Chesapeake Bay Program Objectives

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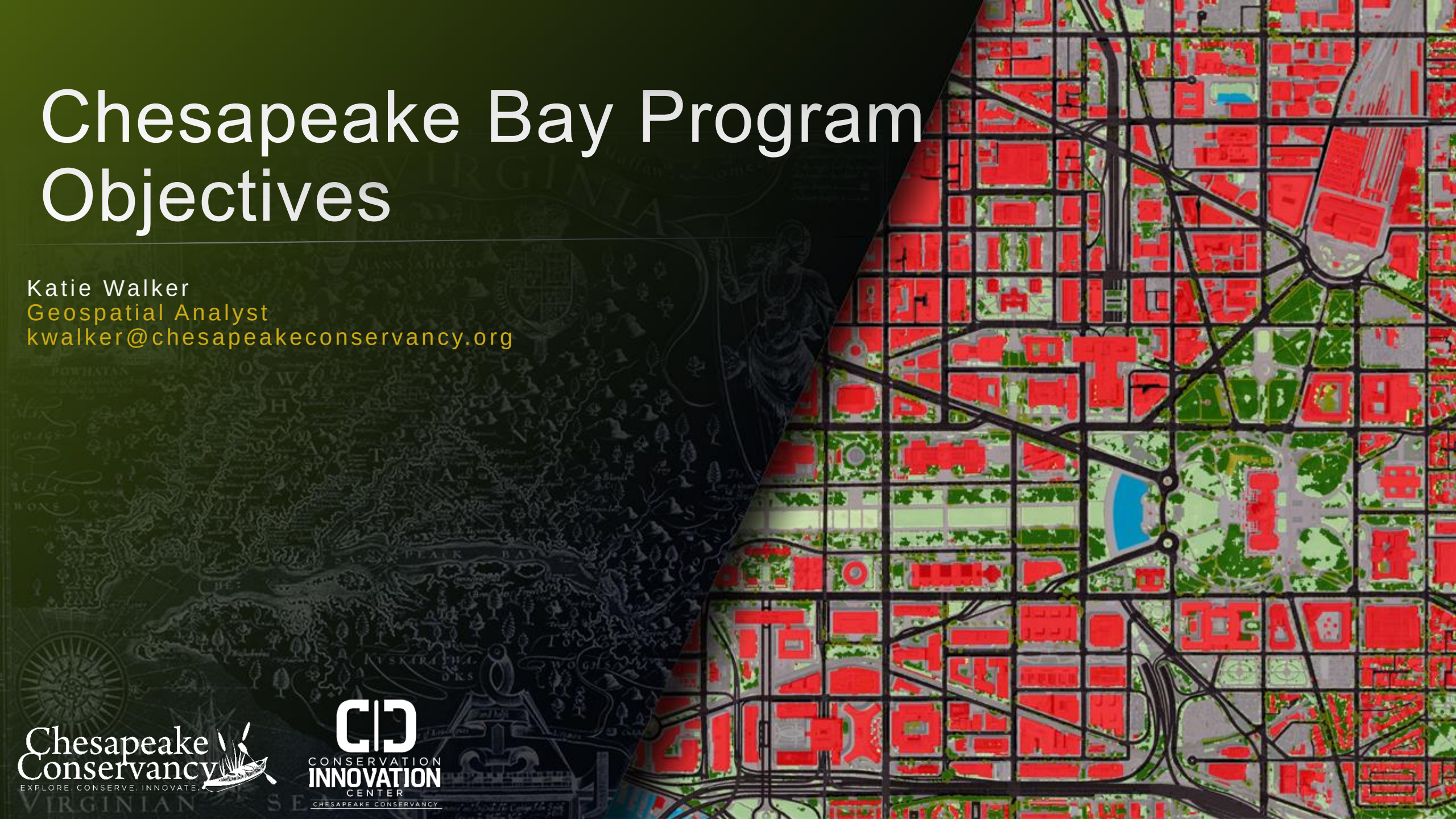


Chesapeake Conservancy
EXPLORE. CONSERVE. INNOVATE.

CONSERVATION INNOVATION CENTER
CHESAPEAKE CONSERVANCY

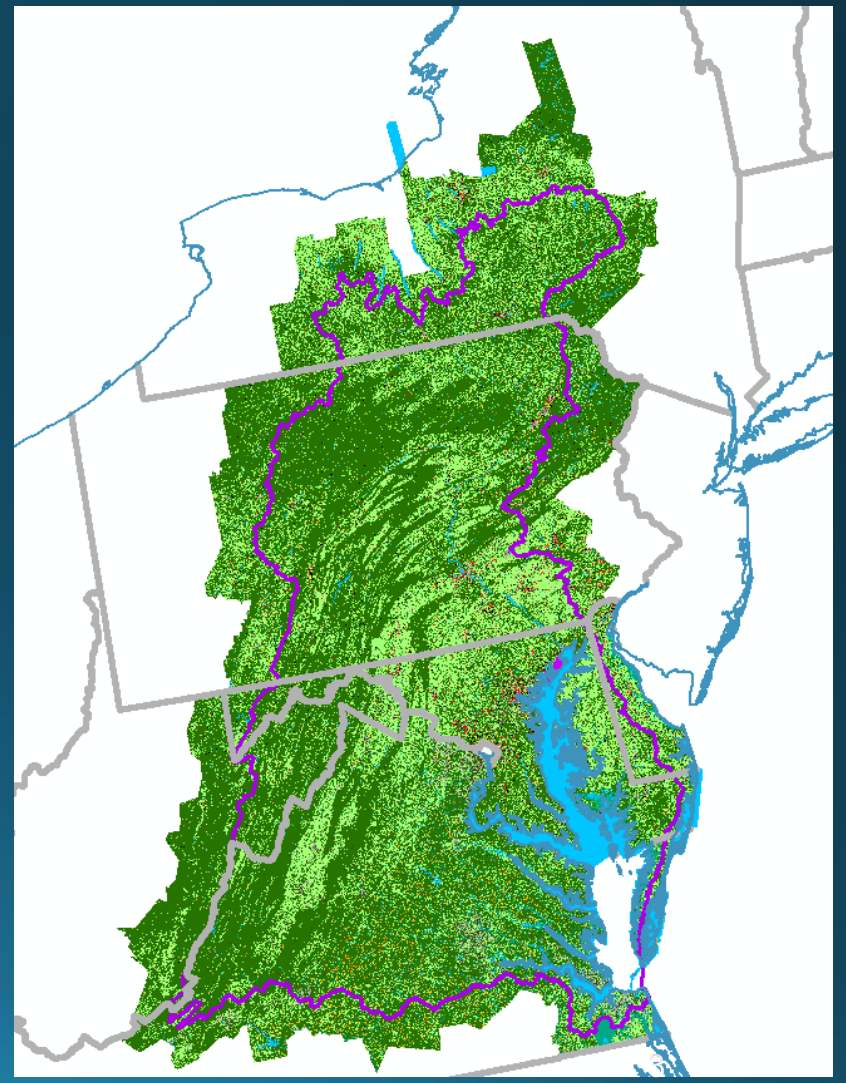
Precision Conservation

CONSERVATION INNOVATION CENTER
CHESAPEAKE CONSERVANCY

“Getting the right practices, in the right places,
at the right scale, and
making sure they are working”

Chesapeake Bay Program Cooperative Agreement

- 6-year geospatial support to CBP
- Creating and delivering new high-resolution data for the Chesapeake Bay watershed.
- Creating streamlined platform for project identification/ prioritization, tracking, and reporting.



CBP Proposal

Objective 1: Land Cover and Land Use

- Partnering with University of Vermont

Objective 2: Hydrology & Ditches

- Partnering with UMBC

Objective 3: BMP Mapping & Tracking

- Partnering with Chesapeake Commons and Drexel University

Objective 4: General Geospatial Support

Objective 1: Land Cover and Land Use

Partnering with University of Vermont Spatial Analysis Laboratory

Main Goal: Create high-resolution land cover and land use maps for the entire Chesapeake Bay watershed for **2017/18**, and for **2021/22.**

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2013/2014 Land Cover and Land Use

Creating:
- 2017/2018 products
- 2021/2022 products

Water
Wetlands
Forest
Shrubland
Herbaceous Vegetation
Barren
Structures
Impervious
Roads
Tree Canopy over Structures
Tree Canopy over Impervious Surfaces
Tree Canopy over Impervious Roads

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
Cropland
Pasture

Potential Secondary Classes

- Timber harvests/silviculture
- Vegetation Height
- Deciduous vs. Evergreen
- Cover crops
- Crop vs. pasture
- Center-pivot irrigation
- Vineyards, nurseries, greenhouses, and orchards
- Solar fields
- Animal operations: chicken
- Non-tidal/forested wetlands

Objective 2: High-resolution hydrography

Partnering with University of Maryland Baltimore County,
Department of Geography and Environmental Systems

Main Goal: Create high-resolution maps of stream channels, roadside ditches, and agricultural ditches from LiDAR elevation data across the Chesapeake Bay watershed

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Previously available data

High-resolution data

Objective 3: BMP Mapping & Tracking

Partnering with Chesapeake Commons and Drexel University

Main Goal: To create a BMP opportunity data blueprint for the entire Chesapeake Bay watershed and a streamlined platform for project identification, prioritization, tracking, and standardized reporting.

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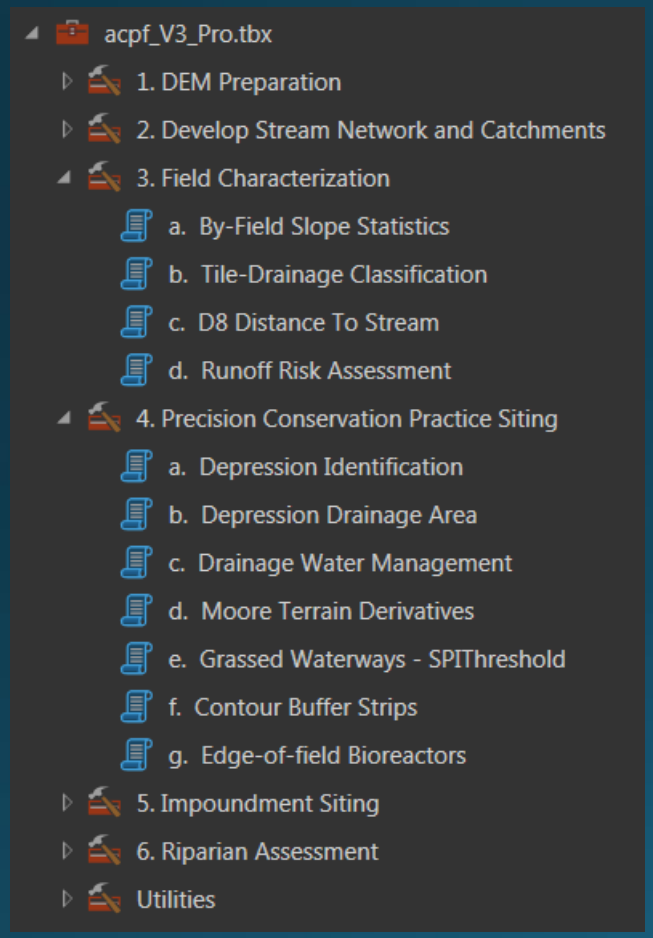
Chesapeake BMPs

Water and Sediment Control Basins

Contour Buffer Strips

Grassed Waterways

BMP Identification and Mapping with ACPF: Agricultural Conservation Planning Framework (USDA)



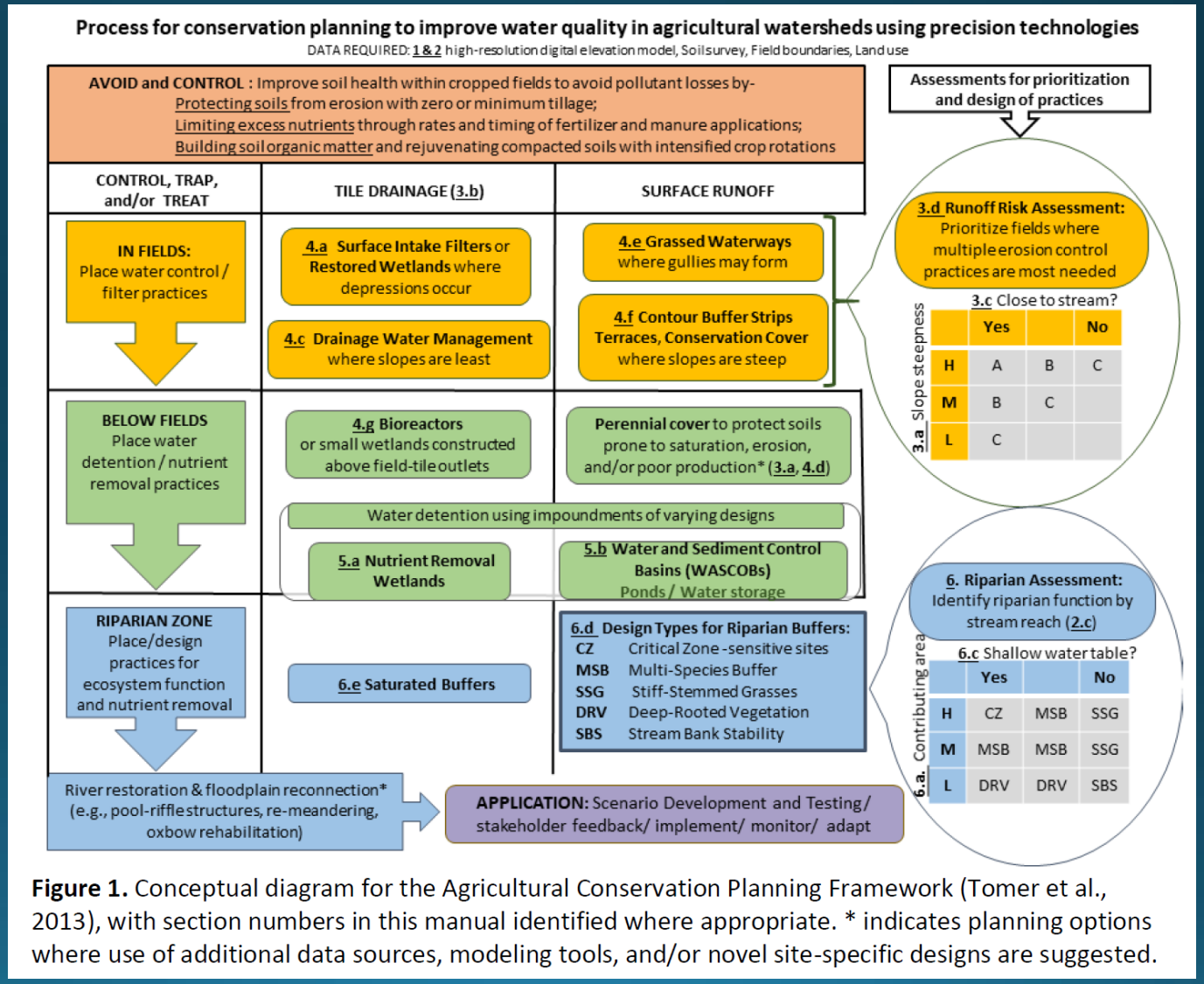
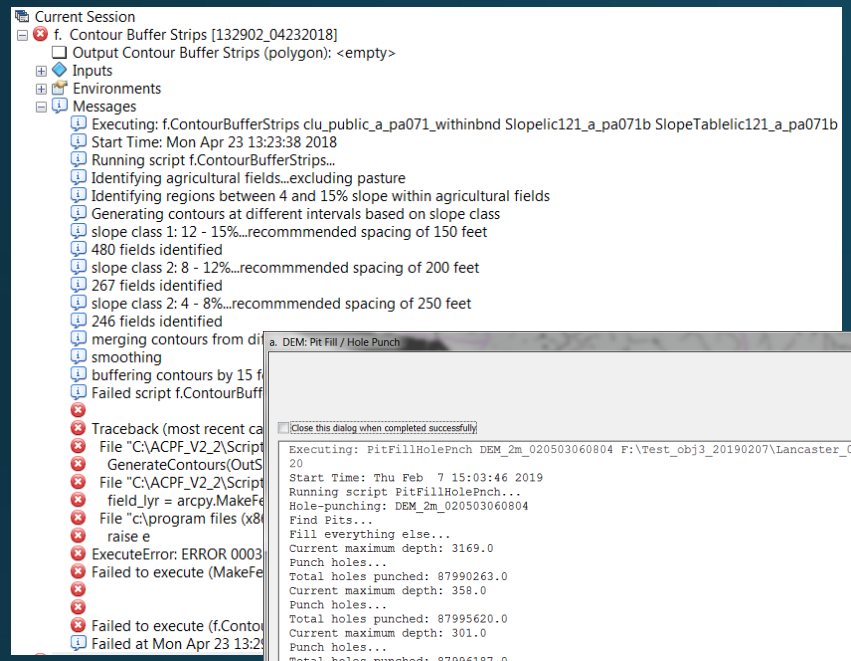
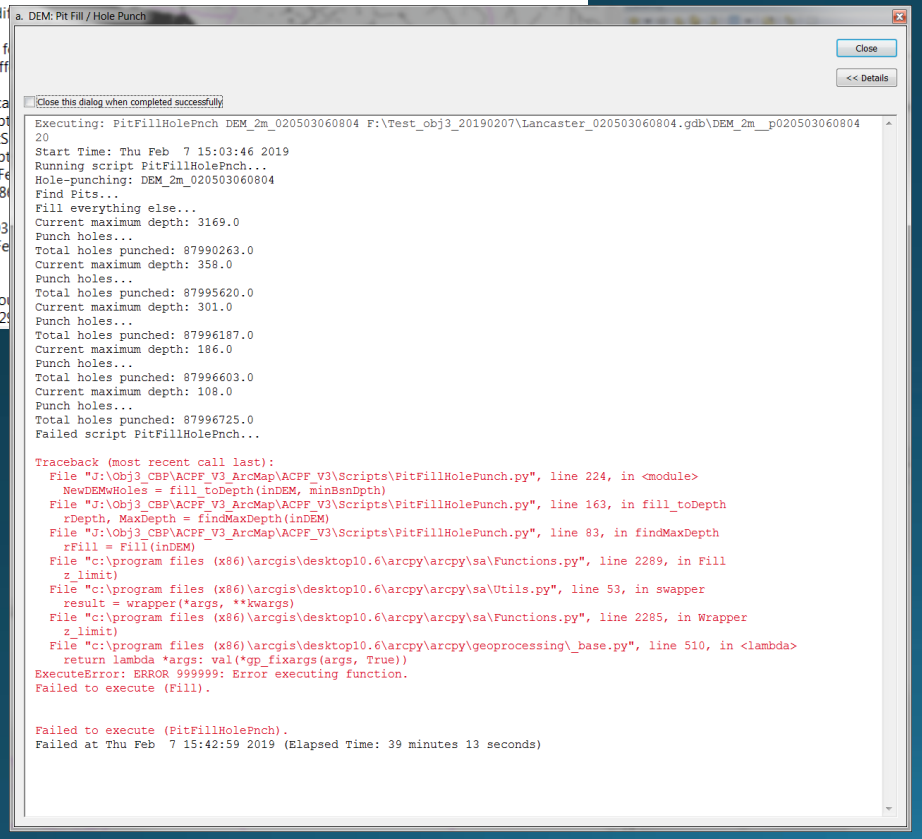
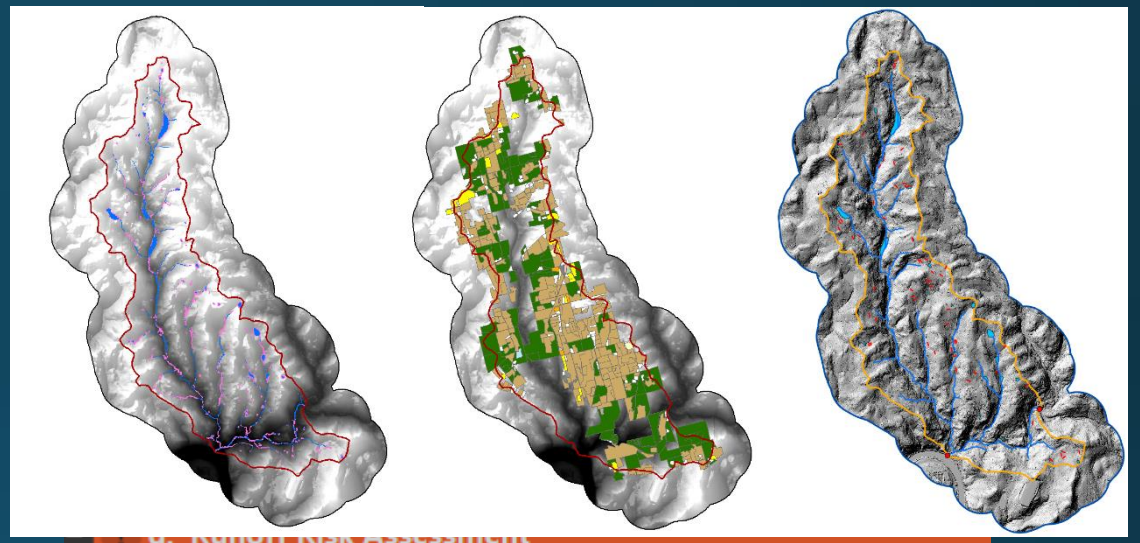


Figure 1. Conceptual diagram for the Agricultural Conservation Planning Framework (Tomer et al., 2013), with section numbers in this manual identified where appropriate. * indicates planning options where use of additional data sources, modeling tools, and/or novel site-specific designs are suggested.

Troubleshooting errors







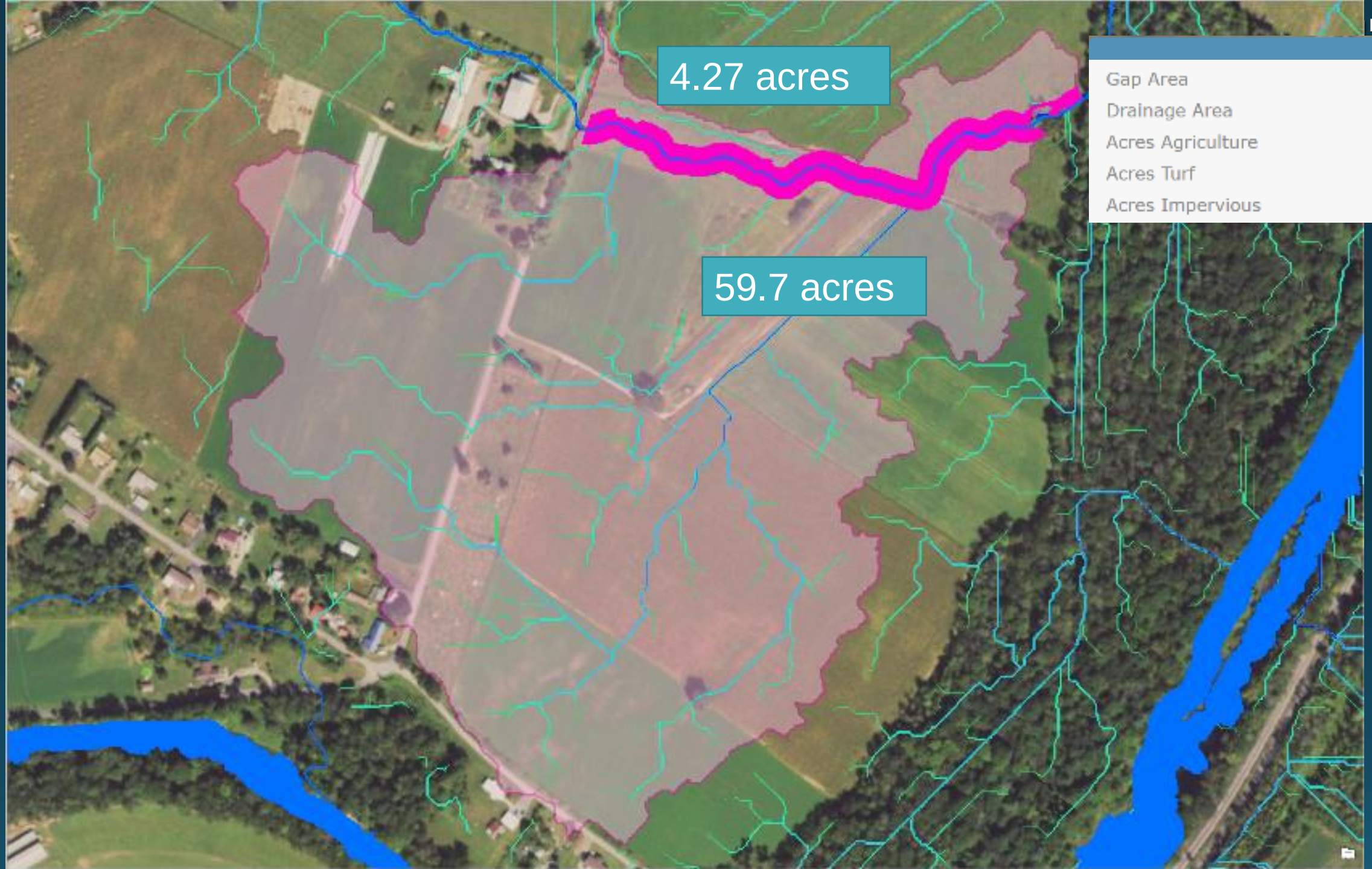
Failed

Failed script d. Runoff Risk Assessment...

Traceback (most recent call last):
File "J:\Obj3_CBP\ACPF_V3_Pro\Scripts\RunoffRiskAssessment.py", line 318, in <module>
RunoffRiskAssessment(FBIn, SlopeTable, DistanceToStream)
File "J:\Obj3_CBP\ACPF_V3_Pro\Scripts\RunoffRiskAssessment.py", line 168, in RunoffRiskAssessment
if row[0] >= Slope20Value:
TypeError: '>=' not supported between instances of 'NoneType' and 'float'

Failed to execute (RunoffRiskAssessment).

Failed at Monday, December 17, 2018 10:07:57 AM (Elapsed Time:


4.27 acres
59.7 acres
Gap Area 1.16
Drainage Area 59.70
Acres Agriculture 53.62
Acres Turf 5
Acres Impervious 0

Urban BMP Mapping

- Looking for data that can help improve our efforts in mapping water flow and opportunities for BMP implementation.
  - Culverts
  - Stormwater infrastructure where available
  - Current BMP locations for validation

- Seeking guidance on how best to work with urban municipalities.

culvert

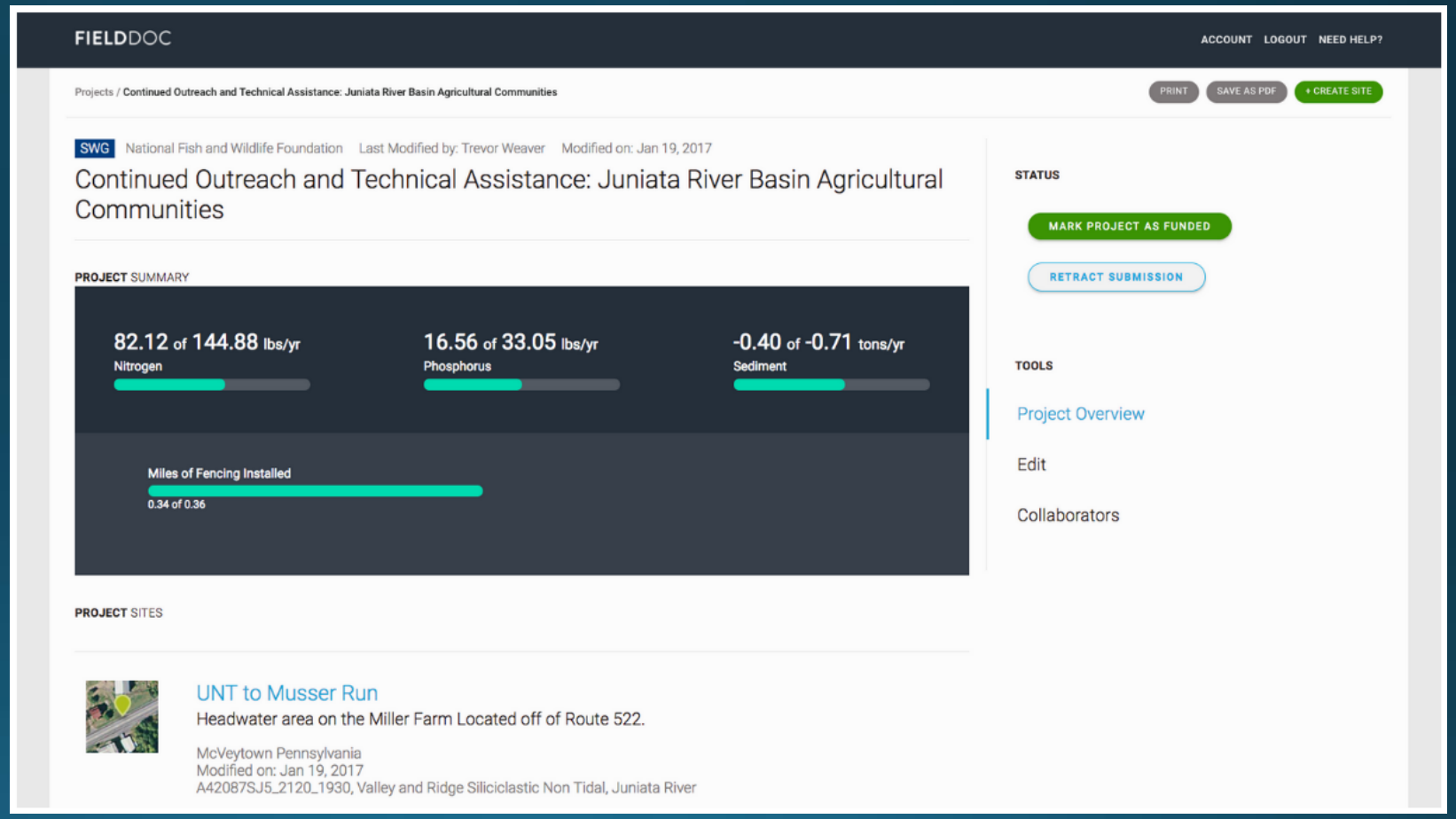
https://commons.wikimedia.org/wiki/File:Prefabricated_culverts_under_country_road_in_Rocklea,_Queensland,_Australia.jpg

bioswale

https://www.flickr.com/photos/taestell/15013858234

Streamlined platform for WIP Planning and Reporting: FieldDoc

- Standardizing nutrient and sediment load reductions
- Integration with CBP CAST Model (Chesapeake Assessment Scenario Tool)
- Data dashboards
- Project Tracking and Reporting



Basic Timeline:

	Land use/Land cover	Hydrology	BMP blueprint	Tracking & reporting
Product	• 2 time series: 2017/18 and 2021/22 imagery • 1 m x 1 m resolution land cover raster • 1 m x 1 m resolution land use raster • Change detection	• Channel delineation raster • Channel delineation polyline • Ditches raster • Others TBD	• BMP opportunity outputs • Tools to calculate site-specific NSP reductions	• FieldDoc enhancements, including dashboards, improved planning and modeling functionalities
Timeline	• 2017/18 land cover/land use: Summer 2020/Winter 2021 • 2021/22 land cover/land use: Summer 2023/ Winter 2024	• 2018-20 delivery	• 2018-20 PA pilot • 2020-22 Scale to VA • 2024 Bay-wide products	• Fall 2019 increased functionality • 2024 incorporates BMP & load mapping
Engagement	• 2017/18 Local planimetric data collected • Local QAQC 2020/2023	• End of 2019 Bay-wide technical advisory group	• End of 2019 Bay-wide technical advisory group • 2020-22 In-depth PA/VA engagement • 2024 complete engagement	• User feedback collected throughout

More Information

- Conservation Innovation Center
  conservationinnovationcenter.org
- Chesapeake Bay Land Cover
  conservationinnovationcenter.org/land-cover-data-project

Contacts:

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