Incorporating Domains for Buffer BMPs in CAST

Watershed Technical Workgroup

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Purpose of this analysis:

Approximate the maximum amount of acres available for implementing riparian buffer BMPs in CAST

➢Riparian Crop acres = domain for grass and forest buffer BMPs

➢Riparian Pasture acres = domain for stream exclusion fencing BMPs

➢Riparian Turf Grass acres = domain for forest and grass buffer on urban land BMPs

Data Used:

- Buffer Zone:
  - Phase 6 high-resolution surface water land use layer
  - Expanded by 30 meters (roughly 100 feet) to capture the riparian buffer zone adjacent to streams and rivers
- Crop, Pasture, and Turf Grass land use layers
  - Derived from the CBP Phase 6 High-Resolution land use dataset
  - 10-meter resolution raster data
  - Overlapping coverage of land uses
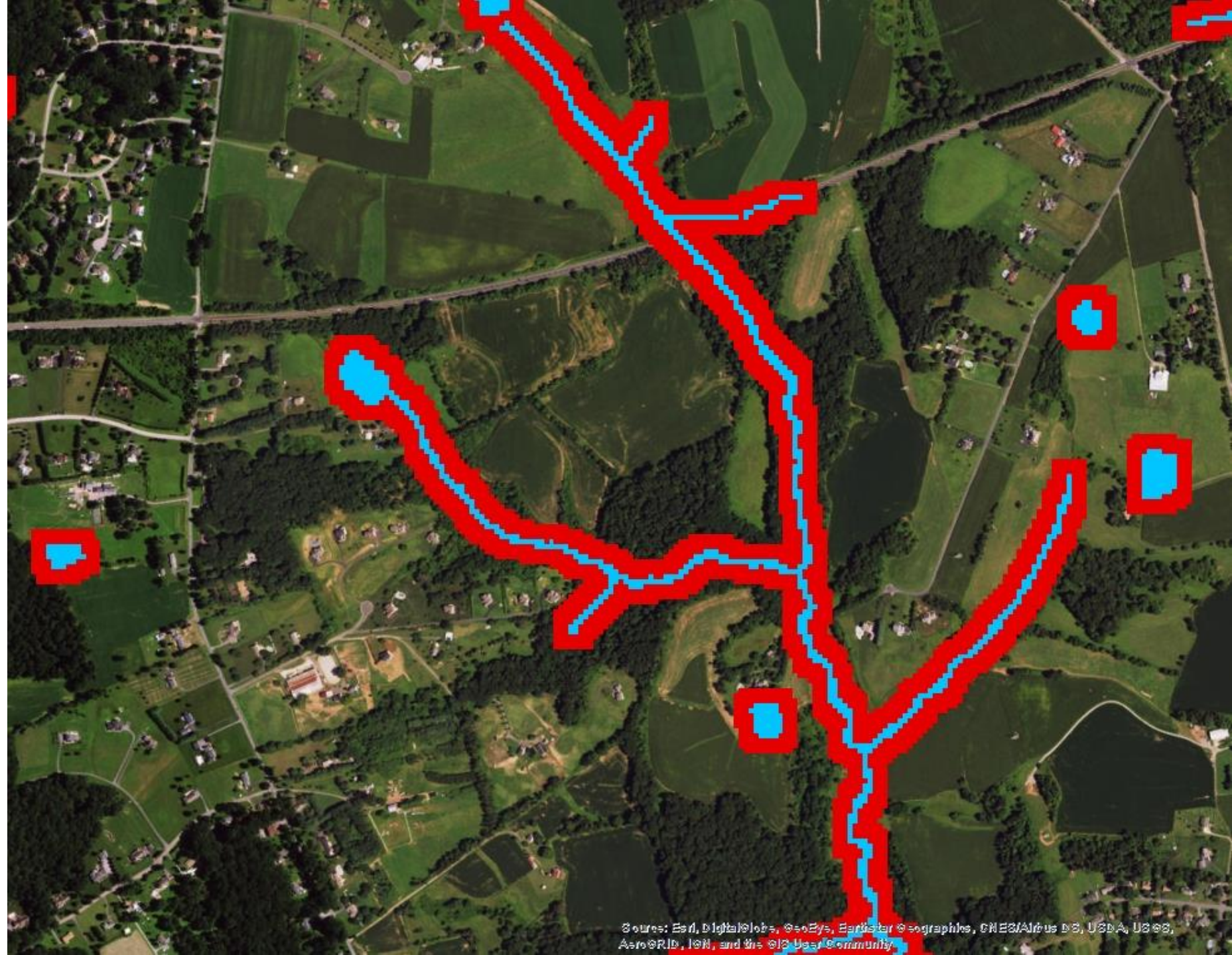 - Data available for viewing online: link
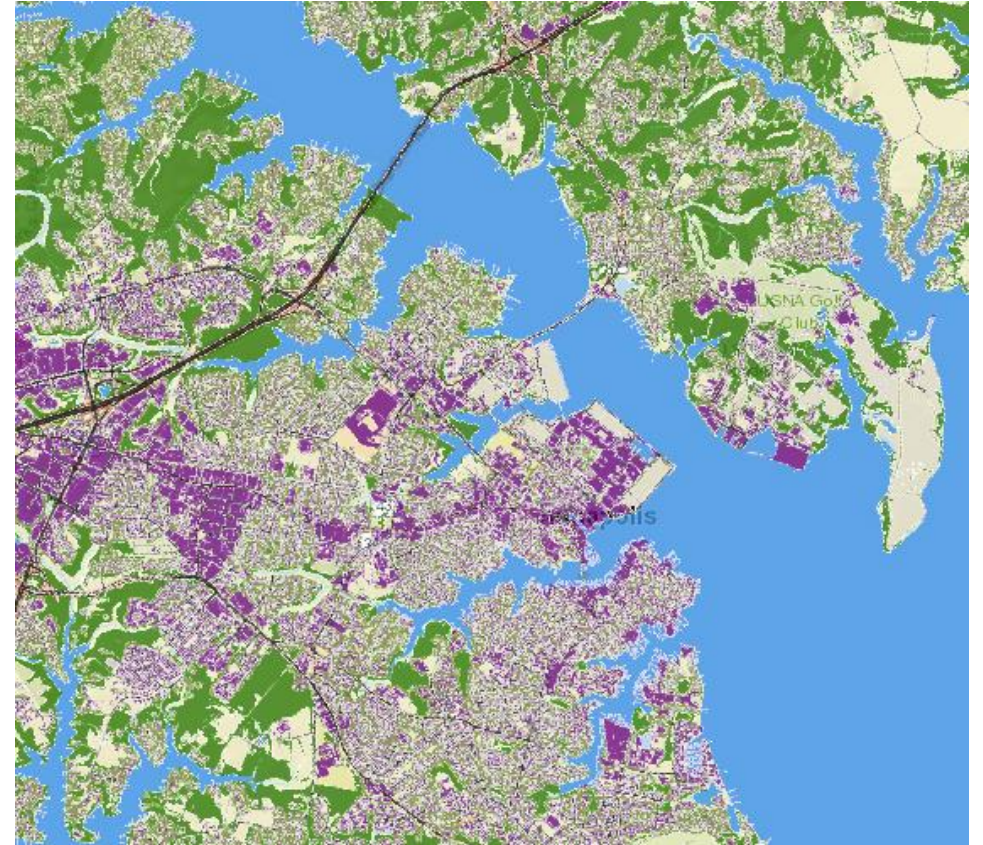
Methods:

- Scripted using Python – methods are fully documented, process is easily replicable, and parameters are easily modified

1. Expanded surface water layer by 3 pixels (30 meters/~100 ft.) to generate buffer zone layer

2. Extracted land use raster layers within the buffer zone

3. Tabulated total acres of each land use within buffer zone

4. Aggregated results by Phase 6 LRSEG

Light Blue =
Surface Water
Land Use
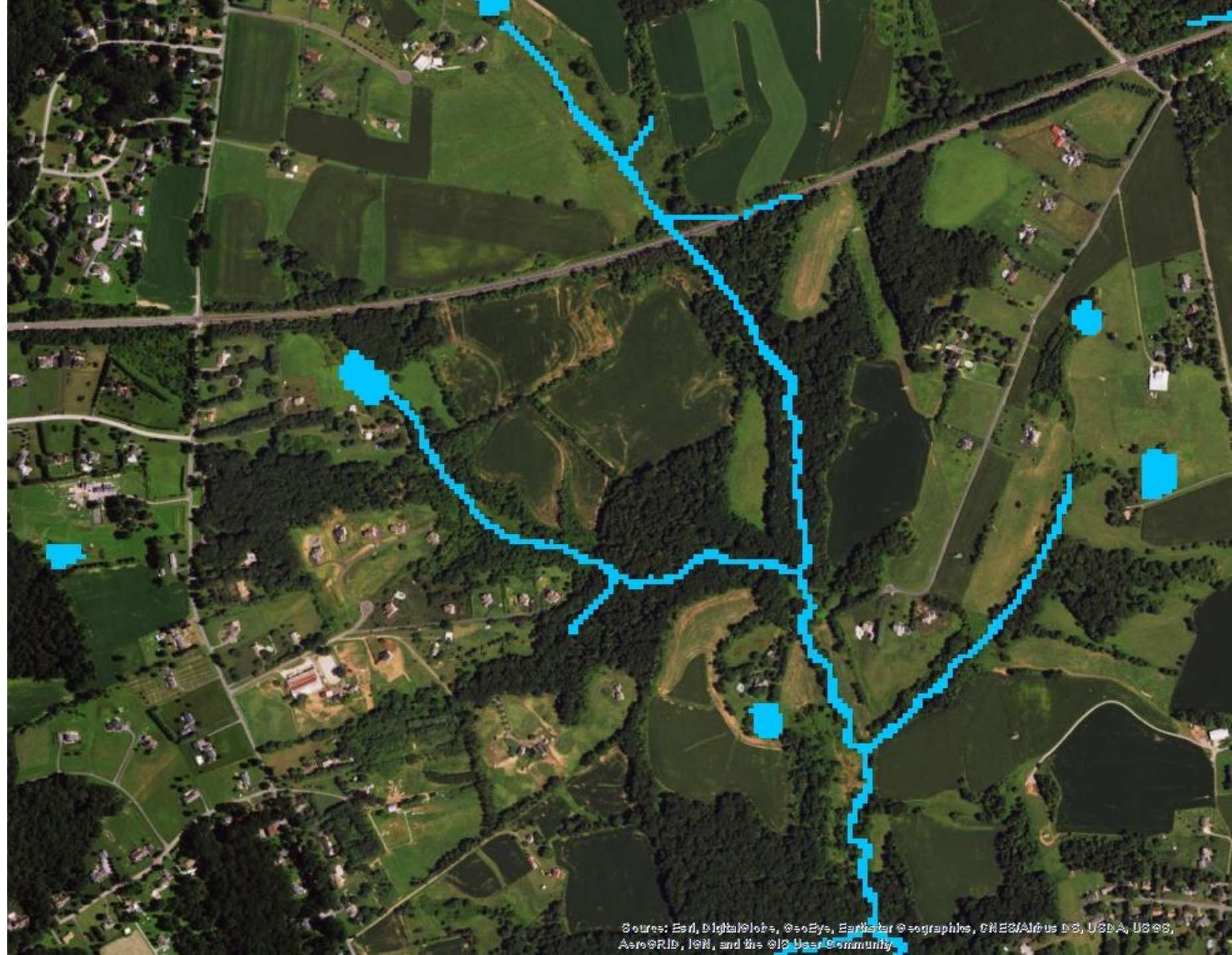
Light Blue =
Surface Water
Land Use

Red = Surface
Water Land Use
buffered by 30
meters (3 pixels)

Methods:

- Scripted using Python – methods are fully documented, process is easily replicable, and parameters are easily modified

1. Expanded surface water layer by 3 pixels (30 meters/~100 ft.) to generate buffer zone layer
2. **Extracted land use raster layers within the buffer zone**
3. Tabulated total acres of each land use within buffer zone
4. Aggregated results by Phase 6 LRSEG

Orange = Crop & Pasture land uses in buffer zone

Green = Forest land use in buffer zone

Brown = Mixed Open land use in buffer zone

Methods:

- Scripted using Python – methods are fully documented, process is easily replicable, and parameters are easily modified

1. Expanded surface water layer by 3 pixels (30 meters/~100 ft.) to generate buffer zone layer

2. Extracted land use raster layers within the buffer zone

3. Tabulated total acres of each land use within buffer zone

4. Aggregated results by Phase 6 LRSEG

Use Limitations:

- The buffer width is 'fuzzy':
    - Buffering the outer most water cells by 10m creates a buffer zone that includes one cell with 100% land adjacent to another cell with 50% land and 50% water (see below). In this case, the land buffer created by expanding all water cells by 10m is really 15m wide.
    - As a result, estimates for the buffer domain are more liberal

A — Input Data

B — Applied 10-meter Buffer Width

C — Area Included in Final Land Use Estimates
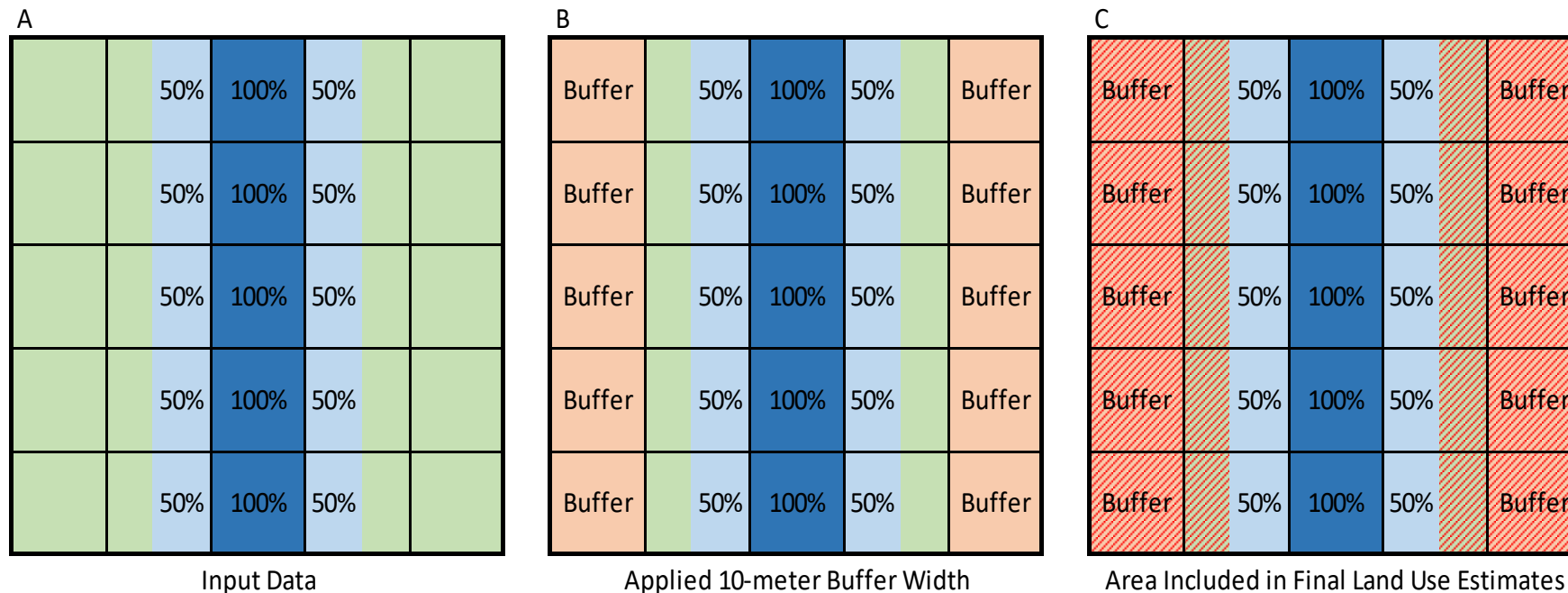
Use Limitations (cont'd):

- Cannot explicitly account for grass buffer implementation from aerial imagery

Decision Requested

Approval to incorporate domains for buffer BMPs into CAST

Purpose: Approximate the maximum amount of acres available for implementing riparian buffer BMPs in CAST

➢Riparian Crop acres = domain for upland grass and forest buffer BMPs

➢Riparian Pasture acres = domain for stream exclusion buffer BMPs

➢Riparian Turf Grass acres = domain for forest and grass buffer on urban land BMPs