

## Essential Protected Lands Data Standards and Best Practices Chesapeake Bay Program and Chesapeake Conservation Partnership

This document outlines best practices for developing and maintaining geospatial data related to protected lands. An accurate Chesapeake Bay watershed protected lands geospatial dataset is essential for tracking progress toward multiple Chesapeake Bay Watershed Agreement goals. It is also crucial for ensuring state and local governments and non-governmental organizations have accurate annual land protection data on which to base projections included in Bay TMDL Watershed Implementation Plans.

### Background:

Since 2010 and every two years after, US Geological Survey staff in the Chesapeake Bay Program have undertaken a comprehensive data collection and aggregation process to create one complete GIS based dataset representing all of the permanently protected lands in the Chesapeake Bay watershed. Due to the multiplicity of entities actively protecting land this is no small undertaking. Data is aggregated from multiple Federal, State, and non-governmental organizations and the attribute tables are standardized to have consistent fields. More recent updates rely heavily on the Protected Areas Database (PAD\_US) and National Conservation Easement (NECD) databases and their advances in the coordination and standardization of protected areas and easement property datasets. However, the Chesapeake Bay Program still relies on obtaining data directly from jurisdictions and other authoritative data sources to supplement national datasets and ensure the most accurate and timely Chesapeake watershed dataset.

This document clarifies standards and best practices for data managers to improve geospatial data and facilitate comparison and aggregation of data from multiple sources.

To reduce duplication of efforts, the Chesapeake Bay Program has *generally* adopted the PAD\_US standards that seek to define a common protocol for sharing authoritative protected areas data between agencies and organizations. This will ultimately result in a comprehensive and accurate dataset of protected areas for the United States to meet multiple needs at a variety of scales.

Recent developments have made the importance of accurate tracking even more evident. The Chesapeake Bay Program has moved toward crediting conservation and planning in the Bay TMDL.<sup>1</sup> To properly “account” for land conservation in the Bay TMDL context, it is imperative that incoming geospatial land conservation data contain key attributes. Of particular importance: data must contain a “**Date of Protection**” field specifying the date the property was legally protected through fee acquisition or conservation easement. This allows CBP modelers and partners to determine an annual rate of land

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<sup>1</sup> Land conservation can improve water quality by:

1. Using permanently protected lands as the most reliable substrate for installing, monitoring, and maintaining Best Management Practices (BMPs) (e.g., planting trees in the riparian zone);
2. Reducing the future conversion of land to more polluting land uses e.g., placing an easement on land that would otherwise be developed.
3. Soliciting restoration investments on conserved lands that are strategically located to intercept pollutants before they enter streams and waterways (e.g., precision conservation).

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conservation that can be used to forecast the offset of future growth and development and thereby the pollution reduction of associated conserved lands. Further, it helps ensure the most accurate tracking of progress toward land protection goals.

**MINIMUM Required Chesapeake Bay Watershed Protected Lands Data Attributes:**

A list of the minimum required data attributes for each property included in GIS datasets within the Chesapeake Bay watershed follows. All fields are **required**. This represents a subset of the broader set of PAD\_US attributes. Completion of all recommended PAD\_US attributes is beneficial, but the list below represents the minimum standards for the Chesapeake Bay watershed. Additional details, examples and guidance on PAD\_US can be found at [PAD\\_US metadata](#) and in the [PAD\\_US Standards and Methods Manual](#).

**Category:** General category for the protection mechanism associated with the protected property.

<i>Code</i>	<i>Description</i>
Fee	The most common way real estate is owned.
Easement	A conservation easement creates a legally enforceable land preservation agreement between a landowner and government agency or qualified land protection organization (i.e. land trust).
Other	Other types of protection include mixed protection, leases, agreements or those over marine waters.
Unknown	There is a good degree of certainty the parcel is protected but the exact mechanism is unknown.

**Owner Type:** General land owner type *of the fee property interest*, standardized for the US.

<i>Code</i>	<i>Description</i>	<i>Comments</i>
FED	Federal	Fee interest owned by federal agency.
TRIB	American Indian Lands	Fee interest owned by tribal government.
STAT	State	Fee interest owned by state agency.
DIST	Regional Agency Special District	Fee interest owned by regional agency or water district not bound by a specific jurisdiction.
LOC	Local Government	Fee interest owned by city, township or county agency.
NGO	Non-Governmental Organization	Fee interest owned by non-governmental organization such as land trust, conservancy etc.
PVT	Private	Fee interest privately held by individual or corporation; e.g. privately owned lands conserved through an easement held by another entity like a state or NGO.
JNT	Joint	Fee interest held by more than one type.
UNK	Unknown	Unknown owner.

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**Owner Name:** Owner *of the fee interest* of the property, standardized for the nation.

<i>Code</i>	<i>Description</i>	<i>Code</i>	<i>Description</i>
0110	Bureau of Land Management (BLM)	0380	State Department of Transportation
0115	Bureau of Ocean Energy Management (BOEM)	0385	State Department of Mental Health
0125	Fish and Wildlife Service (FWS)	0390	State Department of Agriculture
0130	Forest Service (USFS)	0395	Other State Land
0135	Department of Defense (DOD)	0410	Regional Agency Land
0140	Department of Energy (DOE)	0420	Regional Water Districts
0145	National Park Service (NPS)	0510	City Land
0150	Natural Resources Conservation Service (NRCS)	0520	County Land
0155	Agricultural Research Service (ARS)	0610	Audubon Society
0160	Bureau of Indian Affairs (BIA)	0620	Land Trust
0165	National Oceanic and Atmospheric Administration (NOAA)	0630	The Nature Conservancy (TNC)
0170	Other Federal Land	0640	Ducks Unlimited
0220	Native American Land	0650	Private University
0310	State Park & Recreation	0655	Private Corporation
0315	State Department of Conservation	0660	Private Non-Profit
0320	State Land Board	0710	Private Landowner
0325	State Department of Environment	0720	Private Institution
0330	State Fish and Wildlife	0800	Joint Ownership
0335	State University	0810	Other Ownership
0340	State Department of Natural Resources	0910	Unknown
0360	State Coastal Reserve		
0365	State Natural Heritage Program		
0370	State Cultural Affairs		
0375	State Historical Society		

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**Local Owner:** The *actual name of the owner of the fee interest* (spelled out, not abbreviated) to complement the standardized 'Owner Name' above. For example, if "State Fish and Wildlife" is the standardized 'Owner Name' "Pennsylvania Fish & Game Commission" would be a possible "Local Owner" name. Note: it is not necessary to identify the actual owner name for privately held properties; just use "Privately owned".

**Easement Holder Type:** Where the 'Category' of protection code (above) is listed as "Easement", this field must specify the type of holder of the easement, standardized as follow.

<i>Code</i>	<i>Description</i>	<i>Comments</i>
FED	Federal	Easement held by federal agency.
TRIB	American Indian Lands	Easement held by tribal government.
STAT	State	Easement held by state agency.
DIST	Regional Agency Special District	Easement held by regional agency or water district not bound by a specific jurisdiction.
LOC	Local Government	Easement held by city, township or county agency.
NGO	Non-Governmental Organization	Easement held by non-governmental organization such as land trust, conservancy etc.
PVT	Private	Easement privately held by individual or corporation (unlikely)
JNT	Joint	Easement held by more than one type.
UNK	Unknown	Unknown owner.

**Easement Holder:** Where the 'Category' of protection code (above) is listed as "Easement", this field must indicate the *actual name of the holder of the conservation easement* (spelled out, not abbreviated). For example, Virginia Outdoors Foundation, Eastern Shore Land Conservancy, etc.

**Unit Name:** The name of the land management unit or protected area standardized to Proper Case with acronyms spelled out (e.g. Shenandoah National Park not NP). This means the management unit with which the property is affiliated or managed. For example: Tuckahoe State Park, Bald Eagle State Forest, Pyfer Nature Preserve. Note: some private lands under conservation easement may not be associated with any formally named land management unit.

**State Name:** Name of state spelled out in Proper Case.

**Aggregator source:** Organization, aggregated database name and contact name credited with data aggregation. Attributed in the format 'organization name\_filenameYearPublished filetype' (e.g. TNC\_SecuredAreas2008.shp).

**GIS Source:** The original source of GIS spatial and attribute information the aggregator obtained (e.g. WYG&F\_whmas08.shp) for each record. Preferably, this should reference the authoritative data provided by the land manager. Files names should match original source data to facilitate future updates.

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**GIS Source Date:** The date (yyyy/mm/dd) GIS data was obtained by the data source for aggregation. If month or day is unknown, use 00. This date represents the best available data the GIS source has to support management and decision making at the time.

**GIS Acres:** Acres calculated for each polygon converted from the Shape\_Area Field.

**Date of Protection:** The year (yyyy) the property was legally protected via fee acquisition or enactment of a conservation easement.

**Source Protected Area ID:** A unique identifier available from the aggregator's data that differentiates each parcel within a protected area (or the protected area if parcel are unavailable).

**Access:** Accessibility of the property to the public, standardized

<i>Code</i>	<i>Description</i>
OA	Open Access
RA	Restricted Access
XA	Closed
UK	Unknown