

Objective 1: Year 4 (July 2021 – June 2022) Version 2 Priorities

August 4, 2021: LUWG

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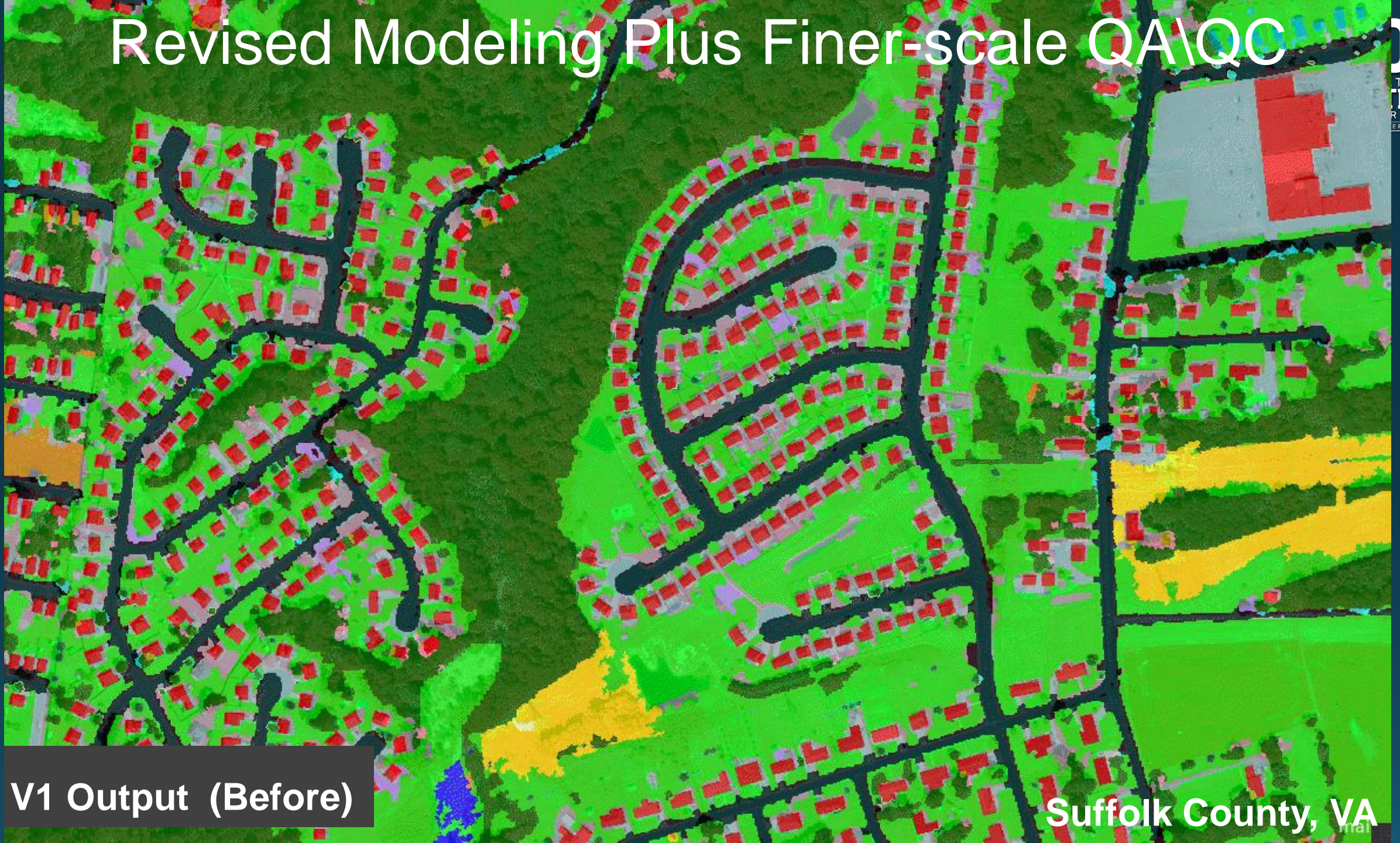
UVM and CIC's Priority List for V2

- Incorporation of stakeholder comments (where valid)
 - 1) Incorporation of Planimetric Datasets
 - 2) Seamline Corrections
 - 3) Water Errors
 - 4) Impervious Errors
- UVM already working on these issues (mostly in VA)
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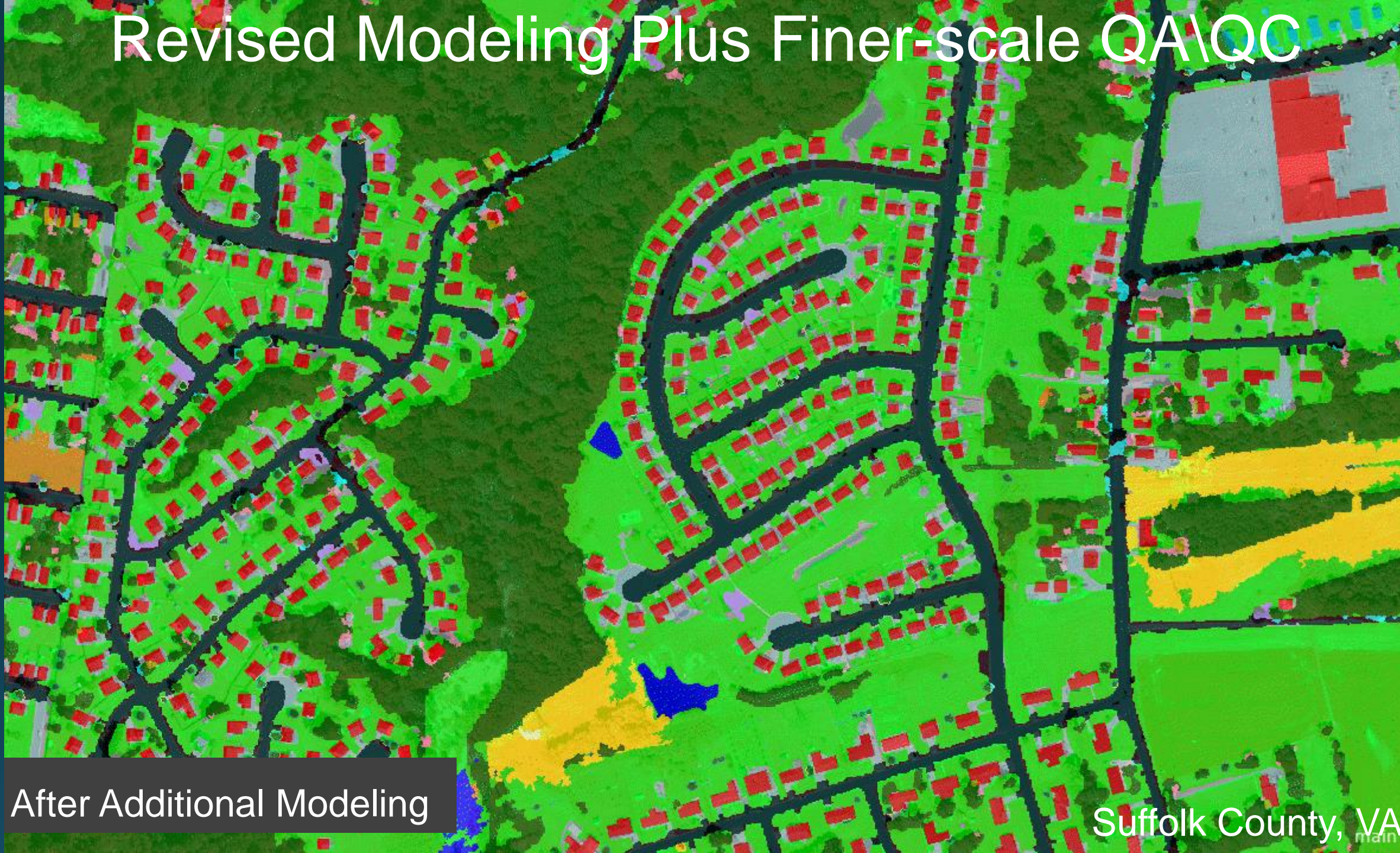
Revised Modeling Plus Finer-scale QA/QC

V1 Output (Before)

Suffolk County, VA



Revised Modeling Plus Finer-scale QA/QC

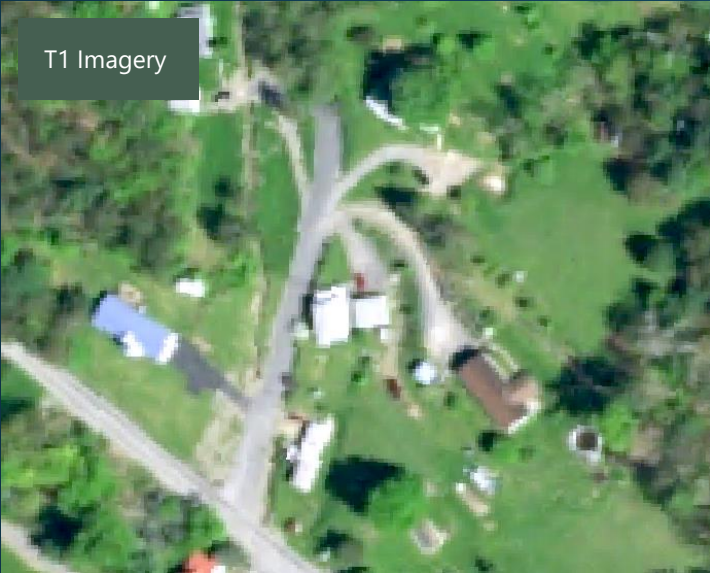


After Additional Modeling

Suffolk County, VA

1) Incorporation of Local Planimetric Data

T1 Imagery



T1 Imagery, Land Cover,
& Planimetrics



T1 Imagery & Land Cover



- Intensity of Task: **Medium**
- Initial classification was created using a ruleset that could be universally applied to the counties in the study area with minimal changes.
 - Planimetrics are not available for all counties and the available planimetrics are of varying quality.
- Suggestion: Incorporate these data where deemed useful in quality and timeframe. Could help correct issues we've pointed out such as impervious misclassification

2) Data Seams Between Counties



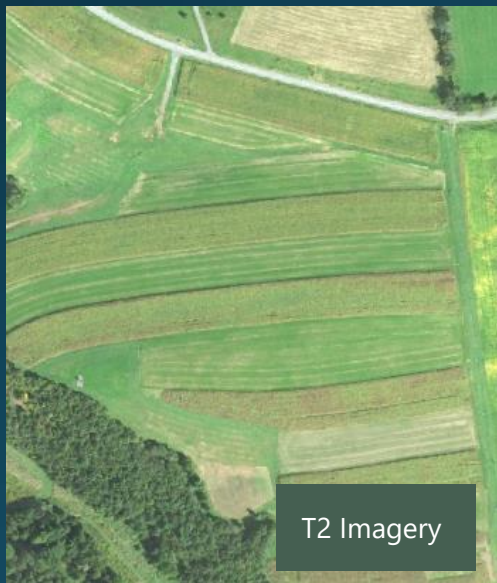
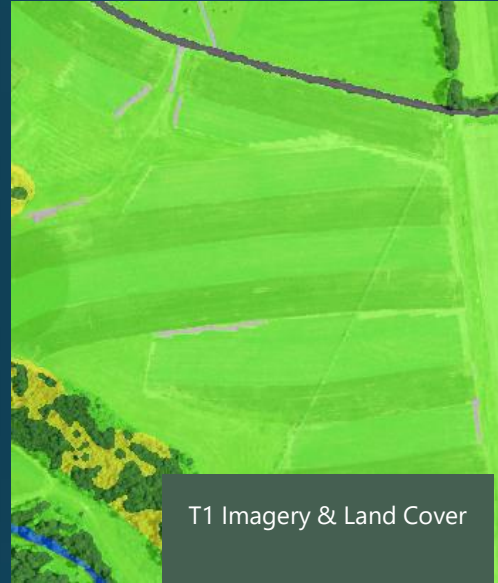
- Intensity of Task: **Low**
- Differences across county boundaries can be the result of changes of input data from county to county, differences in editing and the fact that automated routines are classifying partial features.
- Suggestion: This should be a fairly simple fix for the entire study area and will fix errors that are obvious to notice with the human eye

3) Water Errors



- Intensity of Task: **Medium – High**
- Small ponds can be an issue in this data set for a few reasons:
 - Many of these small pond features are ephemeral and can be very different in different years.
 - Ponds can have vegetation in one or both years, throwing off classification.
 - Spectral and LiDAR return properties of ponds can be very similar to those of pavement.
 - Ponds are often located in areas where one might expect to see grass or impervious (behind houses, next to farm yards) and can be confused in context based automation and editing.
- Suggestion: Capturing these features (particularly “no change” water features) can be improved by revised eCognition modeling and further manual corrections.
 - However, capturing very small features, such as run-off ponds, may remain challenging.

4) Impervious Overclassification - Agricultural Land



- Intensity of Task: **medium**
- Agricultural fields contain many small, bright, features that can be misclassified as impervious. These are small features and often require investigation in the manual corrections process since they do occasionally reflect actual features (such as farm roads).
- Suggestion: These features could be corrected on a coarse level (without examining each, for example) with a moderate effort. However, doing detailed fixes would require a much larger amount of effort

4) Impervious Overclassification - Private Lawns

T1 Imagery



T1 Imagery & Land Cover



T2 Imagery



T2 Imagery & Land Cover



- Intensity of Task: **High**
- Classification and editing of these small areas is tricky and time consuming. False impervious occurs in these areas due to spectral properties, context and LiDAR signatures and quality of original T1 data.
- Suggestion: These areas can be improved through revised classification and additional manual corrections but represent a large amount of work. Based on time and budget triage of the smaller features and more complex features may need to be performed

Future Fixes: V3 (2021/22 data)

- Better shrubland mapping
- Incorporating new lidar collects (i.e. new PA lidar)
- Classes we couldn't incorporate into V2:
 - Obj 2 hydrography data?
 - Animal operations?

New LiDAR Collects

- Intensity of Task: **medium**
- Data-preparation workflow already exists and would not need revision. However, actual processing is intensive and will require at least several weeks of effort.
- Date of new lidar doesn't necessarily work with our 2017/18 time frame – so not a perfect match
 - New PA lidar is from 2018 and 2019 (PA's NAIP for V2 is from 2017)
- Subsequent use will depend on project priorities: Revised tree-canopy mapping? Shrub mapping?

Shrubland mapping

T1 Imagery



T1 Imagery & Land Cover



T2 Imagery



T2 Imagery & Land Cover



- Intensity of Task: **High**
- Mapping of shrubs relies heavily on LiDAR for both years.
 - In the case of Fulton PA the only available LiDAR dataset is from 2007. Therefore, eCognition and editors cannot tell the height of new features. Because of this, cleared tree is classified as a ground-level feature class (grass or bare soil) instead of going to shrub.
- Without two time periods of lidar, would have to manually fix shrubland areas

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Suggestions for Version 2 Priorities:
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Suggestions for Version 3:

- Better shrubland mapping
- Incorporating new lidar collects (i.e. new PA lidar)
- Classes we couldn't incorporate into V2:
 - Obj 2 hydrography data?
 - Animal operations?

Estimated Timeline Year 4

UVM:

V2 Land Cover and Land Cover Change:

- 1) Maryland/DC - August 31, 2021 (1 month)
- 2) Virginia – October 15, 2021 (1.5 months)
- 3) PA and DE – November 30, 2021 (1.5 months)
- 4) NY and WV – December 31, 2021 (1 month)

Other Deliverables:

- Wetlands product – December 31, 2021
- Lidar Derivatives – December 31, 2021

CIC:

V2 Land Use and Land Use Change:

- Finalize LU model architecture and LU change model – November 15, 2021 (3.5 months)
- Run V2 LU and LU Change Model – November 15, 2021 – February 15, 2022 (3 months)
- Publish datasets by end of February 2022!

Other Deliverables:

- Accuracy Assessments – By June 2022 (details to come)
- Lessons Learned – By June 2022