Understand Exposure | Sources for Spatial Data

WHO

This is a list of trusted sources of spatial data and climate information to be used by the practitioner in the Understand Exposure and Assess Vulnerability and Risk steps.

WHAT

A list of spatial data sources and information at various scales. This can be used as a reference during the spatial data collection task in the Understand Exposure step and as a reference throughout the project.

SUPPORTING RESOURCES

- Refer to [2.6 Potential Impacts Matrix - Worksheet](#) to determine what hazard data needs to be identified/collected.

INSTRUCTIONS

- ☐ After determining what spatial hazard data needs to be collected, browse the products below to identify a source. While these reflect nationally available data, remember that there may be regional, state, and local datasets available - especially for community assets.

National Spatial Hazard Data Sources

Product	Organization	Type	Description
[Climate at a Glance](#)	NOAA NCEI, Climate Monitoring	Data and graphics	**Exploring hazards and climate stressors**. Using historical time series graphs and information to put climate into context, from a historical perspective. Focus on temperature and precipitation.
[Historical Drought Index Products](#)	NOAA NCEI, Climate Monitoring	Data and graphics	**Exploring hazards and climate stressors**. Using historical time series graphs and information to put drought into context, from a historical perspective.
[The Climate Explorer](#)	NOAA	Data and graphics	**Exploring hazards and climate stressors**. Using the time series graphs and information to put future climate change into context. Focus on climate graphs (max temp, cooling/ heating degree days), historical thresholds, and

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			high tide flooding.
[Fourth National Climate Assessment](#)	NOAA	Information and graphics	**Exploring hazards and climate stressors**. Using the graphics and information to put future climate change into context. Focus on climate graphs (regional heavy precipitation observed change, potential increase in days above 95 degrees).
[Storm Events Database](#)	NOAA NCEI	Data	**Exploring hazards**. Use the database to provide perspective on historical/recent hazards.
[Sea Level Rise Viewer](#)	NOAA Office for Coastal Management	Data	**Exploring hazards and using data in vulnerability and risk assessment.** Focus on water levels thresholds (+ MHHW) and high tide flooding.
[Tides and Currents](#)	NOAA's Center for Operational Oceanographic Products and Services (CO-OPS)	Data and graphics	**Exploring hazards and using data in vulnerability and risk assessment.** Focus on using thresholds defined at tidal stations and sea level trends as specific locations and regional scenarios.
[National Flood Hazard Layers](#)	FEMA	Data	**Using data in vulnerability and risk assessment**
[National Storm Surge Hazard Maps](#)	NOAA and NHC	Data	**Using data in vulnerability and risk assessment**
[WUI Areas](#)	University of Wisconsin SILVIS Lab and USDA Forest Service	Data	**Using data in vulnerability and risk assessment**
[Outdoor Air Quality Data](#)	US EPA	Data	**Using data in vulnerability and risk assessment**
[Building Footprints](#)	Microsoft	Data	**Using data in vulnerability and risk assessment.** While limited in that it displays 2017 footprint information, it is still better than what some communities have.

Product	Organization	Type	Description
Road Networks	OpenStreet Maps	Data	**Using data in vulnerability and risk assessment.** Provides a consistent way of assessing both major and minor roads. Has topology better than most jurisdictions are able to maintain in municipal databases. Is also frequently updated with many road classifications and attributes (i.e. Lane miles) that provide the ability to generate useful metrics.
SNAP Retailers	USDA	Data	**Using data in vulnerability and risk assessment.** Provides baseline information on SNAP retailer locations.
Tree Canopy	USFS	Data	**Using data in vulnerability and risk assessment.** Provides a consistent way of identifying measures of tree canopy coverage (for extreme heat assessment).
Developed Land Cover (NLCD)	MRLC (Multi-agency, including NOAA, USDA, USGS, others)	Data	**Using data in vulnerability and risk assessment.** Provides a consistent way of identifying measures of medium to high intensity land development (for extreme heat assessment).
Socio-economic indicators	US Census Bureau	Data	**Using data in vulnerability and risk assessment.** A collection of metrics for populations, households at the census tract or block group level. Used to identify co-occurrences of physical and social vulnerability. Usually refer to the latest available 5-yr estimate summary file.
Social Vulnerability Index	CDC	Data	**Using data in vulnerability and risk assessment.** An overall index and 4 themes to consider elements of social vulnerability at the census tract level.
Business Analyst	Esri	Data	**Using data in vulnerability and risk assessment.** Provides information on business locations to consider factors related to jobs and sales impacted by hazards.
Habitat Climate Change Vulnerability Index	NatureServe	Information and graphics	**Explore hazards, stressors, and ecological conditions.** A framework to help determine the vulnerability of various natural communities or habitat types based on their potential exposure to changing climatic conditions, their sensitivity to those conditions, and their adaptive capacity.

IMPLEMENTATION EXAMPLES

Inventory spatial and qualitative data

- The [Federal Highway Administration (FHWA) Vulnerability Assessment and Adaptation Framework](#) is focused on transportation-related assets, however, this report details types of data and attributes (characteristics) needed for the assessment.
- [City of Baltimore Disaster Preparedness and Planning Project (2018)](#) lists assets available in the city, as well as those that are "critical" or "essential" (Chapter 4).
- Data sources are summarized in Appendix A of the [All Hazards Vulnerability Assessment for the City of Charleston](#). The data inventory for the community will be much more detailed in practice, but this provides a summary of major data sources.
- The Providence, Rhode Island, [Climate Justice Plan](#) focused much of their process on collecting and applying information and experiences from frontline communities. For example, they held peer-led interviews of frontline community members, designed solutions based on the priorities and concerns of frontline communities, and refined the finalization of policies based on feedback from these groups.
- The [Austin Climate Equity Plan](#) used a Community Climate Ambassador Program to elicit conversations with historically underrepresented groups around transportation, food, consumerism, and access to nature. Community concerns and feedback informed the plan's goals and strategies and are referenced throughout the plan.