Overview of High-resolution Land Cover/Use Datasets (version 1)

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Forestry Workgroup Meeting
September 2, 2021

U.S. Department of the Interior
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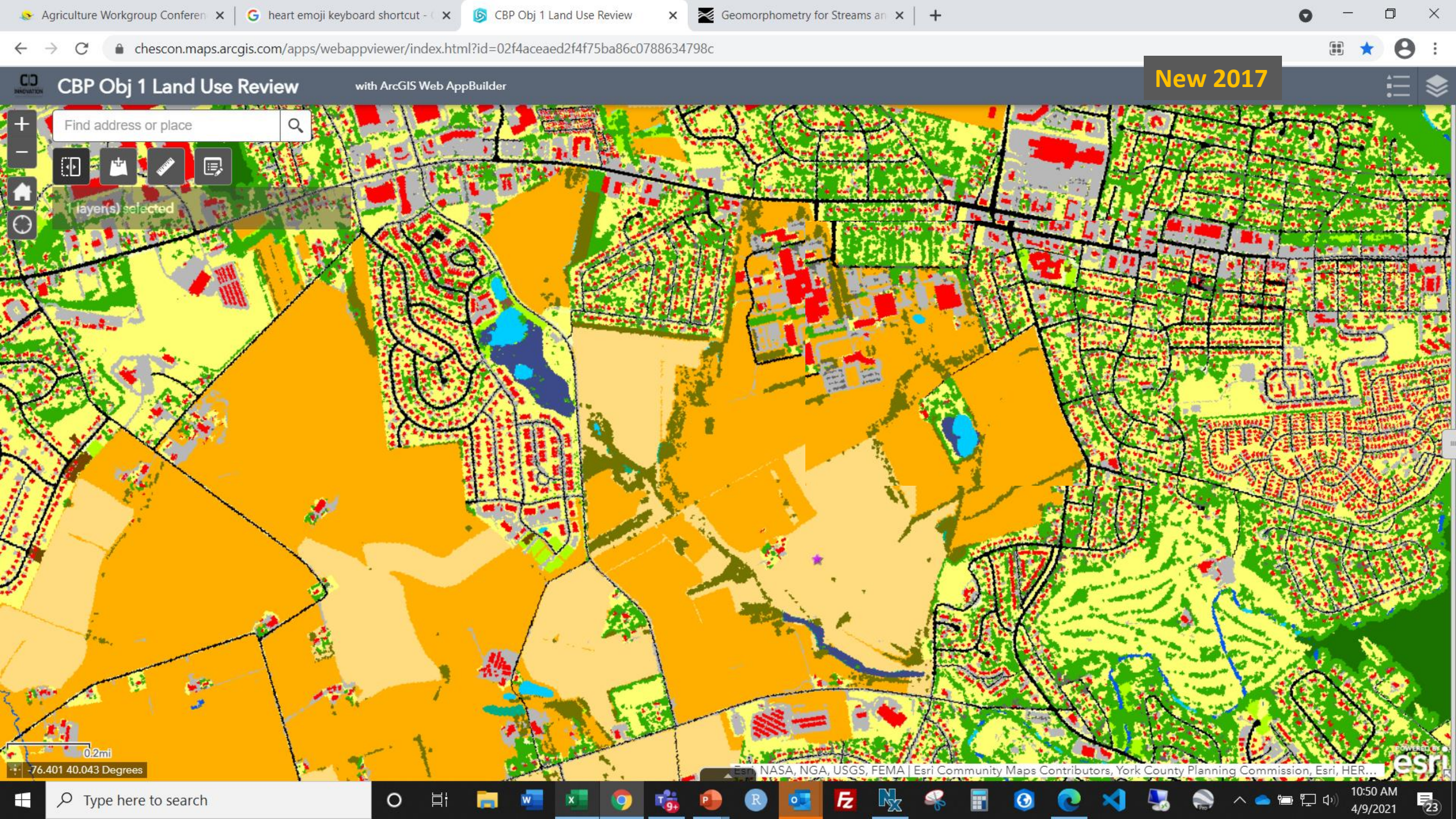
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Land Use Change Viewer

http://cicapps.org/obj1lu/

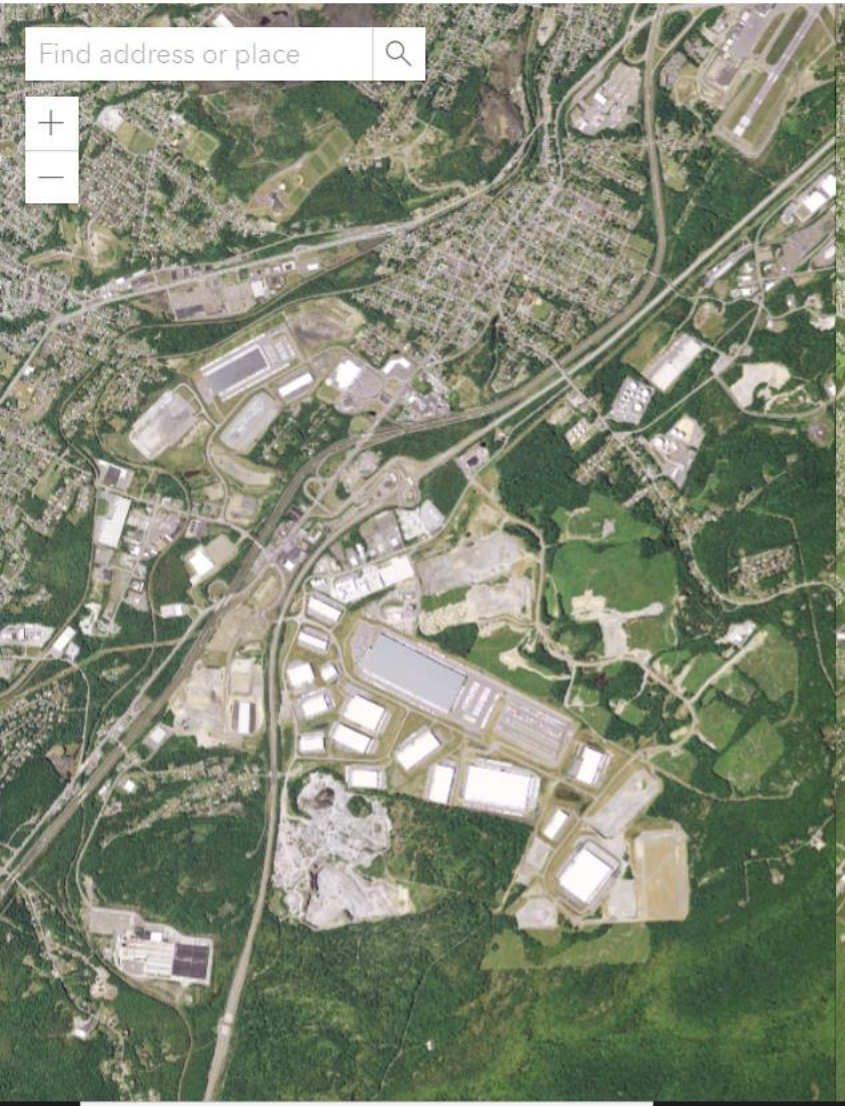
NAIP 2013/2014

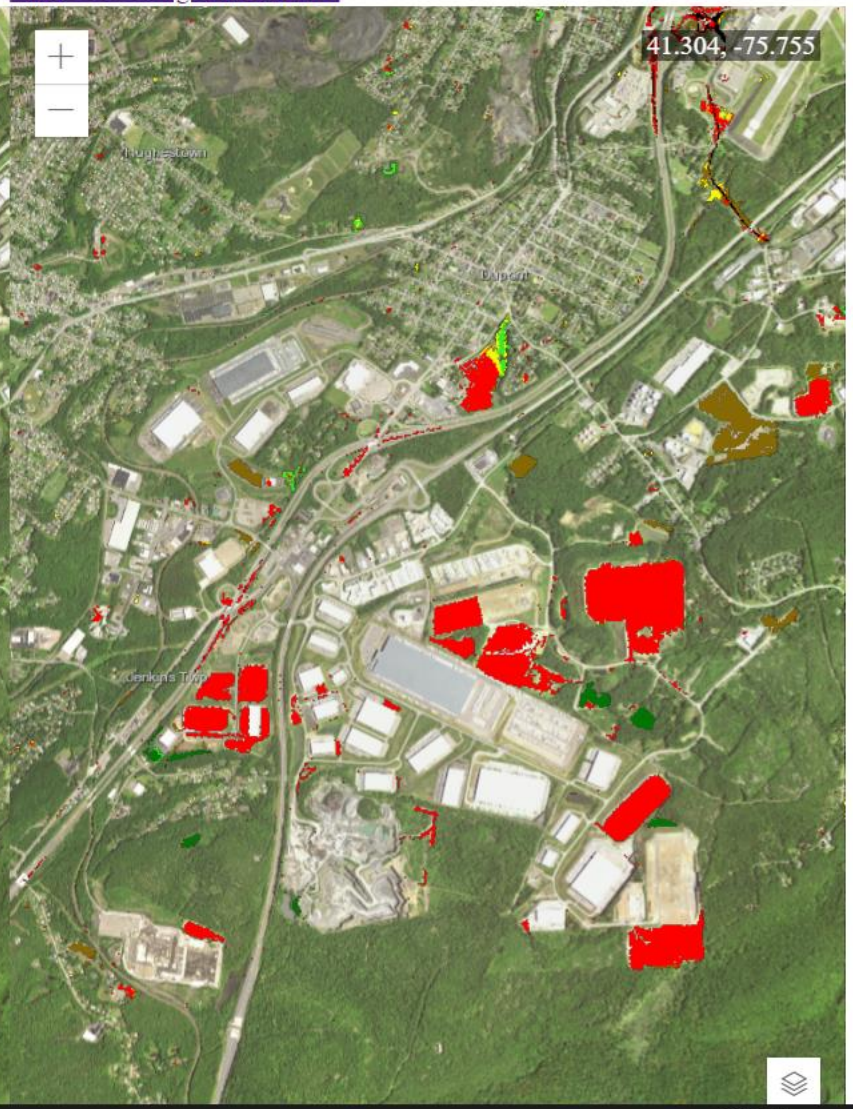
NAIP 2017/2018

Version 1 Land Use Change

NAIP 2017/2018

Land Use Change Pivot Tables





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Land Use Change Summaries by any Geography (County example)

T1-T2 LU	IR	INR	TCI	TG	TCT	FORE	WLF	WLO	WLT	MO	CRP	PAS	WAT	Loss
IR	-	3	33	-	5	9	-	-	-	1	-	-	-	51
INR	140	-	83	106	25	2	0	-	-	123	1	6	1	487
TCI	3	68	-	11	-	-	0	-	-	26	0	2	-	111
TG	32	168	-	-	227	4	1	0	-	176	1	0	-	610
TCT	9	158	0	108	-	5	-	-	-	74	2	3	-	360
FORE	95	854	1	337	427	-	-	-	-	1,875	35	52	3	3,678
WLF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WLO	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WLT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MO	199	1,235	0	1,200	15	508	-	-	-	-	34	17	9	3,217
CRP	1	14	-	1	0	1	-	-	-	13	-	-	1	31
PAS	4	52	-	7	1	27	-	-	-	30	-	-	0	121
WAT	-	-	-	-	0	2	-	-	-	1	4	-	-	6
Gain	483	2,552	117	1,770	701	557	1	0	-	2,319	78	80	14	8,673

T1-T2 LU	IR	INR	TCI	TG	TCT	FORE	WLF	WLO	WLT	MO	CRP	PAS	WAT	Loss
IR	-	-	4	-	0	25	-	-	-	0	-	-	-	29
INR	-	-	7	9	1	22	0	-	-	23	0	5	-	67
TCI	-	1	-	2	-	-	0	-	-	78	0	2	-	84
TG	-	6	-	-	19	0	-	-	-	2	-	0	-	27
TCT	-	13	-	10	-	0	-	-	-	17	0	1	-	41
FORE	-	128	0	30	51	-	-	-	-	24,712	8	219	8	25,156
WLF	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WLO	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WLT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MO	-	56	0	54	6	14,924	-	-	-	-	1	28	14	15,084
CRP	-	1	-	-	-	0	-	-	-	1	-	-	1	2
PAS	-	32	-	2	0	105	-	-	-	33	0	-	-	173
WAT	-	-	-	-	0	10	0	-	-	1	-	-	-	11
Gain	-	237	11	107	78	15,087	0	-	-	24,867	9	255	23	40,674

CBP Full Land Use/Cover Classification (60 classes, final version)

1. Water (9)

- 1.1 Lentic
  - 1.1.1 Estuary (tidal)
  - 1.1.2 Lakes & Ponds
- 1.2 Lotic
  - 1.2.1 Channels
    - 1.2.1.1 Open Channel
    - 1.2.1.2 Tree Canopy over Channel
    - 1.2.1.3 Culverted
  - 1.2.2.Ditches
    - 1.2.2.1 Open Ditch
    - 1.2.2.2 Tree Canopy over Ditch
    - 1.2.2.3 Culverted
- 1.3 Other Water

2. Developed (12)

- 2.1 Impervious
  - 2.1.1 Roads
  - 2.1.2 Structures
  - 2.1.3 Other Impervious (Parking lots, driveways)
  - 2.1.4 Tree Canopy (TC) over Impervious
    - 2.1.4.1 TC over Roads
    - 2.1.4.2 TC over Structures
    - 2.1.4.3 TC over Other Impervious
- 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
  - 2.2.4 Tree Canopy over Turf Grass

3. Forest (7)

- 3.1 Forest (>= 1 acre, 240-ft width)
- 3.2 Other Tree Canopy
- 3.3 Harvested Forest (<= 3 years)
  - 3.3.1 Barren
  - 3.3.2 Herbaceous
- 3.4 Natural Succession (> 3 years)
  - 3.4.1 Barren
  - 3.4.2 Herbaceous
  - 3.4.3 Scrub-shrub

4. Production (16)

- 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 Animal Operations (TBD)
    - 4.1.4.1 Impervious
    - 4.1.4.2 Barren
    - 4.1.4.3 Herbaceous
- 4.2 Solar fields
  - 4.2.1 Impervious
  - 4.2.2 Pervious
    - 4.2.2.1 Barren
    - 4.2.2.2 Herbaceous
    - 4.2.2.3 Scrub-shrub
- 4.3 Extractive (active mines)
  - 4.3.1 Barren
  - 4.3.2 Impervious

5. Wetlands and Water Margins (16)

- 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 Riverine (Non-tidal)
  - 5.2.1. Barren
  - 5.2.2 Herbaceous
  - 5.2.3 Scrub-shrub
  - 5.2.4 Tree Canopy
  - 5.2.5 Forest
- 5.3 Terrene/Isolated (Non-tidal)
  - 5.3.1 Barren
  - 5.3.2 Herbaceous
  - 5.3.3 Scrub-shrub
  - 5.3.4 Tree Canopy
  - 5.3.5 Forest
- 5.4 Bare shore

Phase 6 Land Use/Cover Classes

1. Impervious Roads
- 2.1 Impervious
  - 2.1.1 Roads

2. Impervious Non-Roads
- 2.1 Impervious
  - 2.1.2 Structures
  - 2.1.3 Other Impervious
- 4.2 Solar fields
  - 4.2.1 Impervious

3. Tree Canopy Over Impervious
- 2.1 Impervious
  - 2.1.4 Tree Canopy over Impervious

4. Turf Grass
- 2.2 Pervious, Developed
  - 2.2.1 Turf Grass

5. Tree Canopy over Turf Grass
- 2.2 Pervious. Developed
  - 2.2.4 Tree Canopy over Turf Grass

6. Forest
- 3.1 Forest (>= 1 acre, 240-ft width)
- 3.2 Tree Canopy in Agriculture

7. Wetlands, Floodplain
- 5.2 Riverine, Wetlands

8. Wetlands, Other
- 5.3 Terrene/Isolated, Wetlands

9. Wetlands, Tidal
- 5.1 Tidal, Wetlands

10. Mixed Open
- 2.2 Pervious, Developed
  - 2.2.2 Bare Developed
  - 2.2.3 Suspended Succession
- 3.3 Harvested Forest (<= 3 years)
- 3.4 Natural Succession (> 3 years)
- 4.2 Solar fields
  - 4.2.2 Pervious
- 4.3 Extractive (active mines)
- 5.4 Bare shore, Water Margins

11. Cropland
- 4.1 Agriculture
  - 4.1.1 Cropland
  - 4.1.3 Orchard/vineyard

12. Pasture
- 4.1 Agriculture
  - 4.1.2 Pasture

13. Water
- 1.1 Lentic
  - 1.1.1 Estuary (tidal)
  - 1.1.2 Lakes & Ponds
- 1.2 Lotic
  - 1.2.1 Streams

Problem: Potential for Double Counting of Forest Harvest

1. **Impervious Roads**
   - 2.1 Impervious
     - 2.1.1 Roads

2. **Impervious**
   - 2.1 Impervio
     - 2.1.2
     - 2.1.3
   - 4.2 Solar fie
     - 4.2.1 Impervious

But CAST subtracts reported and estimated harvested forest acres from forest.

3. **Tree Canopy Over Impervious**
   - 2.1 Impervious
     - 2.1.4 Tree Canopy over Impervious

4. **Turf Grass**
   - 2.2 Pervious, Developed
     - 2.2.1 Turf Grass

5. **Tree Canopy over Turf Grass**
   - 2.2 Pervious. Developed
     - 2.2.4 Tree Canopy over Turf Grass

6. **Forest**
   - 3.1 Forest (>= 1 acre, 240-ft width)
   - 3.2 Tree Canopy in Agriculture

7. **Wetlands, Floodplain**
   - 5.2 Riverine, Wetlands

8. **Wetlands, Other**
   - 5.3 Terrene/Isolated, Wetlands

9. **Water**
   - 1.1 Lentic
     - 1.1.1 Estuary (tidal)
     - 1.1.2 Lakes & Ponds
   - 1.2 Lotic
     - 1.2.1 Streams
     - 1.2.2 Ditches

10. **Cropland**
    - 4.1 Agriculture
      - 4.1.1 Cropland
      - 4.1.3 Orchard/vineyard

11. **Pasture**
    - 4.1 Agriculture
      - 4.1.2 Pasture

12. **Mixed Open**
    - 2.2 Pervious, Developed
      - 2.2.2 Bare Developed
      - 2.2.3 Suspended Succession
    - 3.3 Harvested Forest (<= 3 years)
    - 3.4 Natural Succession (> 3 years)
    - 4.2 Solar fields
      - 4.2.2 Pervious
    - 4.3 Extractive (active mines)
    - 5.4 Bare shore, Water Margins

For 2013-2017 land use change, mapped forest clearings logically roll up to mixed open.

Generalized Land Use Changes: 2013 – 2017

CAST-19 (pre-BMP) vs CAST-21 (pre-BMP)

	CAST 2019				
	2013-2017	DEV	NAT	AG	MO
2013 to 2017	Delaware	1,431	(7,534)	14,724	(8,621)
	District of Columbia	64	(64)	-	(0)
	Maryland	18,027	(2,077)	(9,693)	(6,257)
	New York	28,305	132,912	(163,996)	2,779
	Pennsylvania	36,453	49,781	(81,583)	(4,650)
	Virginia	31,407	(65,551)	46,699	(12,555)
	West Virginia	1,099	(17,751)	20,116	(3,464)
	Total	116,785	89,716	(173,733)	(32,769)

CAST 2021				
2013-2017	DEV	NAT	AG	MO
Delaware	11,180	(4,473)	(2,567)	(4,140)
District of Columbia	78	(34)	-	(44)
Maryland	24,974	(11,361)	(8,068)	(5,545)
New York	7,621	(6,154)	(3,103)	1,636
Pennsylvania	34,619	(75,060)	(6,278)	50,720
Virginia	38,974	(242,427)	(1,920)	205,374
West Virginia	4,108	(11,677)	(386)	7,955
Total	121,555	(355,187)	(22,324)	255,956

CAST 2021				
2013-2017	DEV	NAT	AG	MO
Delaware	11,181	(3,348)	(2,567)	(5,265)
District of Columbia	78	(25)	-	(53)
Maryland	24,987	(4,442)	(8,215)	(12,329)
New York	7,623	(3,411)	(3,104)	(1,108)
Pennsylvania	34,651	(40,163)	(6,326)	11,838
Virginia	39,990	(62,172)	(2,282)	25,464
West Virginia	4,108	(5,893)	(387)	2,172
Total	121,616	(119,454)	(22,881)	20,719

APPROVED

DEV = Developed (impervious surfaces and turf grass); NAT = Natural (forest, wetlands, and water), AG = Agriculture (cropland and pasture), MO = Mixed Open (natural and suspended succession, bare developed)

How the land use was adjusted… Isle of Wight County, VA example

T1-T2 LU	IR	INR	TCI	TG	TCT	FORE	WLF	WLO	WLT	MO	CRP	PAS	WAT	Loss
IR	-	-	3	-	0	8	0	0	-	-	-	-	-	11
INR	2	-	8	93	1	10	7	0	0	45	15	3	0	184
TCI	0	2	-	2	-	-	0	-	-	13	1	0	-	18
TG	1	9	-	-	25	1	0	-	-	2	1	-	-	39
TCT	0	11	-	9	-	0	-	-	-	46	1	0	-	67
FORE	5	46	0	79	99	-	-	-	-	6,309	251	54	0	6,842
WLF	-	0	-	0	-	-	-	-	-	-	-	-	-	0
WLO	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WLT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MO	13	48	-	194	8	2,595	-	-	-	-	26	13	6	2,904
CRP	0	11	-	2	1	141	-	-	-	195	-	0	23	373
PAS	-	2	-	1	0	3	-	-	-	3	-	-	-	9
WAT	-	-	-	-	0	2	0	-	0	-	-	-	-	3
Gain	21	129	12	380	134	2,760	7	0	0	6,611	294	71	29	10,450

From 2013-2017, 6309 acres (blue) of forest was cleared to mixed open while 2595 acres (green) of mixed open grew back to forest. Net change = 3714 acres of mapped mixed open might be timber harvest.

Of the 2904 acres (yellow) of mixed open in 2013 that were converted to something else in 2017, 9% (263 acres in pink) were converted to development. Therefore, 9% of the 3714 acres (334 acres) may become developed in the future and should not be considered potential timber harvest acres.

Therefore, move 3380 acres (3714 – 334) from mixed open to forest and continue to subtract reported/estimated timber harvest from mapped forest in CAST-21.


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