Why ASFPM should change its name!
AGENDA

- Research – flood risk in U.S. cities
- Implications
- What to do about it
OVERVIEW

- National non-profit
- Founded in 1978 + headquartered in Chicago
- Urban sustainability

RainReady services
- Launched 2014
- Complete ‘end-to-end’ service package –
  - Home, neighbor, community, watershed
PARTNERS

Chicago Metropolitan Agency for Planning

US Army Corps of Engineers

ACTIVE TRANSPORTATION ALLIANCE

USGS

EPA

FOREST PRESERVES of Cook County

Illinois Department of Transportation

OPPORTUNITY ADVANCEMENT INNOVATION

South Suburban Land Bank and Development Authority

National Park Service

High Bridge

METROPOLITAN WATER RECLAMATION DISTRICT of Greater Chicago

Morton Arboretum

DEPARTMENT OF NATURAL RESOURCES

SOUTH SUBURBAN MAYORS & MANAGERS ASSOCIATION

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

ILINOIS DEPARTMENT OF PLANNING & DEVELOPMENT

VILLAGE OF MIDLOTHIAN - ILLINOIS

SILVER JACKETS

FEMA

REPUBLIC OF CHICAGO

OGI

HIGH BRIDGE

A SOCIAL ENTERPRISE COMPANY

FEDERAL EMERGENCY MANAGEMENT AGENCY

SOUTHERN ILLINOIS UNIVERSITY
RESEARCH STUDIES

- Qualitative interviews with flood victims
- Survey responses from flood victims – Cook County and nationally
- “Gross Gatherings”
- Survey Great Lakes utilities/municipalities (2012)
- Analysis flood damage payout data, Cook County (2014)
- Analysis of flood warnings in 10 major cities (2014)
- Study done by the Illinois Department of Natural Resources (IDNR) (2015)
The Prevalence and Cost of Urban Flooding
A Case Study of Cook County, IL
Phase One (May 2013)
• 115 flood victims surveyed

• 70% flooded 3 or more times in 5 years

• 76% had invested in solutions (e.g. sump pump, downspout disconnection).

• Just 6% believed the investment would work
“Urban Flooding” defined

The inundation of property in a built environment, caused by rainfall overwhelming the capacity of drainage systems, such as storm sewers.
Characterized by Repetitive and chronic impacts on communities, regardless of their location within or outside of formally designated floodplains
Overbank/creek

Sewer backup

Seepage

Yard and street
Congrats to IDNR!
Claims filed in 99% of Illinois counties

Flood damages between 2007-2014, $2.3 billion

Half from private insurance

Over 90% outside of mapped floodplains

Risk not correlated with the floodplain
• Survey of 30 most populous cities in Great Lakes region

• 100% receive complaints

• 87% characterize them as ‘medium’ to ‘large’

• Half have no plans for tackling it
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
NEW YORK 222 flood warnings
PHILADELPHIA  199 flood warnings
SEATTLE 82 flood warnings
"Our home values continue to decline! We are in emergency status!"

- Jermyn, PA
Flood risk in cities:

- Prevalent + repetitive
- Under-reported + hidden from public view
- Chronic: raw sewage, mold, foundation cracks, stress
- Low income communities most vulnerable
- Does not correlate with the mapped floodplain
The purpose of FEMA’s flood hazard mapping is to define a community’s flood risk areas.

It appears to be inaccurate.

Yet it forms the foundation of government’s:

- Emergency disaster planning
- Federal mitigation efforts (NFIP/CRS)
- State- and community-level responses
- Flood insurance requirements
- Residents’ understanding of risk
WHAT TO DO ABOUT IT!
- FEMA conduct national study using insurance damage data

- Use other factors that correlate with risk:
  - Intensity of rain
  - Duration of rain
  - Density of population
  - **Poverty** (location/maintenance/ability to respond)
WHAT WE DO

Monitor  Assess

Implement  Plan
NEIGHBORHOOD
COMMUNITY
Map Risk: Problem Points

Phase 1

Identified through prior risk assessments (e.g. NDRC, MWRD, Millennium Reserve) and stakeholder meetings

CMAP Stormwater Analysis Tool Output

RRC Survey Results

Problem Areas  Problem Catchments  Problem Points
Detail of Risk

Home improvements: landscaping, plumbing, building

Wetrotary Flood Assessment Report

On April 22 and April 24, 2014, our Wetrotary 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 structure
- 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:

1. Divert stormwater from entering property at alley
2. Capture rainwater in landscape areas
3. 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...
When my property flooded I lost my...

Family Room, Water Heater, College Papers, Spare Bedroom, Furniture, Garage Space.
RainReady Home: $4,850

Cumulative flood damage: $17,000

Upgrades:
- Backwater valve
- Disconnected downspout
- Re-routed gutters
- Rain garden