

# Development of a Web-based Geographic Information System to Support Project Review and Resource Management within the Upper Delaware Scenic and Recreational River Corridor

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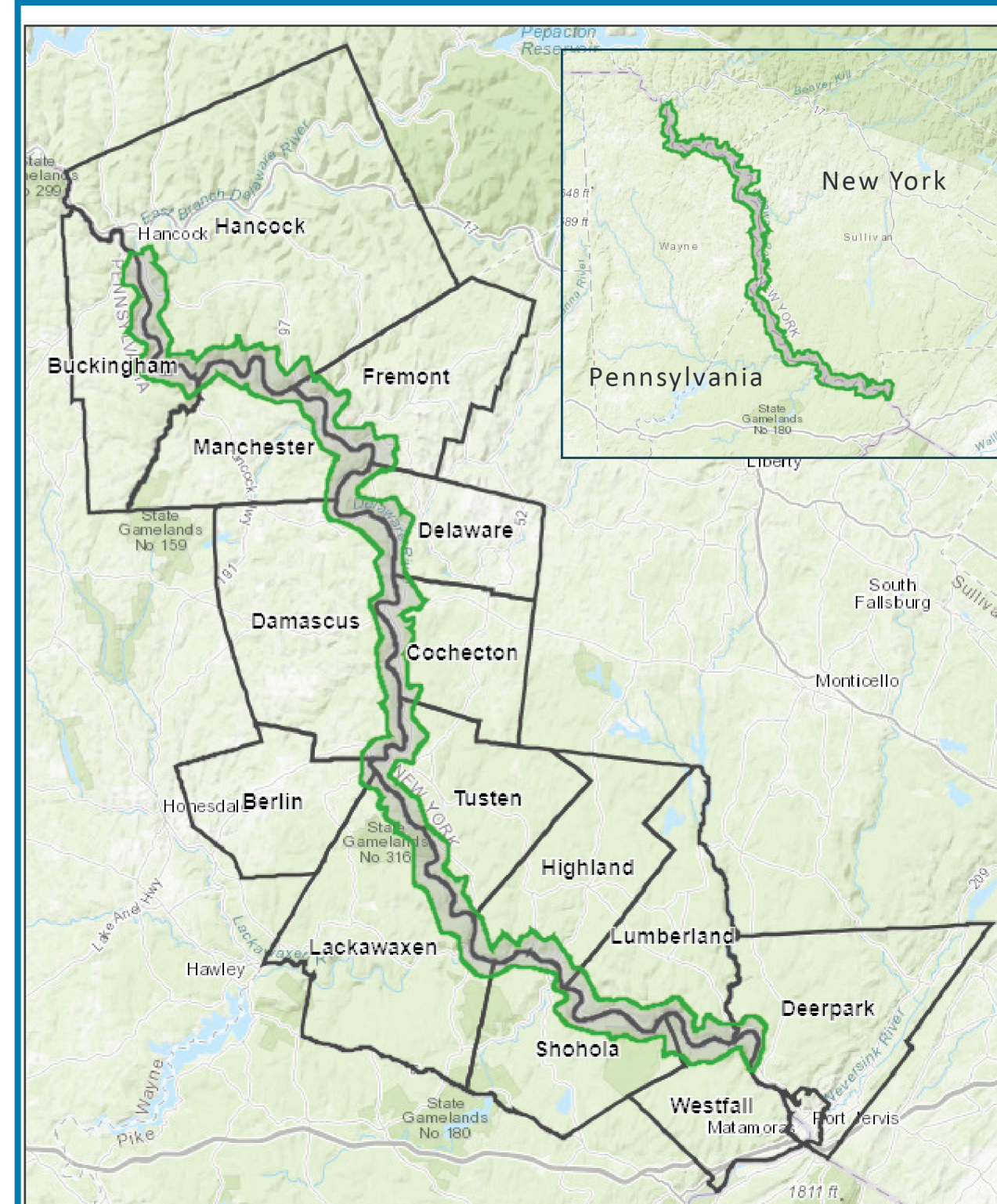


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## Background

Geographic Information Systems provide specialized ways to view and monitor the natural, scenic, recreational, and other qualities located throughout the Delaware River region. To protect these resources, projects occurring in or near the Upper Delaware Scenic and Recreational River corridor must undergo a process called “project review” to ensure it substantially conforms to the Land and Water Use Guidelines outlined in the River Management Plan. In September 2016, the Shippensburg University Center for Land Use and Sustainability (CLUS) entered a partnership agreement with the National Park Service Upper Delaware Scenic and Recreational River to create, launch, and maintain a spatial decision support tool to aid in project review and resource management. Using ArcGIS Online, the Center created a custom web application containing boundary, zoning, parcel, address, slope, wetlands, flood hazards, and other data layers for the 15 municipalities that form the river corridor.

## River Management



**Fig 1:** The Upper Delaware Scenic and Recreational River includes 73.4 miles of the Delaware River from Hancock, NY to Mill Rift, PA forming the border between Pennsylvania and New York. The corridor encompasses 5 counties and 15 municipalities.

local governments from the five counties and fifteen municipalities that make up the river corridor, form the Upper Delaware Council (UDC). The UDC works collaboratively with the NPS to preserve the outstanding qualities for which UPDE was designated through policies outlined in the River Management Plan (RMP) and Land and Water Use Guidelines. These documents require that any proposed project within or near the river corridor be reviewed by the NPS or the UDC for substantial conformance to the RMP.

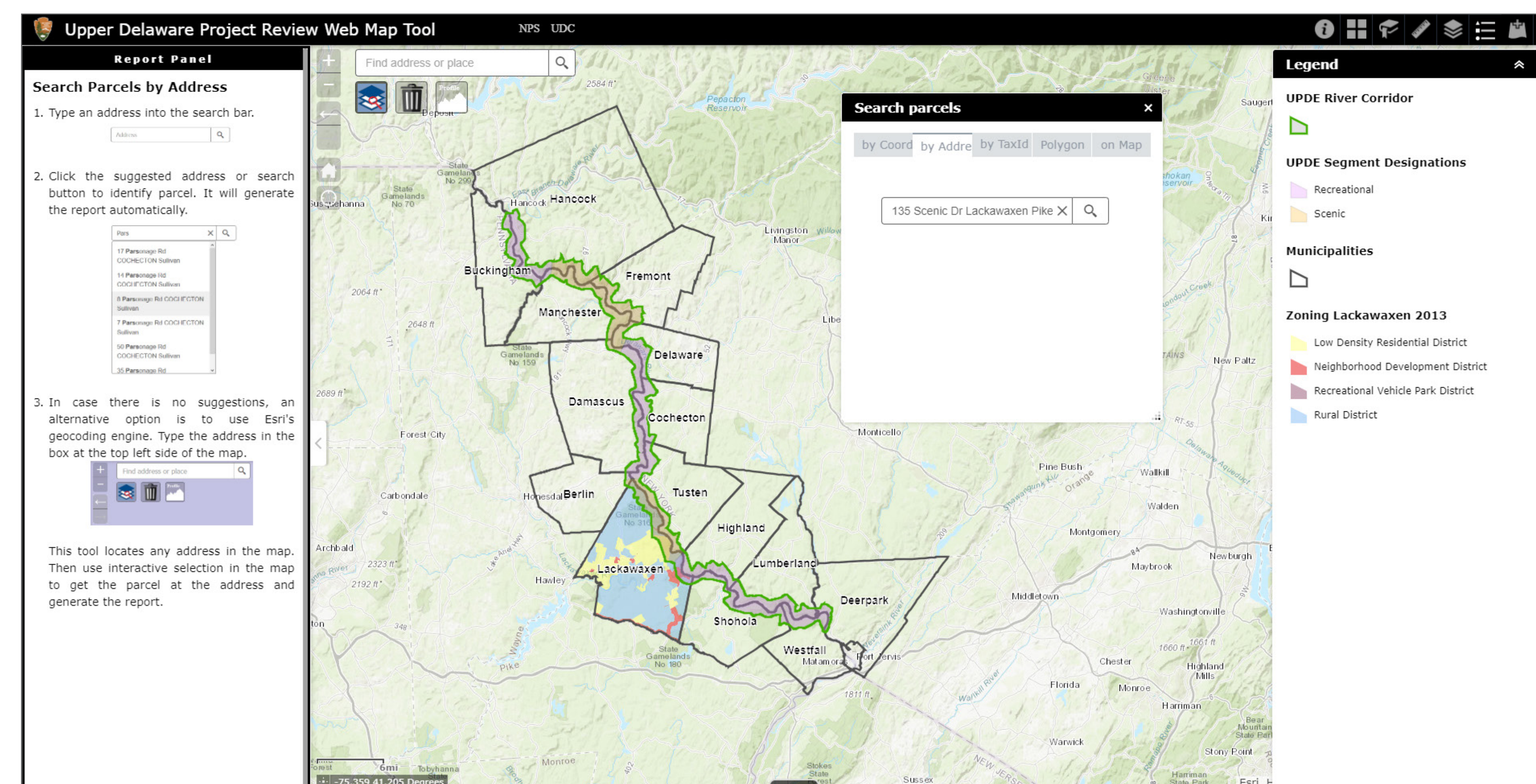
In 1978, Congress designated the Upper Delaware Scenic and Recreational River (UPDE) as a unit of the National Wild and Scenic Rivers System to protect the scenic, recreational, ecological, cultural, and geological resources found within the corridor. This requires coordinated management of land and natural resources throughout the corridor by the National Park Service (NPS) and river management partners. These partners, including the Delaware River Basin Commission, Pennsylvania and New York state governments, and

## Project Review Tool

Zoning, parcel, and address data were collected from all counties and town/ships in the corridor. An update schedule and procedure was established to ensure the tool uses the most current versions of data. Alfonso Yáñez Morillo, CLUS Research Analyst, created the tool using a custom ArcGIS Online web application. A custom application allows for better security of data containing Personally Identifiable Information included in the tool.

Project review begins by identifying the area of interest (AOI) where a project takes place. Using the tool, the user can search for the project area in multiple ways: by entering coordinates, searching an address, using a tax-ID number, or directly selecting parcels on the map. When searched, the tool zooms to the AOI and generates a report.

The opening view of the tool displays the river corridor, segment designations, and municipality boundaries. An instruction panel on the left directs the user how to use the tool and search for parcels. The instructions are replaced by the report when an analysis query is completed.



**Fig 2a:** For this example, the zoning layer for Lackawaxen Township is turned on displaying the zoning for that municipality. Using the Search Parcels panel, the address for the Zane Grey Museum is entered into the search box.



**Fig 2b:** When a parcel is searched, the tool zooms to the AOI and generates a report. The report identifies the parcel's tax-ID, locational and topographic information, and information for each layer that is turned on.



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**Fig 3:** Traditional project review requires river management partners to identify resources and land use regulations surrounding a project's site by mentally overlaying paper maps of the corridor's boundary, slope, zoning and others. This process is inefficient and subject to human inaccuracies (C. Hauser-Hahn, UPDE Management, shown conducting traditional project review using a collection paper maps) (Thol, 2016).

## Future

Development of the application is currently ongoing and only available to a small user group of project collaborators and NPS data managers. When the tool is complete, all river management partners will have access to the tool to aid in project review. The CLUS will host user group meetings to demonstrate effective use of the tool and work with UPDE partners to create a user manual.

UPDE is similar to Partnership Wild and Scenic Rivers in that each are managed cooperatively with the NPS, local governments, councils, watershed groups, and organizations. With the success of this project, these partnership rivers can adapt the work flow developed during the construction of this tool to create their own applications for shared resource management.

## References

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