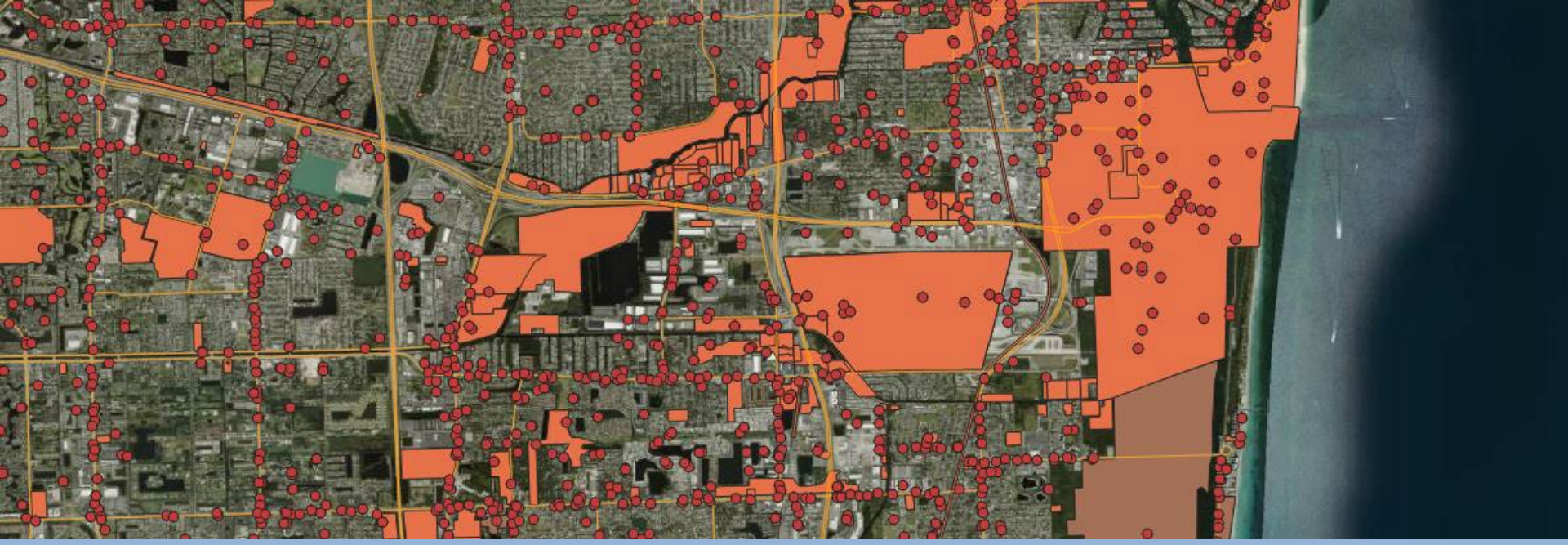


Statewide Resilience Dataset
Outreach and Local Dataset Compilation

Dan Dourte, Ph.D.
The Balmoral Group

Goals of this work

- Document the types and status of the flooding and/or sea level rise (SLR) vulnerability assessments completed by cities, counties, or others
- Retrieve the data and metadata developed for vulnerability assessments (or similar efforts evaluating SLR and/or storm surge)
- Document and organize the spatial data received: prepare/tabulate data definitions, units, and key metadata content
- Consolidate/standardize all provided local critical asset data into a spatial dataset

Critical Assets

Statutory Definitions (F.S. 380.093):

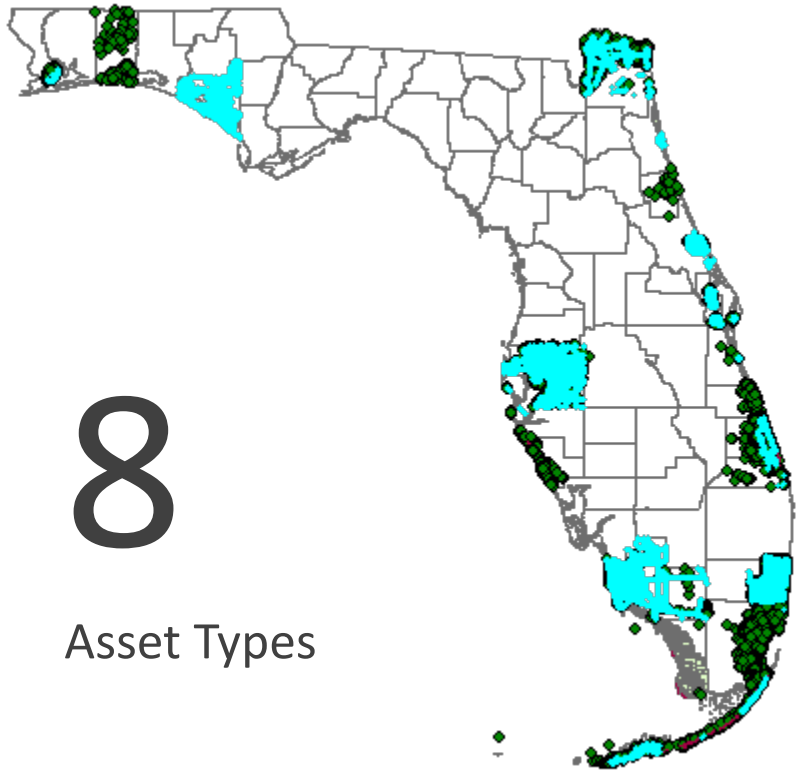
"**Critical asset**" includes 4 groups:

1. Transportation assets and evacuation routes,
2. Critical infrastructure,
3. Critical community and emergency facilities,
4. Natural, cultural, and historical resources

Critical Assets

1. Transportation assets and evacuation routes

- airports,
- bridges,
- bus terminals,
- ports,
- major roadways,
- marinas,
- rail facilities,
- railroad bridges



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Asset Types

Critical Assets

2. Critical infrastructure

- wastewater treatment facilities and lift stations,
- stormwater treatment facilities and pump stations,
- drinking water facilities,
- water utility conveyance systems,
- electric production and supply facilities,
- solid and hazardous waste facilities,
- military installations,
- communications facilities,
- disaster debris management sites.

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Asset Types

Critical Assets

3. Critical community and emergency facilities

- schools,
- colleges and universities,
- community centers,
- correctional facilities,
- disaster recovery centers,
- emergency medical service facilities,
- emergency operation centers,
- fire stations,
- health care facilities,
- hospitals,
- law enforcement facilities,
- local government facilities,
- logistical staging areas,
- affordable public housing,
- risk shelter inventory,
- state government facilities.

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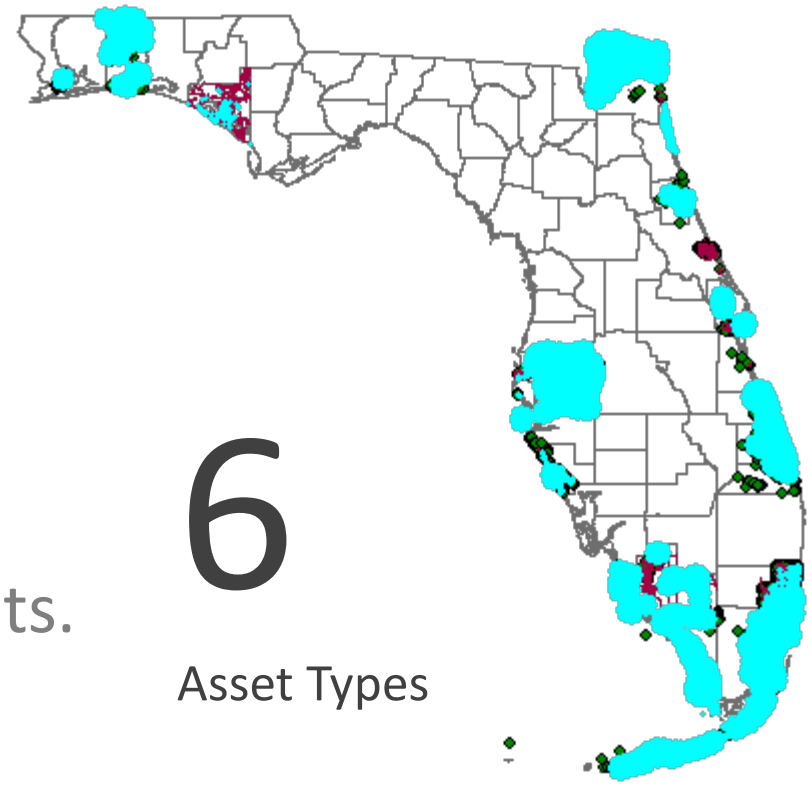
Asset Types

Critical Assets

4. Natural, cultural, and historical resources

- conservation lands,
- parks,
- shorelines,
- surface waters,
- wetlands,
- historical and cultural assets.



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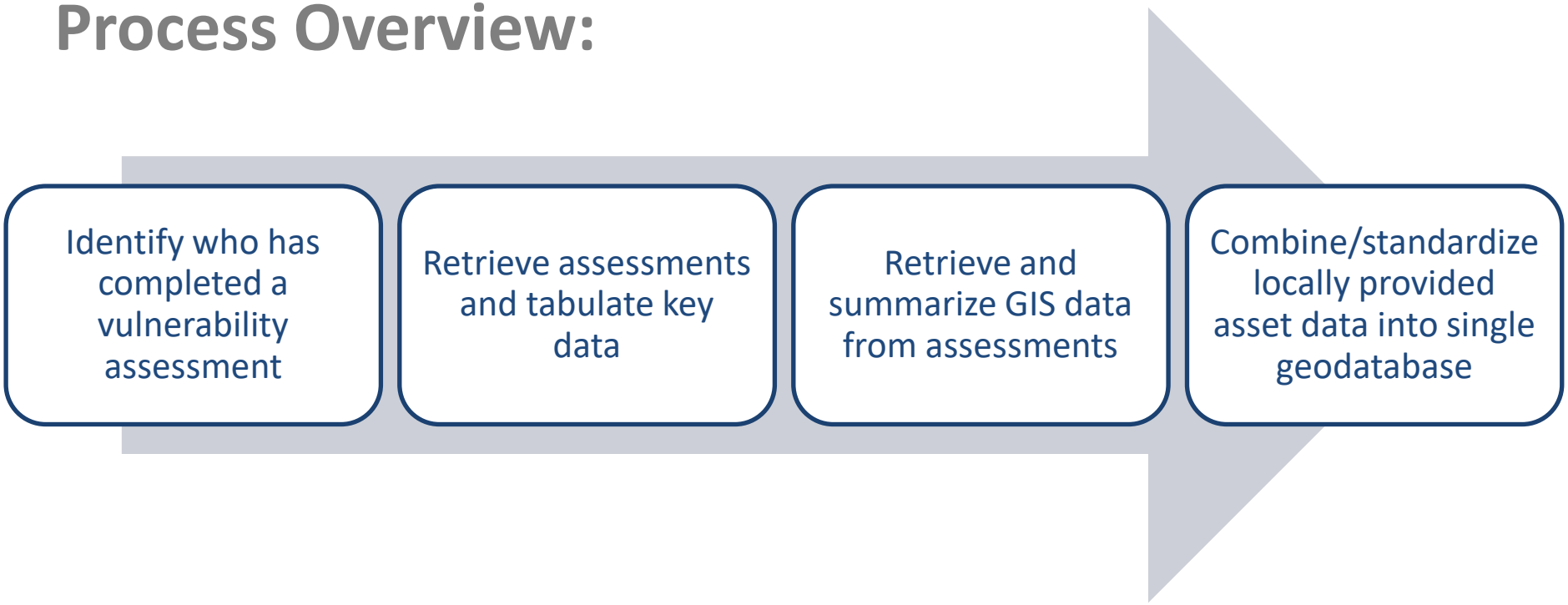
Asset Types

Local Critical Asset Data

Process Overview:



Vulnerability study: data collection

Outreach

- Emails, surveys, phone calls (for data retrieval and data definitions/Q&A)
- Studies (reports) and GIS data from local vulnerability assessments were requested
- Sharepoint location used for report/data uploads

Outputs: organization; summarization

- Key variables tabulated
- Metadata developed for GIS data
- Studies and GIS data delivered to the Department
- Asset data from GIS data combined and standardized

Key Variables

Tabulated for about 80 studies delivered…

Variable	Description
Geographic Extent	The area included in the analysis of sea-level or flooding impacts (examples: entire county or city, specific points or neighborhoods)
High tide	Indicator variable of flooding evaluation using current and future high tide water levels
Sea Level Scenario Name	Sea level rise (SLR) scenario label (example: NOAA Intermediate High)
Sea Level Rise Years Evaluated	Time periods at which the analysis was completed (2050, 2070, etc)
Surge Category	Category 1 to 5 wind speed grouping of hurricanes
Rainfall Design Storms Evaluated	Rainfall duration and frequency of storms modeled if rainfall-driven flooding was included in the analysis (example 72-hour; 25-year storm)
Compound Flooding	Combinations of flooding drivers (example: surge and SLR, surge and SLR and rainfall, SLR and rainfall, etc)
Critical Assets	Indicator variables for the 4 groups of Critical Assets from (s.380.093 (2)(a) Definitions)
DEM Source	Date and source of digital elevation model (example: SWFWMD LiDAR, 2018)
Peril Of Flood	Indicator of Peril of Flood compliance analysis
Elevation Datum	Zero elevation vertical reference for elevations of sea level or land surface
Spatial data file type(s)	The file format(s) of spatial data provided in support of a vulnerability assessment or similar study
Point(s) of contact	E-mail addresses and phone numbers for personnel familiar with the data supporting the vulnerability assessment

Key Variables

See summary data at:

https://datavisual.balmoralgroup.us/DEP-Resilience-Status

Florida Statewide Resilience Dataset: Vulnerability Assessment Status

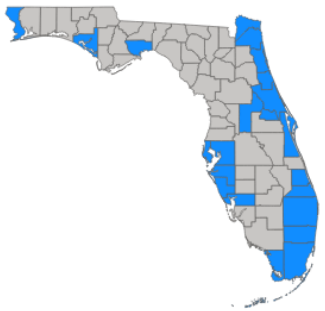
Vulnerability Study Status

- Completed FRA
- Completed FRA and pursuing funding
- Use County VA

Flood Study Type

- Other
- Peril of Flood
- Resilience Plan
- Vulnerability Assessment

County Name



Entity Name	Entity Count
Atlantic Beach	1
Bay Harbor Islands	1
Brevard County	1
Cape Canaveral	1
Cocoa	1
Coral Gables	1
Cutler Bay	1
Dania Beach	1
Escambia County	1
Fernandina Beach	1
Flagler County	1
Fort Lauderdale	1
Hallandale Beach	1
Hillsborough County	1
Hollywood	1
Lake Park	1
Manatee County	1
Martin County	1
Total	**46**

SLR Scenario

- 1 ft
- 17 in
- 2 ft
- 2013 USACE High
- 2017 NOAA High
- 3 ft
- 4 ft
- 40 in
- IPCC AR5 Median
- IPCC median
- NOAA 2017 High
- NOAA 2017 Intermediate-High
- NOAA High
- NOAA Intermediate
- NOAA Intermediate-High
- NOAA Intermediate-Low
- NOAA Low
- USACE
- USACE 2009
- USACE 2013 High

SLR Year

- 2025
- 2030
- 2040
- 2050
- 2060
- 2070
- 2080
- 2090
- 2100

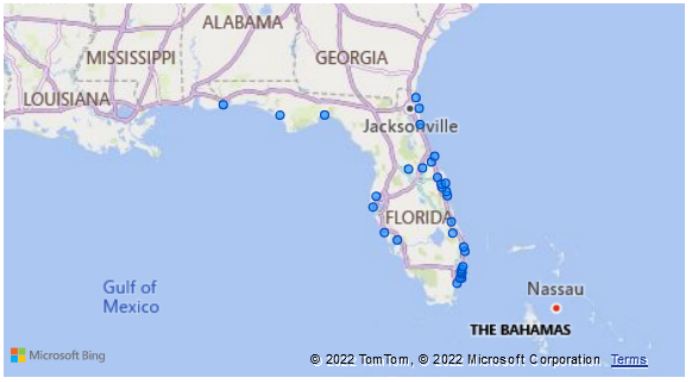
PoF status

- Amendment
- NA
- Required

County type

- Coastal County
- County

City locations



Spatial Data: Local Critical Assets

From studies/reports to GIS data…

Completed vulnerability assessments (or similar flood risk study)

GIS data from analysis that was accessible/available

GIS data that are critical assets

Metadata

1,100+ spatial data layers reviewed to build metadata for each data provider

Metadata elements (prepared for all locally-provided GIS data):

- Title – Name for the dataset.
- Summary – Short summary of what the dataset represents.
- Description – Basic information about the dataset and its purpose.
- Process Summary – Steps in creating the dataset or layer.
- Dates of Data Collection
- Date of Publication
- Contact name for the originator of the dataset
- Credits – Person or entity responsible for the collection/ development of the dataset.
- Use Limitation – Restrictions on using the dataset.
- GIS layer names with descriptions; important fields (attributes) and units were defined

Local Asset data

Retain only critical asset data from all locally-provided spatial data

Local Asset data assembly

Output:

- Locally-provided Critical Asset Data from local vulnerability studies: a statutory requirement and a resource to support the statewide vulnerability assessment

Process:

- Subset locally-provided data to include only features that are critical assets (removed assets that don't meet the definition; removed flood extent features and gridded data)
- Classify/re-name assets to align with Asset Groups (4) and Asset Types (39)

Local Asset data

Attributes

Abbreviation	Description
EntityName	Name of Entity (County or City that provided the asset data)
Asset_Elev	Elevation of asset, feet (if provided)
Own_Maintn	The owner or maintainer of the asset (if provided)
Name	Details about asset (pipe size, street type, etc – if provided)
Asset	Asset label or description (i.e. hydrant, stormwater pipe, cell tower, etc.)
Asset_Type	Statutory Asset type (i.e. airports, bridges, roadways, marinas, etc.)
Asset_Group	Statutory Asset Group (i.e. transportation and evacuation route, critical infrastructure, etc.)

Example:

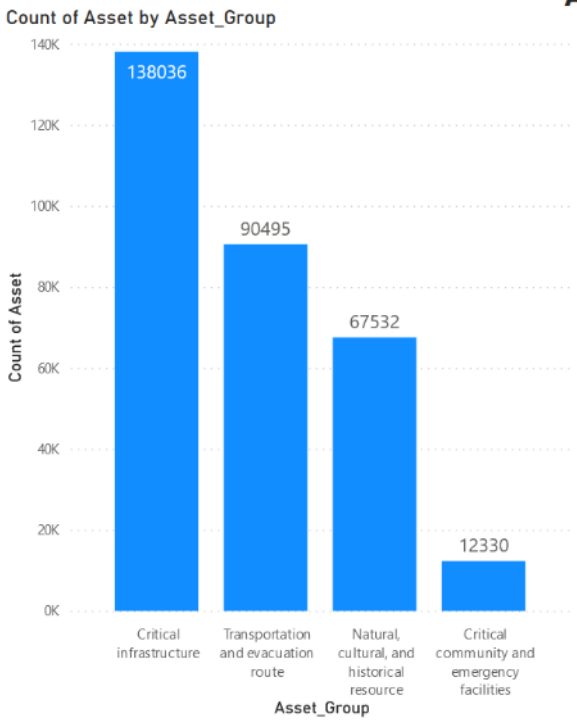
New Smyrna Beach – streets and stormwater infrastructure

Local Asset data

Geodatabase summary

- 3 feature types: lines (188,544), points (63,172), polygons (56,678) – across 31 cities or counties

Florida Statewide Resilience Dataset:
Local Asset GIS data summary



Asset Counts by City or County

EntityName	Asset Count - sum
Bal Harbour	335
Bay County	16,867
Broward County	5,827
Cape Canaveral	3,730
Clearwater	13,468
Collier County	222
Flagler County	53
Hallandale Beach	7,355
Hillsborough County	19,714
Hollywood	1,574
Indian River County	159
Jacksonville	59
Longboat Key	1,147
Madeira Beach	221
Martin County	10,619
Melbourne Beach	29
Miami Dade County	4,286
Monroe County	127,132
Naples	37,302
Nassau County	11,298
Neptune Beach	16
Total	**308,394**

GIS Data Geometry Type

- Line
- Point
- Polygon

Asset Types

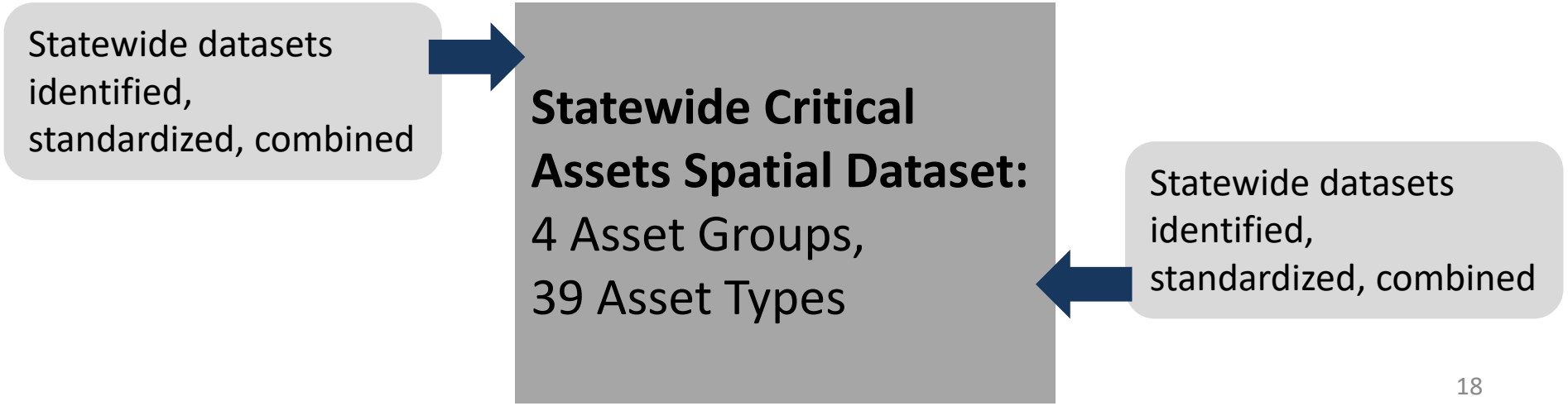
Asset_Type	Asset Count - sum
Affordable Public Housing	886
Airports	337
Bridges	1,027
Bus Terminals	90
Colleges and Universities	30
Communications Facilities	925
Community Centers	853
Conservation Lands	35,281
Correctional Facilities	38
Disaster Debris Management Sites	23
Drinking Water Facilities	737
Electric Production and	1,111
Total	**308,394**

https://datavisual.balmoralgroup.us/LocalAssetData

Statewide Asset data

Ongoing work

- Combine statewide asset data and local asset data (where needed) to produce a statewide critical assets dataset for use in the statewide vulnerability assessment
- Additional local asset data requests
- **Includes:** DEP, The Balmoral Group, SAS, USF Flood Hub



- **Data source recommendations**
- **Questions…**

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