Protecting People and Property from Flooding with GIS

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Overview

- How to determine flood inundation
- Solutions for Flood
  - Planning for a Flood
  - Knowing when the flood will occur
  - Responding to the flood
  - Recovering from the flood
- Using Insights for ArcGIS to Help in Flood Preparedness

How to determine flood inundation

- FEMA Dfirm service
  - FEMA Dfirm Viewer
- Modeling flood inundation
  - Can be done through ArcHydro or a number of other tools
  - With custom modeling you can create flood inundation levels above and below the 100/500 year level
  - You can also use your own high quality LIDAR data for better resolution

Creating Custom Inundation Data – Flood Out Technique

- Inputs: Digital Elevation Model, Stream Centerlines, Known Water Surface Elevation Points
- Process: Determine flow, create drainage lines with accumulation, process 10/85 points, apply to drainage lines and convert to 3D, Flood Out from that 3D line
- Output: Polygon and Raster for each flood interval
- Pros: Can be extremely accurate, multiple ways of getting to the final point, flexible inputs, focused on small scale
- Cons: Has to be done on a reach by reach basis, processing multiple flood intervals can be time consuming.
- Flood Inundation Map

HAND (Height Above Nearest Drainage) Technique

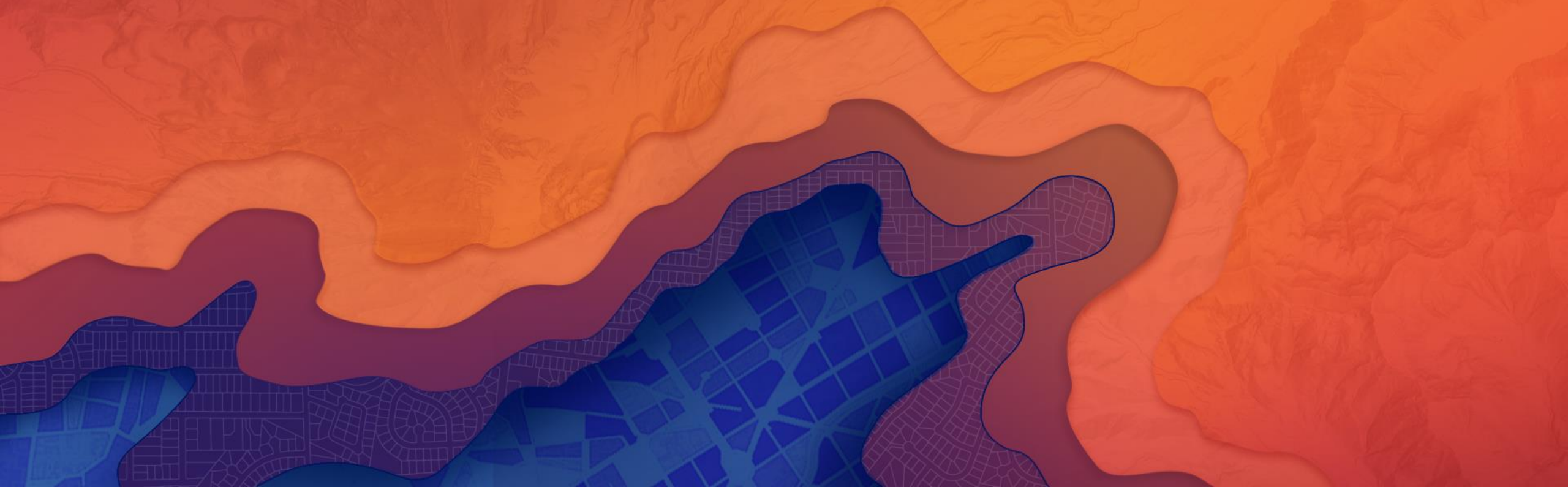
- Inputs: Digital Elevation Model, Drainage Lines
- Process: Flatten out the DEM, burn in drainage lines, calculate height above nearest drainage for each pixel in the dataset
- Output: Raster dataset with a HAND value for each pixel
- Pros: Can quickly create for a large area (County Scale), Allows for 1 foot flood intervals, very quick to display
- Cons: Accuracy is based on the quality of the DEM, cannot incorporate local Cross-section or WSE data

Solutions for Flood

Apps for the Field, Office, and Community

Insights for ArcGIS and Flood Planning

Quick Access to Important Data

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