



Characterizing Land Cover/Use Conditions in the Chesapeake Bay Watershed

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Local land use and parcel data



- Low-density Residential
- Recreation
- Agriculture
- Roads

High-resolution land cover data



- Impervious surfaces
- Tree canopy
- Low vegetation
- Water



Chesapeake Bay Watershed Land Uses

- Impervious-Roads
 - Forests
 - Turf Grass
 - Open Space

Remote Sensing Data

2013 NAIP

Ortho-imagery

LiDAR



nDSM



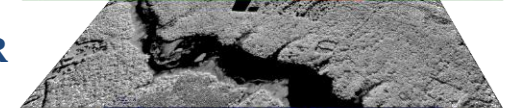
DEM



NDVI



NIR



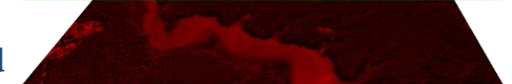
Blue



Green

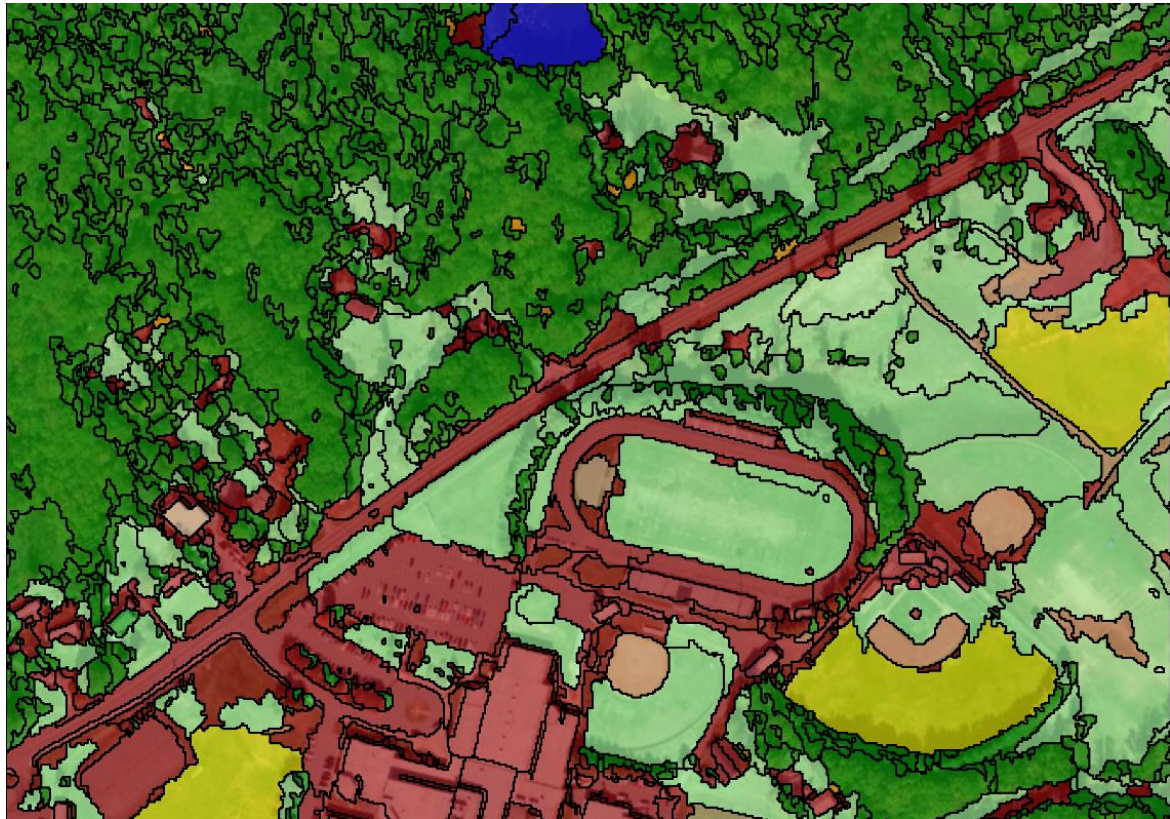


Red



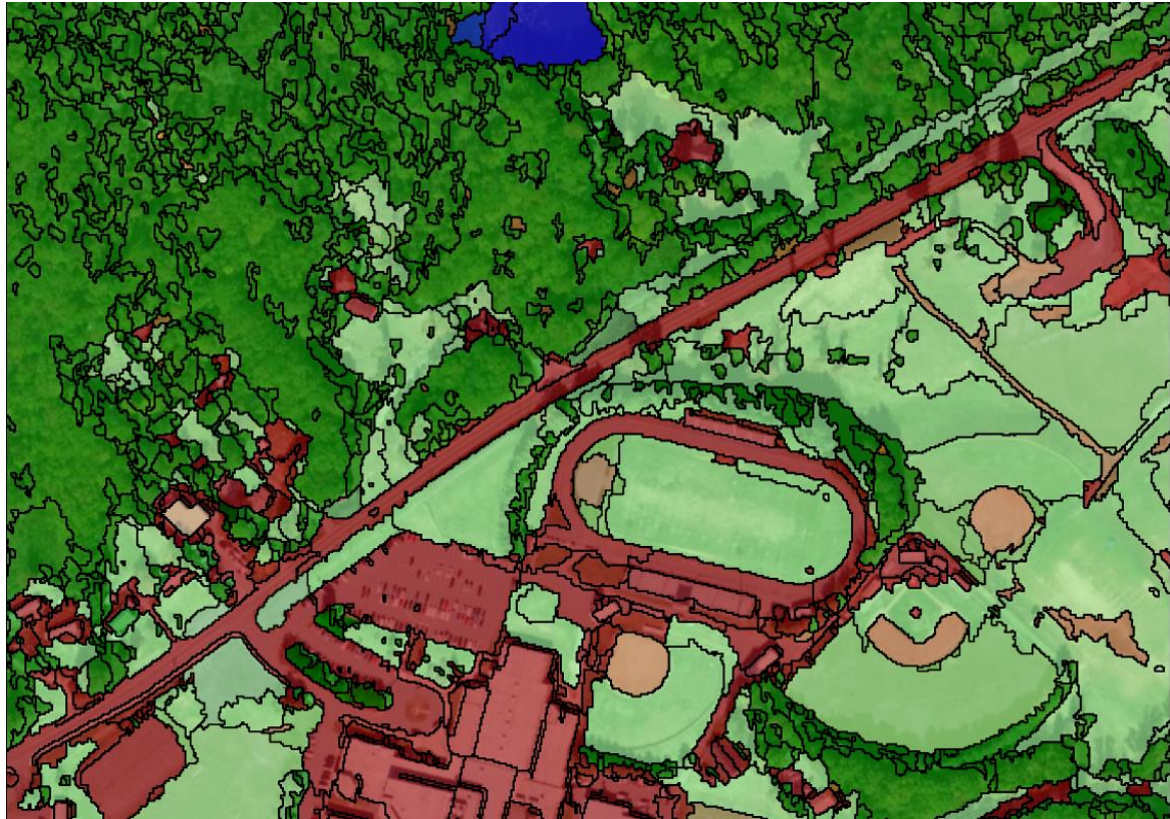
Methods

- Initial semi-automated feature extraction with 900x the resolution of NLCD
 - Rule-based, object oriented image classification

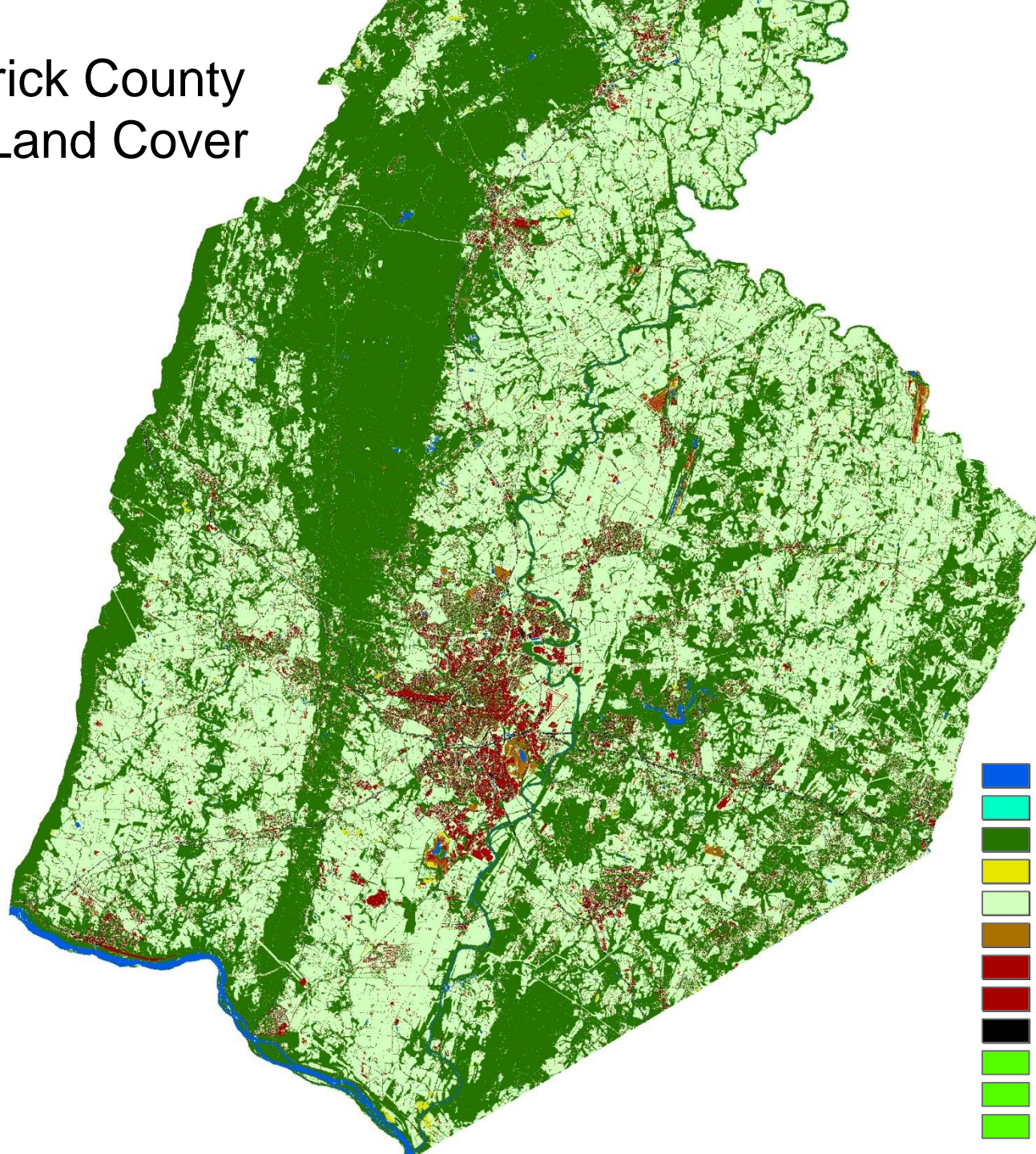


Methods

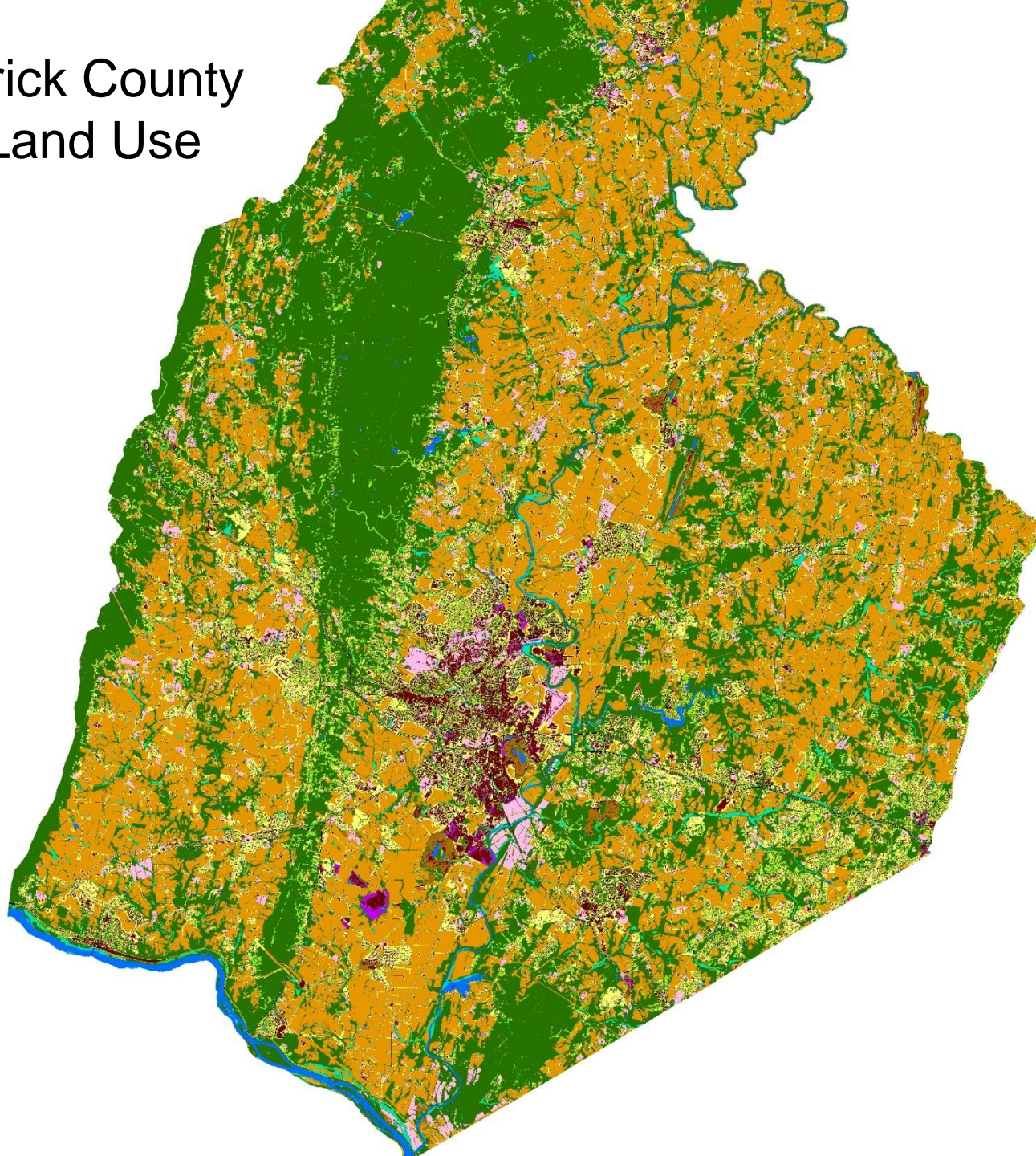
- Initial semi-automated feature extraction with 900x the resolution of NLCD
 - Rule-based, object oriented image classification
- Manual corrections



Frederick County 2013 Land Cover



Frederick County 2013 Land Use

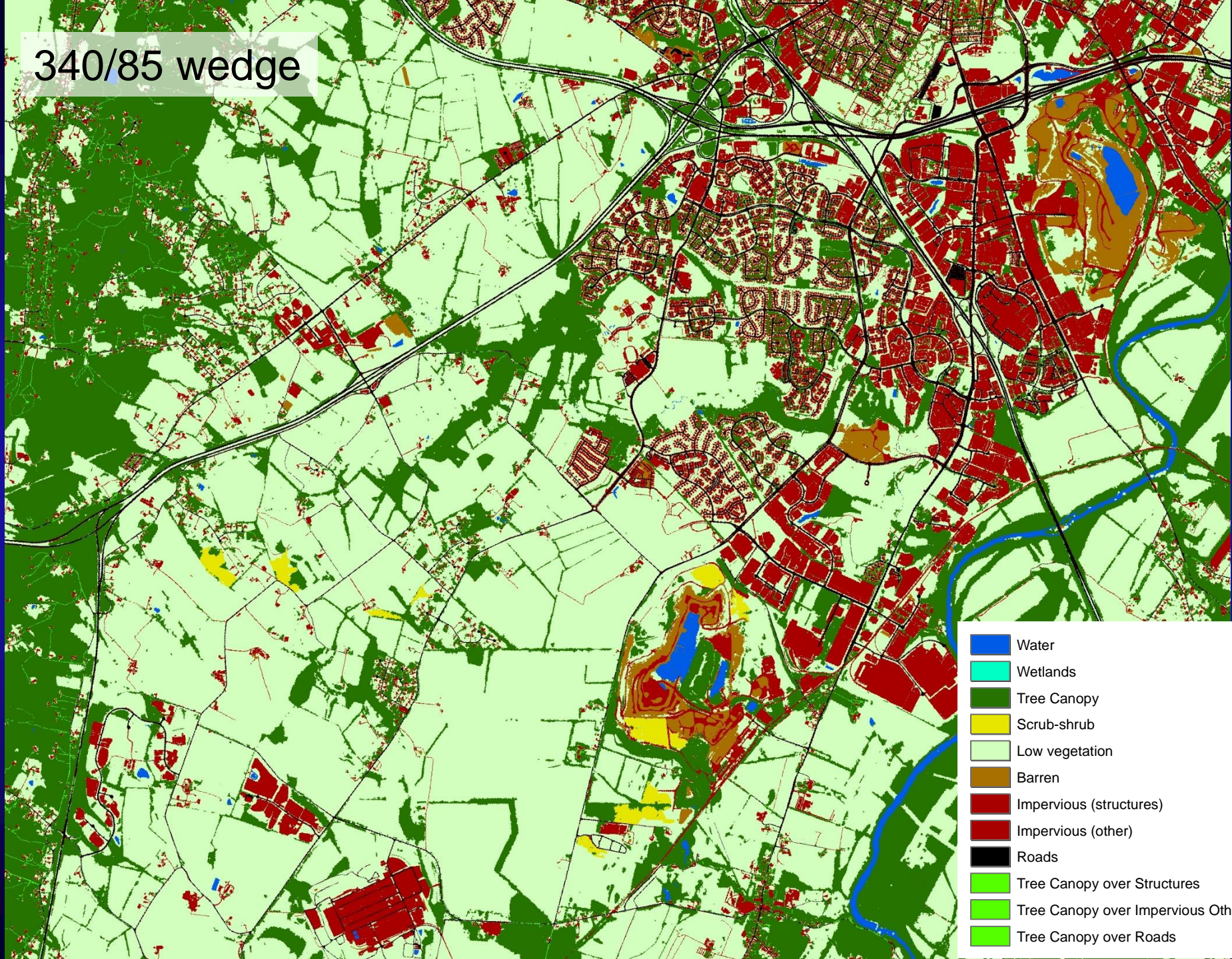


- Impervious, Road
- Impervious, Non-Road
- Tree Canopy over Impervious
- Water
- Tidal Wetlands
- Floodplain Wetlands
- Other Wetlands
- Forest
- Tree Canopy over Turf
- Mixed Open
- Fractional Turf (small)
- Fractional Turf (med)
- Fractional Turf (large)
- Fractional Impervious
- Turf Grass
- Agriculture

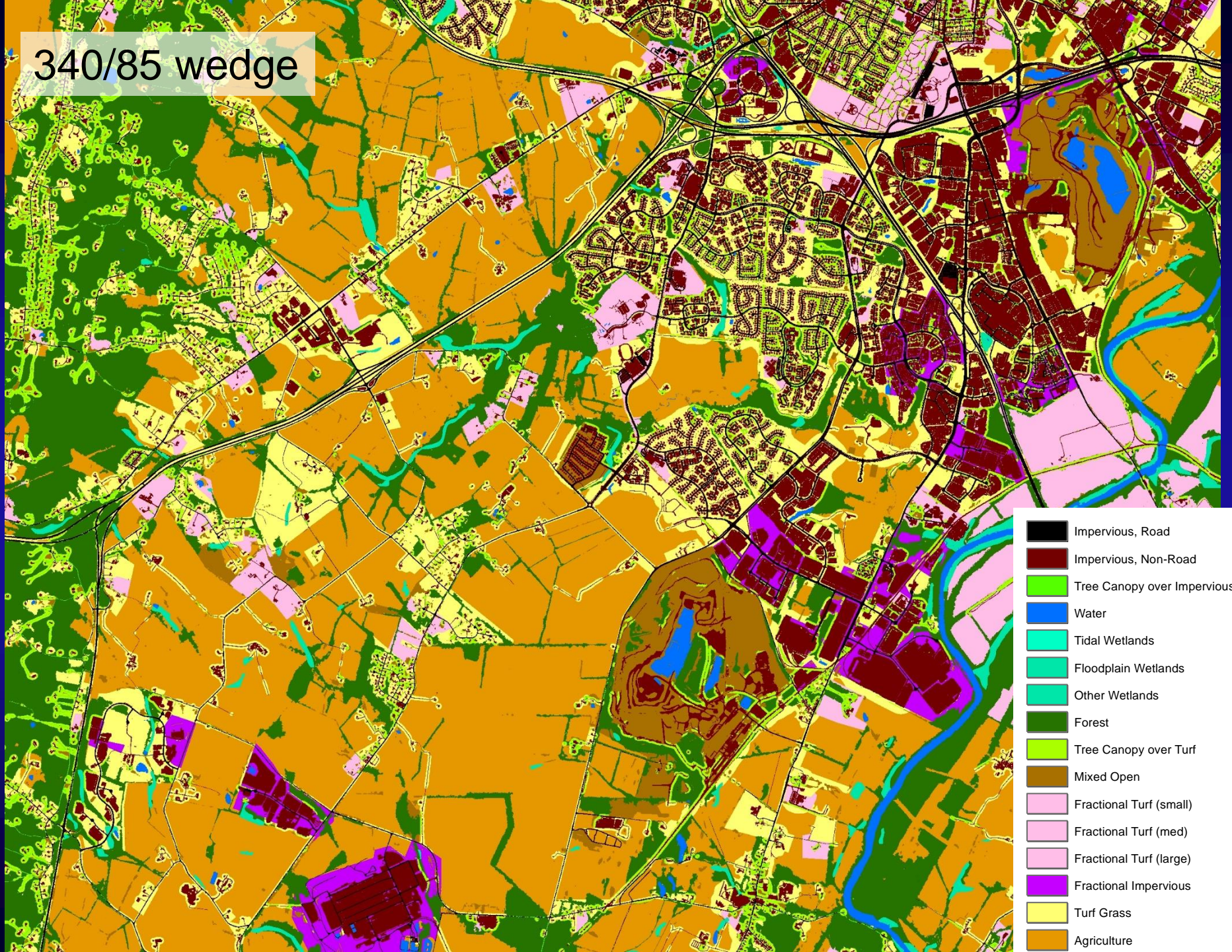
340/85 wedge



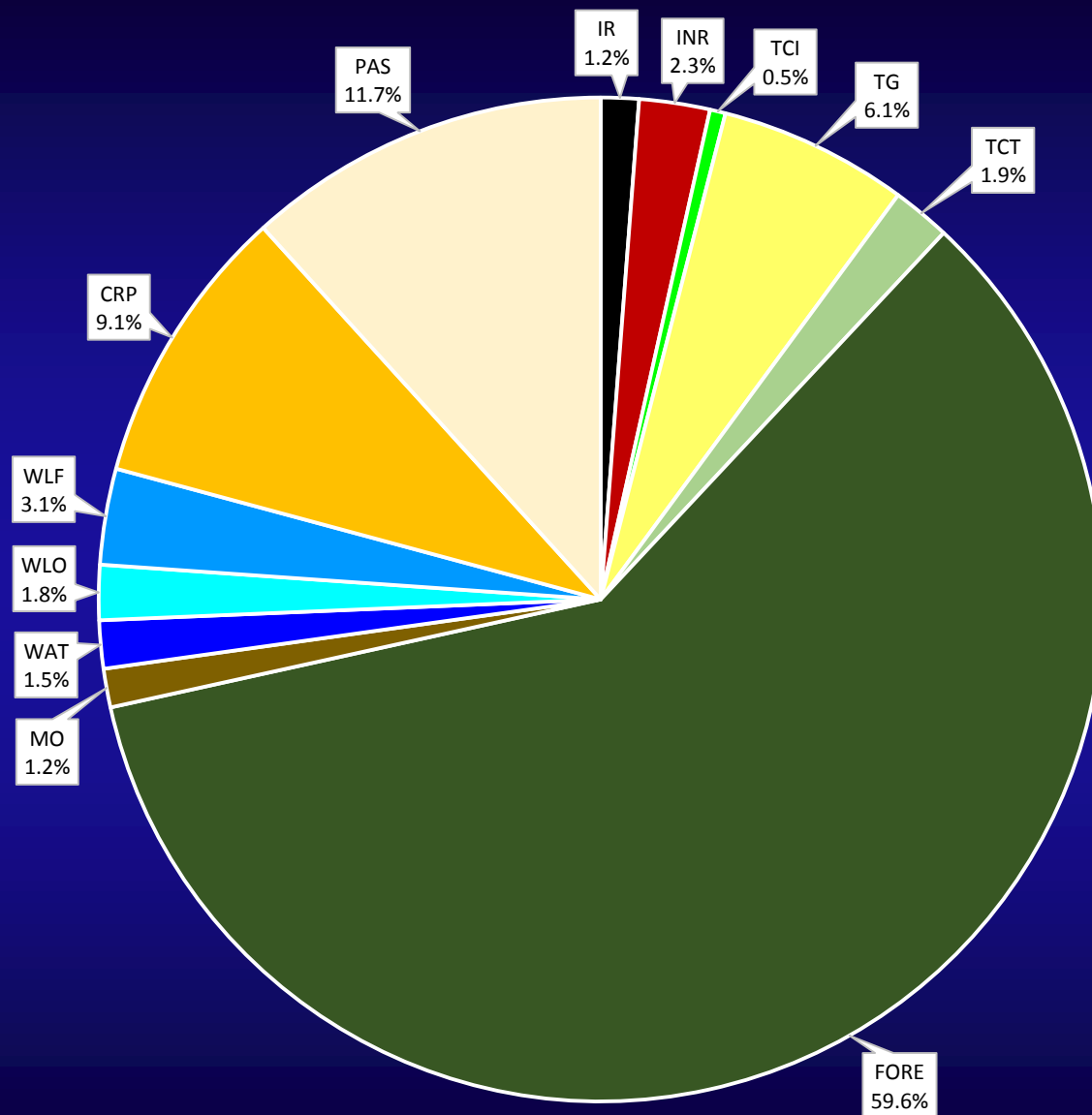
340/85 wedge



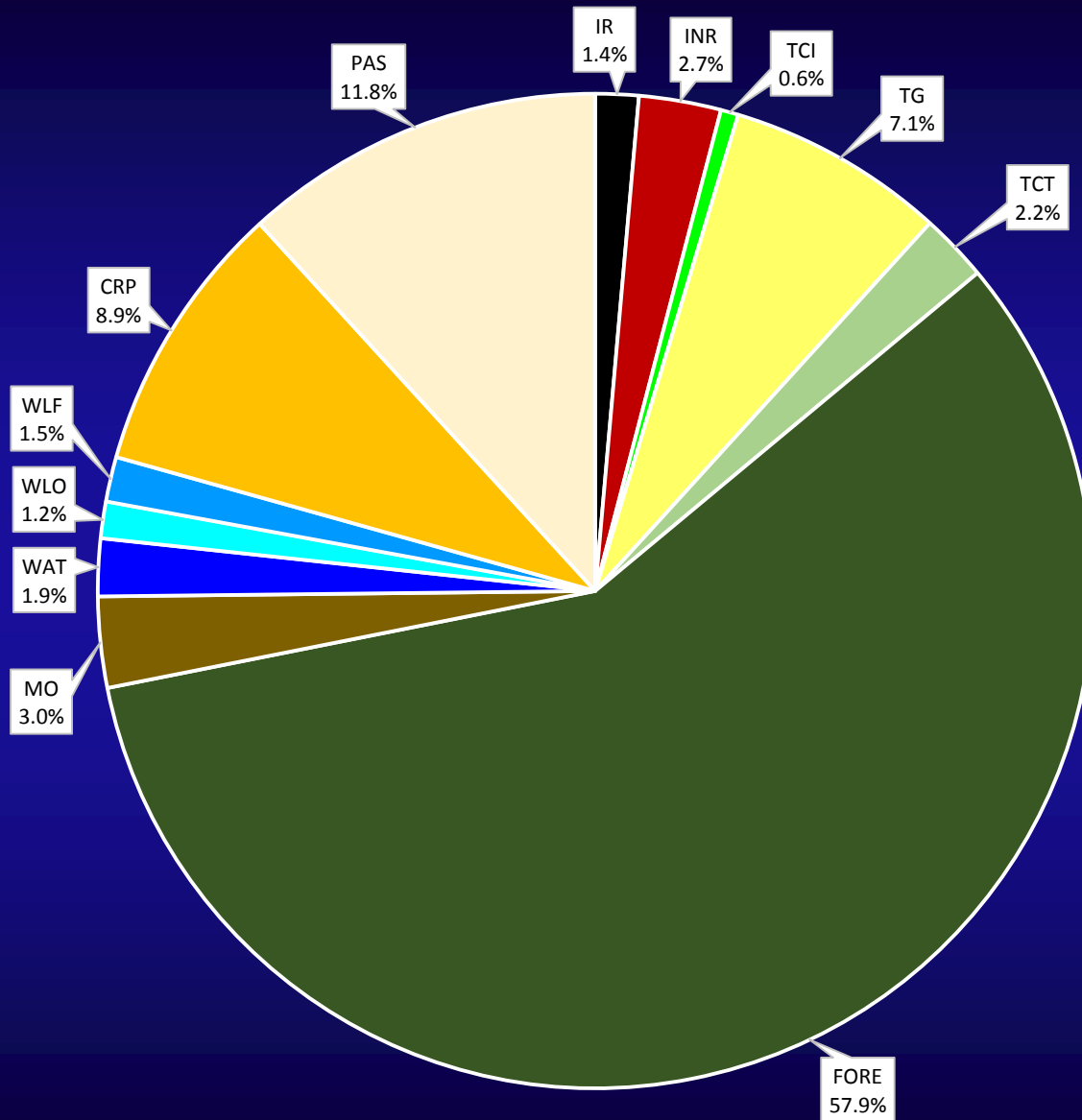
340/85 wedge



1984 Land Use



2013 Land Use



State	ACRES	IR	INR	TCI	TG	TCT	FORE	MO	WAT	WLO	WLF	CRP	PAS
DC	62.06	11.7%	35.3%	5.7%	14.4%	14.8%	11.3%	4.6%	1.9%	0.0%	0.2%	0.1%	0.1%
DE	706.70	1.3%	2.2%	0.4%	9.3%	1.0%	20.5%	4.0%	1.3%	16.1%	4.7%	36.1%	3.0%
MD	8,754.18	1.9%	5.1%	1.0%	12.1%	4.6%	37.9%	4.2%	2.8%	2.9%	2.7%	17.2%	7.5%
NY	6,265.65	1.3%	1.2%	0.5%	4.3%	0.8%	57.2%	1.7%	2.0%	1.3%	1.4%	7.0%	21.2%
PA	22,610.14	1.0%	2.3%	0.5%	6.4%	1.6%	59.7%	3.7%	1.9%	0.7%	0.6%	9.5%	12.2%
VA	21,420.63	1.8%	2.6%	0.5%	6.8%	2.4%	63.4%	2.2%	1.6%	0.7%	2.0%	5.5%	10.5%
WV	3,576.42	0.5%	1.3%	0.4%	5.0%	1.6%	72.4%	2.1%	1.2%	0.1%	0.1%	2.7%	12.7%
Bay Watershed	63,395.77	889.9	1,690.4	363.2	4,502.3	1,400.6	36,718.1	1,872.0	1,184.4	753.9	924.4	5,627.1	7,469.3
Bay Watershed		1.4%	2.7%	0.6%	7.1%	2.2%	57.9%	3.0%	1.9%	1.2%	1.5%	8.9%	11.8%
		DEV	HERB	FORWET	WATER								
		14.0%	23.6%	60.6%	1.9%								

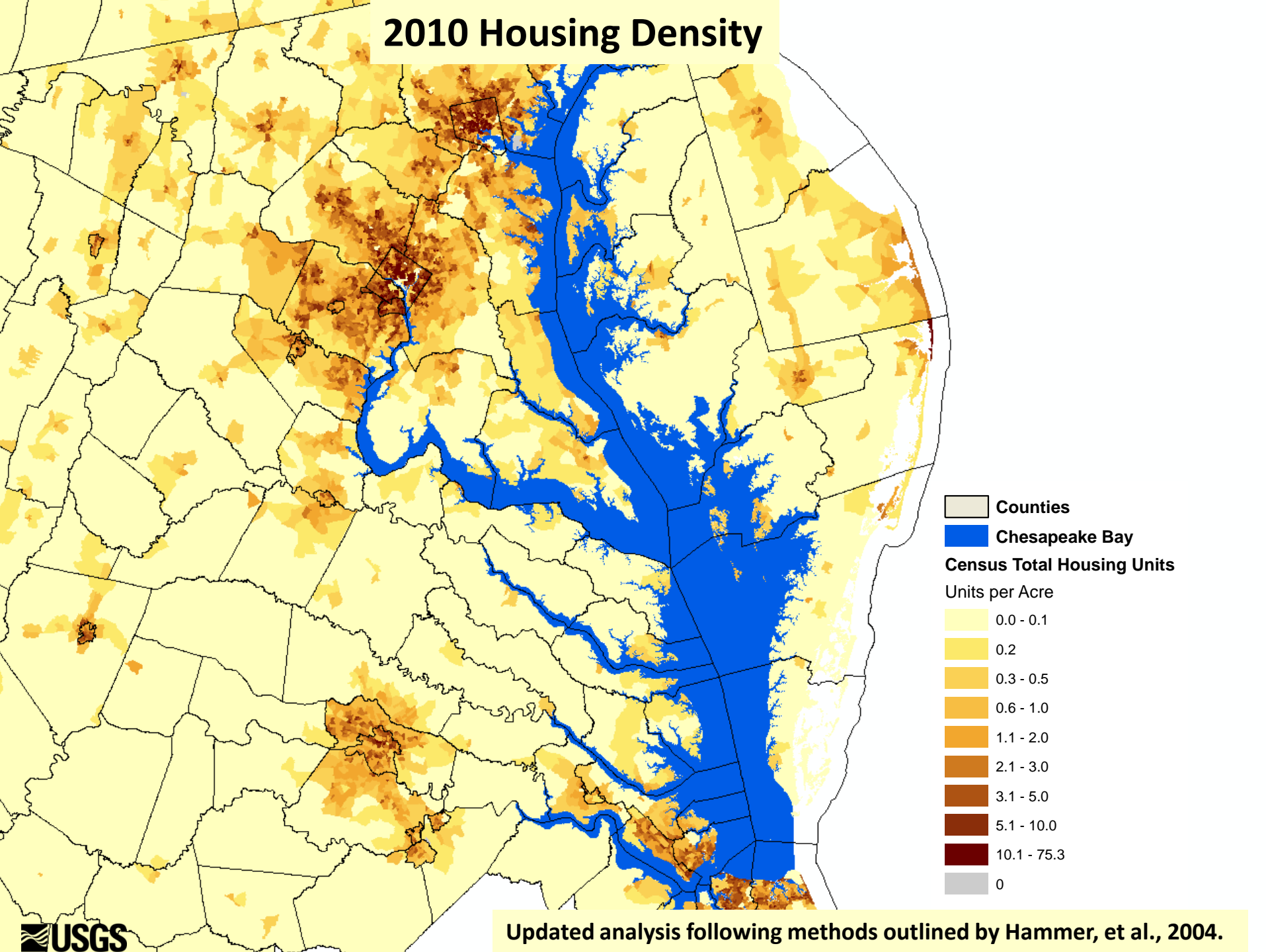
Variation in Developed Lands in Phase 5.x and 6.0 models

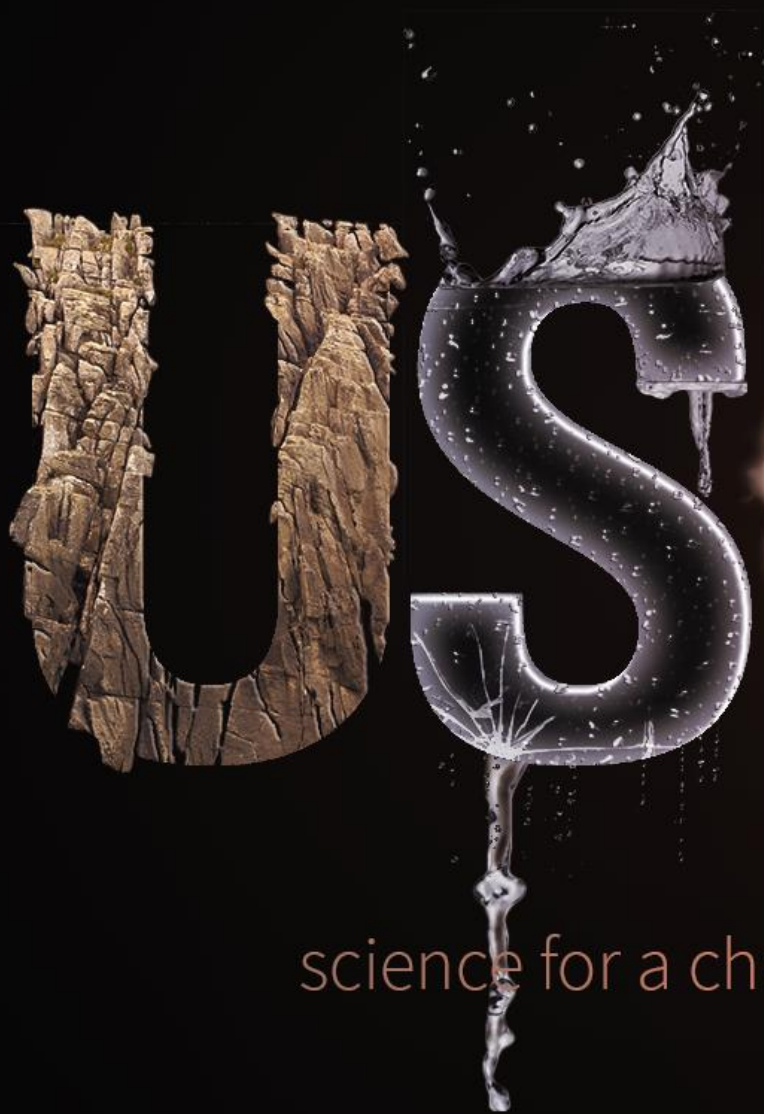
Model Version	Impervious Surface (acres)	Pervious Surface (acres)
Phase 5.3 (2002)	623,868	1,991,690
Phase 5.3.1 (2001) Excl wooded residential	1,569,377	3,442,346
Phase 5.3.2 (2001)	1,207,346	3,143,388
Phase 6.0	1,883,846*	3,777,846**

* 30% roads, 57% buildings and 13% is trees over impervious

** 76% turf grass and 24% trees over turf grass

2010 Housing Density





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