

Depth Grids for Risk Analysis

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May 12, 2016



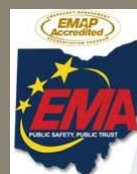
Agenda

- 1** Project Background
- 2** Depth Grids for Risk Analysis
- 3** Local Applications of Data
- 4** How do I get some



1 Project Background

Through collaboration with State, Local, and Tribal entities, Risk Mapping, Assessment and Planning (MAP) will deliver quality data that increases public awareness and leads to action that reduces risk to life and property



Background & History

Project Participants

- Lake County officials
- Township officials
- City of Mentor

Project Purpose

- Identify floodplain mapping needs
- Potential mitigation projects
- Provide Technical Assistance to select communities

Project Name: Ohio CAP Lake County
Meeting: Community Active Engagement Meeting
Date and Time: July 7 2015 9:30am - 2:00pm
Place: Lake County Visitor Learning and Business Center (VLBC), 49th East Noyah Road, Pataskala, OH 43127
Facilitator: Mark Seidelmann, STARR

Attendees
 Representatives from Lake County, FEMA, Ohio DNR, Ohio EMA and STARR attended. See attached Sign in Sheet for details.

Introduction:
 Mark Seidelmann from STARR opened the meeting and all attendees introduced themselves. A pre-prepared sign-in sheet was distributed for attendees to fill in their attendance as well as their e-mail addresses and phone numbers. Mr. Seidelmann provided a local activities that reduce identified as interest in the

Time	Topic	Facilitator	Notes
9:30	Meeting Opened	Mark Seidelmann	Mark Seidelmann from STARR opened the meeting and all attendees introduced themselves.
9:45	Sign-in Sheet	Mark Seidelmann	A pre-prepared sign-in sheet was distributed for attendees to fill in their attendance as well as their e-mail addresses and phone numbers.
10:00	Local Activities	Mark Seidelmann	Mr. Seidelmann provided a local activities that reduce identified as interest in the
10:15	Discussion	Mark Seidelmann	Discussion about floodplain mapping needs and potential mitigation projects.
10:30	Technical Assistance	Mark Seidelmann	Provide Technical Assistance to select communities.
10:45	Next Steps	Mark Seidelmann	Next steps for the project and contact information for STARR.
11:00	Meeting Closed	Mark Seidelmann	Meeting closed and attendees were thanked for their participation.



Background & History

Technical Assistance Options

- Areas of Mitigation Interest/ Hot Spots
 - Highlight areas of concern
- HAZUS-MH Risk Assessment
 - Annualized and event loss estimates
- Storm Shelter Location Analysis
- **Depth Grids**



Background & History

Identified Action Support

- Call to discuss proposed Technical Assistance on 9/9/2015
- Depth grids for the Chagrin River and East Branch to the Chagrin River
- Depth grids and depth of flooding on impacted structures
- Draft products distributed 12/1/2015



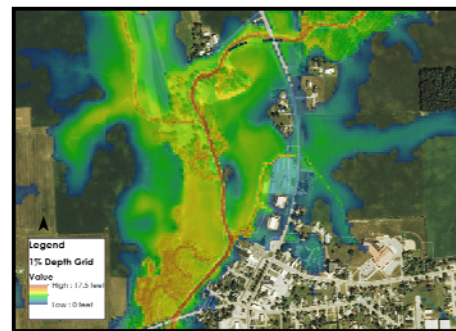
2 Depth Grids and Risk Analysis

Assessing your risk

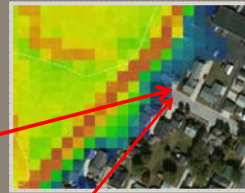
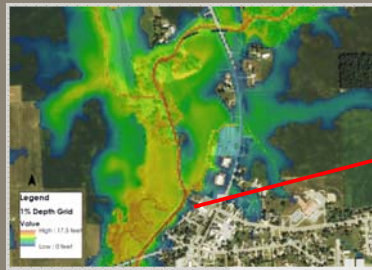


Depth Grids

- Raster (grid) of water depth
- Calculated difference (in feet) between the water surface elevation and the ground
- Produced for available annual chance flooding events



Depth Grids



1% Depth = 7.7 feet
10% Depth = 5.6 feet



Depth Grids

Chagrin River

- Lake Erie through Lake County
- 10%, 2%, 1%, 0.2% annual chance flooding

East Branch of Chagrin River

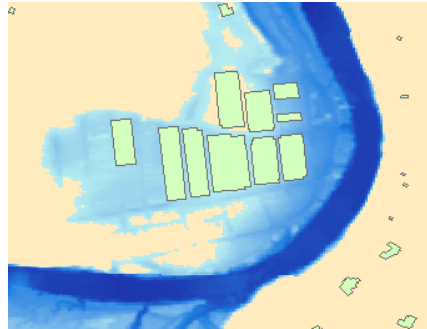
- Confluence of Chagrin River to Village of Kirtland Hills
- 10%, 2%, 1%, 0.2% annual chance flooding



Depth Grids

Building Footprints

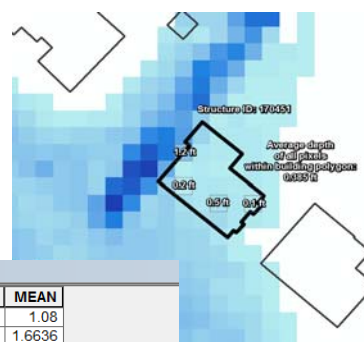
- Building footprint data was collected
- The footprints help identify where structures lie in relation to the depth grid
- Estimate flooding risk of each building by comparing surrounding flood depths



Depth Grids

Data Tables

- Tables are developed for each flooding event
- Minimum, Maximum and Mean flooding depth is determined for each structure



Summary_01			
PIN	MIN	MAX	MEAN
BldID_4493	0.9	1.3	1.08
BldID_4494	1.1	1.9	1.6636
BldID_4501	1.2	1.6	1.4818
BldID_4502	2.1	2.3	2.22
BldID_4510	0.8	1.8	1.4076
BldID_4510	1.4	2	1.7083
BldID_4514	1.5	1.8	1.6125

0 (0 out of 757 Selected)



3 Local Applications

Understanding your risk



Local Applications of Data

Messaging/Public Education

- Residents, businesses and elected officials
- Provides a visual that shows potential /actual risk

Mitigation Possibilities

- Identify extent of frequently flooded structures
- Prioritize clusters of structures for future mitigation efforts



Local Applications of Data

Community Development Planning / Regulatory

- Structure “build” vs. “no build” decisions
- Hazard Mitigation Planning
- Emergency response route planning
- Evacuation route planning

HAZUS-MH

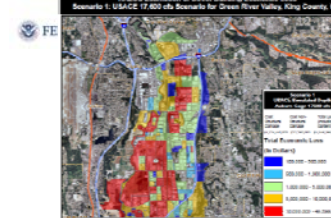
- Enhanced estimation of potential losses/risk assessment



HAZUS-MH Risk Assessment and User Group Series Using HAZUS-MH for Risk Assessment

How-To Guide

FEMA 433/V



Local Applications of Data

Capital Planning & Projects

- H&H Modeling
- Watershed Master Planning
- Stormwater Project Prioritization
- Flood Mitigation Projects – FEMA / Gray / Green / Demolition
- Roadway Improvements
- Flood Protection



4 How Do I Get Some?

Opportunities to Obtain Data



Opportunities to Obtain Data

FEMA's Risk MAP Program

- Part of a regulatory floodplain update
 - Great Lakes Flood Study
- Mitigation technical assistance identified through "Discovery"



Opportunities to Obtain Data

Internal Resources

- If community has the necessary data and the GIS expertise to process the data

External Resources

- Consulting Firms with the experience and knowledge to produce depth grids

HAZUS-MH

- Ability to produce coarse depth grids



Questions/Comments?

Thank you for your time today.

Speakers:

Matt Leshar, CFM; matthew.lesher@stantec.com;
614-486-4383

Dave McCallops, PE; dave.mccallops@stantec.com;
216-454-2159



Location for Great Lake Flood Study Discovery Reports

<http://www.greatlakescoast.org/great-lakes-coastal-analysis-and-mapping/outreach/discovery-reports/#Erie>

