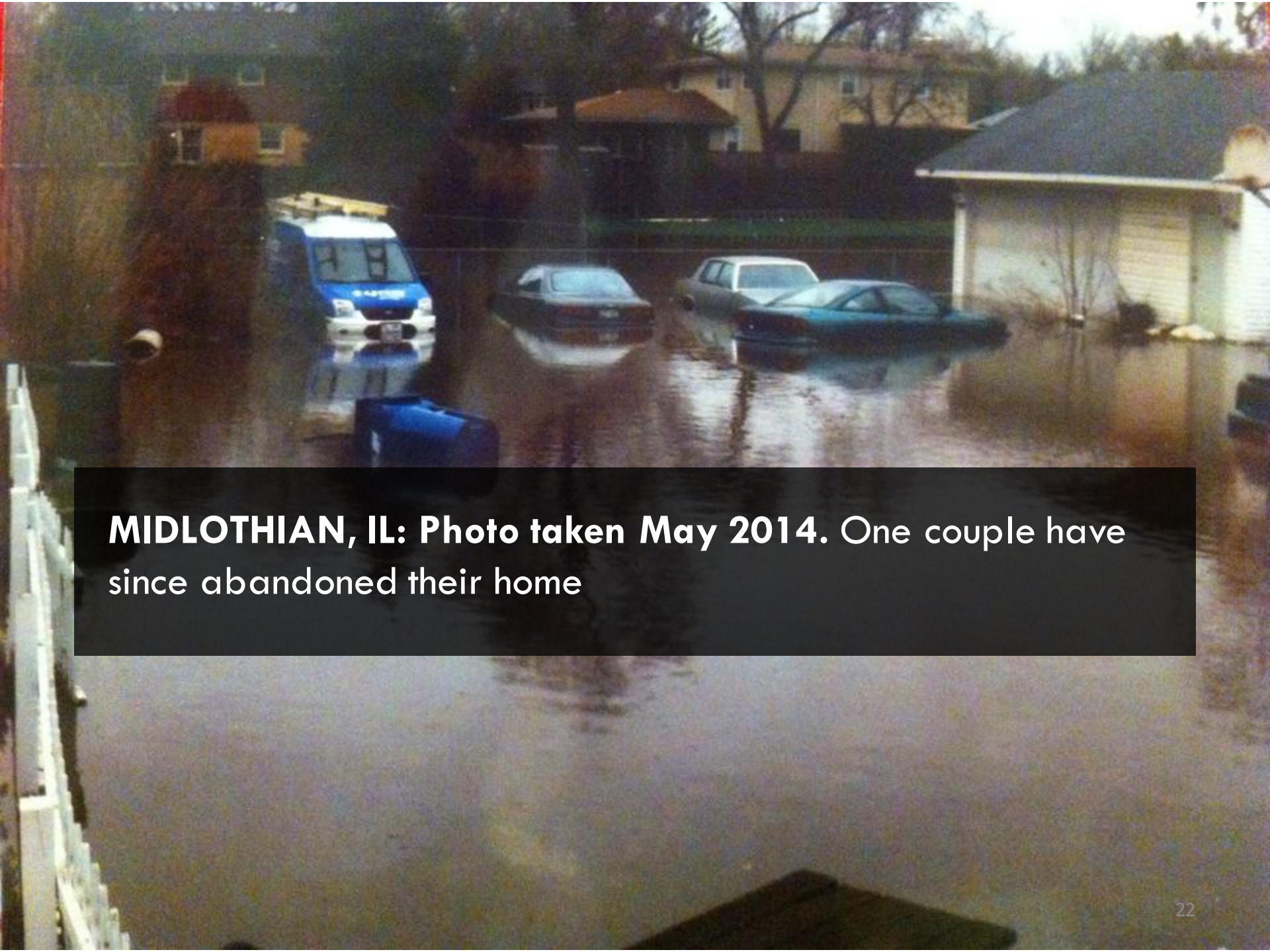
TO BE REMOVED
BY CONSULTANT ONLY
Consultant Use Only

LAMOSA
1999

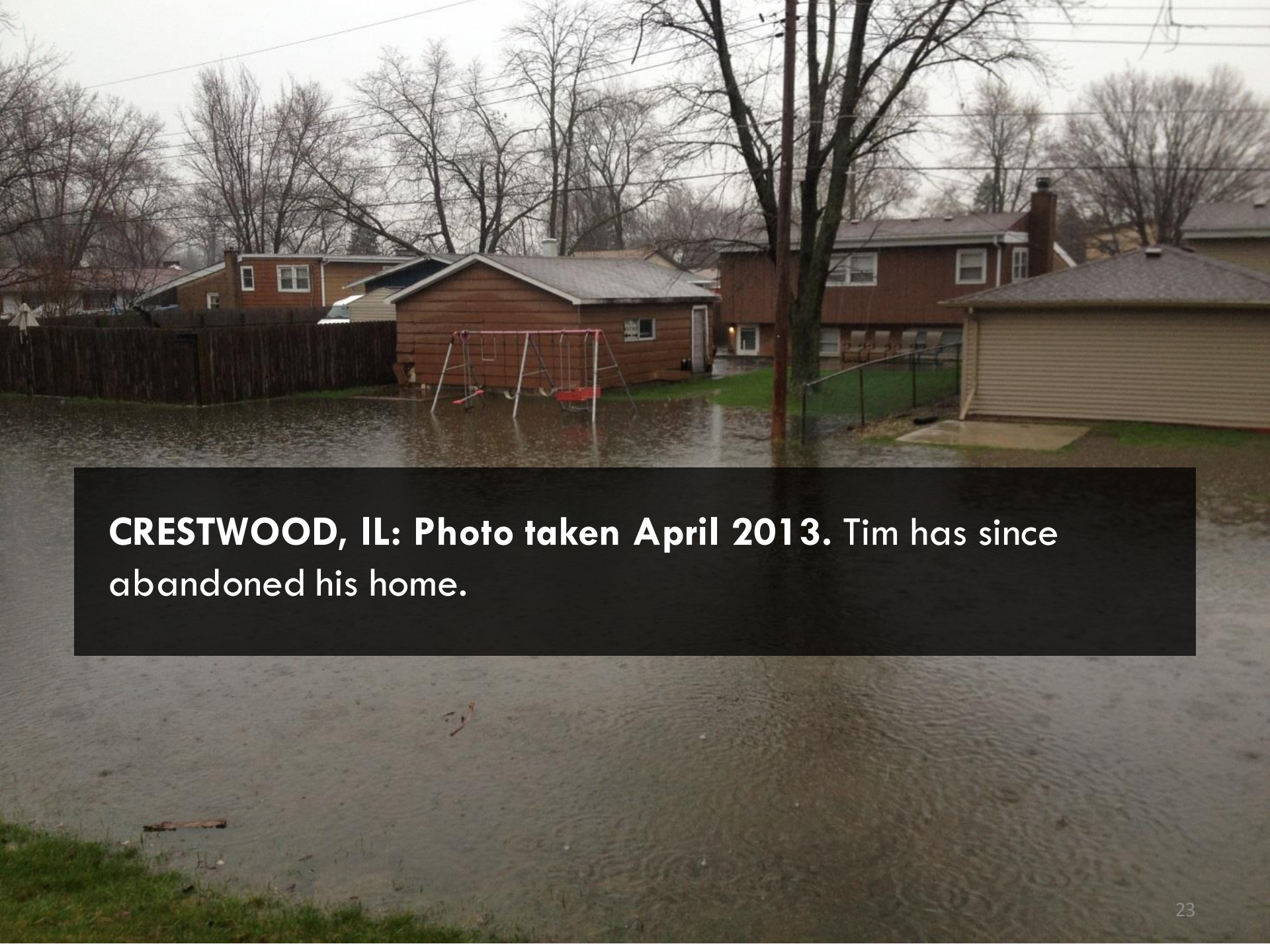




GLENVIEW, IL: Photo taken May 2014. Trying to sell her home, without success



MIDLOTHIAN, IL: Photo taken May 2014. One couple have since abandoned their home



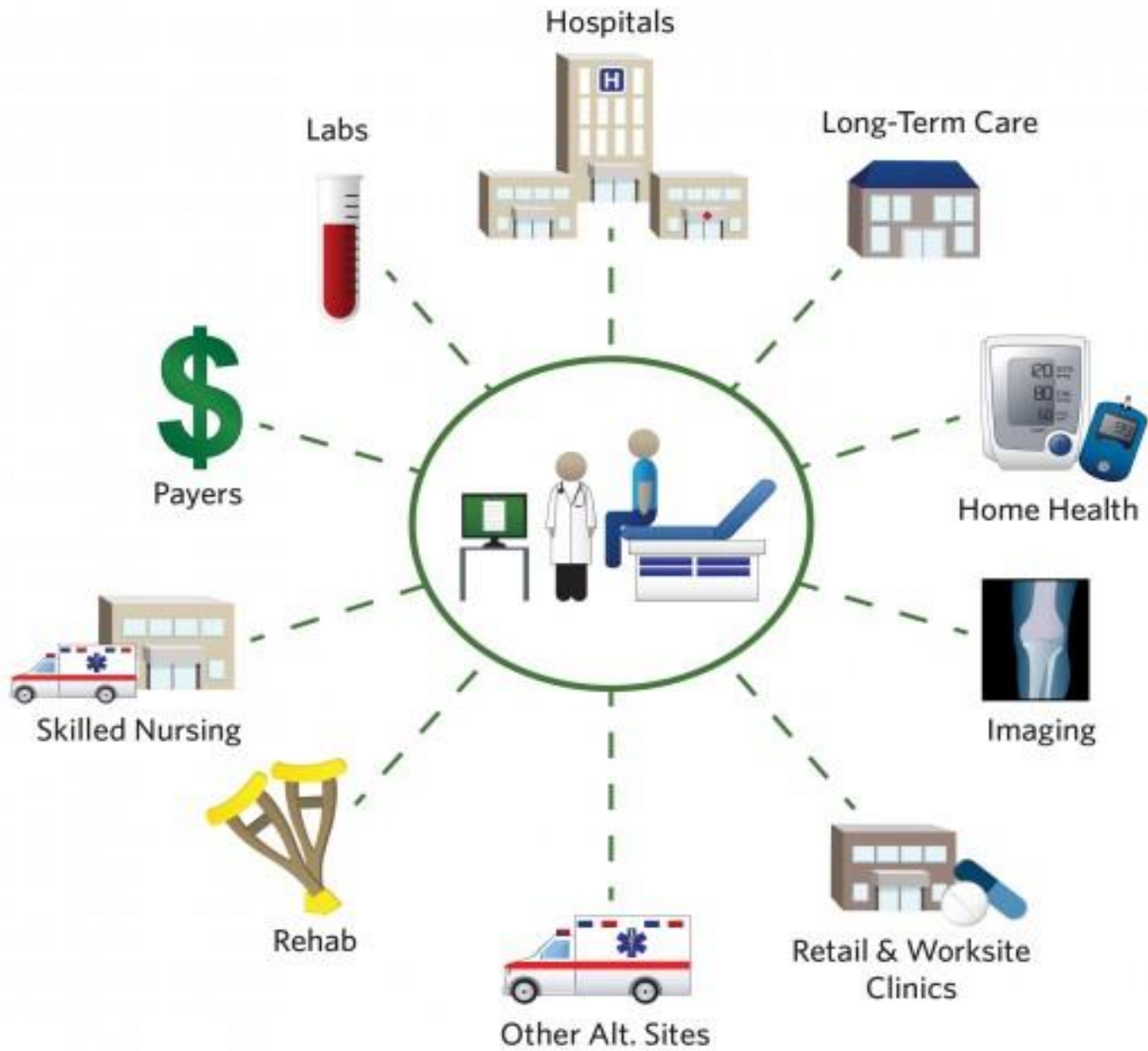
CRESTWOOD, IL: Photo taken April 2013. Tim has since abandoned his home.



Designing solutions

06/15/2011

***“My home has been flooding
for 20 years.
They still haven’t fixed it”***



A photograph of a modern two-story house with brown horizontal siding and white window frames. The house is surrounded by lush green landscaping, including trees and bushes. A gravel driveway leads to the front of the house. A semi-transparent white box with green text is overlaid on the lower half of the image.

Rain Ready homes



Downspout disconnection and dry well



Rain gardens and bioswales



Regrading/French drain







Barriers
Window wells



Lateral cleaning/repair



Backwater valve



Elevation



Rain Ready Public Spaces



Curb inlets – residential street



Porous paving



Green alleys



Town center street retrofit



School retrofit

What else?

- Smart technologies – sensors
- E-channels
- Home services
- Analytical tools
- Smart financing
- Regulations

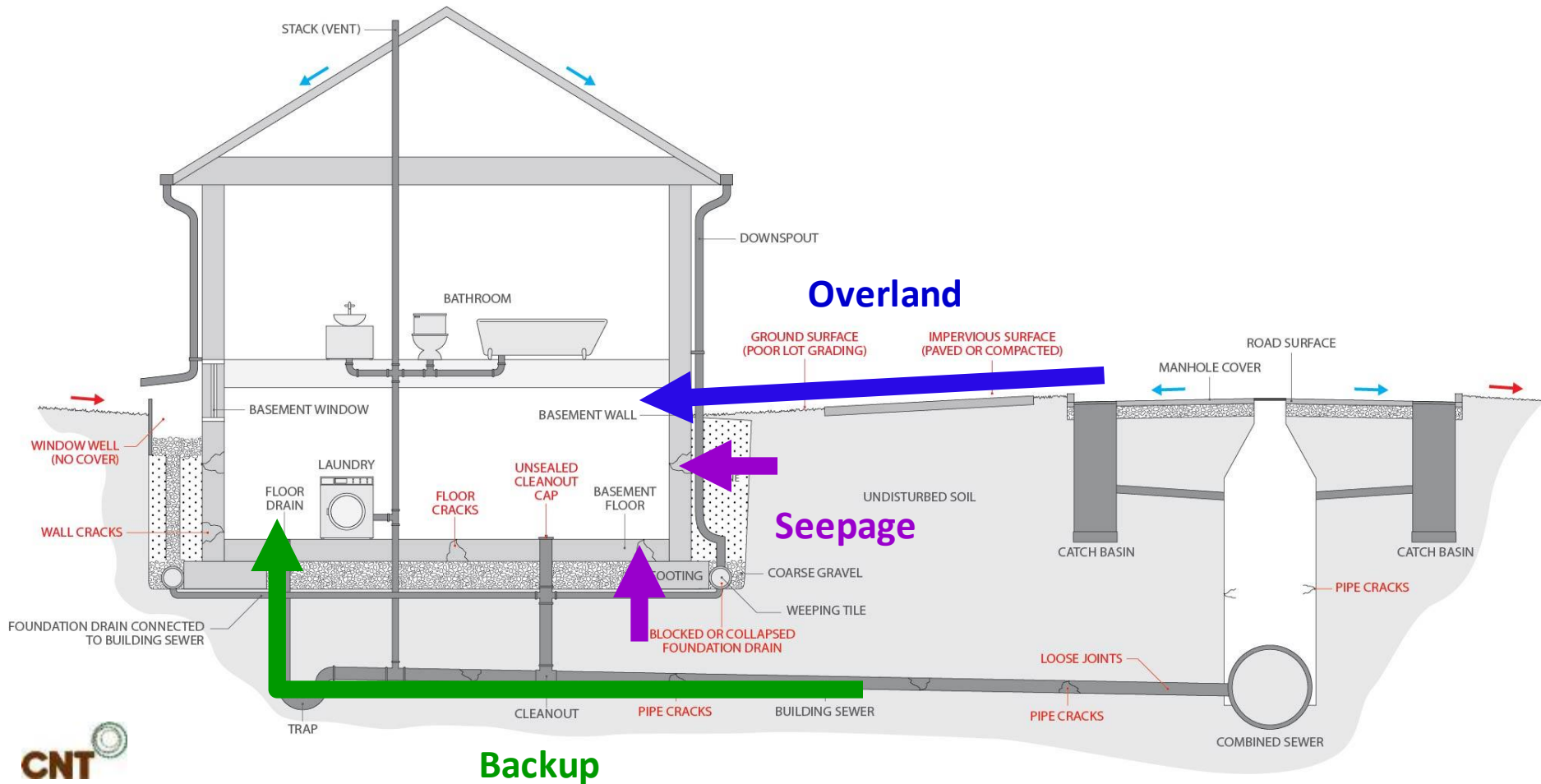


Designing solutions

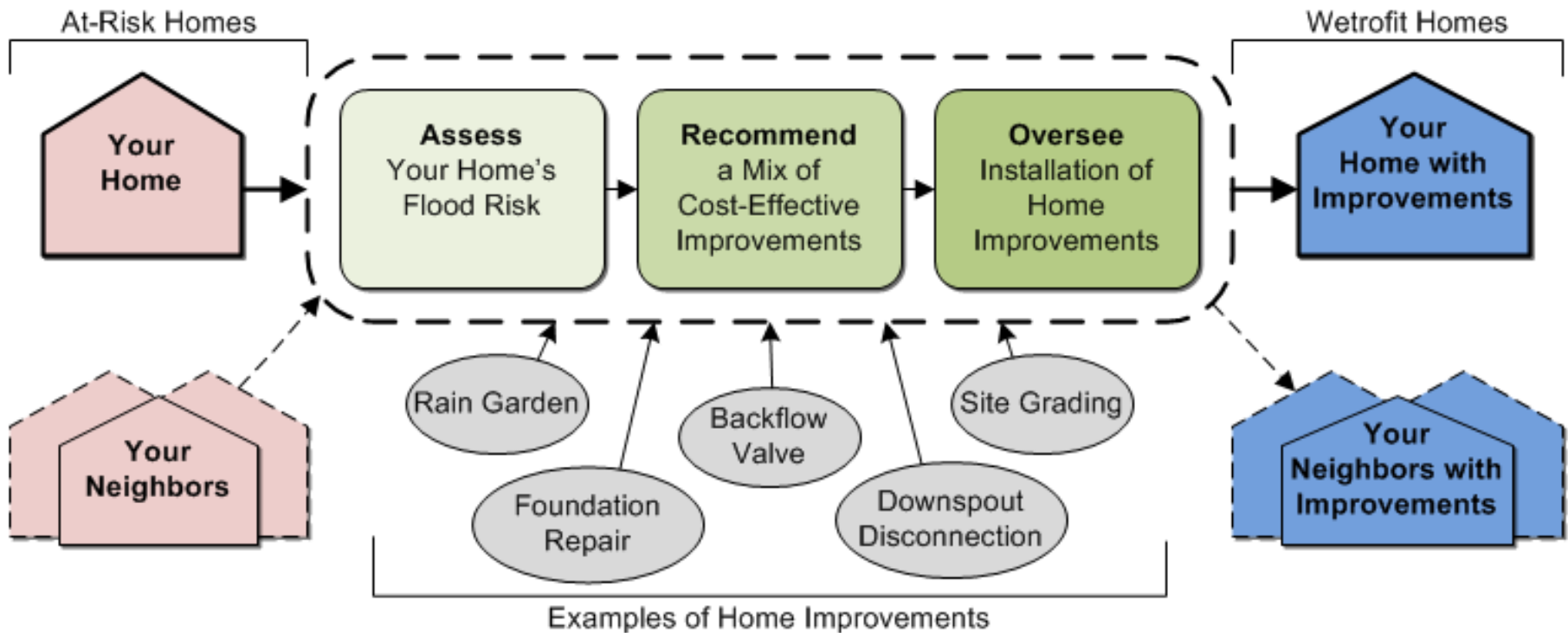
Key principles

1. Simple, replicable model
2. Data-driven/forensic analysis
3. Place-based
4. Multiple scales

HOME SOLUTIONS



- Modeled on energy retrofitting



Assessment Report

- Detail of Risk
- Recommended Home Improvements

Wetrofit® Flood Assessment Report

On April 22 and April 24, 2014, our Wetrofit team—Nick Furtek and Ryan Wilson—conducted a flood assessment of your property. Our assessment included:

- Collection of previous flood experiences
- Observation of the building foundation, basement and landscape
- Camera inspection of the building sewer;
- Observation of the adjacent properties and right-of-ways

Based upon your experience with flooding, the cost of flooding in your neighborhood, and our assessment of your property, we recommend you prioritize the following home improvements:


- Divert stormwater from entering property at alley
- Capture rainwater in landscape areas
- Drain flood water from sidewalk and under porch to catchbasin


Understanding Your Flood Risk

Homes in the Chicago region are commonly affected by three types of flooding:

- Sewage backup that comes up from floor drains, sinks, tubs, and toilets in your basement;
- Water seepage through floors or walls, or flows through cracks in your building foundation;
- Overland flooding of water that pools in your yard and against your foundation, or flows into your home through window wells and doors.

While considering the recommended improvements and maintenance, it is important to do so in the





Address	911 S Claremont Ave
City, ST	Chicago, IL
Building owner	Margaret O'Dell

IMPROVEMENTS			<i>Total Estimated Cost: \$5,000-\$7,300</i>
Projects	Measure	Detail	
1 Divert stormwater from entering property at alley.	<ul style="list-style-type: none"> Install curb (~3-4") along extent of eastern property line at edge of parking pad. 	Anticipated Maintenance: N/A Cost Range Estimate: \$600-\$1,300 Optional: Reconstruction of existing stair. Notes: May require coordination with neighbors to ensure proper diversion.	
2 Capture rainwater in landscape areas	<ul style="list-style-type: none"> Install rain garden with below-grade storage along eastern edge of patio. Install permeable paving in place of existing patio area to drain to rain garden. 	Anticipated Maintenance: Seasonal weeding and care of rain garden. Removal of debris for permeable surface. Cost Range Estimate: \$3,600-\$4,800	
3 Drain flood water s from sidewalk and under porch to catchbasin	<ul style="list-style-type: none"> Clean and repair floor drain Clean silt and debris from existing catch basin. Install area drain from sidewalk adjacent to south façade to catchbasin 	Anticipated Maintenance: Removal of debris contributing to area and floor drains. Cost Range Estimate: \$800-\$1,200	
MAINTENANCE			<i>Total Estimated Cost: \$300-\$700</i>
Projects	Measure	Detail	
1 Regular Building Sewer Inspection and Cleaning	<ul style="list-style-type: none"> Televise building sewer Rodding of building Sewer 	Anticipated Maintenance: Annual televising and cleaning, as recommended by reviewing contractor. Cost Range Estimate: \$200-\$500/year Optional: Chemical treatment of drain to prevent root growth.	
2 Regular Gutter Cleaning	<ul style="list-style-type: none"> Removal of leaf and organic debris from gutter. 	Anticipated Maintenance: Annual televising and cleaning, as recommended by reviewing contractor. Cost Range Estimate: \$100-200/year	



Landscaping
Plumbing
Building

Installation service

- Bid Solicitation/Review & Construction Oversight
- Pool of Qualified Contractors





COMMUNITY

- Investment plan
- Step-by-step process
- Prioritizes measures that are
 - Quick to install
 - Effective
 - Affordable



Resident Action Group

**STOP
MIDLOTHIAN**

A man in a light-colored t-shirt and khaki shorts is leaning over a table in a workshop, examining a collection of photographs and a site map. The table is covered with a red cloth and has several aerial and ground-level photos of a property. One prominent photo shows a large, partially demolished structure with a chain-link fence in the foreground. To the right of the photos is a hand-drawn site map with red lines and boxes, labeled with addresses: 14741, 14733, and 14723. The workshop background includes white storage cabinets, a red Craftsman toolbox with 'CHICAGO CUBS' branding, a wooden cabinet with a television on top, and a red clock on the wall.

Document the problem

Citizen data

Daily measurements of rainfall in residents' own backyards



CoCoRaHS: a national grassroots, non-profit, community-based, network

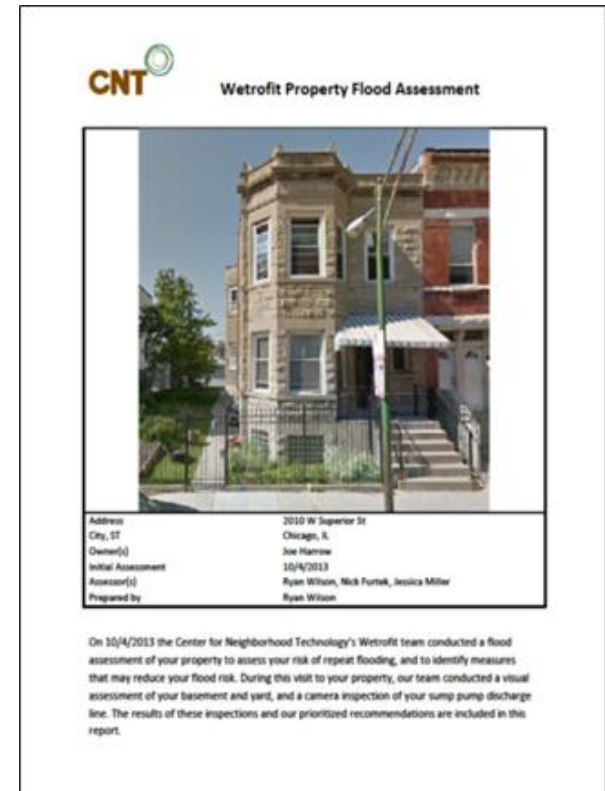


Forensic analysis of properties

Building: foundation cracks, mold growth, moisture or seepage, water damage, standing water , high water marks, plumbing & building sewer, obstructed/ collapsed building sewer, roots/catchbasin

Landscape: ponding, blocked gutters, poor drainage, low spot, excess soil, high water table, hillside, trees/shrubs over building sewer

Neighborhood: street flooding reported, neighbor flooding reported, obstructed catchbasin, poor alley drainage, permeable alley, recent street repair etc



Properties often flood themselves!



Identify opportunities





Rain Ready Plan

1. Summarizes the problem
2. Lists recommended improvements
 - peoples' homes
 - streets
3. Describes how to implement them
 - How to fund them
 - How to install them
 - How to regulate them

Thanks to Army Corps!





Leadership & advocacy



Legislation

Harriet Festing

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