

# Forest vs Tree Canopy over Turf Grass Recommended Mapping Protocol

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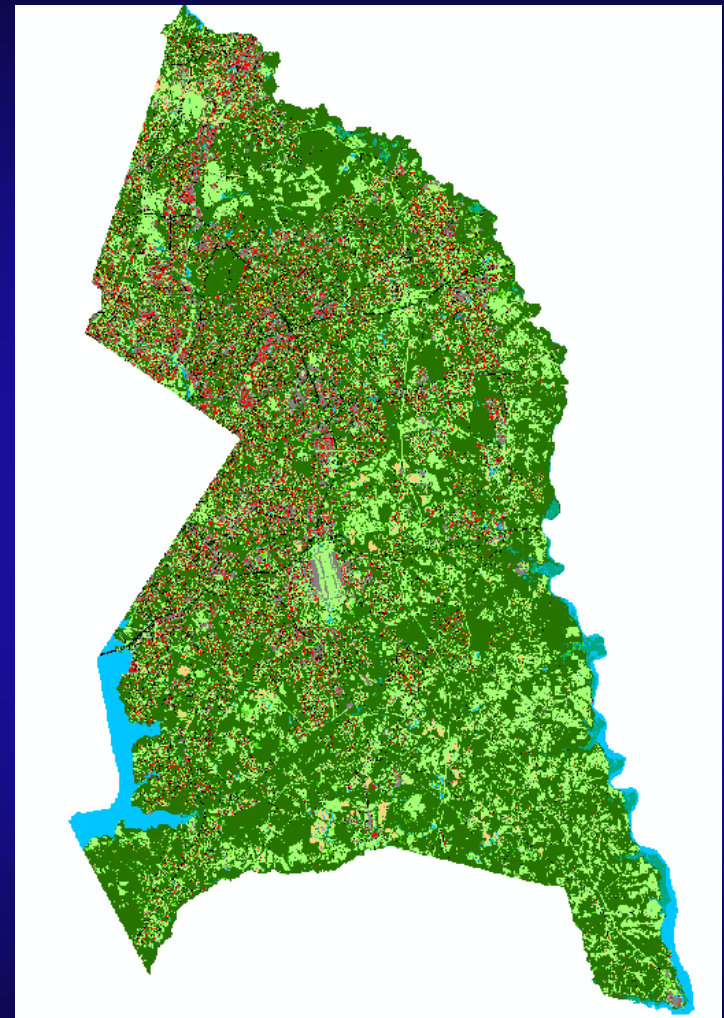
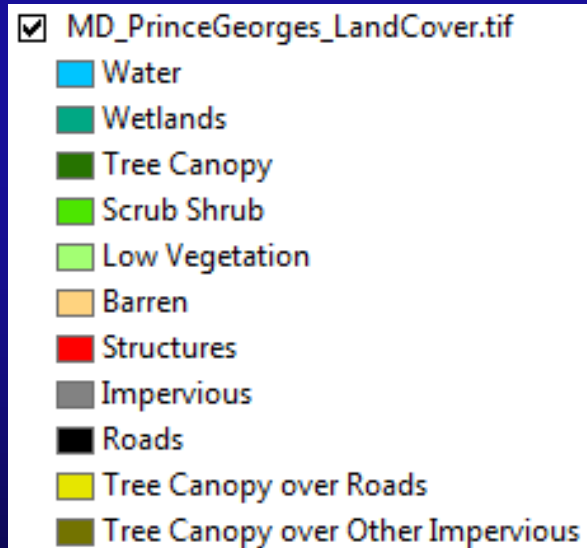
**February 8, 2016**

**Water Quality Goal Implementation Call**

## Proposed Final Mapping Definitions for Forests vs. Tree Canopy over Turf Grass

1. Trees near non-road impervious surfaces = “Tree Canopy over Turf Grass”
2. Patches of trees < 1 acre = “Open Space”
3. All remaining trees = “Forest”

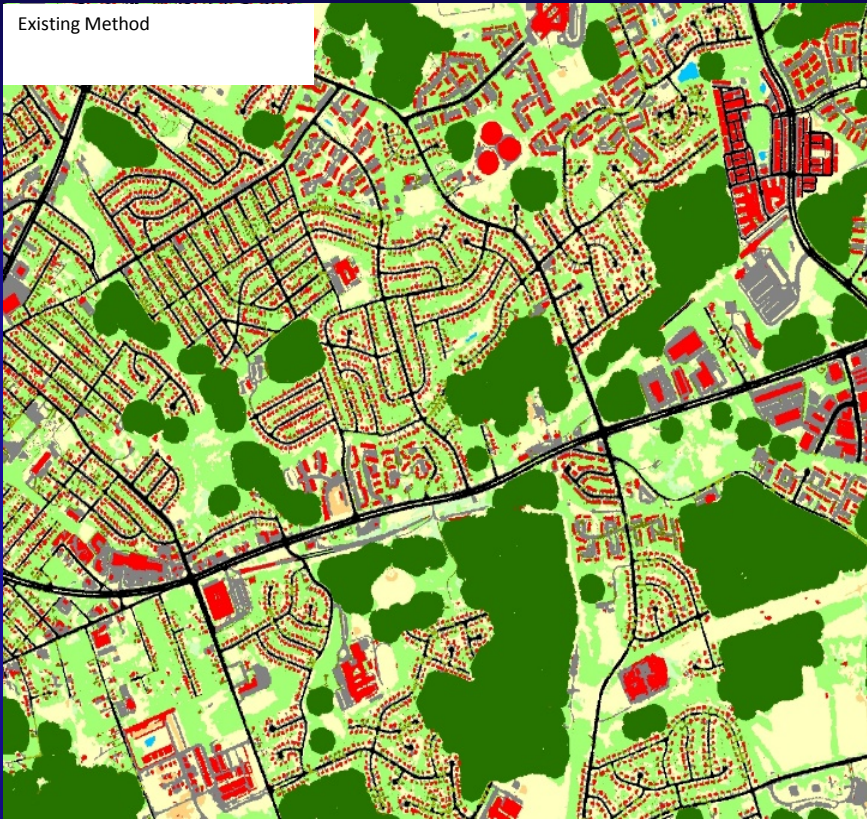
# High Resolution Land Cover 2013





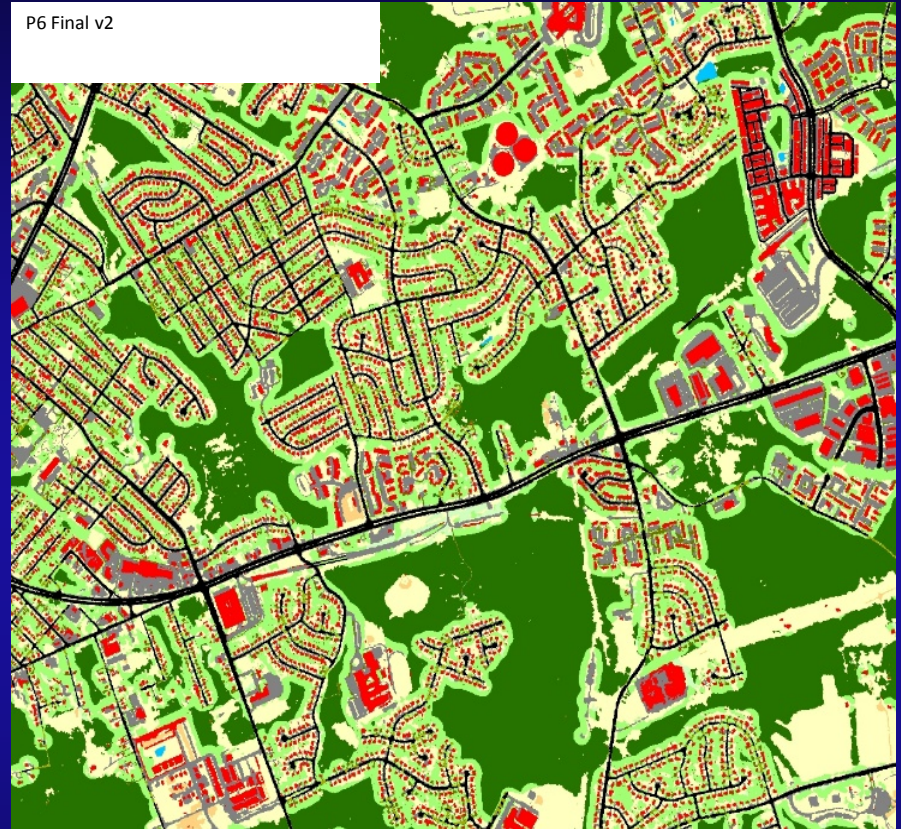
## Old Method

Existing Method



## New Method

P6 Final v2

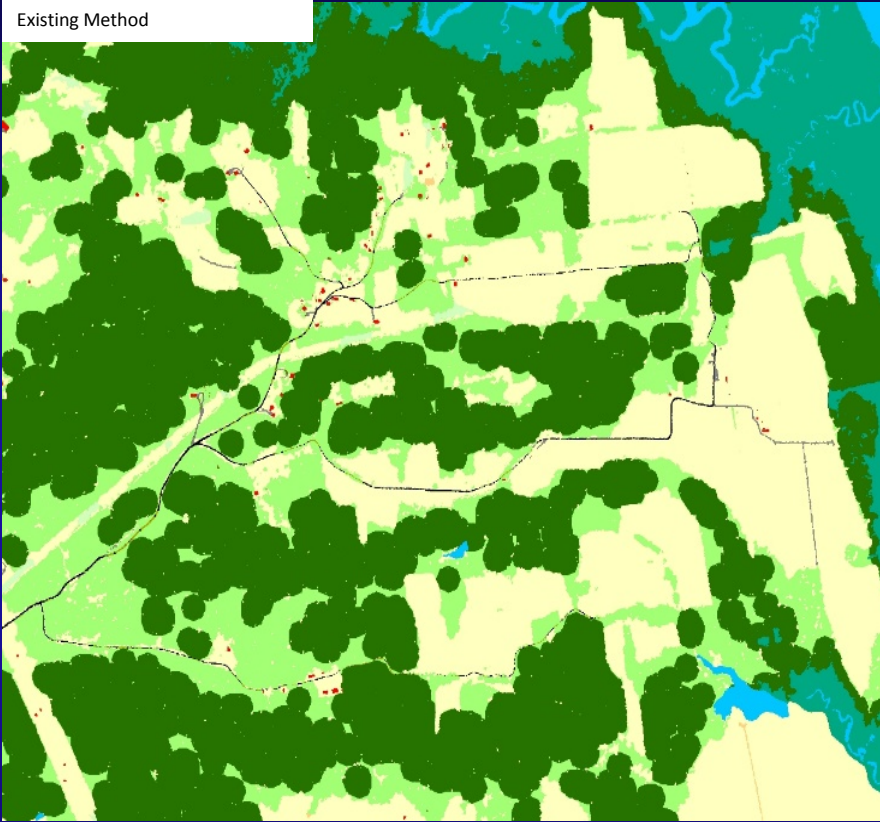


**Figure 1.** Existing (P6 Final v1) vs P6 Final v2 methodology for mapping forests (dark green) and tree canopy over turf grass (light green) in a densely developed area.



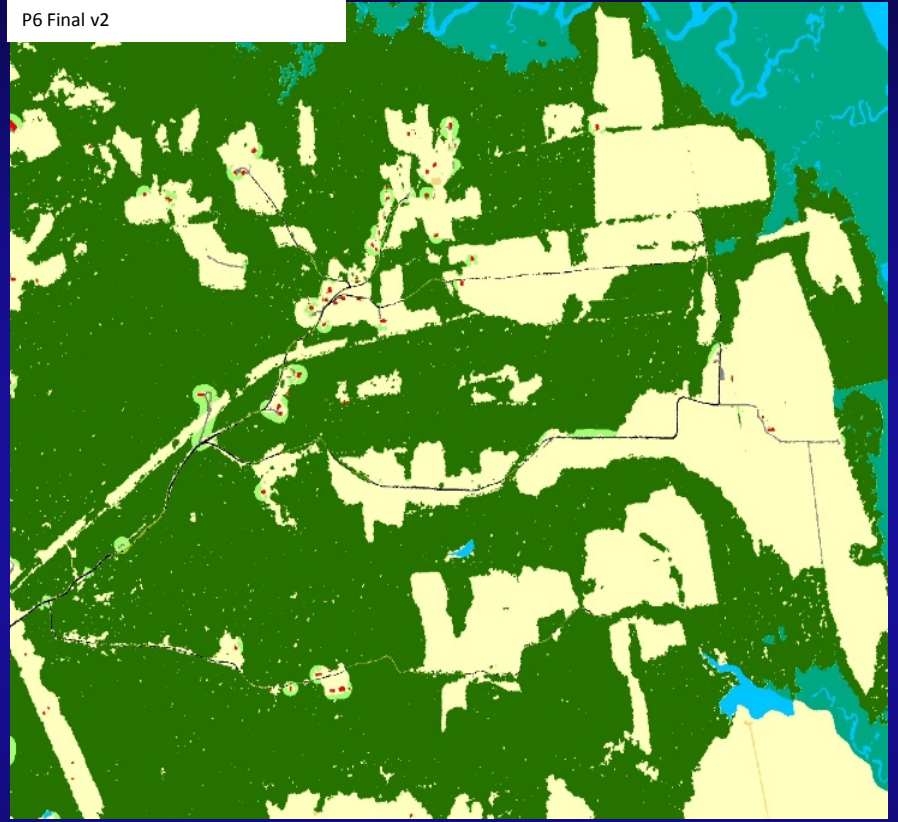
## Old Method

Existing Method



## New Method

P6 Final v2



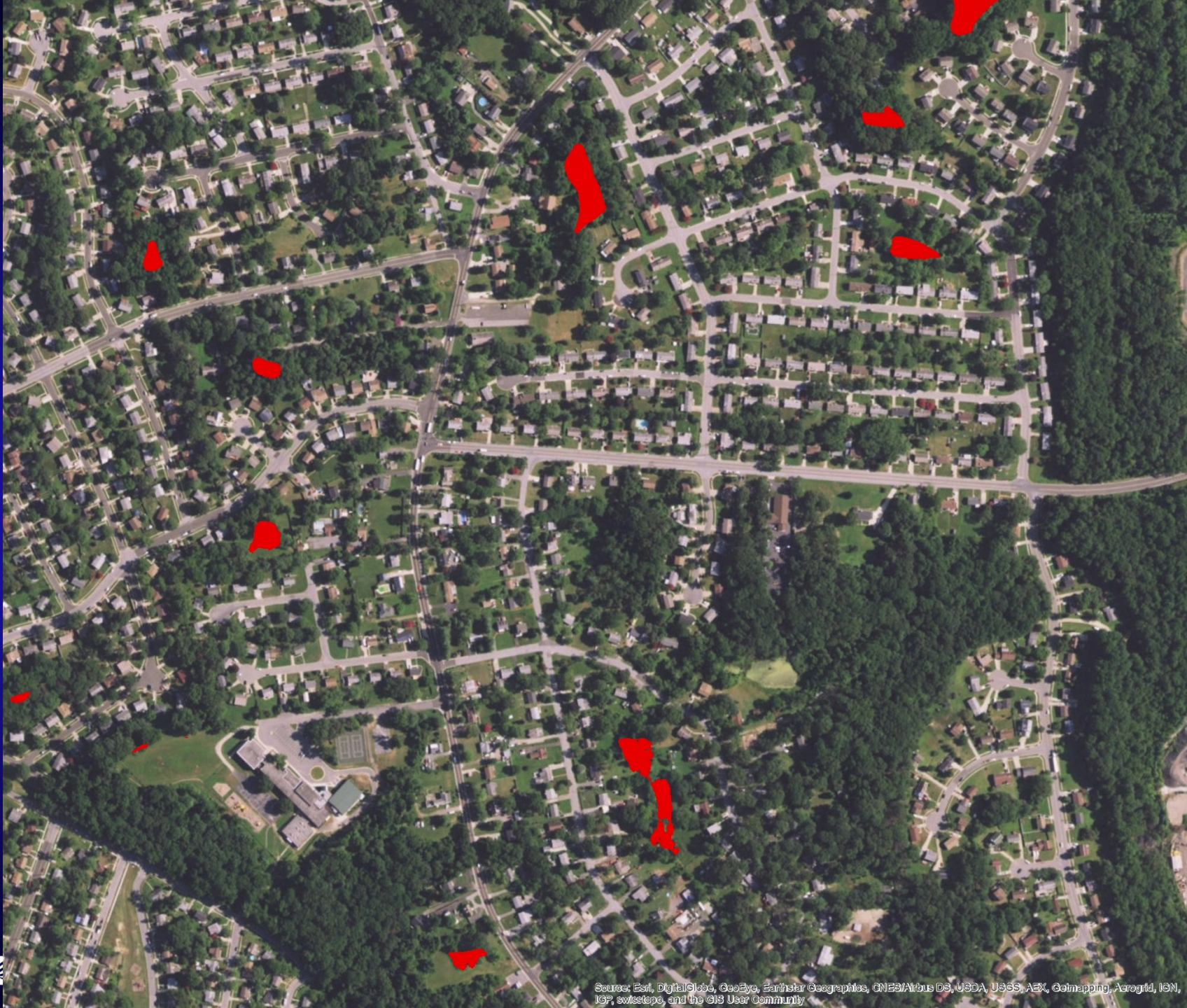
**Figure 2.** Existing vs P6 Final v2 methodology for mapping forests (dark green) and tree canopy over turf grass (light green) in a rural area.

# Comparison of Forest and Tree Canopy over Turf Grass acreage estimates for Prince George's County (2013).

|                              | P5.3.2 <sup>1</sup> | P6a (national) <sup>2</sup> | P6b (MDE) <sup>3</sup> | P6 Final v1 <sup>4</sup> | P6 Final v2 <sup>5</sup> | P6 Final v3 <sup>6</sup> |
|------------------------------|---------------------|-----------------------------|------------------------|--------------------------|--------------------------|--------------------------|
| Year                         | 2010                | 2011                        | 2011                   | 2013                     | 2013                     | 2013                     |
| FOR + WTF + WTO <sup>7</sup> | 130,619             | 125,917                     | 125,119                | 104,040                  | 126,518                  | 132,420                  |
| TC over Pervious             | n/a                 | 27,548                      | 31,658                 | 62,541                   | 40,063                   | 31,759                   |
| TC over Impervious           | n/a                 | 1,698                       | 4,177                  | 6,020                    | 6,020                    | 6,020                    |
| Open Space                   |                     |                             |                        |                          |                          | 2,402                    |
| Total Tree Cover             | 130,619             | 155,164                     | 160,955                | 172,601                  | 172,601                  | 172,601                  |

1. Phase 5.3.2 forest land use includes harvested forest which was estimated to be approximately 1% of the total forest area.
2. This dataset was developed for use in the summer 2015 practice calibration and was based on nationally available datasets (e.g, 2011 National Land Cover Database).
3. MDE and MDP land use as delivered to CBPO on 9/14/15. Forests include 15,900 acres of forest/scrub wetlands.
4. The existing forest protocol includes 1,189 acres of scrub-shrub. Estimate reported excludes wetlands.
5. Interim method proposed during the January 6<sup>th</sup> LUWG call (excluding scrub-shrub wetlands).
6. Tree Canopy-Forest edge zone reduced from 37m to 27m. Following initial "tree canopy over turf" classification, remaining patches of trees < 1 acre classed as "open space". All remaining trees are classed as "forest" (excluding scrub-shrub wetlands).
7. Forest plus woody and scrub-shrub wetlands.





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community







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# Conclusions and Recommendation

1. New methodology leverages contextual information from high-resolution land cover data to more accurately differentiate between forests and tree canopy over turf.
2. New methodology better reflects LUWG, FWG, and USWG conceptions about where the canopy understory is more likely to be unmanaged vs managed/altered.
3. Classifying all remnant patches of trees < 1 acre as open space maintains consistency with FIA protocols for inventorying forests and more accurately reflects the probable loading characteristics of these areas.

**Recommended Action:** WQGIT adopts the new methodology as recommended by the LUWG, FWG, and USWG.