Safe Water Conservation Collaborative

Protecting Drinking Water through Land Conservation

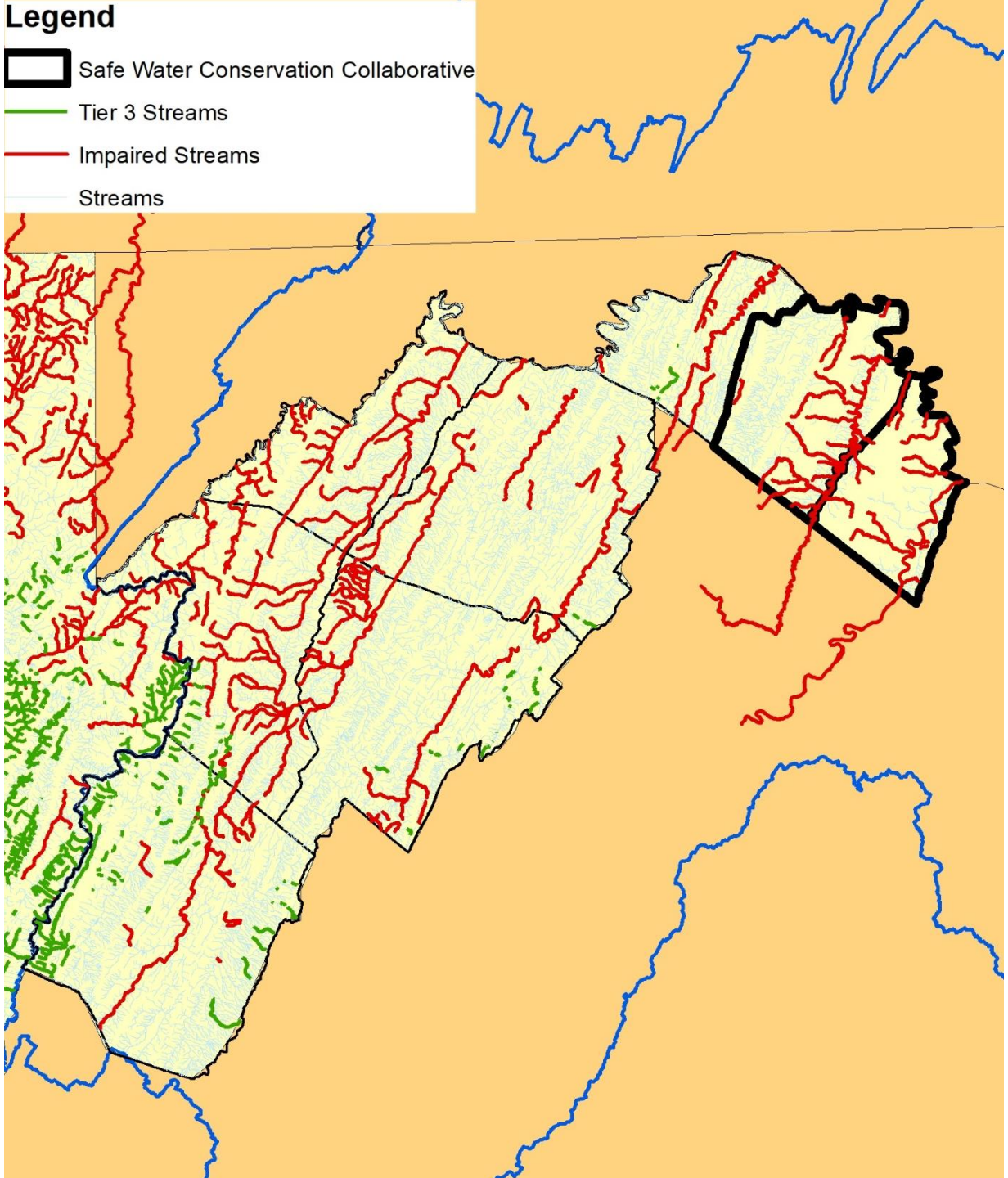
CBP MAINTAIN HEALTHY WATERSHEDS (GIT 4)

JANUARY 30TH, 2020

WEST VIRGINIA RIVERS

Healthy Watersheds in West Virginia

- 8 WV Counties (3,500 square miles) drain to Chesapeake Bay
- "Tier 3 Streams" – outstanding national resource waters. These include waters in Federal Wilderness Areas, specifically designated federal waters, and high quality waters or naturally reproducing trout streams in state parks, national parks, and national forests
- "Impaired Streams" – 303(d) streams, as per Clean Water Act.
  - WV TMDL Story Map



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Background

- **January 2014** – Elk River Chemical Spill
- **March 2014** – SB 373 requiring all water utilities to have Source Water Protection Plans
- **July 2016** – SWPPs go into affect across the state
- **2017** – WV Rivers creates Safe Water for WV Program and forms Safe Water Conservation Collaborative
- **2019-2020 –** implementing objectives

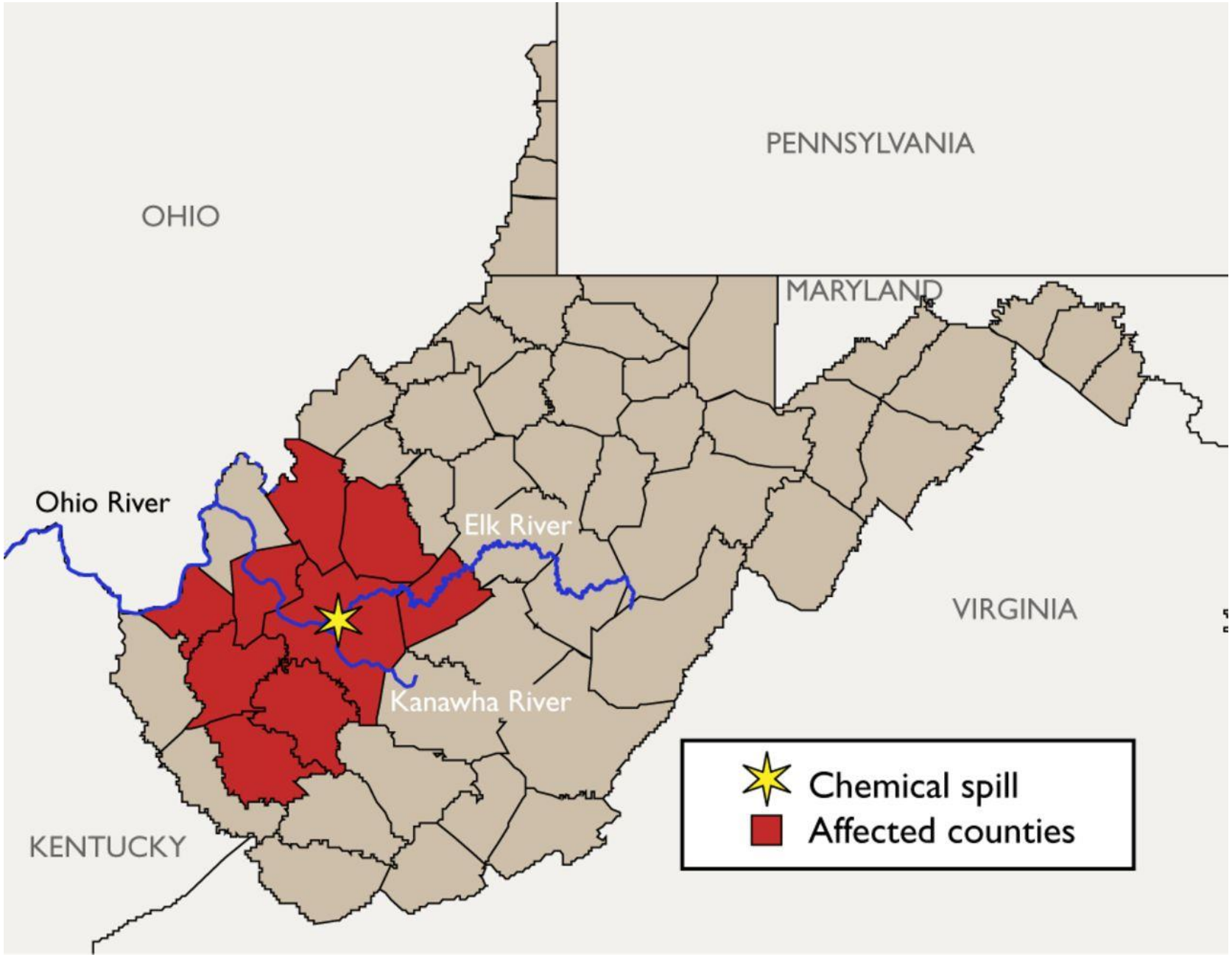

Image from: **Risk, Uncertainty, and Institutional Failure in the 2014 West Virginia Chemical Spill**
Heather A. Lukacs, Nik Sawe and Nicola Ulibarri
Case Studies in the Environment September 2017, DOI: https://doi.org/10.1525/cse.2017.000604

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Protecting Drinking Water through Land Conservation

Cross-sector Collaboration





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DELL
EPSON

Collaborative Structure

- **Steering Committee** – Vision, leadership, and guidance
- **Workgroups** – Implementation of objectives
  - Conservation
  - Education & Outreach
  - Best Management Practices (BMP)
- **WV Rivers Coalition** – Coordination, facilitation, & grant administration
- **General Membership** – General support and targeted engagement

Safe Water Conservation Collabo

sites.google.com/view/ep-safewater/

Apps SharePoint Programs Timesheet Reimbursements Accruals Tracker Enterprise Payroll CCWC Docs Safe Water Cons Co... WHC Personal Conf Call

WEST VIRGINIA RIVERS Safe Water Conservation Collaborative

the Collaborative Our Work Resources

Protecting Land to Protect Drinking Water

The Safe Water Conservation Collaborative is a regional conservation partnership that uses land conservation as a strategy to protect drinking water supplies.

Private Lands, Public Waters

A Safe Water for West Virginia Conservation Collaborative

5-year Action Plan

Want to learn more about the Collaborative? This **document** is the best place to start!

https://sites.google.com/view/ep-safewater/

WEST VIRGINIA RIVERS

Private Lands, Public Waters

A Safe Water for West Virginia Conservation Collaborative

Protecting Drinking Water through Land Conservation

POLICY PRIORITIES

Accelerating land protection within drinking **water protection areas**

Collaborating to shore up existing funding streams that **protect drinking water supplies.**

seek new policies on innovative ways to **protect water supplies** through land conservation

PUBLIC AWARENESS & OUTREACH

Elevating public understanding of land conservation and the **challenges facing drinking water.**

Working with elected leaders and public officials

Informing water utility customers and upstream landowners about voluntary actions that can **make a difference for drinking water.**

COLLABORATION ON LAND CONSERVATION

Informing landowners about opportunities to conserve their land.

Leveraging resources to address one of our state's most pressing challenges.

Collaborating to seek additional funding to accelerate land conservation that **protects drinking water.**

2019-2020 objectives (abbreviated)

- **Prioritizing high-value land to conserve**
  - Completed GIS Prioritization Model (v1)
- Engaging landowners in conversations about protecting drinking water through land conservation
- Educating existing easement holders about conservation best management practices

Funding from the Chesapeake Bay Land & Water Initiative

Land Trust Alliance
Together, conserving the places you love

CHESAPEAKE BAY FUNDERS NETWORK

Prioritization Model v1
Step 1 – filter for Targeted Parcels

Filtered parcels >20 acres in size and within Drinking Water Protection Areas (resulted in ~1,100 “targeted parcels”)

Filter Indicators
Parcel Size

Source: County Assessors, aggregated by WV Dept of Tax & Revenue, called "Tax Maps – Surface & Mineral Parcels Statewide" (WVU GIS Clearinghouse)

Measurement: Targeted if >20 acres

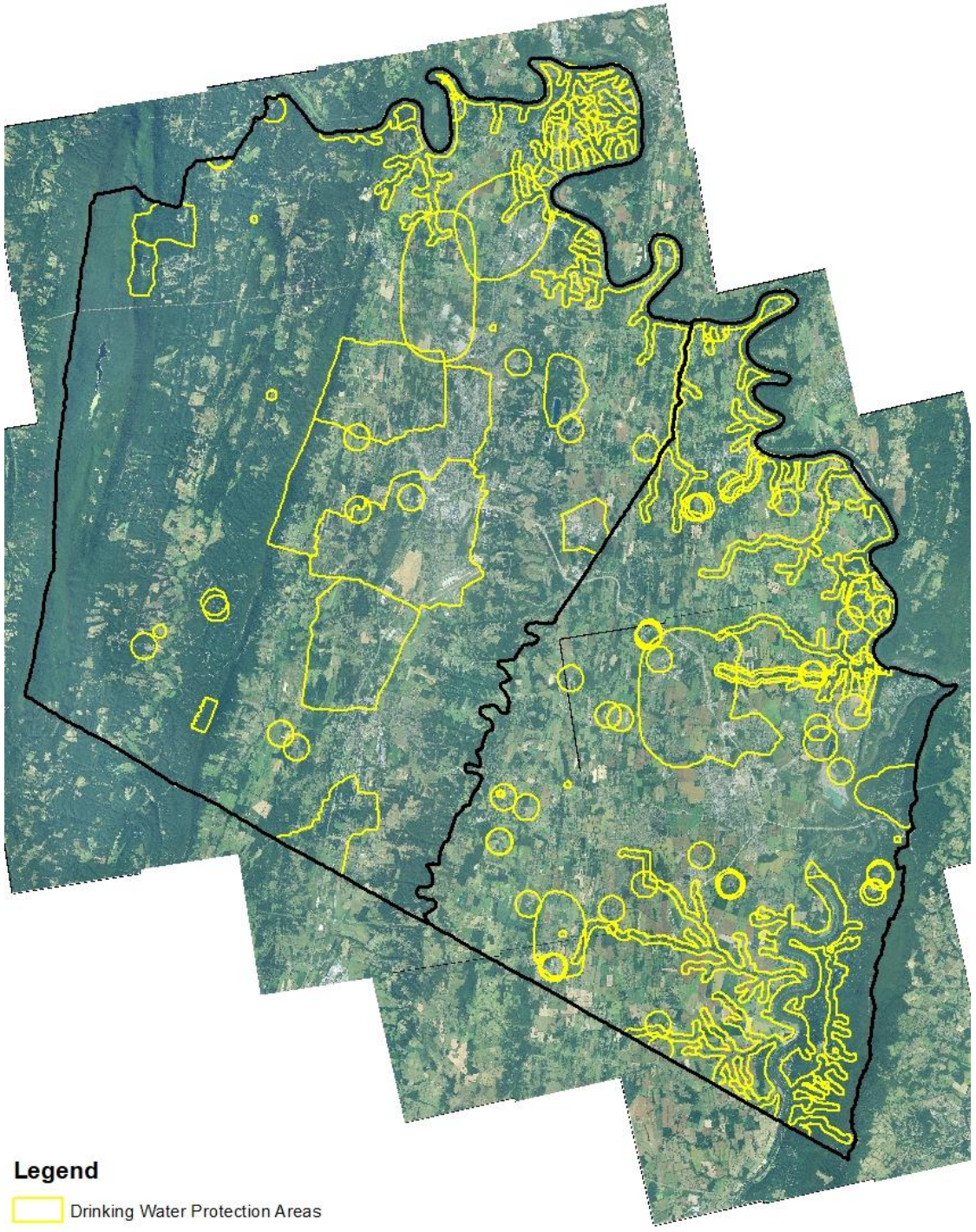
Justification: Larger parcels are inherently more valuable to conserve than smaller parcels. Local conservation organizations have a significant interest in protecting single, large properties versus multiple smaller properties, partly due to the workload associated with annual monitoring upon easement closing. Parcels over 20 acres are preferred.

Filter Indicators
Drinking Water Protection Areas

Source: Chesapeake Conservancy

Measurement: Targeted if parcel intersected with Drinking Water Protection Areas

Justification: Protecting land within these drinking water protection areas (also known as “Zones of Critical & Peripheral Concern”) will have the most direct impact on protecting water quality. It also will help with focusing our outreach efforts in the areas where we’ll have the biggest impact on water quality.

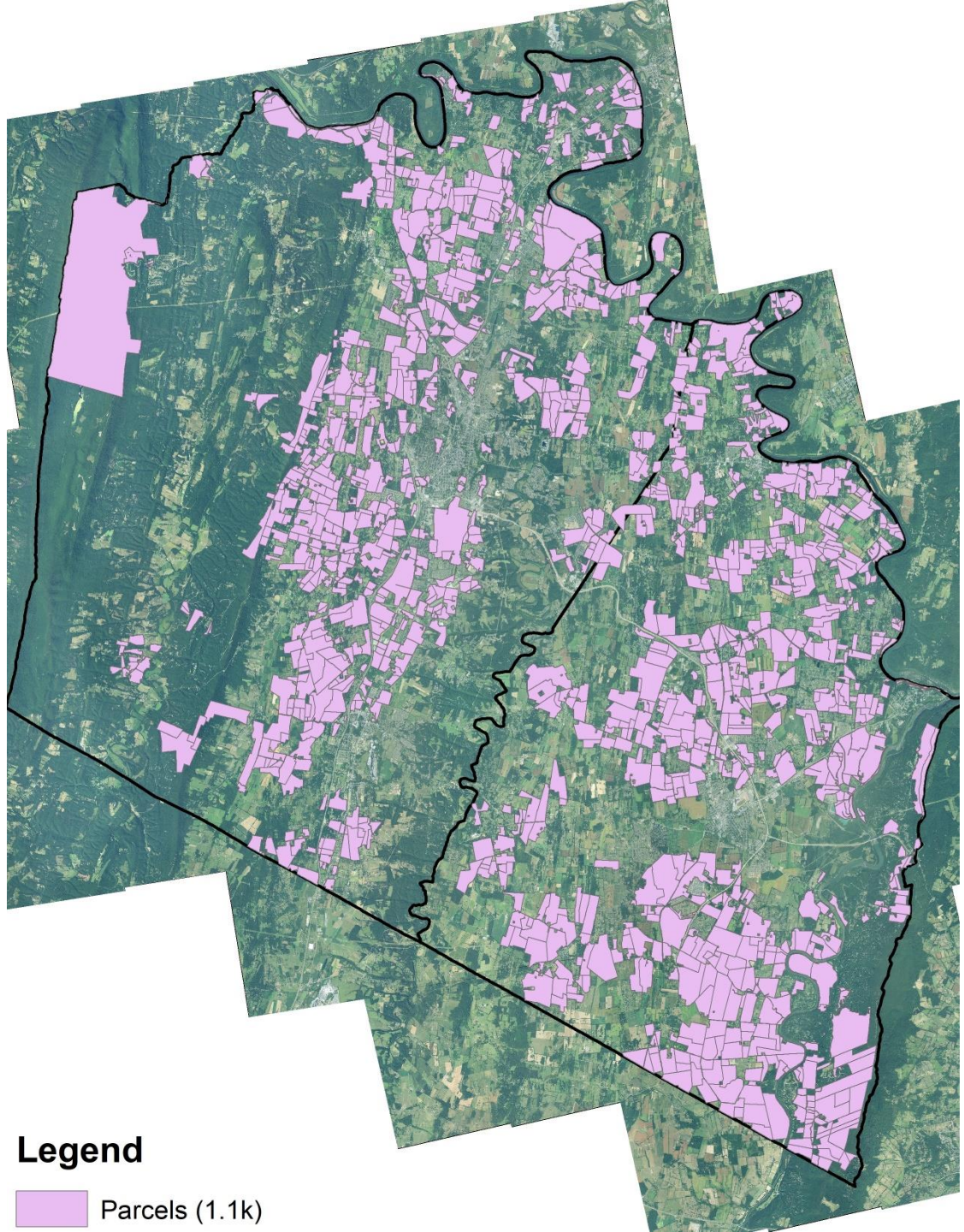


Targeted Parcels
~1,110

Source: County Assessors, aggregated by WV Dept of Tax & Revenue, called "Tax Maps – Surface & Mineral Parcels Statewide" (WVU GIS Clearinghouse)

Measurement: Parcels within Jefferson & Berkeley Counties that are >20 acres in size and intersect Drinking Water Protection Areas

Justification: Required these indicators ensures that we are targeting fundable parcels (i.e., >20 acres) which is the minimum threshold for local FPB's, while also targeting where we can have the greatest impact on drinking water quality (i.e., within Drinking Water Protection Areas).

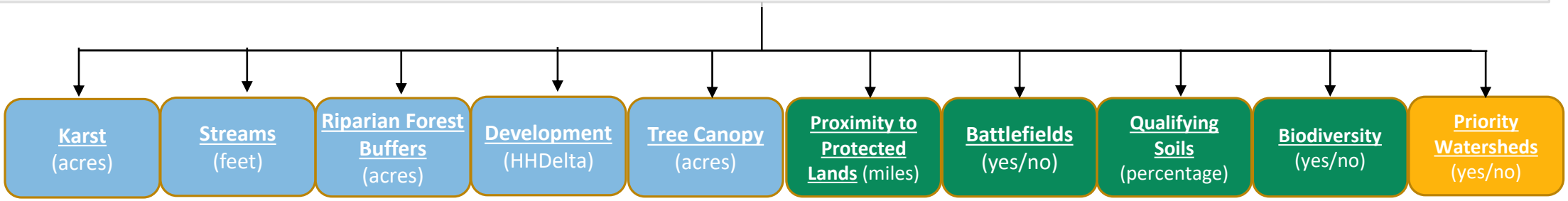


Prioritization Model v1

Step 2 – Assign indicator values per parcel

Filtered parcels >20 acres in size and within Drinking Water Protection Areas (resulted in ~1,100 “targeted parcels”)

Intersect data with Parcels, calculate measurement, Join back with Parcels.



Indicators - what do they tell us?

Water Quality (5)

What values of the land are most important to protecting water quality?

Programmatic (4)

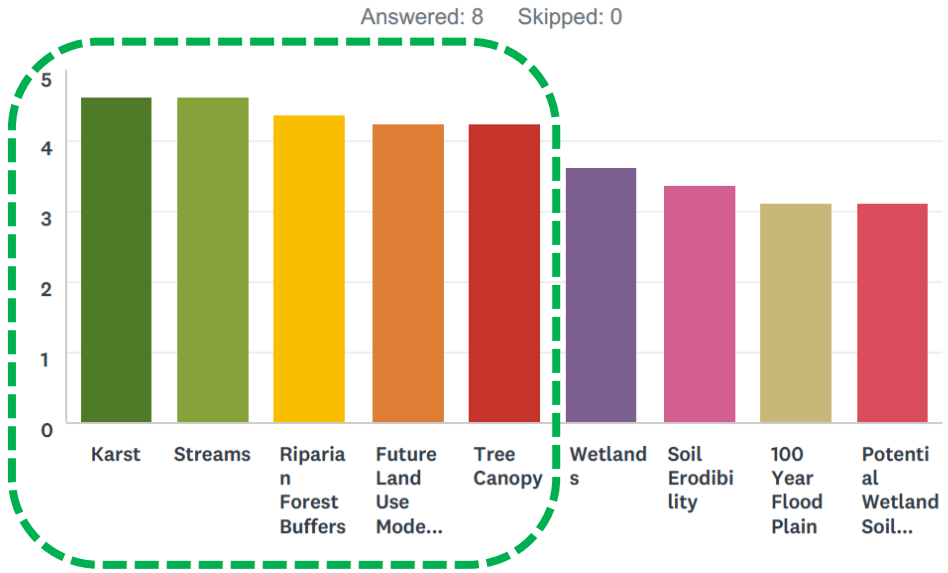
What values of the land make a potential easement easier to fund or brings new partners to the table to make the potential easement a reality for the landowner?

Geographic (1)

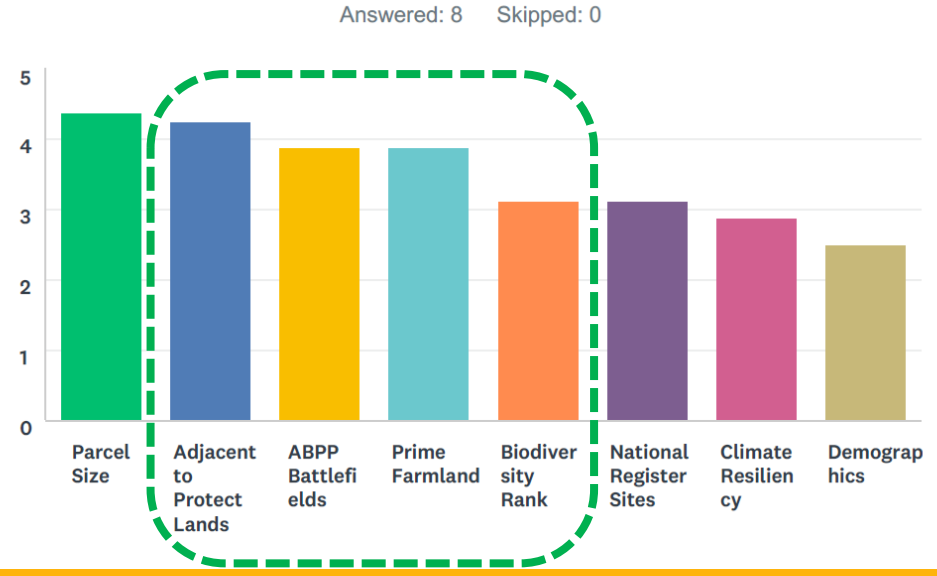
Where we want to focus our work

Indicators – based on survey results

Q2 Which of these Water Quality Indicators are most important?



Q5 Which of these Programmatic Indicators are most important?



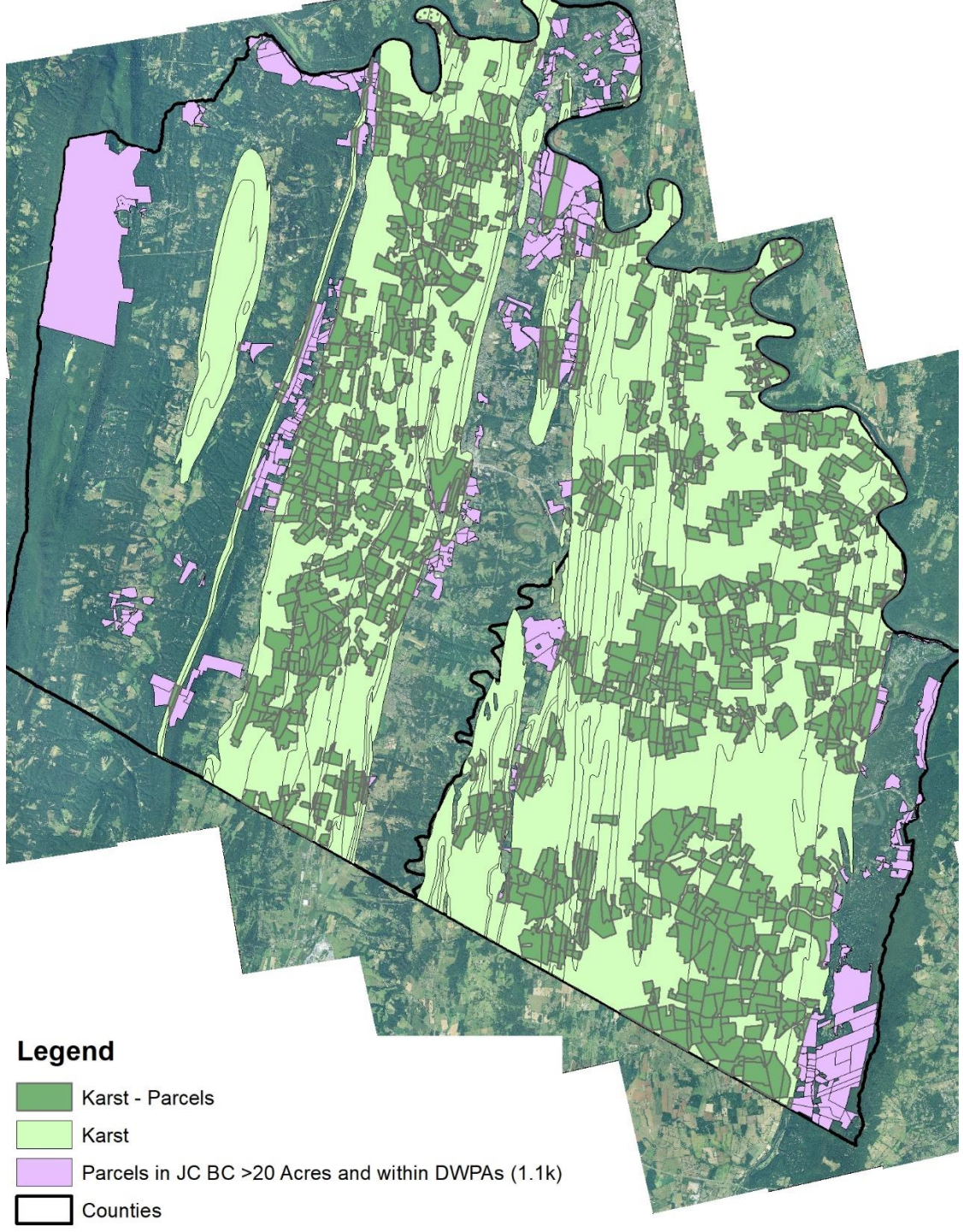
Water Quality Indicators

Karst

Source: Karst in the US: A Digital Map Compilation and Database (2014) (USGS)

Measurement: Acres of karst

Justification: Karst lands are valuable to protect because of the impact development/land use changes on karst have on water quality. Karst lands are more prone to infiltration of pollutants into groundwater and they host fragile ecosystems that serve as critical habitat for unique wildlife. (The scientific & socio-economic importance of karst and caves and their vulnerability).



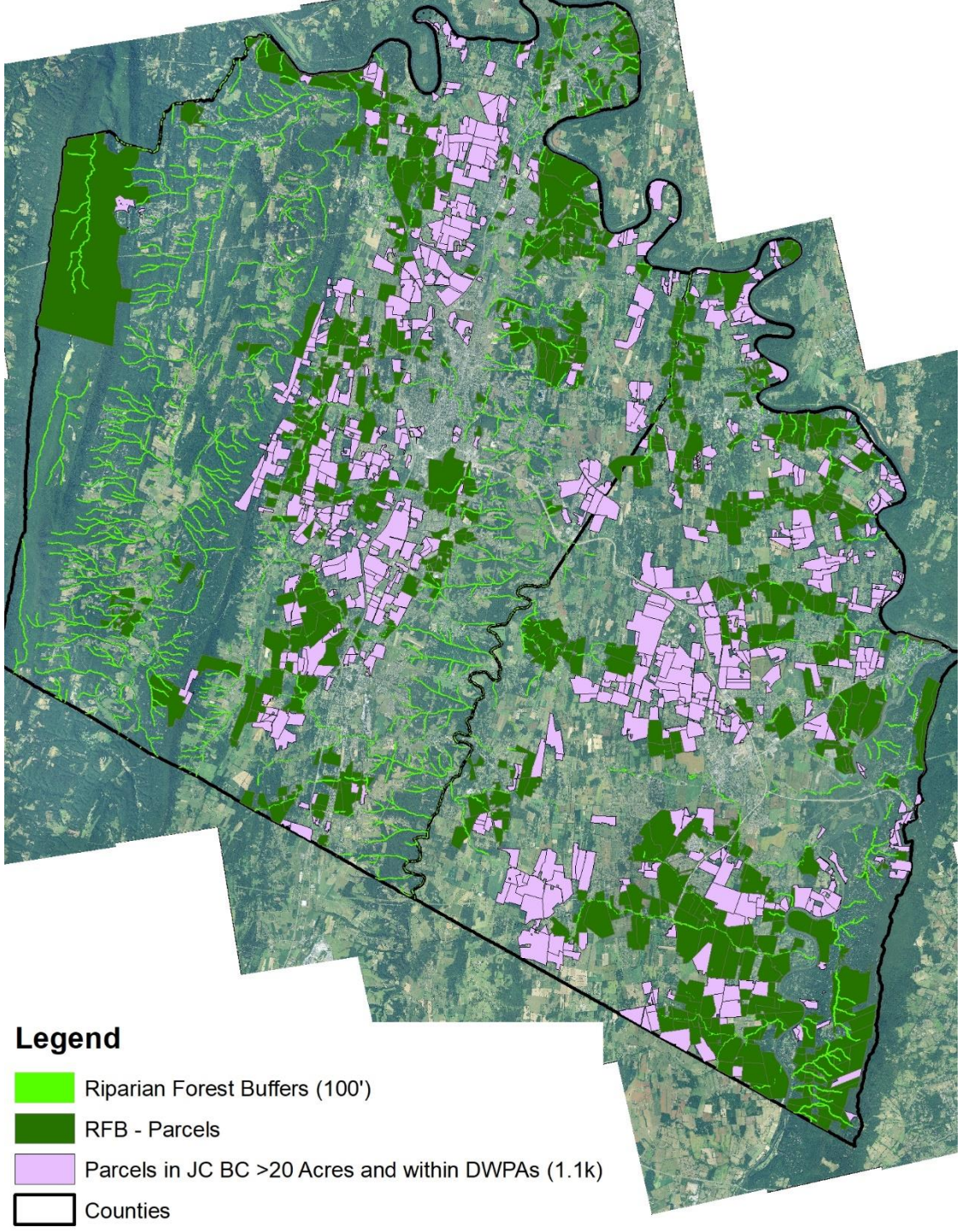
Water Quality Indicators

Riparian Forest Buffers

Source: Chesapeake Bay High Resolution Land Cover from Chesapeake Conservancy Conservation Innovation Center (WVU GIS Clearinghouse). Clipped Tree Canopy within streams to create this 100' buffer layer.

Measurement: Acres of RFB's

Justification: Trees buffer streams from pollutants and restore natural in-stream water conditions. They provide habitat for wildlife, enhance property values, reduce erosion, and improve recreation and provide human health benefits. (Chesapeake Forest Buffers)



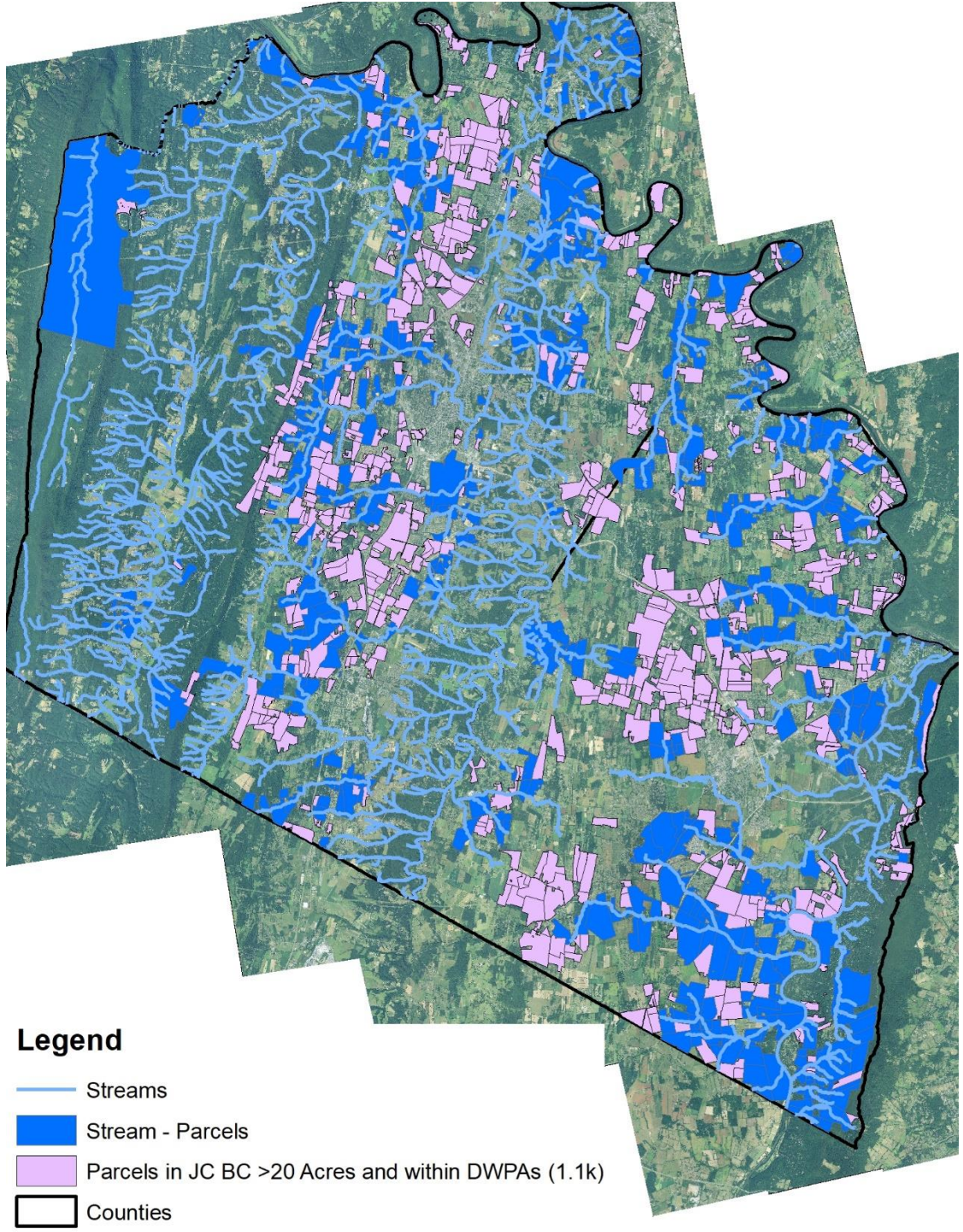
Water Quality Indicators

Streams

Source: National Hydrography Dataset 2018 (WVU GIS Clearinghouse)

Measurement: linear feet of stream

Justification: Land and water are inextricably linked. Streams, and in particular impaired streams, are valuable for land conservation. Protecting lands along streams help protect water quality by preventing high-intensity land uses and their associated pollutant loads from directly encroaching on stream corridors. (Chesapeake Bay Land & Water Initiative)

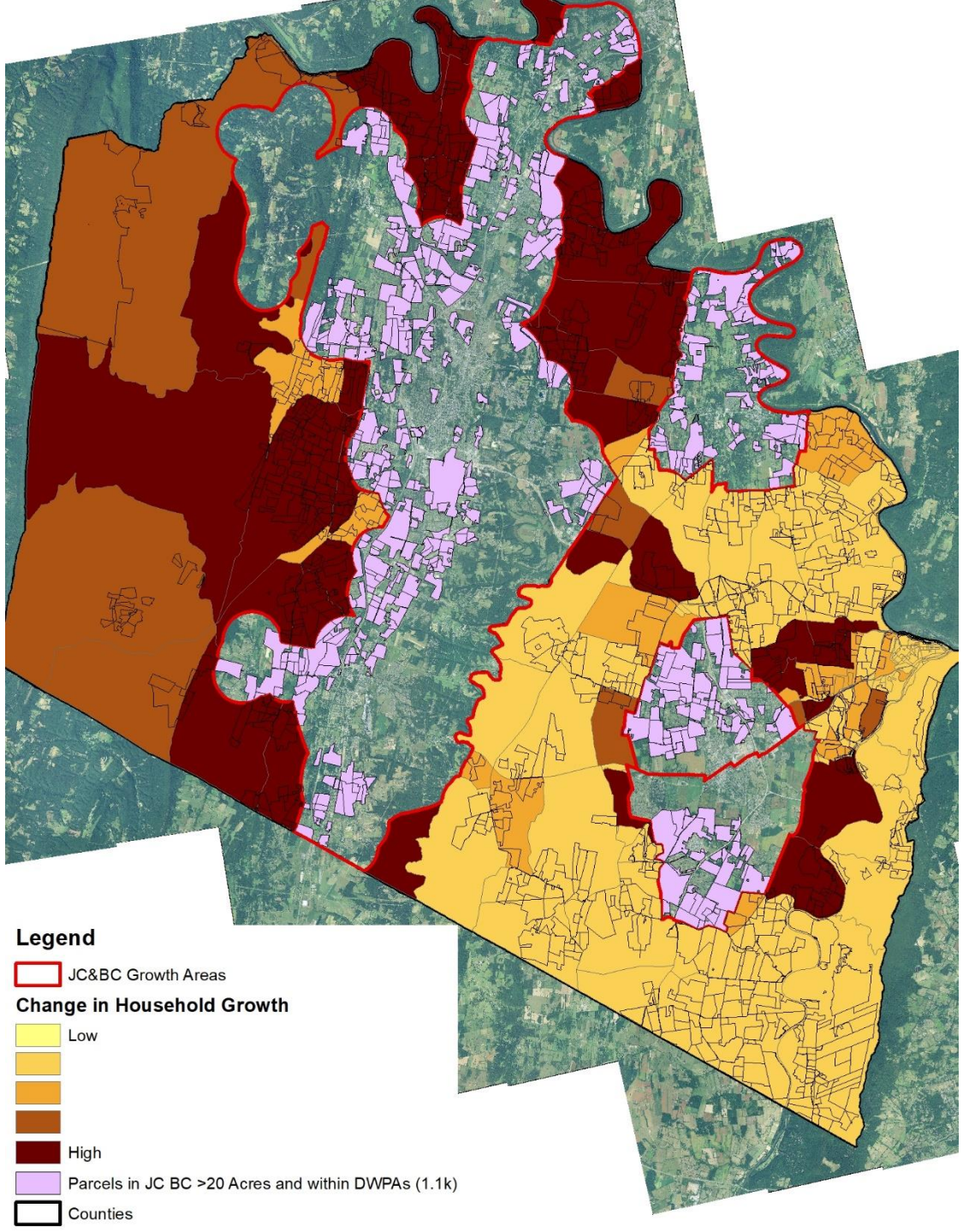


Water Quality Indicators Development

Source: Hagerstown Eastern Panhandle Metropolitan Planning Organization 2045 Long Range Transportation Plan, Berkeley County growth area, and Jefferson County Urban Growth Boundaries. Erased HEPMPO dataset by growth areas in Jefferson & Berkeley Counties to create this indicator.

Measurement: Areas outside of planned growth areas with a projected high change in household growth, measured by "HHDELTA" value.

Justification: Prioritizing the protection of land within planned growth areas would only serve to create more fragmented landscapes in the long-term. Land conservation is a valuable tool to protect land from the impacts of development. This method is a strategic approach to prioritizing parcels with high projected growth outside of planned growth areas.



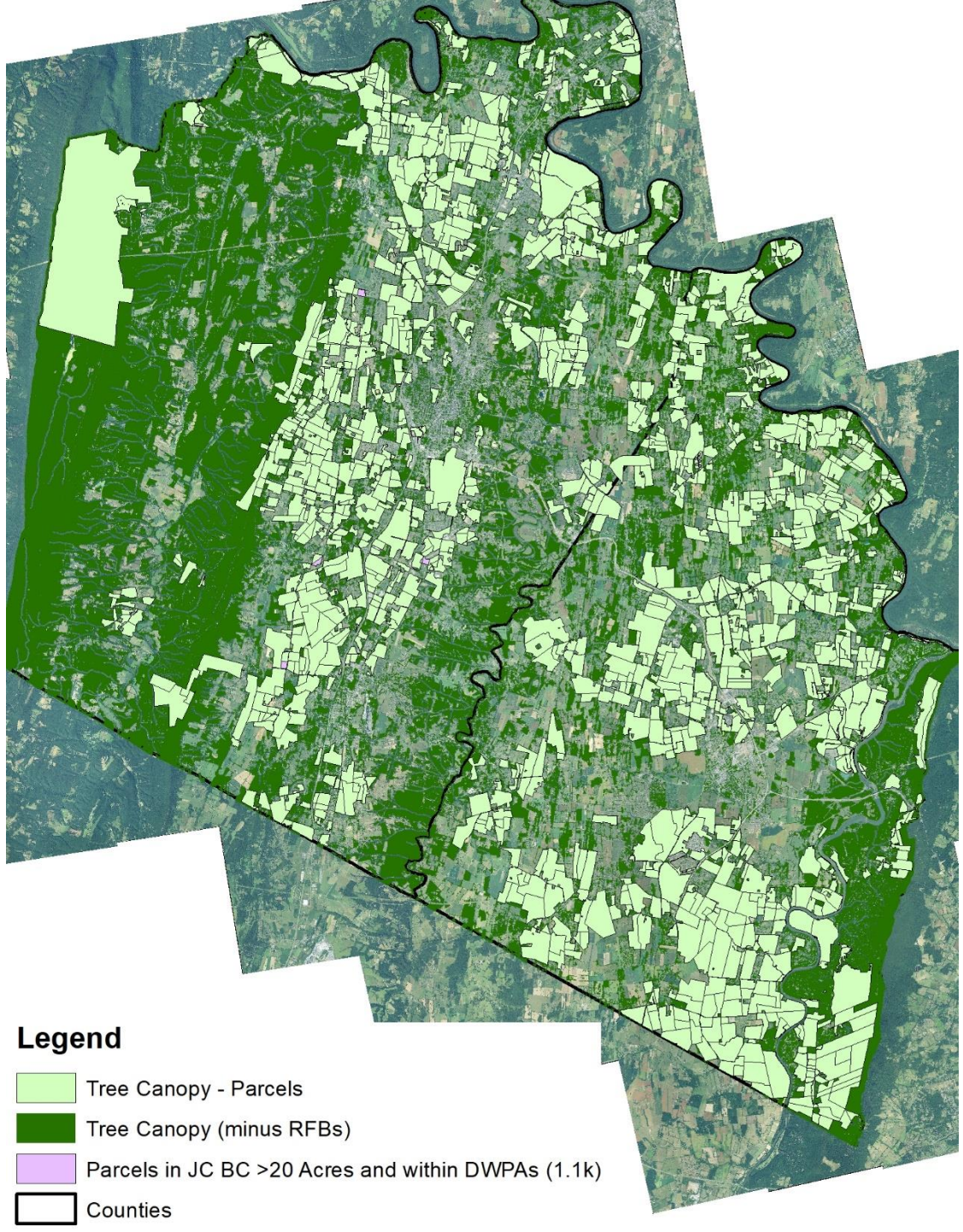
Water Quality Indicators

Tree Canopy

Source: Chesapeake Bay High Resolution Land Cover from Chesapeake Conservancy Conservation Innovation Center (WVU GIS Clearinghouse). Erased the 100' riparian forest buffers from the Tree Canopy layer to create this indicator.

Measurement: Acres of Tree Canopy

Justification: "Forests are the most effective land cover for maintenance of water quality. They serve as natural sponges, collecting and filtering rainfall and releasing it slowly into streams. Forest cover has been directly linked to drinking water treatment costs – the more forest in a source water watershed, the lower the treatment costs." (Common Waters Fund)



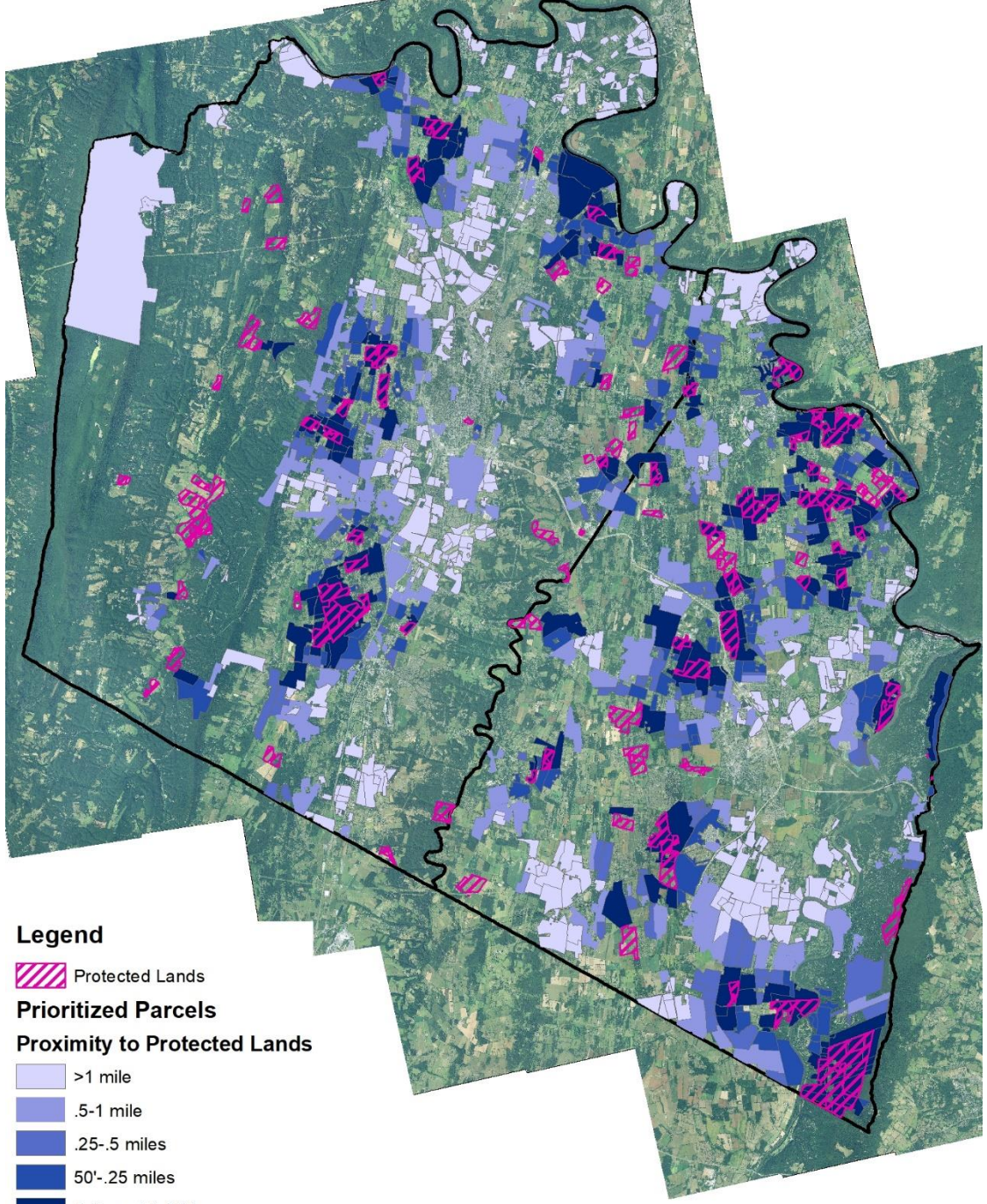
Programmatic Indicators

Proximity to Protected Lands

Source: Jefferson & Berkeley County Farmland Protection Board datasets

Measurement: distance (miles) to protected lands layer

Justification: Landowners adjacent to existing conserved properties may be more willing to learn about opportunities to protect their land. Clusters of protected lands offer more benefits than individual properties conserved but not adjacent to each other.



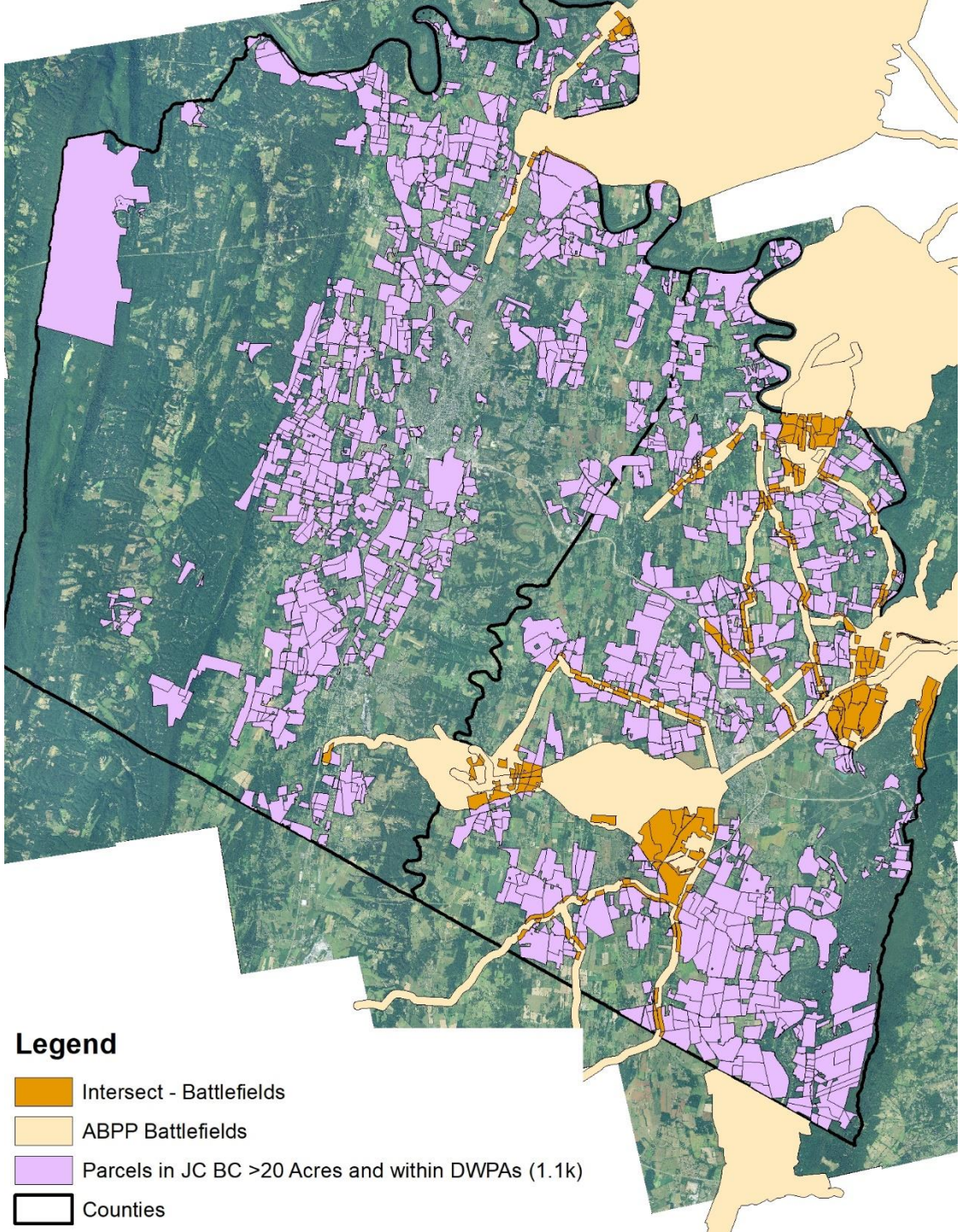
Programmatic Indicators

ABPP Battlefields

Source: American Battlefield Protection Program (National Park Service)

Measurement: binary, either parcel is within battlefield or it is not.

Justification: The National Park Service, through the ABPP, offers Battlefield Land Acquisition Grants. “This grant program allows for the permanent protection of historic battlefield lands through fee simple acquisition or through the purchase of an interest in the land through a preservation covenant. State or local government entities are eligible to apply, and nonprofits may act as subrecipients of grant funds. The grants require a dollar-for-dollar non-Federal match.”



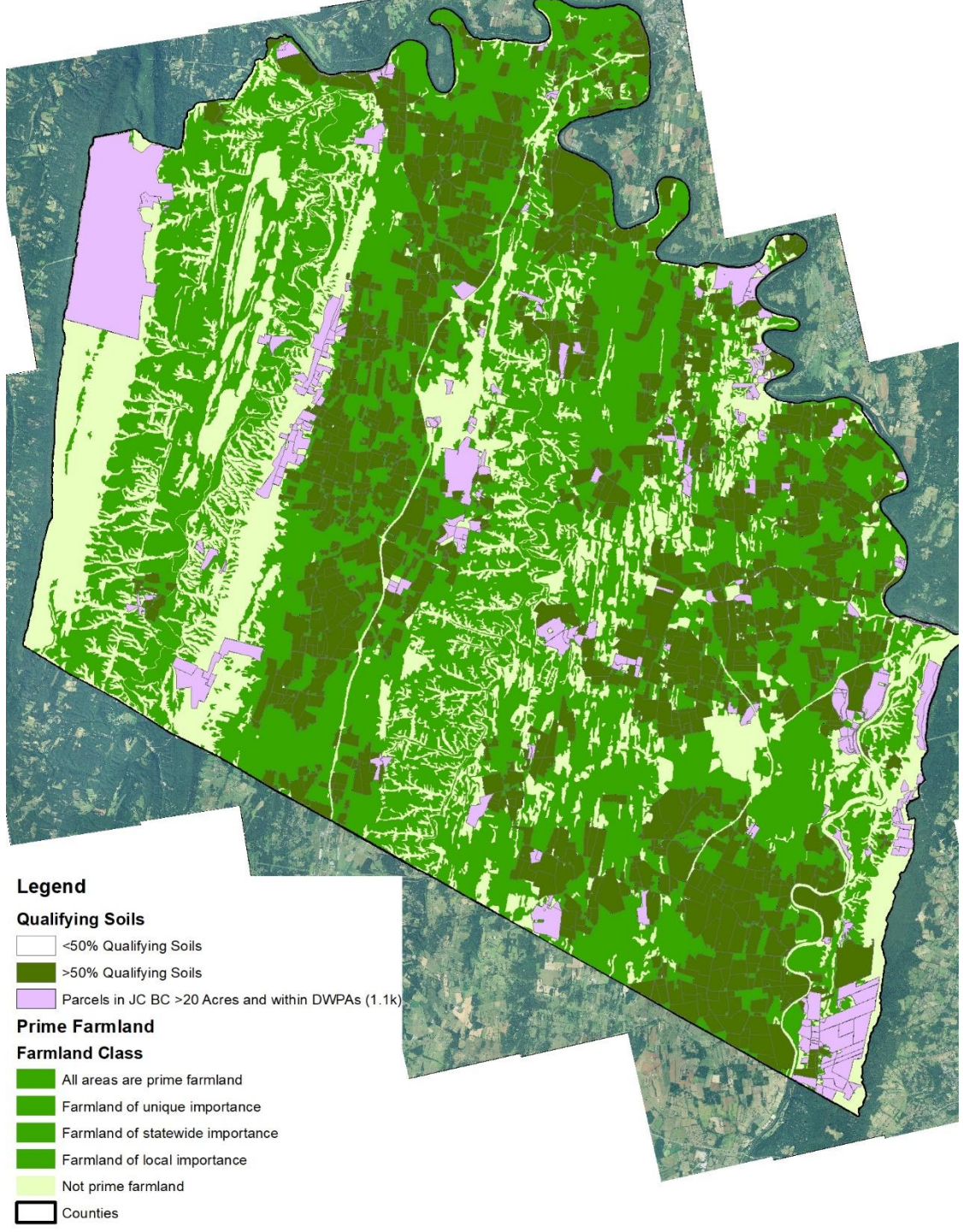
Programmatic Indicators

Qualifying Soils

Source: NRCS SSURGO Database (Web Soil Survey)

Measurement: Percentage of parcels with >50% "Qualifying Soils" (i.e., Prime Farmland)

Justification: The Natural Resources Conservation Service in WV has programs to protect prime farmland called the Agricultural Conservation Easement Program, which focuses on agricultural land and also wetlands. For the Collaborative, it is also important to note NRCS's role in allocating source water protection funding in the 2018 Farm Bill, as the ultimate goal is to protect drinking water sources through land conservation.



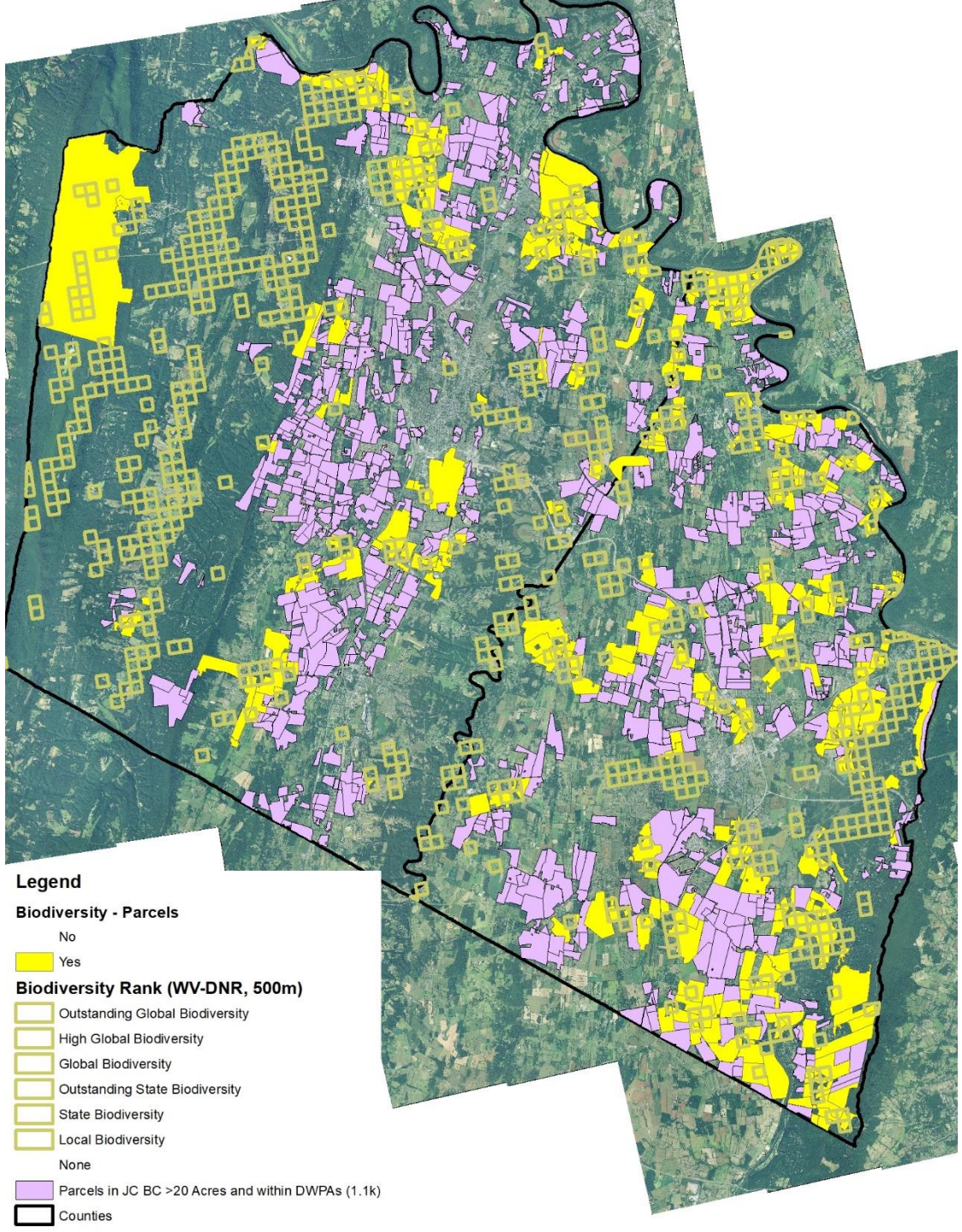
Programmatic Indicators

Biodiversity Rank

Source: WV Department of Natural Resources (Data requests here).

Measurement: binary, either parcel has biodiversity or it does not.

Justification: Certain landowners will be interested in protecting their land if it is shown to be globally significant in terms of biodiversity. This will also bring partners to the discussion such as WV-DNR that can work with us on potential easements



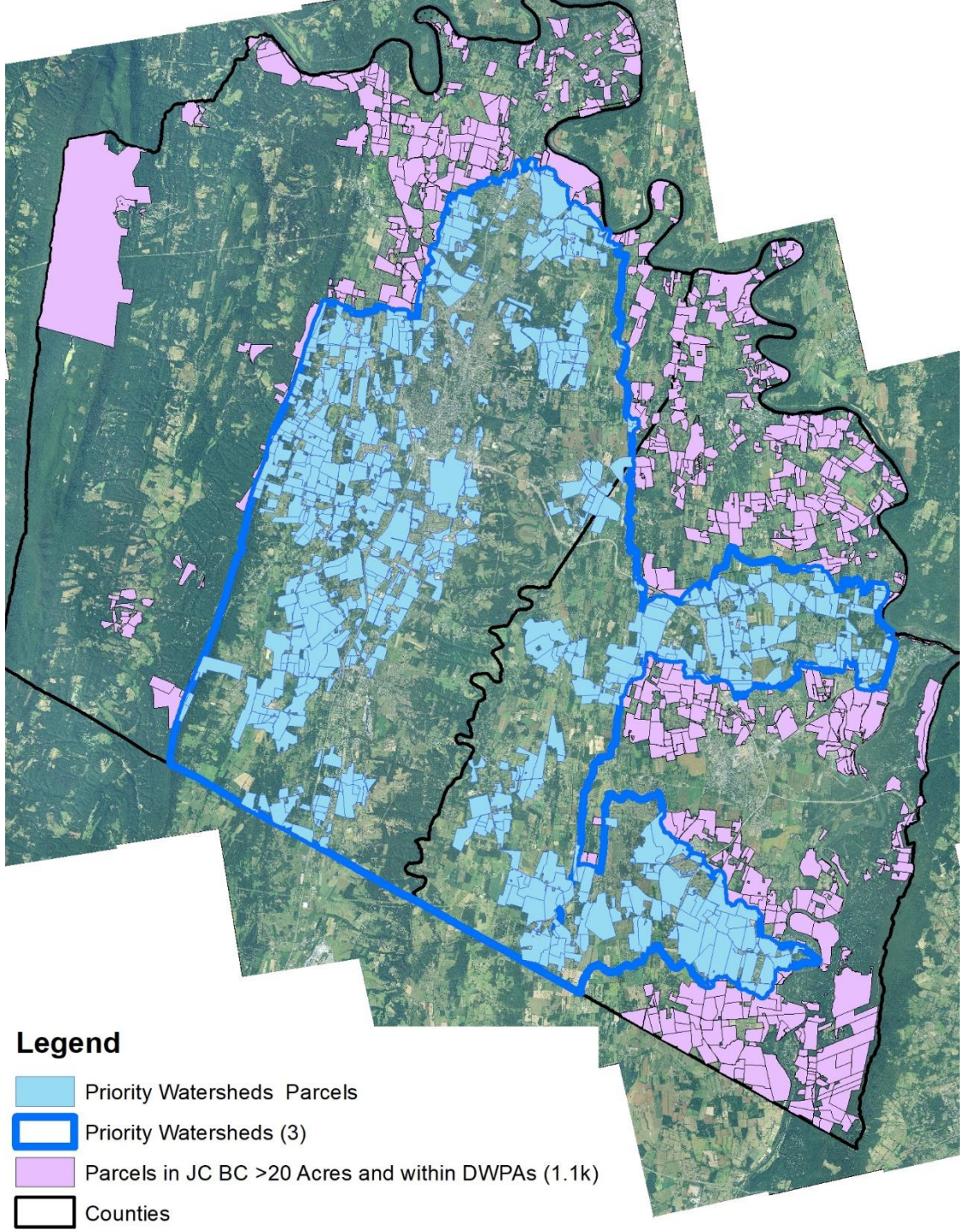
Geographic Indicators

Watersheds

Source: National Hydrography Dataset 2018 (WVU GIS Clearinghouse)

Measurement: binary, either parcel is within priority watershed or it is not

Justification: We are focusing on these three priority watersheds will protect water quality for all five municipalities in Jefferson County (Opequon → Shepherdstown, Elks Run → Harpers Ferry & Bolivar, and Bullskin Run → Charles Town & Ranson). Opequon and Bullskin Run flow downstream to the municipalities, whereas the Elks Run is the source of drinking water for Harpers Ferry & Bolivar. There are also multiple utilities that serve a large number of customers in the Opequon Watershed from groundwater sources.

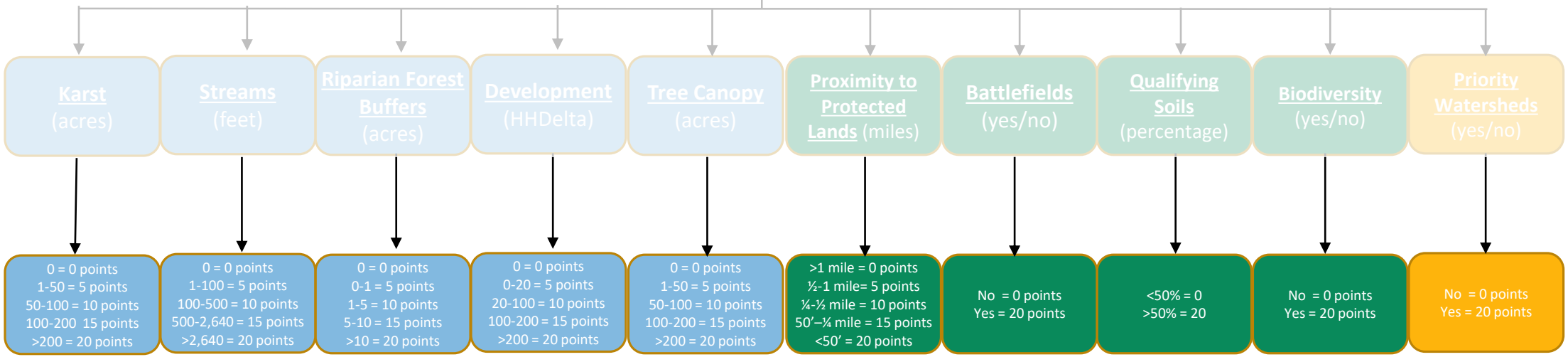


Prioritization Model v1

Step 3 – Assign 0-20 scores based on thresholds

Filtered parcels >20 acres in size and within Drinking Water Protection Areas (resulted in ~1,100 “targeted parcels”)

Intersect data with Parcels, calculate measurement, Join back with Parcels.



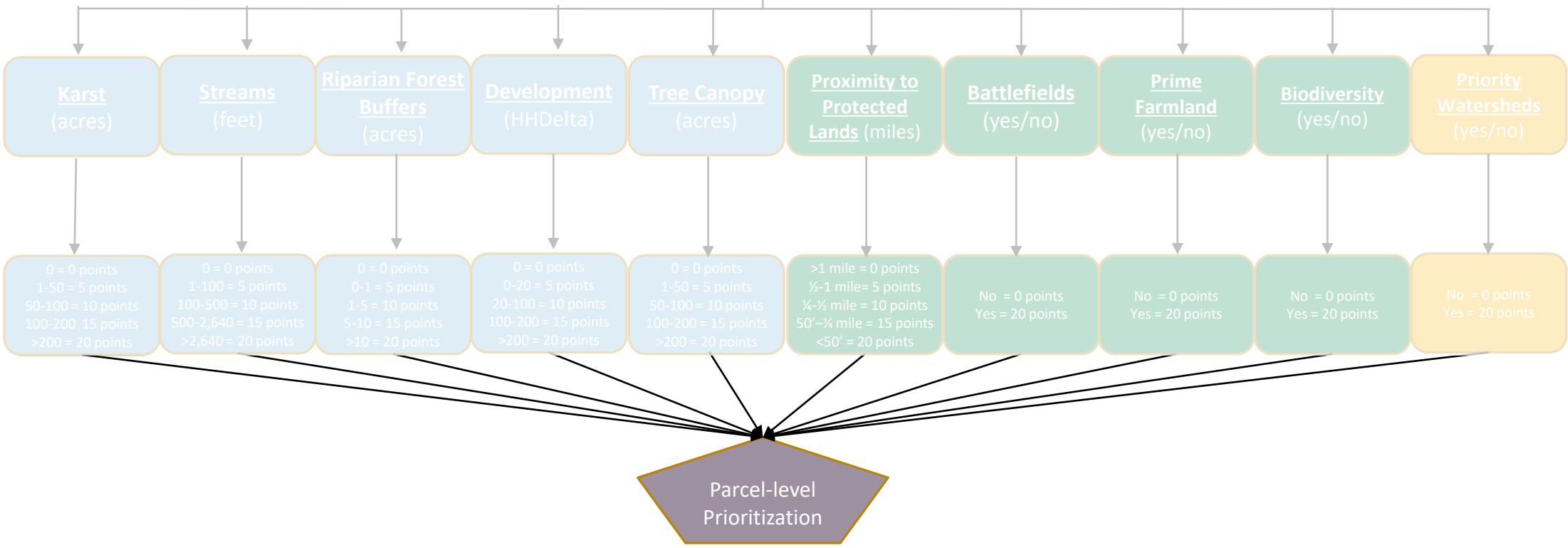
Assign 0-20 scores based on pre-defined thresholds

Prioritization Model v1
Step 4 – Add scores together

Filtered parcels >20 acres in size and within Drinking Water Protection Areas (resulted in ~1,100 "targeted parcels")

Intersect data with Parcels, calculate measurement, Join back with Parcels.

Assign 0-20 scores based on pre-defined thresholds

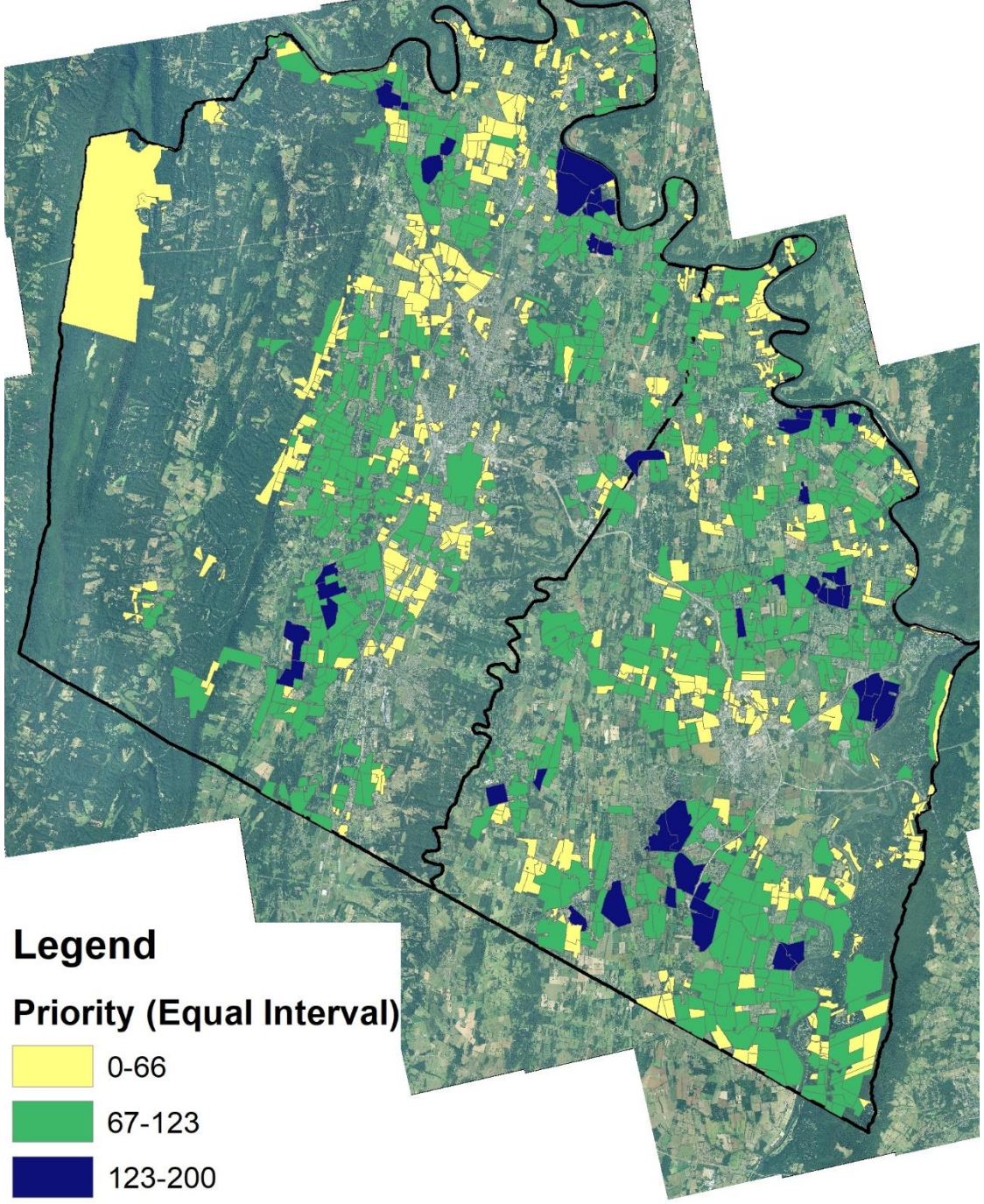


Add the 10 scored values together. Parcels closer to 200 are priority

Prioritized Maps
"Equal Interval"

This map uses a tan-green-blue color scheme for low-medium-high priorities, respectively, as opposed to red-green color scheme. This is intentional. It is important to note that all of the targeted parcels, if protected, would have a positive impact on protecting our drinking water supplies, as they are large parcels within drinking water protection areas.

This symbology on this map displays the data based on "Equal Intervals", wherein ArcGIS "divides the range of attribute values into equal-sized subranges…and the class breaks based on the value range are automatically determined."



2019-2020 objectives (abbreviated)

- Prioritizing high-value land to conserve
  - Completed GIS Prioritization Model (v1)
  - Survey open to gather feedback – take the survey now
- Engaging landowners in conversations about protecting drinking water through land conservation
  - Created “Landowner Outreach Matrix” based on who-knows-who survey
  - Planning 3 landowner outreach events in spring 2020
- Educating existing easement holders about conservation best management practices
  - Developing a “BMP Toolkit” for easement monitors to educate landowners about BMPs

Next Steps for Steering Committee

- Finalize “Operations Guide”
- Begin development on financing strategy for short-term stability and long-term sustainability

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