



2017 Land Use Review for CAST-21

Peter R. Claggett¹, Labeeb Ahmed², Jacob Czawlytko³, Sean MacFaden⁴, Jarlath O'Neil-Dunne⁴, and Rachel Soobitsky³

¹ Presenting Author, Lower Mississippi-Gulf Water Science Center, U.S. Geological Survey, Annapolis, MD 21403

² Attain LLC, Annapolis, MD 21403

³ Chesapeake Conservancy, Annapolis, MD 21403

⁴ University of Vermont Spatial Analysis Laboratory, Burlington, VT 05405

Water Quality Goal Implementation Team (WQGIT) Meeting
March 22, 2021

Chesapeake Bay Program Land Use Classification (64 classes)

1. Water (8)

- 1.1 Lentic
 - 1.1.1 Estuary (tidal)
 - 1.1.2 Lakes & Ponds
- 1.2 Lotic
 - 1.2.1 Streams
 - 1.2.1.1 Open Channel
 - 1.2.1.2 TC over Channel
 - 1.2.1.3 Culverted/ Buried Channel
 - 1.2.2 Ditches
 - 1.2.2.1 Open Ditch
 - 1.2.2.2 TC over Ditch
 - 1.2.2.3 Culverted/ Buried Ditch

2. Developed (13)

- 2.1 Impervious
 - 2.1.1 Roads
 - 2.1.2 Structures
 - 2.1.3 Other Impervious (Parking lots, driveways)
- 2.2 Pervious
 - 2.2.1 Turf Grass
 - 2.2.2 Bare Developed
 - 2.2.3 Suspended Succession (rights-of-way)
 - 2.2.3.1 Barren
 - 2.2.3.2 Herbaceous
 - 2.2.3.3 Scrub-shrub
- 2.3 Tree Canopy (TC)
 - 2.3.1 TC over Roads
 - 2.3.2 TC over Structures
 - 2.3.3 TC over Other Impervious
 - 2.3.4 TC over Turf Grass
 - 2.3.5 TC in Agriculture

3. Forest (6)

- 3.1 Forest (>= 1 acre, 240-ft width)
- 3.2 Harvested Forest (<= 3 years)
- 3.2.1 Barren
- 3.2.2 Herbaceous
- 3.3 Natural Succession (> 3 years)
 - 3.3.1 Barren
 - 3.3.2 Herbaceous
 - 3.3.3 Scrub-shrub

4. Production (13)

- 4.1 Agriculture
 - 4.1.1 Cropland
 - 4.1.1.1 Barren
 - 4.1.1.2 Herbaceous
 - 4.1.2 Pasture
 - 4.1.2.1 Barren
 - 4.1.2.2 Herbaceous
 - 4.1.3 Orchard/vineyard
 - 4.1.3.1 Barren
 - 4.1.3.2 Herbaceous
 - 4.1.3.3 Scrub-shrub
 - 4.1.4 Idle/Fallow
 - 4.1.4.1 Barren
 - 4.1.4.2 Herbaceous
 - 4.1.4.3 Scrub-shrub
- 4.2 Solar fields
 - 4.2.1 Barren
 - 4.2.2 Herbaceous
 - 4.2.3 Scrub-shrub
 - 4.2.4 Impervious

4.3 Extractive (active mines)

- 4.3.1 Barren
- 4.3.2 Impervious

5. Wetlands and Water Margins (21)

- 5.1 Tidal
 - 5.1.1 Barren
 - 5.1.2 Herbaceous
 - 5.1.3 Scrub-shrub
 - 5.1.4 Tree Canopy
 - 5.1.5 Forest
- 5.2 Non-tidal
 - 5.2.1 Riverine
 - 5.2.1.1 Barren
 - 5.2.1.2 Herbaceous
 - 5.2.1.3 Scrub-shrub
 - 5.2.1.4 Tree Canopy
 - 5.2.1.5 Forest
 - 5.2.2 Headwater
 - 5.2.2.1 Barren
 - 5.2.2.2 Herbaceous
 - 5.2.2.3 Scrub-shrub
 - 5.2.2.4 Tree Canopy
 - 5.2.2.5 Forest
 - 5.2.3 Terrene / Isolated
 - 5.2.3.1 Barren
 - 5.2.3.2 Herbaceous
 - 5.2.3.3 Scrub-shrub
 - 5.2.3.4 Tree Canopy
 - 5.2.3.5 Forest
- 5.3 Bare shore

Chesapeake Bay Program Land Use Classification (64 classes)

1. Water (8)

- 1.1 Lentic
- 1.1.1 Estuary (tidal)
- 1.1.2 Lakes & Ponds

1.2 Lotic

1.2.1 Streams

Wetlands Workgroup

Stream Health Workgroup

1.2.2 Ditches

- 1.2.2.1 Open Ditch
- 1.2.2.2 TC over Ditch
- 1.2.2.3 Culverted/ Buried Ditch

2. Developed (13)

2.1 Impervious

- 2.1.1 Roads
- 2.1.2 Structures
- 2.1.3 Other Impervious (Parking lots, driveways)

2.2 Pervious

2.2.1 Turf Grass

2.2.2 Bare Developed

2.2.3 Urban Stormwater (rights-of-way)

Land Use Workgroup

Urban Stormwater Workgroup

2.3 Tree Canopy (TC)

- 2.3.1 TC over Roads
- 2.3.2 TC over Structures
- 2.3.3 TC over Other Impervious
- 2.3.4 TC over Turf Grass
- 2.3.5 TC in Agriculture

3. Forest (6)

3.1 Forest (>= 1 acre, 240-ft width)

3.2 Harvested Forest (<= 3 years)

3.2.1 Barren

3.2.2 Scrub-shrub

3.3 Natural Succession (> 3 years)

3.3.1 Barren

3.3.2 Herbaceous

3.3.3 Scrub-shrub

4. Production (13)

4.1 Agriculture

4.1.1 Cropland

4.1.1.1 Barren

4.1.1.2 Herbaceous

4.1.2 Pasture

4.1.2.1 Barren

4.1.2.2 Herbaceous

4.1.3 Orchard/vineyard

4.1.3.1 Barren

4.1.3.2 Herbaceous

4.1.3.3 Scrub-shrub

4.1.4 Idle/Fallow

4.1.4.1 Barren

4.1.4.2 Herbaceous

4.1.4.3 Scrub-shrub

4.2 Soil/sediment

4.2.1 Barren

4.2.2 Herbaceous

4.2.3 Scrub-shrub

4.2.4 Impervious

4.3 Extractive (active mines)

Land Use Workgroup

4.3.2 Impervious

5. Wetlands and Water Margins (21)

5.1 Tidal

- 5.1.1 Barren
- 5.1.2 Herbaceous
- 5.1.3 Scrub-shrub
- 5.1.4 Tree Canopy
- 5.1.5 Forest

5.2 Non-tidal

- 5.2.1 Riverine
 - 5.2.1.1 Barren
 - 5.2.1.2 Herbaceous
 - 5.2.1.3 Scrub-shrub
 - 5.2.1.4 Tree Canopy

Wetlands Workgroup

- 5.2.2 Headwater
 - 5.2.2.1 Barren
 - 5.2.2.2 Herbaceous
 - 5.2.2.3 Scrub-shrub
 - 5.2.2.4 Tree Canopy
 - 5.2.2.5 Forest

5.2.3 Terrene / Isolated

- 5.2.3.1 Barren
- 5.2.3.2 Herbaceous
- 5.2.3.3 Scrub-shrub
- 5.2.3.4 Tree Canopy
- 5.2.3.5 Forest

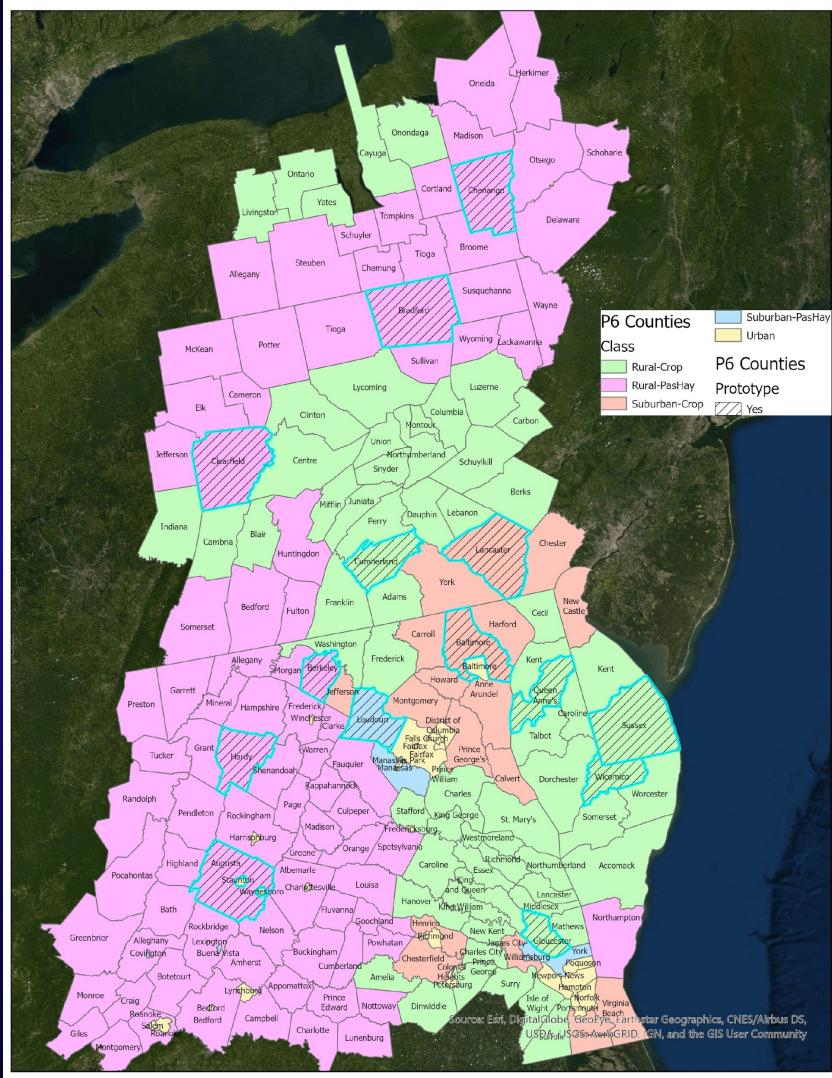
5.3 Bare shore

Land Use Production for CAST-21

2017 Land Use Production Schedule			2020				2021											
Order	Task		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1	Local review of 2017 Land Cover Data		University of Vermont Spatial Analysis Laboratory															
2	Draft Hyper-resolution Hydrography		UMBC, Chesapeake Conservancy Conservation Innovation Center (CIC)															
3	Cropland, Pasture, Orchards, and Turf Grass	AGWG		AGWG	AGWG	AGWG		LUWG	AGWG, LUWG	AGWG, LUWG								
4	Suspended Succession, Bare Shore, and Solar Fields	LUWG				LUWG	USWG	USWG, LUWG	LUWG									
5	Tidal & NonTidal Wetlands	WWG		WWG		WWG			WWG, LUWG	WWG, LUWG								
6	Forests, Tree Canopy, Timber Harvests, and Natural Succession			FWG		FWG			FWG, LUWG	FWG, LUWG								
7	Bare Construction, P6 Roll-up Decision Rules, FedFac Land Uses				LUWG		USWG, FedFac		LUWG	LUWG								
8	Prototype Land Use in 14 counties				Chesapeake Conservancy (CIC)													
9	Approve 2017 LU Mapping and P6 Roll-up Methods (14 counties)										LUWG, WQGIT							
10	Complete 2017 Land Use Dataset (all 206 counties)							CIC										
11	Revise 2013 Land Use (to match 2017 for all counties)							CIC		LUWG	CIC							
12	Update MS4s, Sewer, Zoning, and Population Projections							CBP Land Data Team										
13	Revise Agricultural Forecast Methodology	AGWG					AGWG			AGWG								
14	Update Land Policy BMPs (future LULC scenarios)													LUWG				
15	Update 2013, 2017, and 2025 data for CAST-21													LUWG	WQGIT			
16	Public release- with streams, potential wetlands, minor fixes															WWG	LUWG	WQGIT

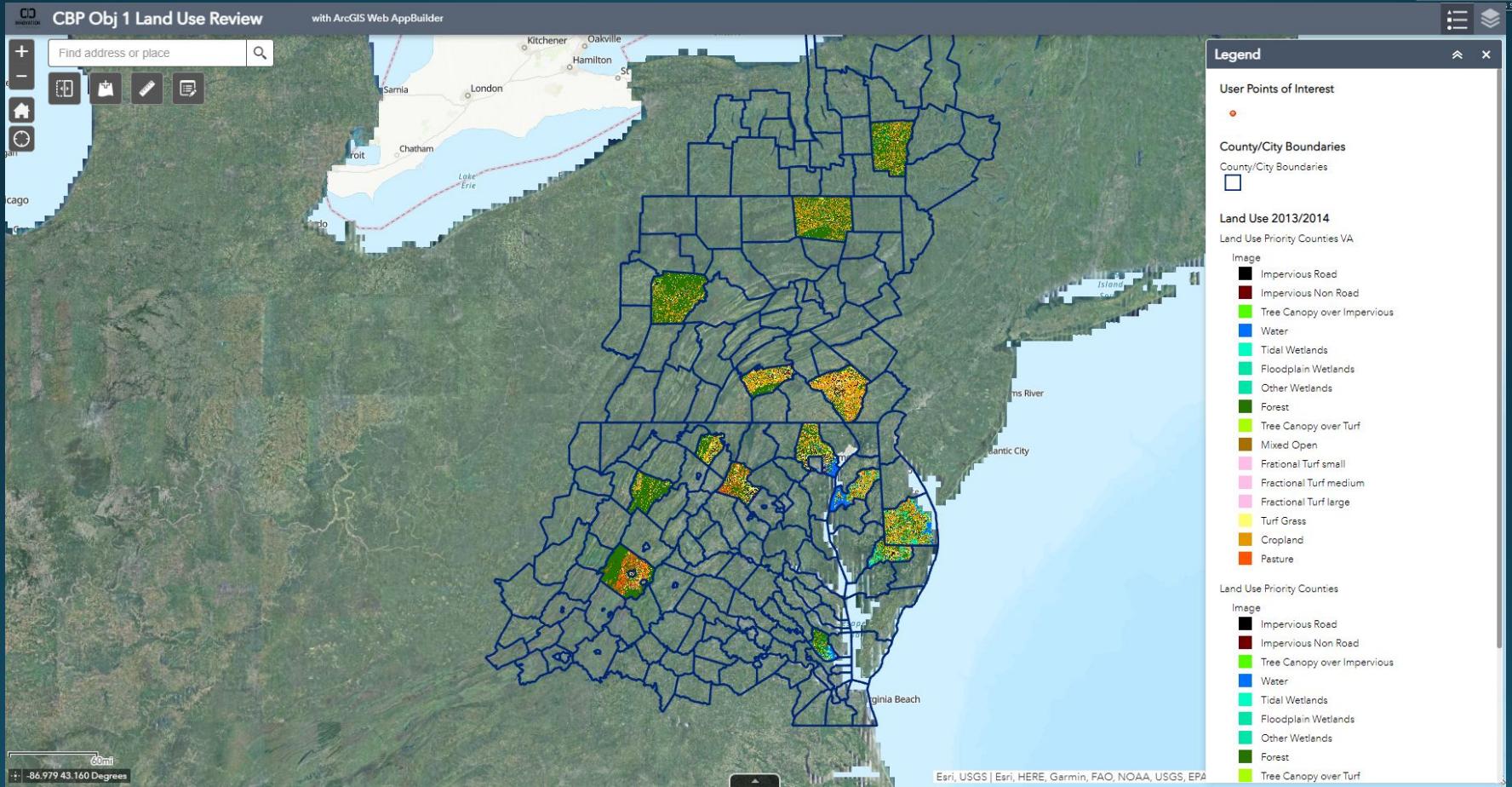
Fourteen Counties Selected to Prototype Development of the 2017 High-res Land Use Data

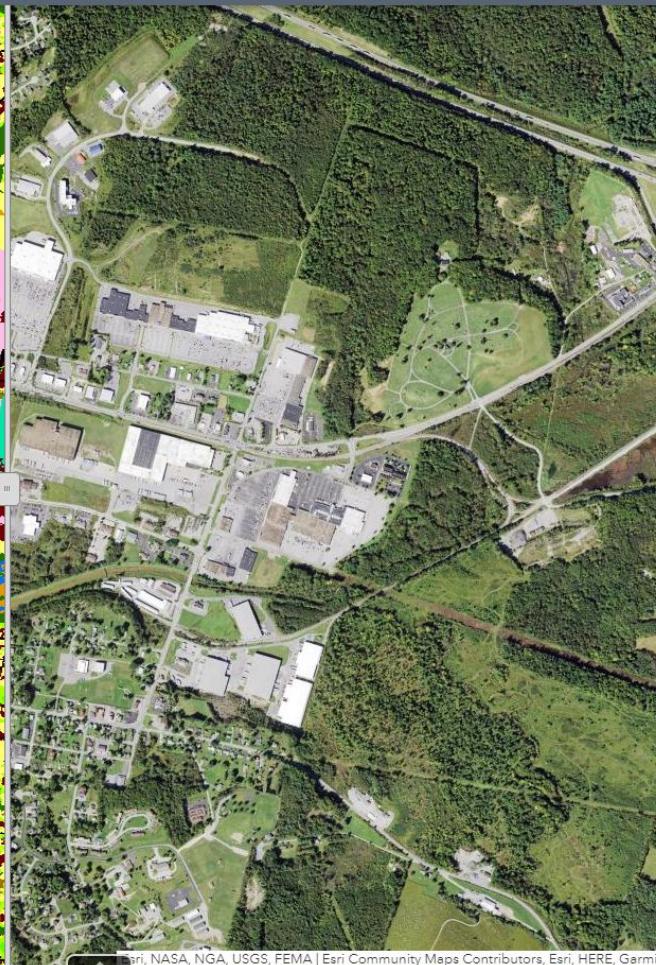
FIPS	CNTY_NAME	P_Crop	P_Dev	Class
10005	SUSSEX	97.4%	18.8%	Rural-Crop
24005	BALTIMORE	66.7%	38.6%	Suburban-Crop
24035	QUEEN ANNES	96.3%	14.2%	Rural-Crop
24045	WICOMICO	94.5%	20.6%	Rural-Crop
36017	CHENANGO	28.3%	5.8%	Rural-PasHay
42015	BRADFORD	39.2%	5.7%	Rural-PasHay
42033	CLEARFIELD	42.0%	8.1%	Rural-PasHay
42041	CUMBERLAND	65.8%	24.6%	Rural-Crop
42071	LANCASTER	68.2%	29.2%	Suburban-Crop
51015	AUGUSTA	27.1%	9.3%	Rural-PasHay
51073	GLOUCESTER	85.1%	12.6%	Rural-Crop
51107	LOUDOUN	33.1%	27.7%	Suburban-PasHay
54003	BERKELEY	33.1%	23.8%	Rural-PasHay
54031	HARDY	22.2%	6.4%	Rural-PasHay



Land Use Viewer

When all 14 counties 2017/2018 draft land use is complete, will send out the web viewer link and log-in information.





Legend

User Points of Interest

-

County/City Boundaries

County/City Boundaries

-

Land Use 2013/2014

Land Use Priority Counties VA

Image

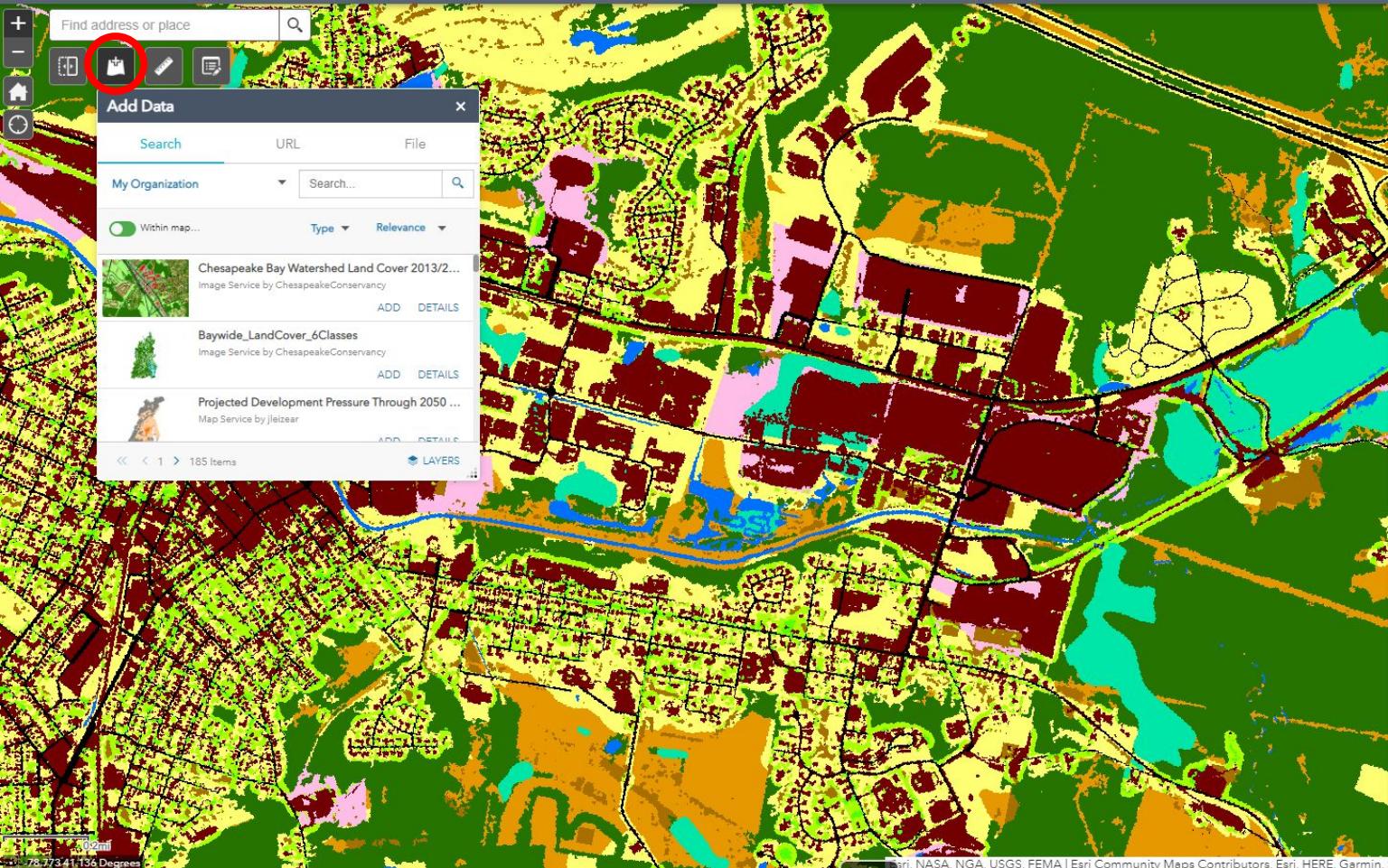
- Impervious Road
- Impervious Non Road
- Tree Canopy over Impervious
- Water
- Tidal Wetlands
- Floodplain Wetlands
- Other Wetlands
- Forest
- Tree Canopy over Turf
- Mixed Open
- Fractional Turf small
- Fractional Turf medium
- Fractional Turf large
- Turf Grass
- Cropland
- Pasture

Land Use Priority Counties

Image

- Impervious Road
- Impervious Non Road
- Tree Canopy over Impervious
- Water
- Tidal Wetlands
- Floodplain Wetlands
- Other Wetlands
- Forest
- Tree Canopy over Turf

Esri NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, Esri, HERE, Garmin, S



- Land Use Priority Counties
- Image
- Impervious Road
 - Impervious Non Road
 - Tree Canopy over Impervious
 - Water
 - Tidal Wetlands
 - Floodplain Wetlands
 - Other Wetlands
 - Forest
 - Tree Canopy over Turf



science for a changing world