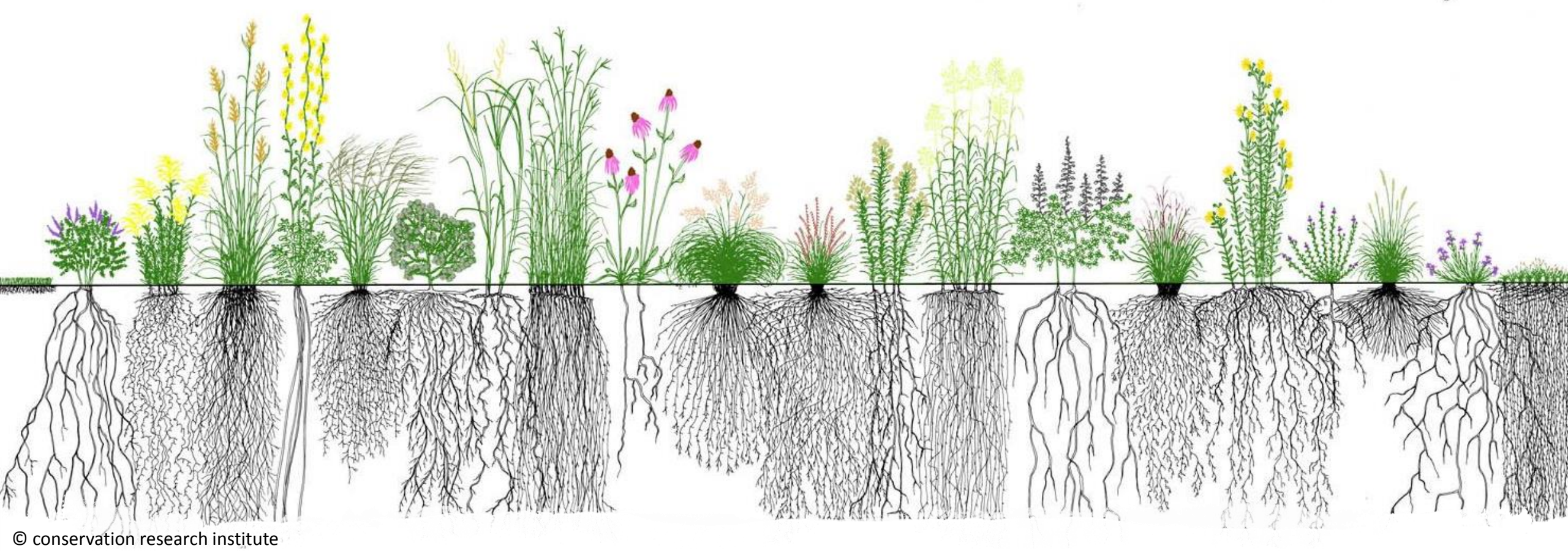
CCWMO Stormwater Workshop 2019



UPLAND PRESERVES IN THE WMO

- Decrease the **volume** and **rate of runoff** by preserving soil absorption and plant uptake
- Under permanent conservation easement
- Volume practice only

Upland Preserves in the WMO

1

wooded

15

upland preserves approved

12

prairie

59 ac

upland preserve area

2

wooded/prairie

What areas qualify?

1. **Permanently preserved** areas consisting of trees or predominantly native vegetation

2. Areas **restored** to predominantly native vegetation

Not eligible:

- Areas within setbacks (steep slopes, wetland buffers)
- Areas receiving other volume credits or park dedication

How is upland preserve credited?

0.5” over the area preserved or restored

for constrained sites

1.0” over the area preserved or restored

for unconstrained sites

How is upland preserve credited?

Total Impervious Area (Acre)	1.00
Impervious Area (SQ FT)	43,560
Total Area (Acre)	5.00
Constrained Area (Acre)	4.00
Constrained Site	Yes
Volume to be Retained	1,815

BMP ID#	Select BMP (Drop down)	BMP Details (Volume, Area)	Units	Volume Reduction
Up Pres	Upland Vegetation (Square Feet)	50,000	Square Feet	2,083
	Select BMP	(Enter BMP Details Here)	Unit	
	Select BMP	(Enter BMP Details Here)	Unit	
	Select BMP	(Enter BMP Details Here)	Unit	
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	Select BMP	(Enter BMP Details Here)	Unit	
			Total Volume Treated	2,083
			Percent of Requirement	>100%
			Do BMPS have enough Capacity?	YES

What does the WMO review for?

Documentation

Section 1. Conservation Easement Area. Declarant hereby grants a conservation easement over the Conservation Easement Area in favor of the County. The conservation easement shall run with the land and be binding upon Declarant's successors and assigns. The purpose of the conservation easement is to preserve and protect in perpetuity the conservation value of the Conservation Easement Area, by restricting the future development, management and use of the Conservation Easement Area. To that end, the following restrictions are placed upon the Conservation Easement Area:

A. Industrial and Commercial Activity. No industrial or commercial activities may be conducted upon the Conservation Easement Area.

B. Agricultural Use. No agricultural activities may be conducted upon the Conservation Easement Area. Prohibited agricultural activities include, without limitation, tilling, plowing, haying, planting and harvesting of row crops, or the keeping, breeding, feeding or grazing of poultry, swine, cows or any other livestock.

C. Residential Development. No residential use or development of the Conservation Easement Area is allowed.

D. Right of Way. No right of way shall be granted across the Conservation Easement Area, in conjunction with any industrial, commercial, or residential use or development of other adjacent land not protected by this easement; provided, that nothing in this paragraph shall impose any duty on the part of the Declarant to contest any eminent domain or other similar proceeding, or other taking by any federal, state or local government entity or agency.

E. Subdivision. The Conservation Easement Area may not be subdivided or partitioned, and may hereafter be conveyed only in its entirety as a single parcel, except as otherwise agreed by the County in each instance.

F. Density. No portion of the Conservation Easement Area may be used to satisfy land area requirements for other property not subject to this easement, for purposes of calculating building density, lot coverage, or open space under otherwise applicable laws, regulations, or ordinances controlling land use.

G. Structures and Improvements. No temporary or permanent buildings, structures, above ground utilities, roads or other improvements of any kind may be placed or constructed on the Conservation Easement Area.

(i) Electrical lines, sanitary sewer, and municipal water mains may be maintained, repaired and replaced only to serve uses and activities already occurring adjacent to the property, or as otherwise hereafter approved by the County. Communications towers, electrical transmission towers and lines, wind turbines, and other similar structures will not be permitted, without prior written approval of the County in each instance.

(ii) No billboards or other signs may be placed or maintained on the Conservation Easement Area, other than small, unlighted signs for notice purposes, such as "no trespassing" or "private property" signs.

(iii) No roads or trails may be constructed or used on the Conservation Easement Area.

H. Dumping. No trash, non-compostable waste, hazardous or toxic substances, junk, or other unsightly material or debris may be dumped or accumulated on the Conservation Easement Area.

I. Topography And Surface Alteration. No alteration or change in the topography of the surface of the Conservation Easement Area is allowed. Ditching, draining, filling, grading and excavation or removal of soil, sand, gravel, rock or other materials, are not permitted, except where incidental to activities or uses specifically permitted by this easement.

J. Water. No alteration or manipulation of natural watercourses, ponds, lakes, wetlands or other surface or subsurface bodies of water is allowed, except to restore or enhance wildlife habitat or native biological communities, or to improve or enhance the function and quality of existing wetlands, in accordance with a habitat management plan approved by the County.

K. Storage. The Conservation Easement Area may not be used for any kind of storage, whether above or below ground, specifically including boats, vehicles, equipment, etc.

L. Vegetation Management. No removal, cutting, pruning, trimming or mowing of any trees or other vegetation, and no introduction of non-native species, is allowed, except as follows:

(i) In conjunction with the establishment and maintenance plan, or as otherwise specifically permitted by the County.

(ii) As reasonably required to prevent or control insects, noxious weeds, invasive vegetation, disease, fire, personal injury, or property damage.

(iii) To remove fallen or dead trees, and to gather firewood for personal use, or as otherwise provided in the following paragraph.

Notwithstanding the foregoing restrictions, Declarant retains all rights associated with ownership and use of the Conservation Easement Area, including but not limited to (i) the right to sell, give, lease, mortgage or otherwise encumber or convey the Conservation Easement Area, subject to this Declaration, and (ii) the right to maintain, restore and enhance habitat for native wildlife, native plant life and native biological communities; provided the exercise of such rights must not have a material adverse impact on the open space, conservation value of the Conservation Easement Area. Additionally, the County must be notified before exercising any reserved rights that might have a material, adverse impact on the conservation value of the Conservation Easement Area.

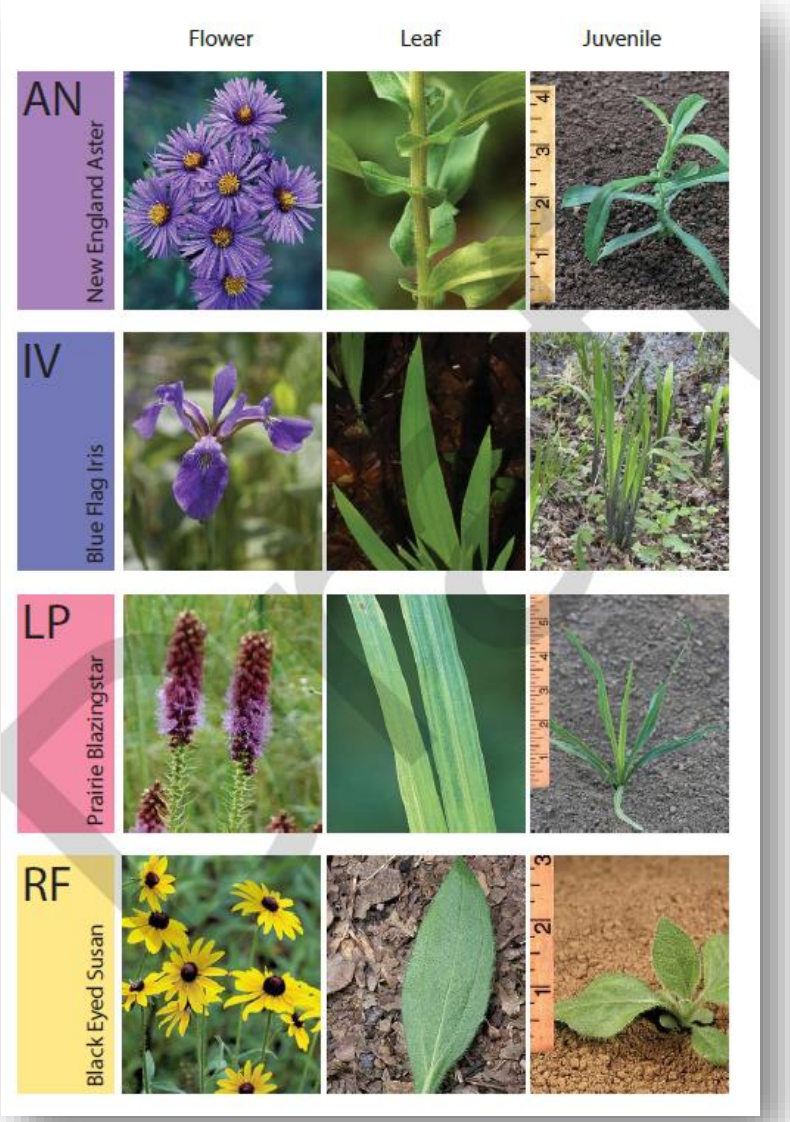
Monumentation

What does the WMO review for?

Protection during construction

What does the WMO review for?

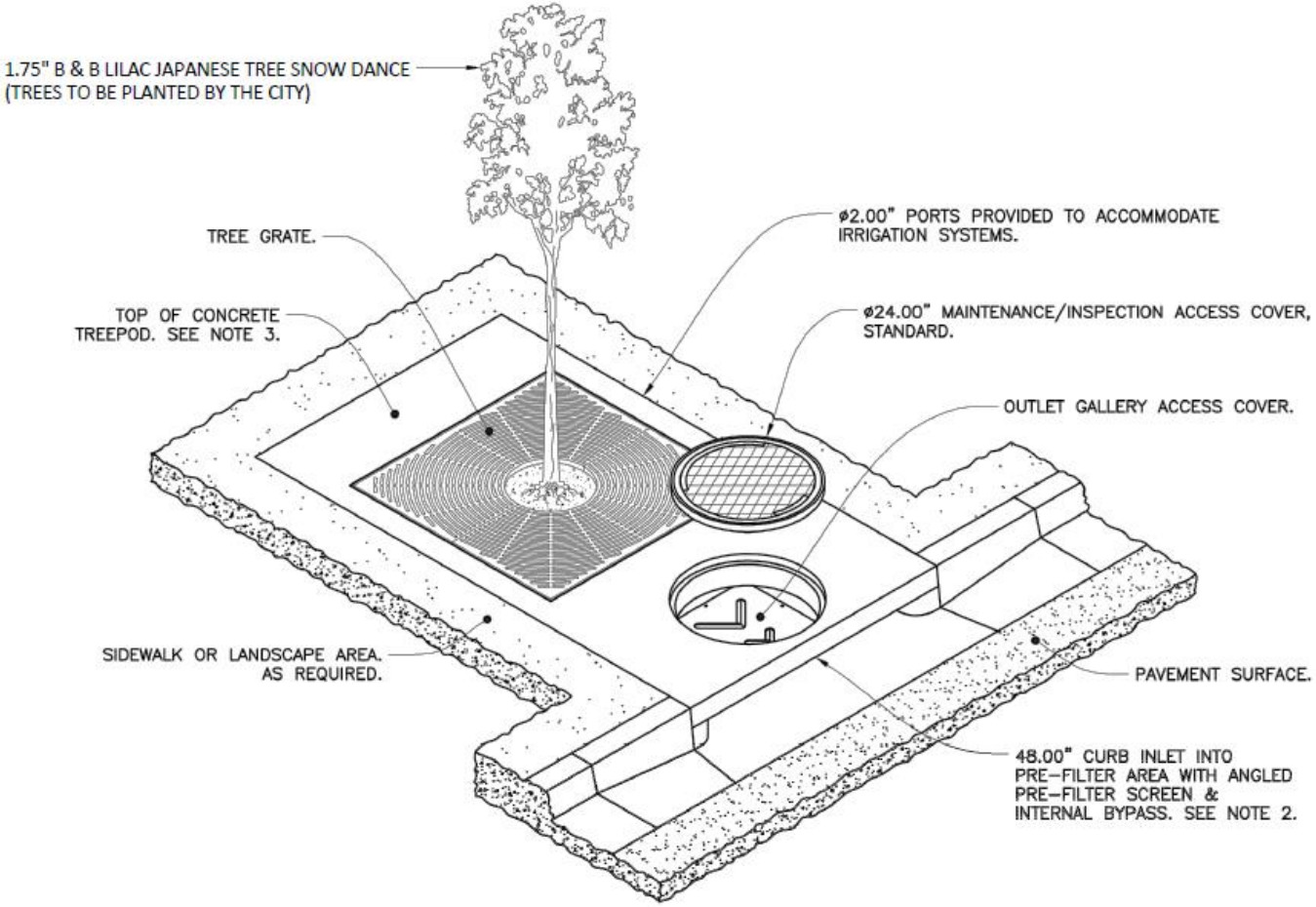
Planting or seeding plan



What does the WMO review for?

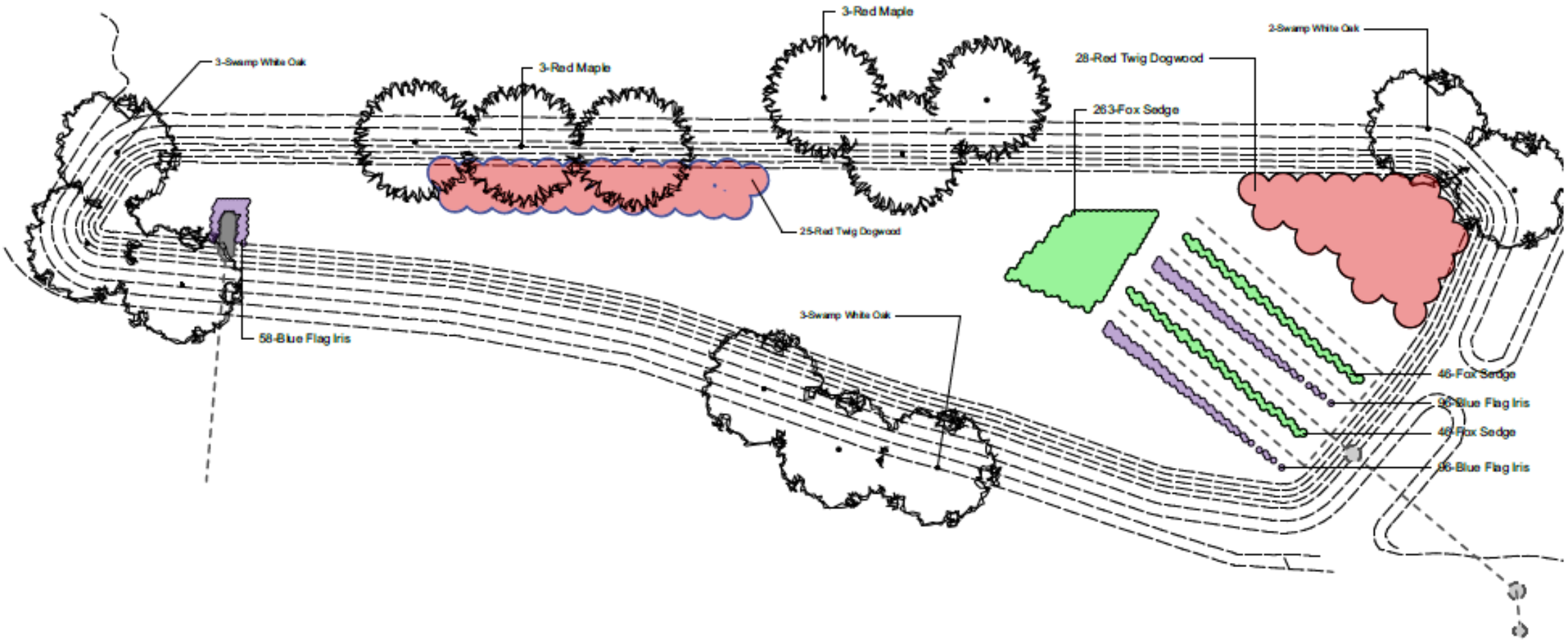
Operation & Maintenance Plan ***Includes establishment**!

Alternative Practices - **Tree Boxes**



© Alliance for Community Trees

Alternative Practices - **Trees near filtration basins**



Permitting Challenges & Lessons Learned

Conservation easement

Communicating requirements early enough

Vegetation contractor and O&M plan

Timing in the permitting process

Challenges faced

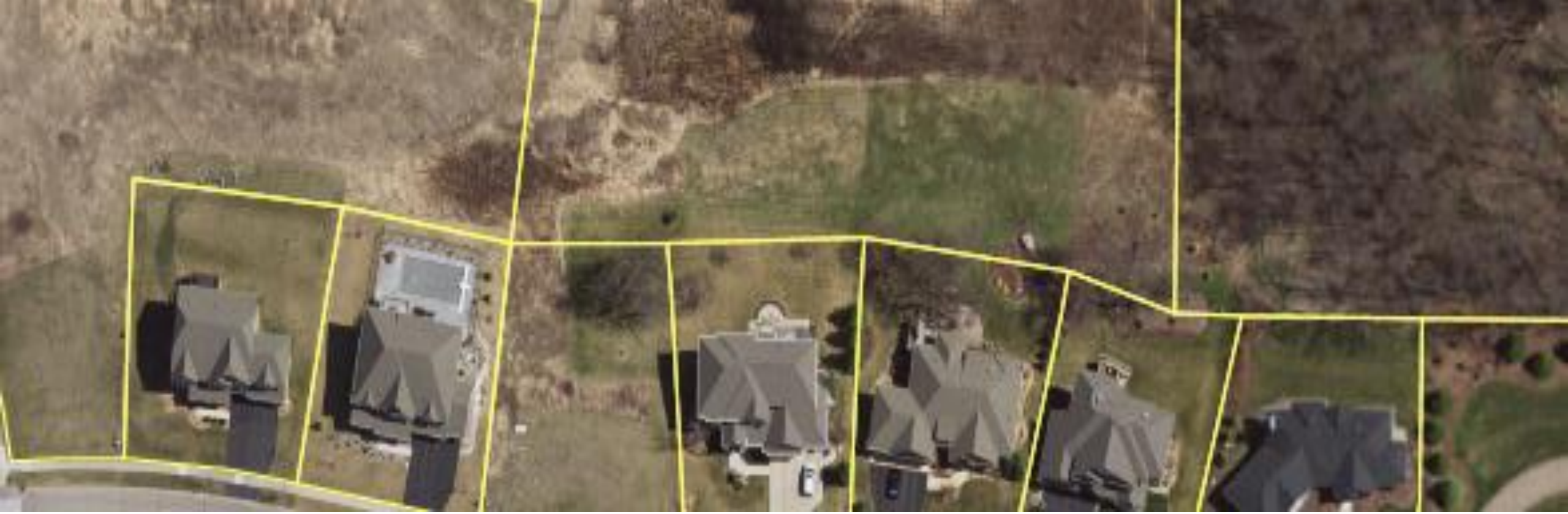
“Who’s in charge around here!?”

(identifying responsible party)

Challenges faced

“The early years matter!”

(keeping to an establishment plan)



Challenges faced

“That’s not my lawn?”

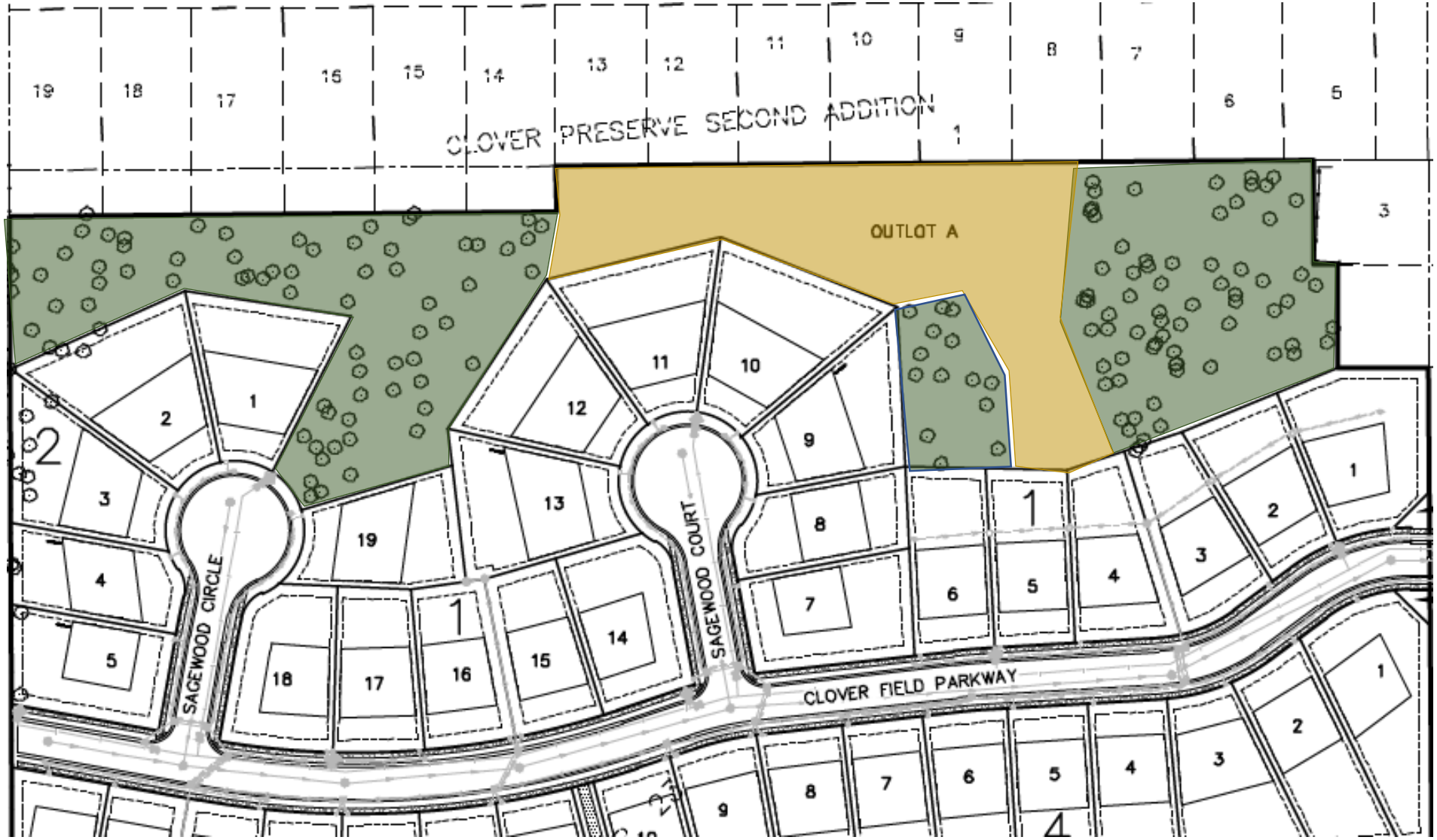
(clearly marking boundaries)

Example – **Peace Lutheran**

Example – Interlaken Woods

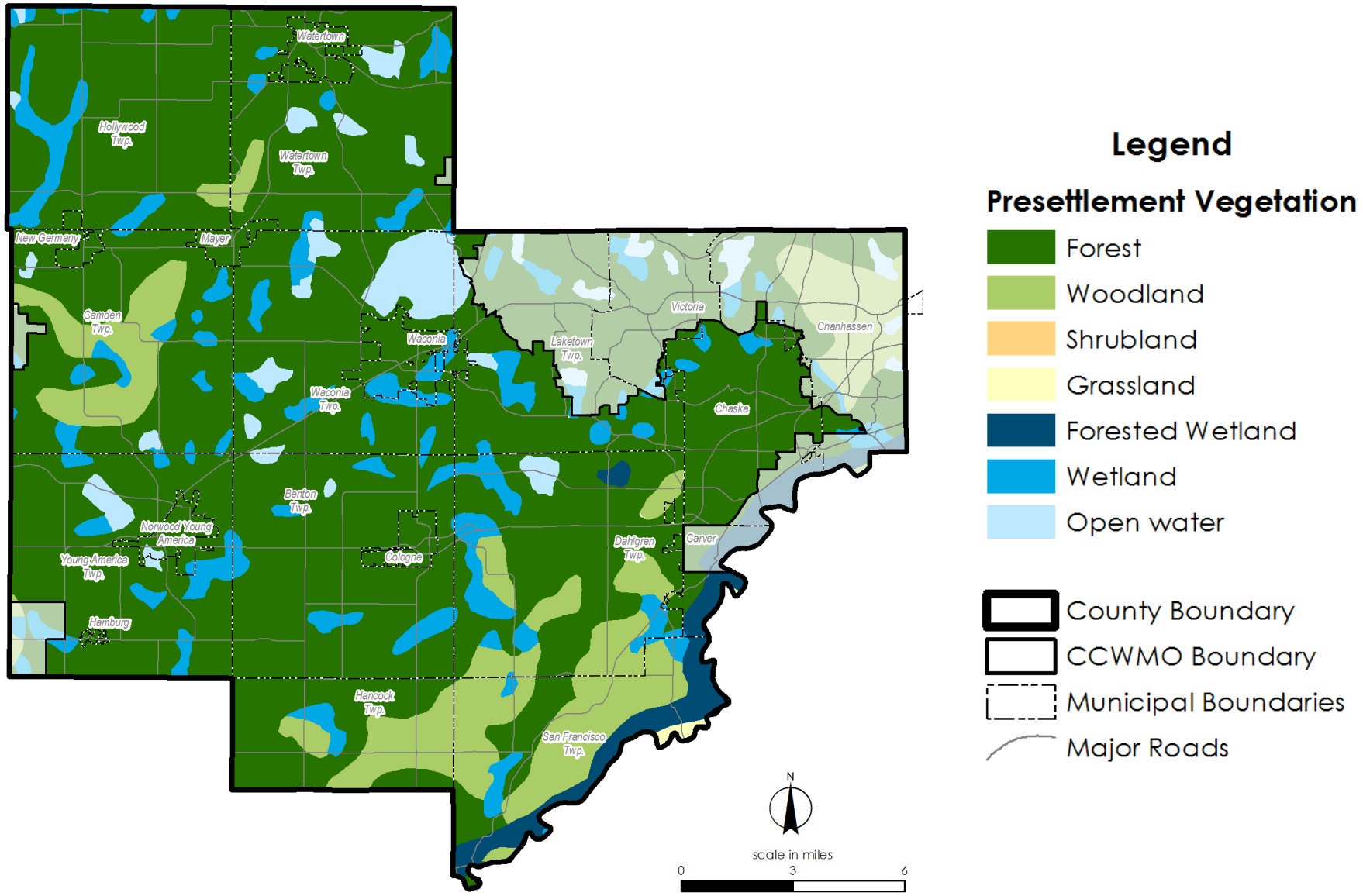
Example - **Sagewood**

Example - **Sagewood**

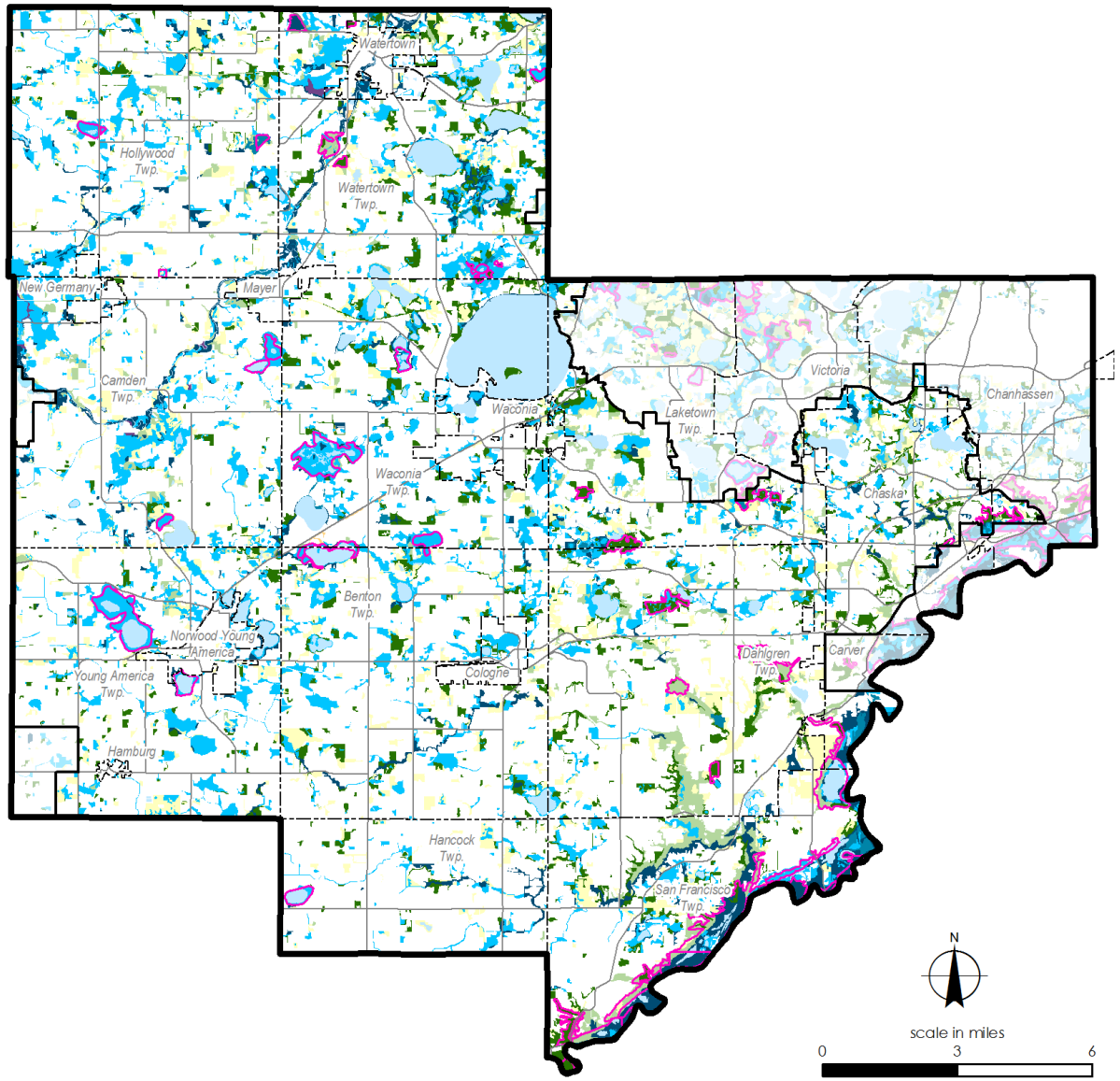


Why Consider Crediting Stormwater Differently? (*for woodlands*)

HISTORIC extent of forest/woodland



CURRENT extent of woodland



Legend

- MCBS Sites of Biodiversity Significance

Natural Areas (MLCCS)

- Forest
- Woodland
- Shrubland
- Grassland
- Sparse Vegetation
- Forested Wetland
- Shrub Wetland
- Wetland
- Open Water

- County Boundary
- CCWMO Watershed Boundaries
- Municipal Boundaries
- Major Roads

Benefits of Trees

Benefits of Existing Trees in Carver County

- Daily ET rates significantly higher in treed mesocosms compared to nonvegetated control
  - Highlights the role of transpiration in bioretention hydrology (8.2-37.5% of average daily water losses)

*from Stormwater Goes Green: The benefit and health of trees in green stormwater infrastructure – University of Tennessee

Benefits of Existing Trees in Carver County

Annual Hydrologic Benefits of Trees*	
2,158.5 MG/yr	Transpiration
1,398.5 MG/yr	Rainfall interception
15.6 MG/yr	Avoided runoff

*from the USDA Forest Service's i-Tree County Benefits Tool

Grassland vs Woodland Curve Numbers (TP 55)

curve numbers for **WOODS** are 3-23 points lower than **grassland***

*depending on hydrologic condition and hydrologic soil group

Potential Rule Changes

1. Increased credit for woodlands vs prairie?
2. Credit by species?
3. Wait for more state/local research and guidance
4. Clarify areas that would receive credits

Input

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