



### Background

- The 500-year floodplain is an area with a 0.2% annual chance of being flooded by water from a bayou, stream, or creek.<sup>1</sup>
- Urbanization results in increased impermeable area, leading to increased stormwater runoff volumes and higher peak flows in urbanized watersheds. In addition, natural drainage systems are replaced by sewers and other stormwater infrastructure, which can deteriorate with time, preventing proper drainage.<sup>2</sup>
- Indicator values were projected into future epochs using EPA's Integrated Climate and Land Use Scenarios (ICLUS).<sup>3</sup>
- Higher values suggest higher vulnerability relative to other watersheds.

**THIS INDICATOR MEASURES THE ACRES OF URBAN AREA WITHIN THE 500-YEAR FLOODPLAIN.**

### Data Sources

Data Source	Description	Spatial Resolution	Temporal Resolution
FEMA – Census Block Group Flood Zones and Population, Housing Units and Policies in 0.2% Floodplain Areas	Area of block group within 500-year floodplain	Block group	N/A
EPA – <a href="#">ICLUS Version 1.3, 2010</a>	Housing density by county for years 2005, 2010, 2050, and 2090 from A1 scenario	1 km x 1 km	2000-2100; data available at 5-year intervals

### This Indicator Was Used to Assess the Vulnerability of One of USACE's Eight Business Lines

Business Line	Importance Weight (Varies from 1 to 2 for USACE)
Flood Risk	1.75

### Calculation

- Identify which block groups are within which 4-digit hydrologic unit code (HUC-4) watersheds (i.e., spatially link block groups to the coincident HUC-4 watersheds within a GIS).
- Sum the urban block group area values within each HUC-4 watershed.
- Use housing density data produced by ICLUS to identify the block groups that are projected to become urbanized in the future.

<sup>1</sup> Harris County Flood Control District. 2014. Glossary. Available online at: <https://www.hcfcd.org/glossary/>

<sup>2</sup> Center for Neighborhood Technology. May 2013. The Prevalence and Cost of Urban Flooding: A Case Study of Cook County, IL. Available online at: [http://www.cnt.org/media/CNT\\_PrevalenceAndCostOfUrbanFlooding.pdf](http://www.cnt.org/media/CNT_PrevalenceAndCostOfUrbanFlooding.pdf)

<sup>3</sup> This indicator uses population projections generated by ICLUS, which models population distributions using demographic and land cover data.



**LOW**

**LOW INDICATOR VALUE**  
Little to no urban acreage in the 500-year floodplain.

**HIGH INDICATOR VALUE**  
Significant urban acreage in the 500-year floodplain.

Antelope County, NE - Courtesy of NGPC



**HIGH**

New Orleans, LA - Courtesy of USAF