

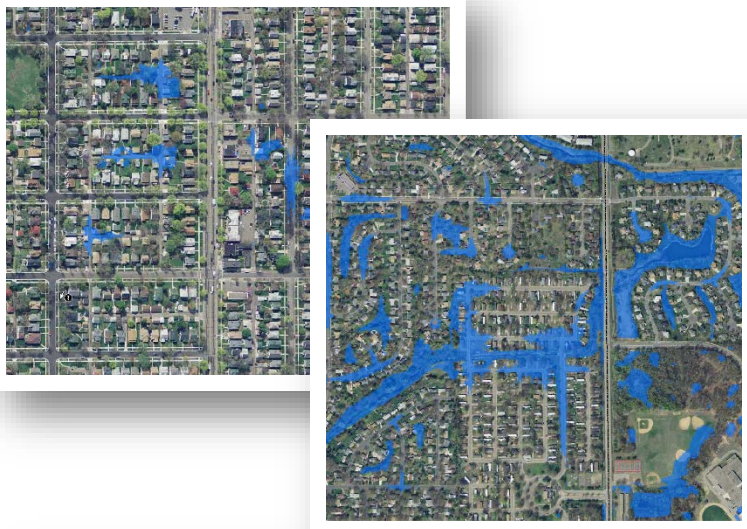
Climate Vulnerability Assessment (CVA)

Land Use Advisory Committee

Hannah Field, Virginia Flurry, Gordon Moore
Macalester College Sustainability Fellows

July 21, 2016



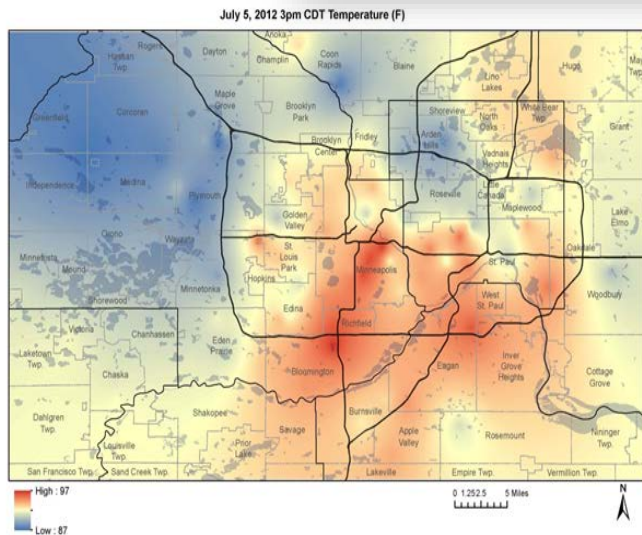


The Climate Vulnerability Assessment (CVA) identifies impacts related to...

- Extreme rain events: Floodways and localized flooding
- Extreme heat events: Urban heat island (UHI) effect

Two pronged approach:

1. Assess the region's resources and assets:
 - How vulnerable?
2. Develop adaptation strategies



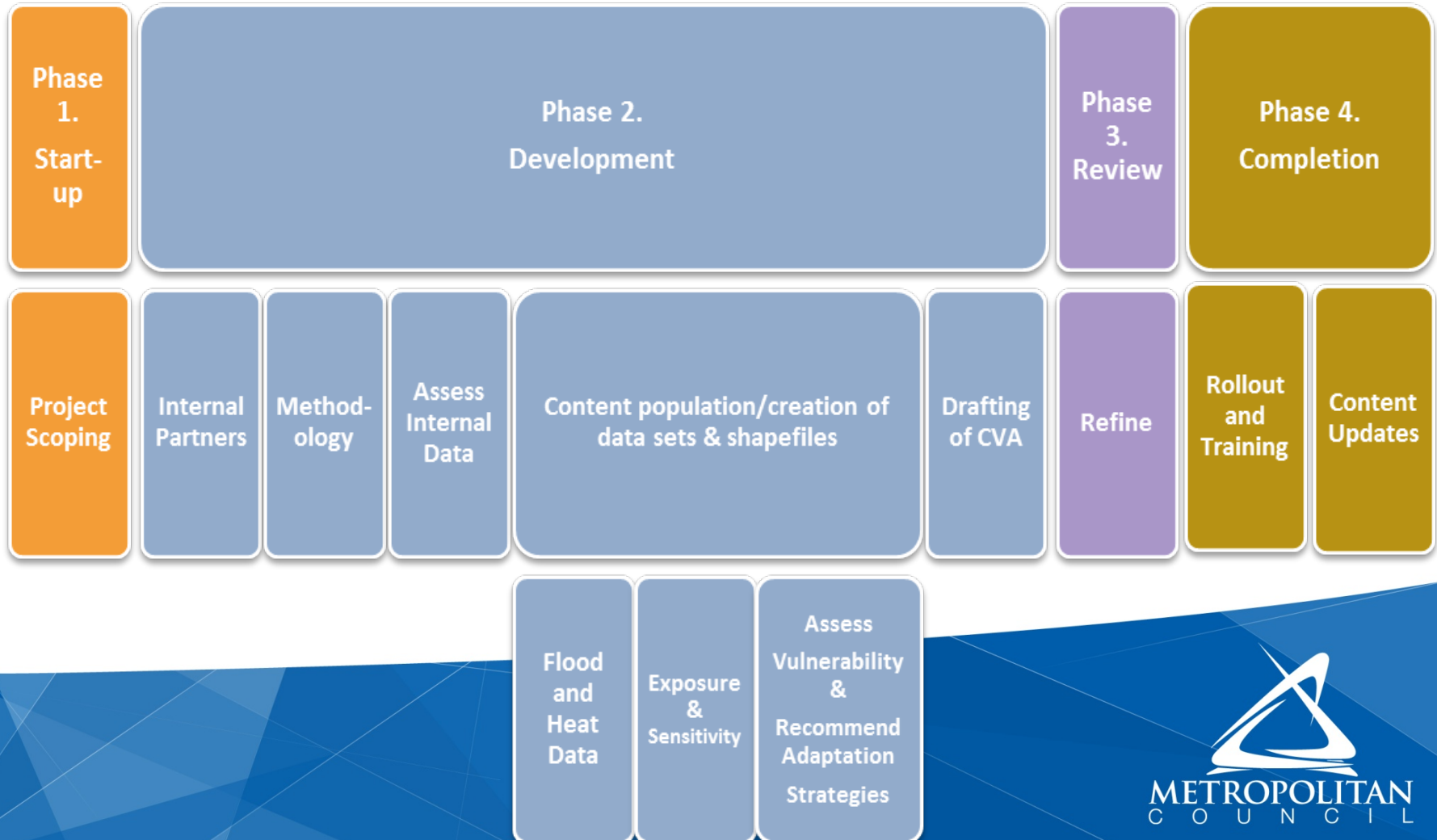
CVA Project Objectives:

- Produce a CVA report
- Develop a replicable methodology for conducting CVA
- Develop GIS shape files and data sets
- Provide CVA mapping tools
- Incorporate CVA report findings and data sets/shape files into the online *Local Planning Handbook*

LOCAL PLANNING
HANDBOOK



Climate Vulnerability Assessment

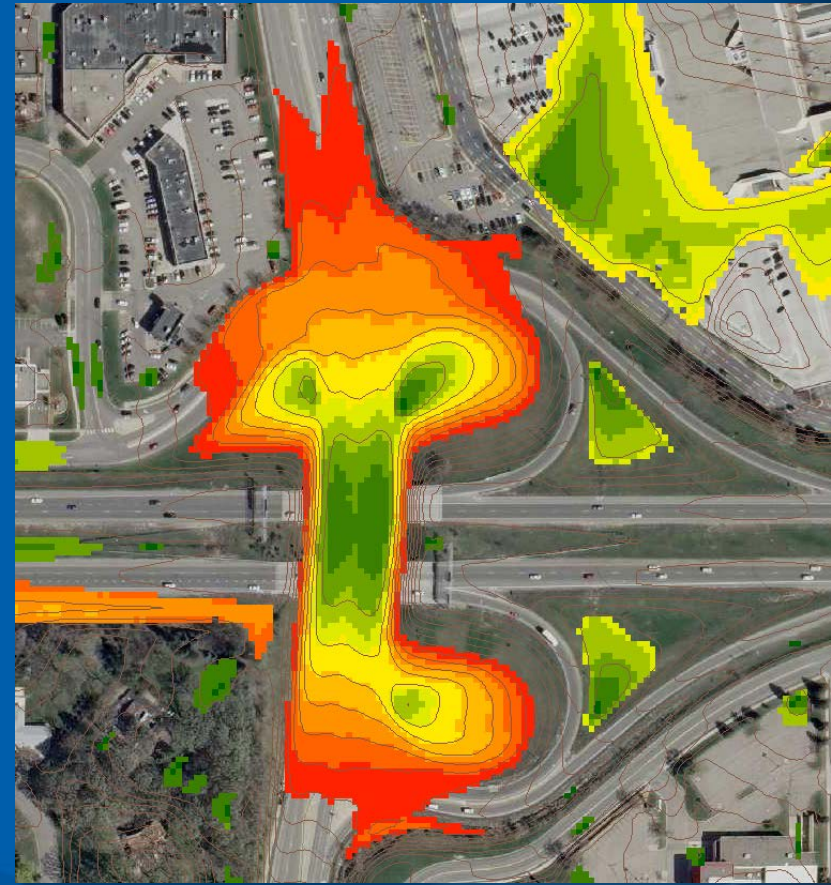


Base Flood Map

Flash flood traps cars under Roseville underpass (PHOTO)

BY MIKE MULLEN

TUESDAY, JULY 5, 2016 AT 7:51 PM.



Extreme Heat

Vegetation



Impervious Surfaces



Residual Heat

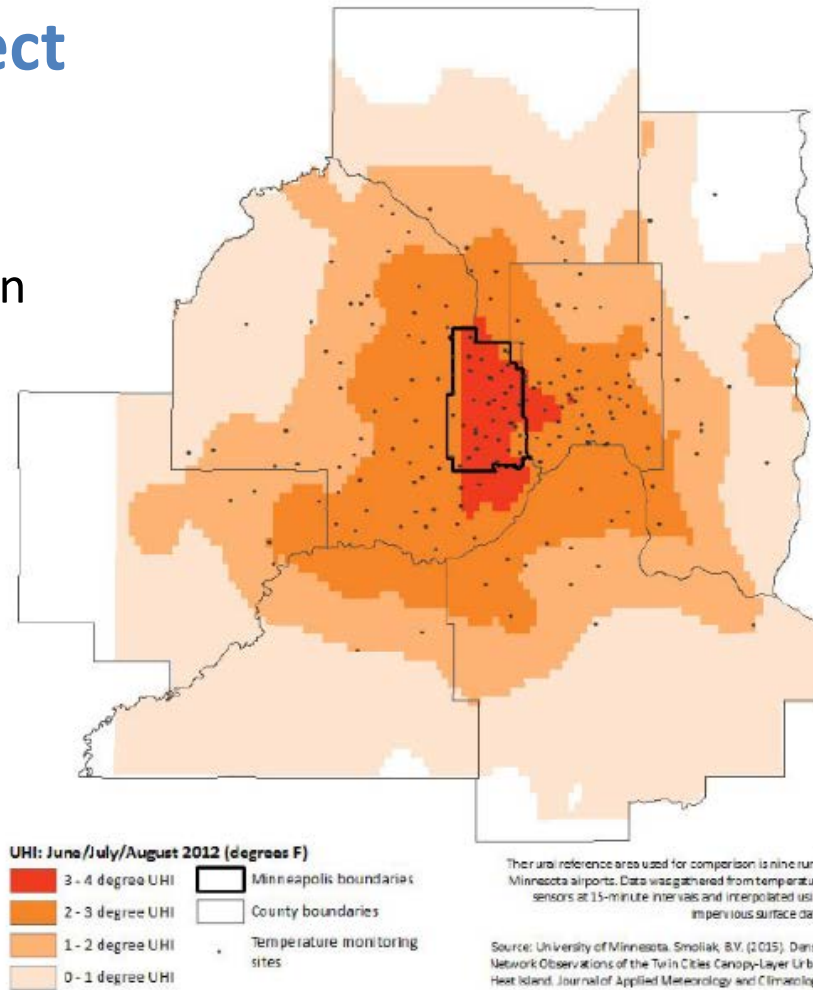


Building Landscape

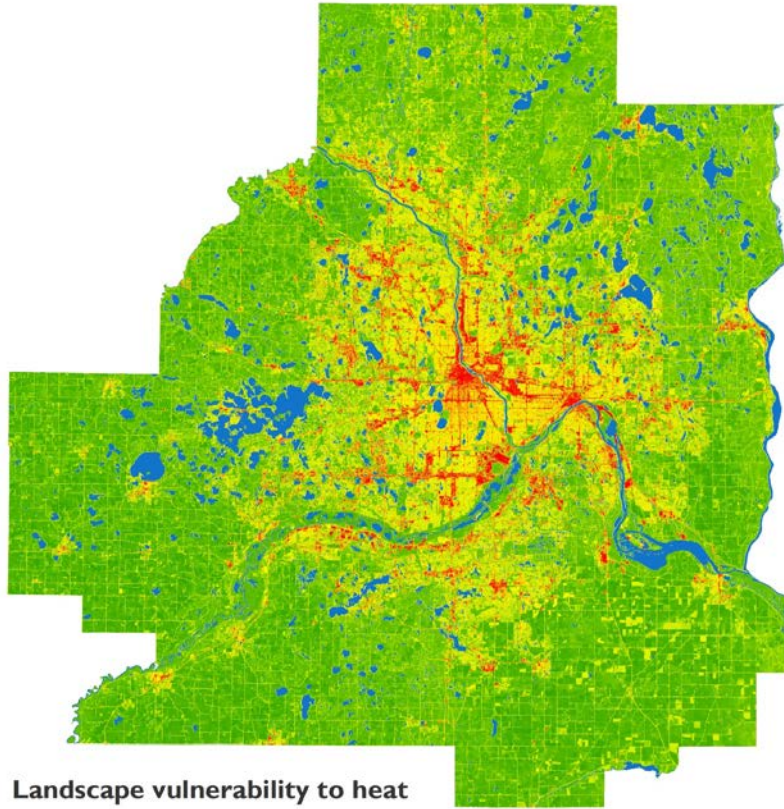


Urban Heat Island Effect

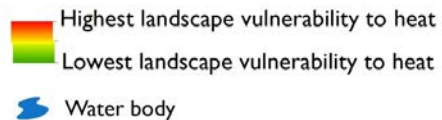
Average urban heat island effect
Minneapolis/St. Paul Metropolitan
area (June-August 2012)



Landscape vulnerability to heat: Impervious cover and vegetation



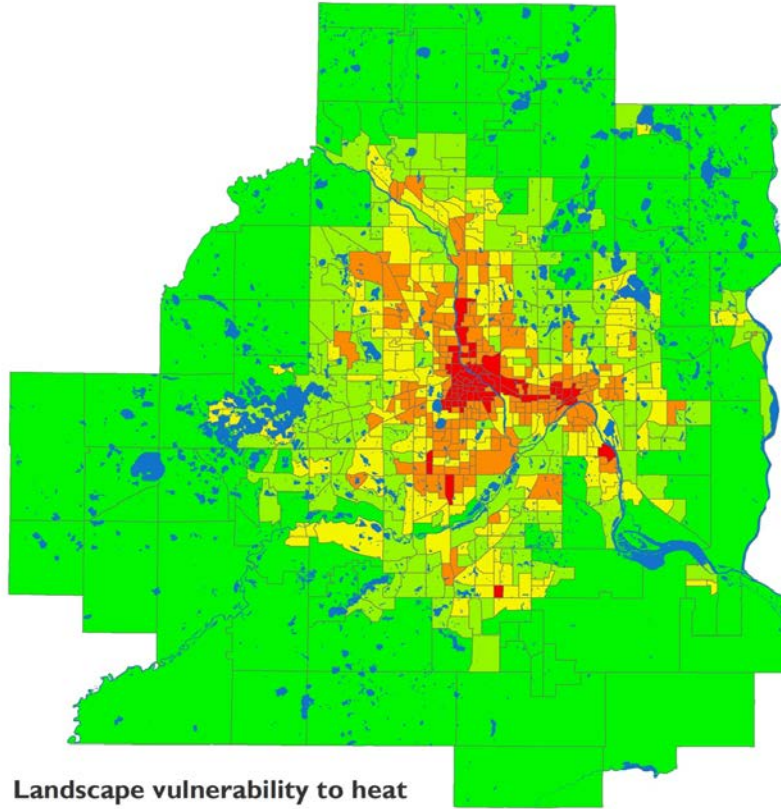
Landscape vulnerability to heat



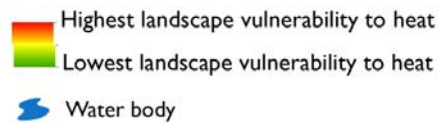
Cartographer: Gordy Moore
Date: Created July 2016
Data: University of Minnesota Remote
Sensing Lab, U.S. Geological Survey

**Base heat
vulnerability:**
*Composite map:
Normalized
Difference
Vegetation Index
(NDVI)/Impervious
& land cover:*

Landscape vulnerability to heat: Impervious cover and vegetation



Landscape vulnerability to heat



Cartographer: Gordy Moore
Date: Created July 2016
Data: University of Minnesota Remote
Sensing Lab, U.S. Geological Survey

*Composite,
visualized by
census tract*

BlueSpot Flood Mapping: Study example



Figure 1. All depressions are identified assuming 100% catchment runoff and no drainage in the depression.

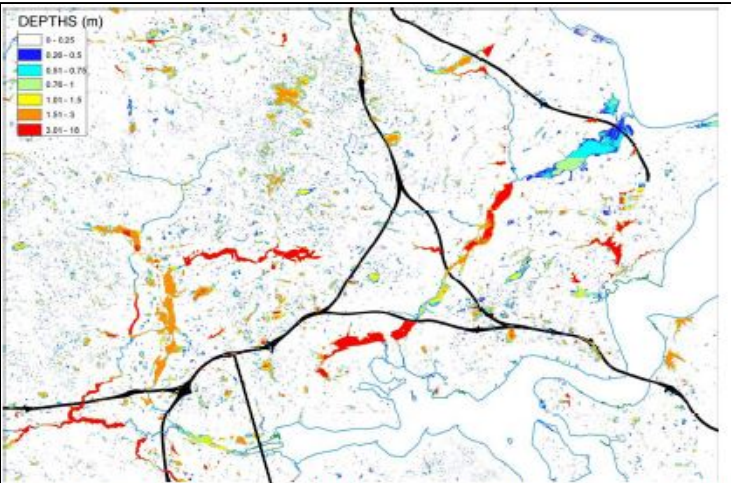
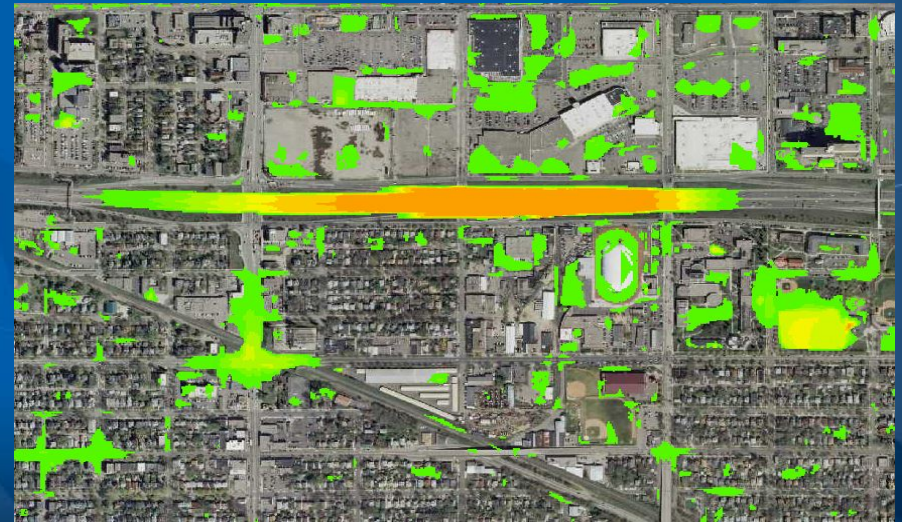
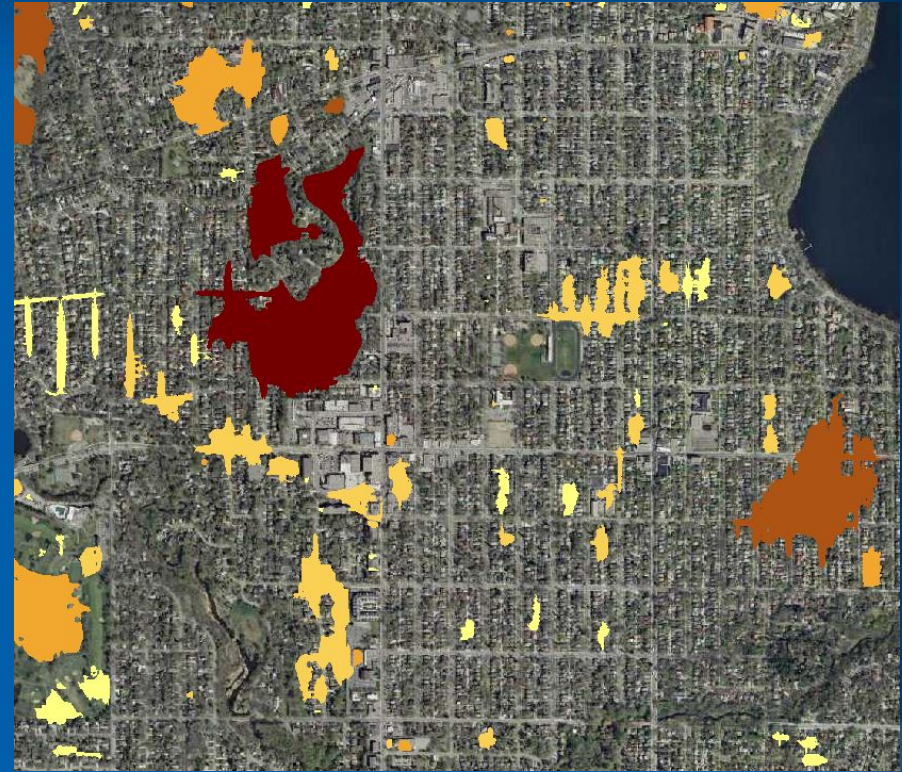
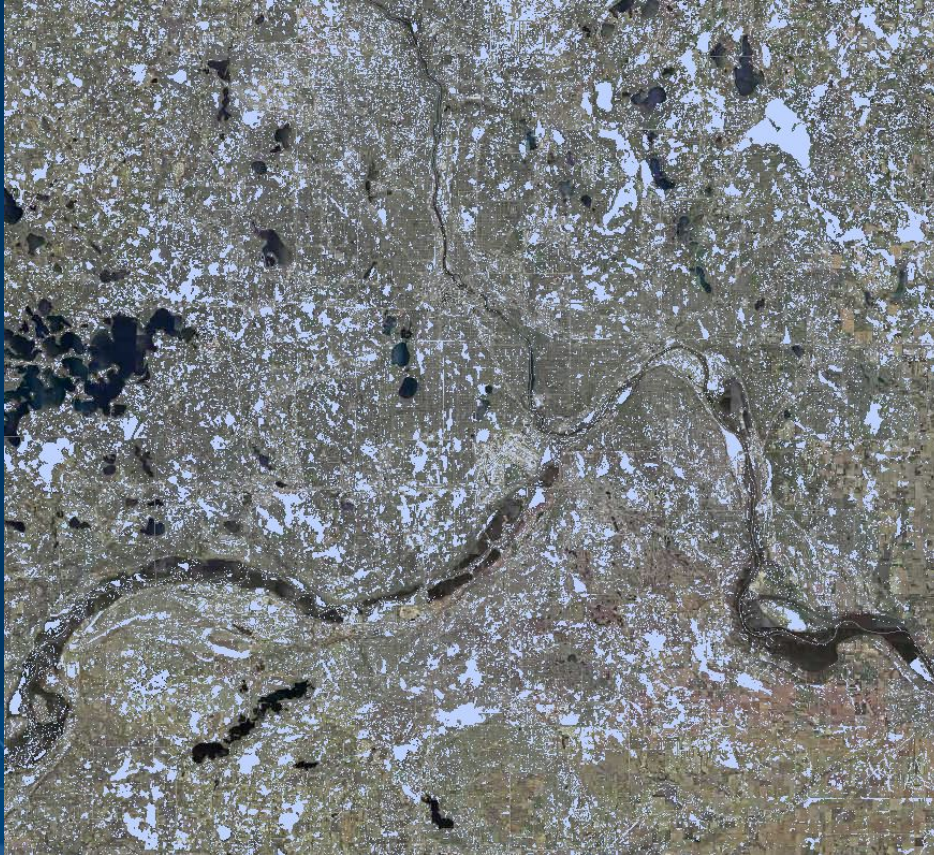


Figure 9. Examples of depressions, which have information about area, volume and depths.

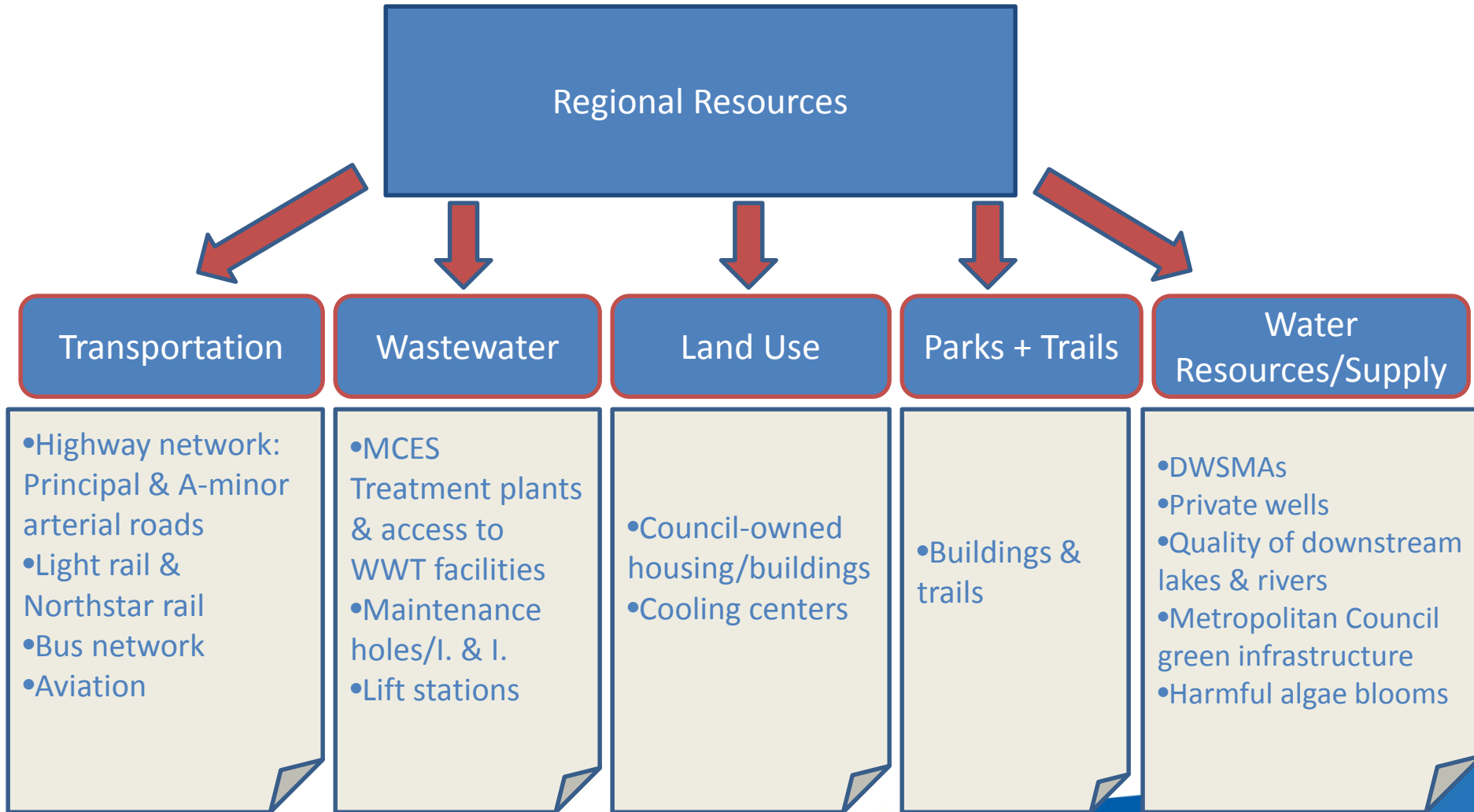


Figure 10. A magnified blue spot with water depths above surface.

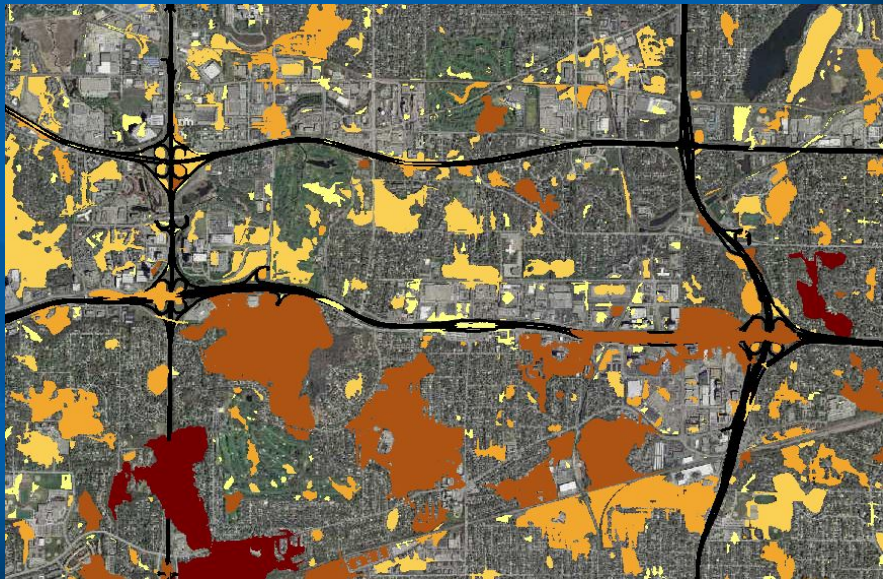
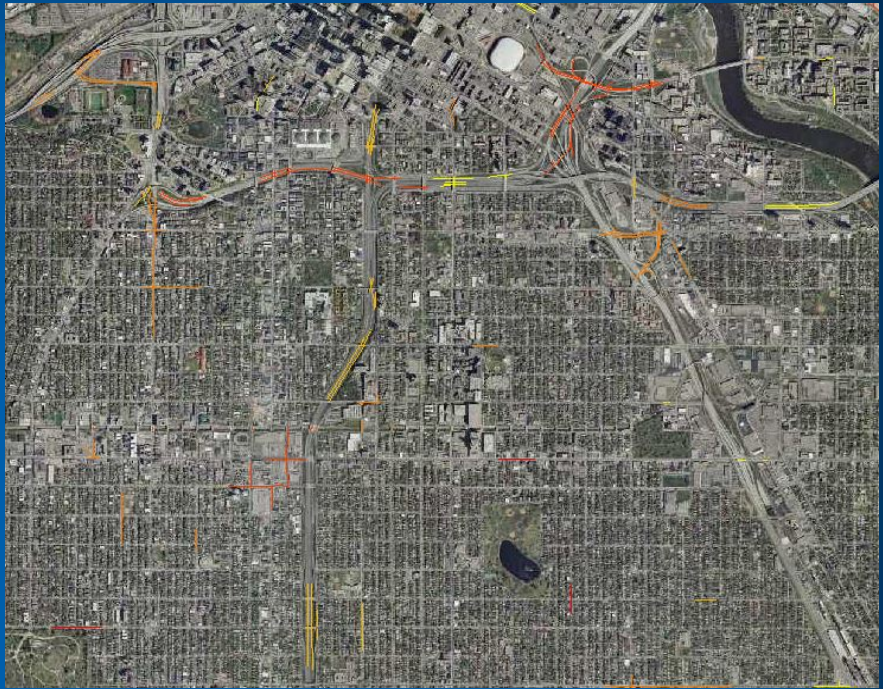
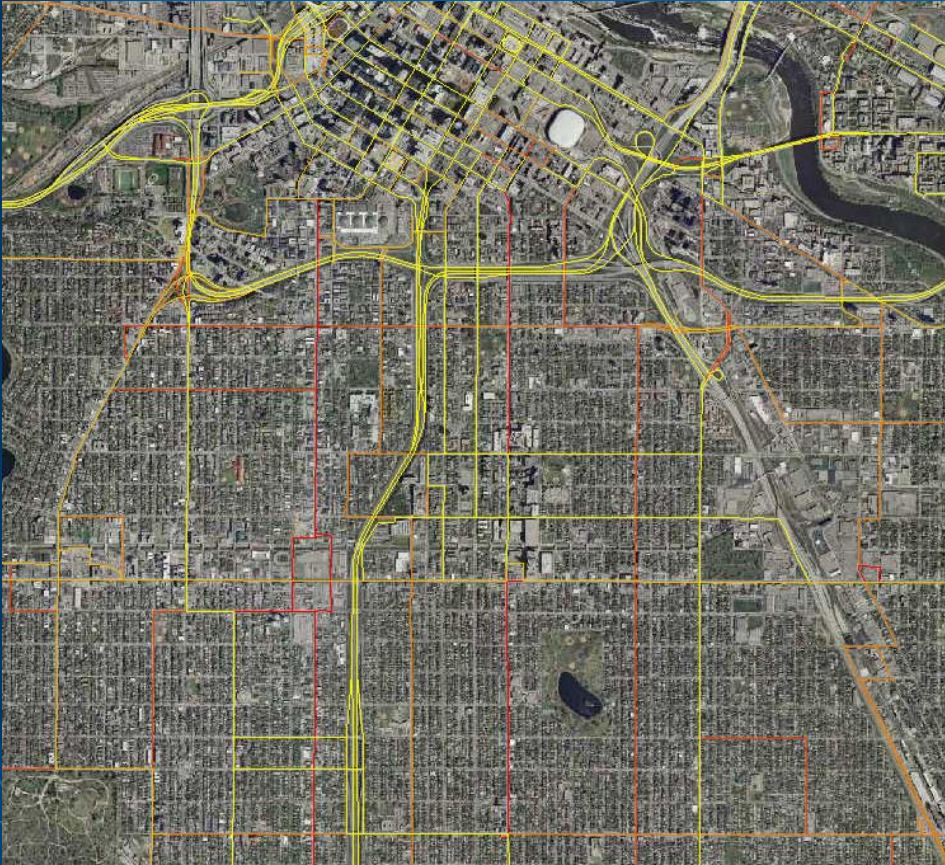
BlueSpot Flood Map: The products



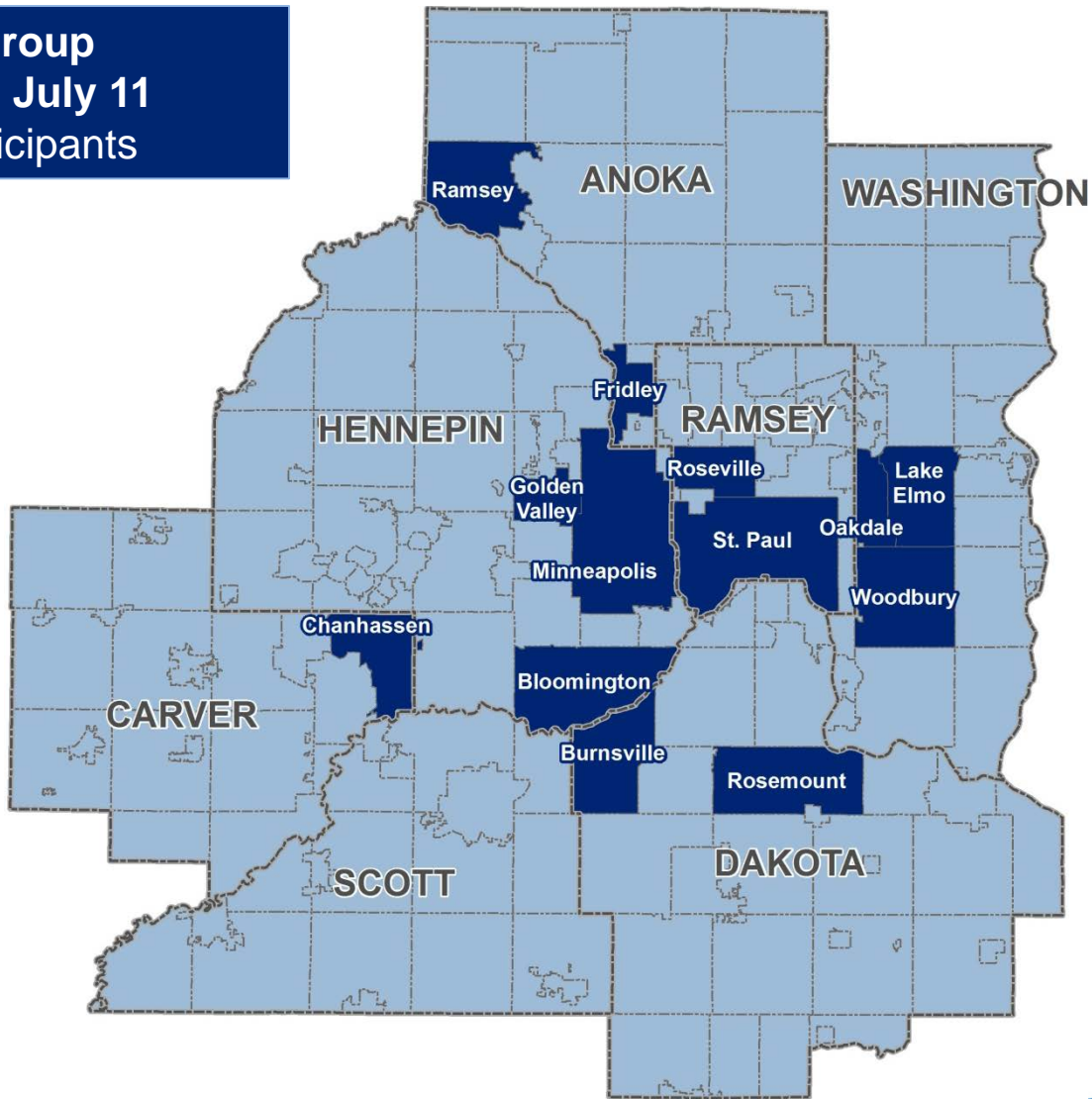
What are we analyzing?

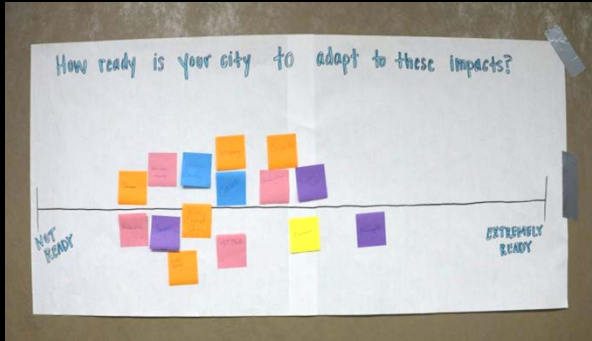
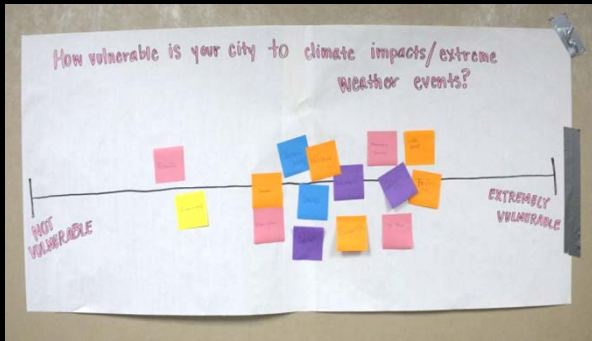


Indicator Maps:



**Focus Group
Monday, July 11
City Participants**





Moving Forward

- Finalize Report and Local Planning Handbook tools
 - Early 2017
- Rollout and CVA training

Thank you.

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