



Conservation, Planning and Zoning

SHORELAND MITIGATION GUIDE

Updated August 2023



Permit Checklist

Use this page to keep track of your progress in the Shoreland permitting and Mitigation process.

Step 1: General Zoning Permit Application

- [Zoning Permit Application](#) (price dependent on project)
- [Site plan](#)
- Submit to CPZ

Step 2: Shoreland

- Navigability Determination (if requested)- \$250
- [Shoreland Alteration Permit Application](#) - \$400.00
- [Setback staking](#) (if proposed project within 100ft of OHWM) - \$175.00
 - Date completed _____
- Impervious Surface calculations
 - Reviewed by CPZ for accuracy.
 - Mitigation determination

Step 3: Need Mitigation?

- Affidavit (provided by CPZ) - \$30.00 recording fee
 - Recorded at Register of Deeds
- Mitigation Plan development - \$175.00 if completed by CPZ (includes \$30.00 affidavit recording fee).
 - Site Visit
 - Date Completed _____
 - Mitigation site plan
 - Implementation timeline

Step 4: Issuance

- Zoning and Shoreland Alteration Permits Issued

While the details enclosed here represent Wisconsin laws and ordinances, they are for educational purposes only. Contact Marathon County Conservation, Planning, and Zoning to see how the information enclosed here applies to you and your parcel.

[Links are red and underlined.](#)

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IT'S ALL ABOUT THE WATER...

Wisconsin is rich in water. With over 15,000 lakes¹ and 12,600 rivers and streams that meander their way through 84,000 miles of varying terrain², it is no wonder as to why protection of this resource can be traced back to the Northwest Ordinance of 1787.³ After the Revolutionary War, there was concern that the new states of the Northwest Territory would impose a tax on the use of the waterways. Therefore, the Northwest Ordinance stated that:

"THE NAVIGABLE WATERS LEADING INTO THE MISSISSIPPI AND ST. LAWRENCE AND THE CARRYING PLACES BETWEEN THE SAME SHALL BE COMMON HIGHWAYS AND FOREVER FREE... 4"

Today, this protection is called the **Public Trust Doctrine**, and per the Wisconsin Constitution, it protects the right of the public to access **navigable water** for transportation, navigation, and recreational activities. It also protects the water quality and aquatic habitat of those waterways. **Navigable water can most simply be defined as any waterway with a bottom (bed) and a side (bank) where you can float a small watercraft, such as a canoe, at any point in time throughout the year.** For many waterways in Wisconsin, this might only be possible during the spring melt, or heavy rainfalls, but nonetheless, these waters are protected for the public. How the state protects the public waterway is through WI NR 115, or the establishment of Shoreland Zoning.

DETERMINING NAVIGABILITY

Are you near a creek, river, lake or other body of water?

To determine if it is a navigable waterway and therefore subject to Shoreland Zoning, consider the following steps. Note that all waterways are considered navigable until determined otherwise by CPZ or the DNR.

Step 1: Visit our [Online Mapping Software](#).

- Locate your parcel (using address, name, or parcel ID number)
- On the left side panel, check boxes next to the following layers: **“Natural Features”**, **“Zoning”**, and **“Photos”**
- Click the plus sign next to **“Natural Features”**
 - Select **“Streams-Rivers”**, and **“Lakes-Ponds”**
 - If a blue layer appears, this is a mapped waterway. But this does not always mean it is considered navigable by the DNR.
- Click the plus sign next to **“Zoning”**
 - Select **“Shoreland Overlay Zoning”**
 - If a blue layer appears and covers the area of your proposed project, you are within an area where Shoreland Zoning applies, and you may need a Shoreland Alteration Permit for your project. Contact CPZ for confirmation.

Step 2: Visit the [DNR Surface Water Data Viewer](#)

- Locate your parcel (using address)
- On the left side panel, check the boxes next to the layers **“Surface Water,”** and **“Air Photos,”**
- Click the plus sign next to **“Surface Water,”**
 - Select: **“24K Hydrography Lakes and Open Water,”** **“24K Hydrography Streams and Rivers,”** **“Intermittent Streams.”**
- These lines are considered navigable waterways by the DNR, and if they are located on your parcel, you may be subject to Shoreland Zoning standards and setbacks. You may need a Shoreland Alteration Permit for your Project. Contact CPZ for confirmation.

Step 3: Apply for a Navigability Determination⁵

- Still unsure if the mapped waterway is considered navigable and therefore puts you within Shoreland Zoning? You can apply for a Navigability Determination from CPZ. We will come out to your parcel and examine the mapped waterway.
- Once complete, information is sent to the DNR who makes the final determination.
- Navigability Determinations are \$250.00 and require you to fill out a form. Contact CPZ to learn more.

Understand the Process: Navigability Determination

"Navigable in Fact" vs. "Navigable in Opinion"

"Navigable in fact" is the process of physically navigating the watercourse with a boat/skiff. This method to determine if a waterway is navigable is not currently used by CPZ as it is so highly variable based on weather conditions and time of year. Instead, the department makes a determination using "navigability in opinion." This process is done by evaluating characteristics of the watercourse such as a defined bed and bank, changes/transitions in vegetation type, and erosion or marks that would indicate higher water levels.

"How can this watercourse be navigable, there is only water a couple of times per year?"

Based on DNR documents, a watercourse can be deemed navigable if it contains enough water to be navigable on a reoccurring basis. Spring snowmelt and large precipitation events, even if they only occur once per year, do meet the DNR's definition of a reoccurring basis.

"Can this watercourse be navigable even with obstructions such as rocks/brush/trees?"

Yes, a watercourse may be deemed navigable even if it is mostly obstructed with debris. If there is the possibility to portage the obstructions, and it is visible through GIS mapping software, the watercourse will likely be found to be navigable. However, any determination can be challenged and the **DNR has the final determination**⁶.

DNR Contacts:

Contact DNR Waterways: DNRWMSPublicInquiry@wisconsin.gov

SHORELAND ZONING STANDARDS

A major way in which the State protects the rights and health of our public waters is through Shoreland Zoning. Wisconsin Ordinance [NR 115](#) establishes **Shoreland Zoning**. The written purpose of Shoreland Zoning is to:

	Maintain safe and healthful conditions		Control building sites, placement of structures, and uses
	Prevent and control water pollution		Reserve shore cover and natural beauty ⁷
	Protect spawning grounds, fish, and aquatic life		

The state has set minimum standards for shoreland zoning and counties are required to adopt them. Marathon County oversees shoreland zoning in all unincorporated areas of the county.

Marathon County

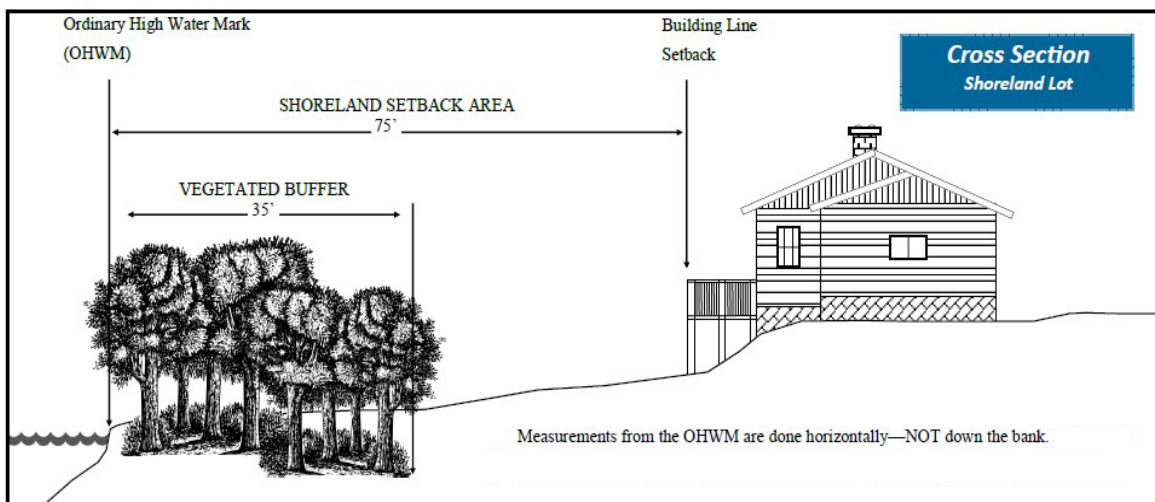
Shoreland zoning standards are upheld by the permitting process. Shoreland permitting is required for projects within 1000 feet of navigable lakes, ponds, and flowages or 300 feet from navigable rivers and streams. All measurements are taken from the Ordinary High Water Mark.⁸ The DNR regulates and permits activities that may impact navigable waters below the OHWM such as rip rap, docks, and boat houses.

The OHWM is defined as the point on the bank or shore up to which the presence and action of the water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or another easily recognized characteristic.⁹

In Marathon County, our shoreland development standards can be simplified as follows:

- 35 feet from the OHWM is protected as a vegetated buffer for runoff.
- Structures must be set back 75 feet from the OHWM
 - EXEMPTIONS from 75 ft setback: boathouses (conditions), open-sided & screened structures, broadcast signal receivers, walkways/stairways/rail systems (max 5 ft in width), utility structures.
- Maximum structure height is 35 feet.
- A viewing corridor is allowed at 35% of the lot width (35 ft to every 100ft, with a maximum width of 200 ft).
- If a walk-out basement is proposed ensure slopes from all directions are no greater than 3:1 (Horizontal: Vertical).

There could be further standards that apply to your lot. Contact CPZ to confirm.



<https://dnr.wisconsin.gov/topic/ShorelandZoning/Programs/program-management.html>

Understand the Process

Setback Staking – Costs \$175.00

If you are proposing a project that is **within 100 feet of the OHWM** you are required to get a setback staking completed by CPZ. Please fill out [this form](#). A setback staking at a minimum will delineate the OHWM and the 35 ft vegetated buffer.

Resources to Understand Zoning

[Zoning Shoreland Science](#)

[Does Shoreland Zoning Work?](#)

[Shoreland Zoning](#)

[Value of Shoreland Zoning](#)

MITIGATION

Mitigation can be understood as counteracting the impacts human development has on an ecosystem. When you develop your property, there are impacts on the surrounding environment in the form of **impervious surfaces**. An impervious surface is any area where water cannot directly infiltrate the soil. This includes but is not limited to, areas such as roofs, decks, driveways, and compacted gravel.¹⁰ With shoreland development, established vegetation is cleared, and impervious surfaces take their place. This leads to areas where water quickly runs over the landscape rather than seeping into the soil and eventually recharging groundwater.

Is Gravel Considered Impervious?

Noncompacted gravel (mulch), such as that used as landscaping material, is generally not considered impervious. However, gravel used for driveways, parking lots, or other high-use surfaces becomes compacted. After compaction, gravel driveways and parking areas will create runoff even during minor rain events. If gravel is used, it should be free of clay and other fine particles to help prevent compaction and “clogging” of spaces between gravel particles. Half-inch or ¾-inch “clear” crushed rock is a good choice for this application. “Clear” indicates that the gravel is virtually free of fine particles. In addition to this, the use of plastic landscaping material underneath previous gravel makes the area impervious.¹¹

Runoff Impacts on Water Quality

Runoff carries with it exposed soil, chemicals, fertilizers, and other pollutants. If there is no barrier to either slow it down or help it infiltrate the soil, runoff will carry those pollutants directly into our surface water. One main pollutant is excess phosphorous, an element of human and animal wastes, soil erosion, detergents, septic systems, and runoff from farmland or lawns.¹² One pound of phosphorous can result in up to 500 pounds of algal growth.¹³ Algal blooms, turbidity, and sedimentation as a result of runoff create cloudy and unhealthy aquatic systems which have ultimately been shown to lower property values. One study completed in Minnesota found that when all other

things are equal, properties on lakes with clearer water had significantly higher selling prices.¹³ It is important to manage runoff on your property to protect the integrity of the public waterway and the value of your investment. If your project requires mitigation the landowner becomes legally responsible for the land disturbance being created and the maintenance of the mitigation measures to account for it.

More Impervious Surface = Less Fish

Fish found in streams when impervious surface in the watershed was:

Less than 8%

8 - 12%

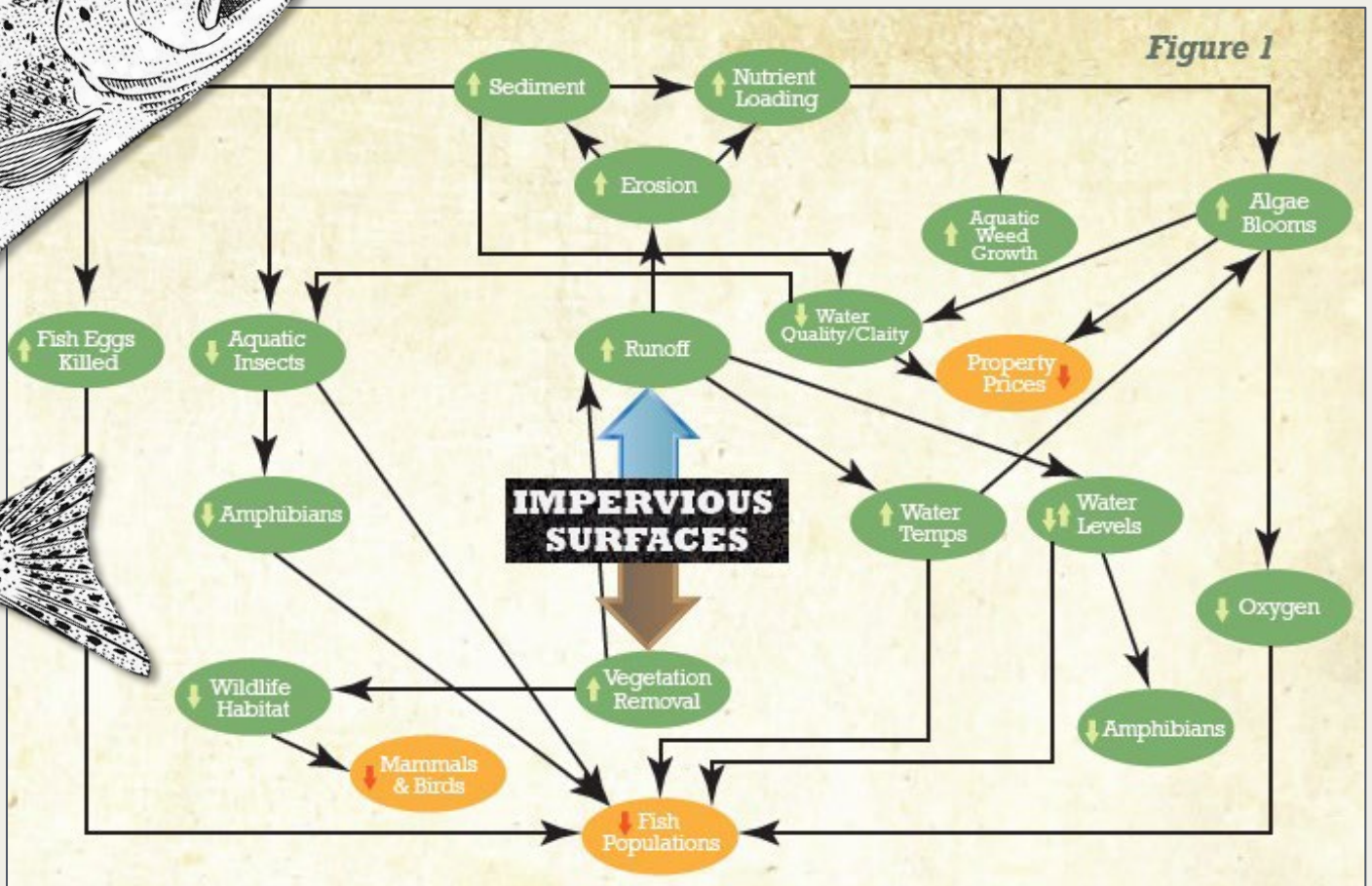
Greater than 12%

More Impervious Surfaces in Watershed



Wang, L., J. Lyons, P. Kanehl, R. Bannerman, and E. Emmons 2000. Watershed Urbanization and Changes in Fish Communities in Southeastern Wisconsin Streams. *Journal of the American Water*.

Figure 1



Center for Watershed Protection. 2003. Impacts of impervious cover on aquatic systems. Watershed Protection Research Monograph No. 1. www.mckenziewaterquality.org/documents/ImpactsofImperviousCover-CWPReport.pdf

Do I Need Mitigation?

Mitigation on your lot is required if at least 1 of the following 3 apply:

1. Replacement or relocation of a principal structure less than 35 feet in height between 35 and 75 feet from the OHWM.

2. Impervious surface area is greater than 15% (figure 1)

- Properties are allowed to have up to 15% of their lot as impervious surface.
- If the property owner proposes to expand the impervious surfaces on the lot and exceed 15%, the property is allowed up to 30% of the lot in impervious surfaces *with mitigation*. The mitigation will “treat” the impervious surface and bring the calculation back down to 15%.
- Existing impervious surfaces may be maintained, repaired, relocated, and reconstructed without the need for mitigation.¹⁴

3. Lateral expansion of a principal structure already located between 35 and 75 feet from the OHWM (figure 2)

Existing principal structures located between 35 ft and 75 ft are non-conforming. These structures cannot become any more non-conforming by moving closer to the OHWM, therefore can only laterally expand with the maximum expansion being 200 sq. ft.

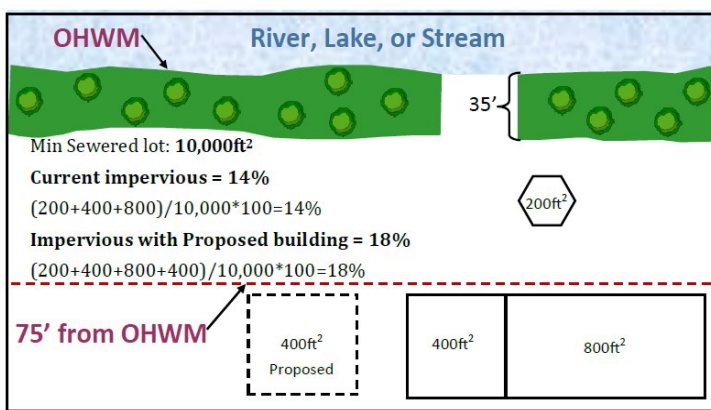


Figure 1

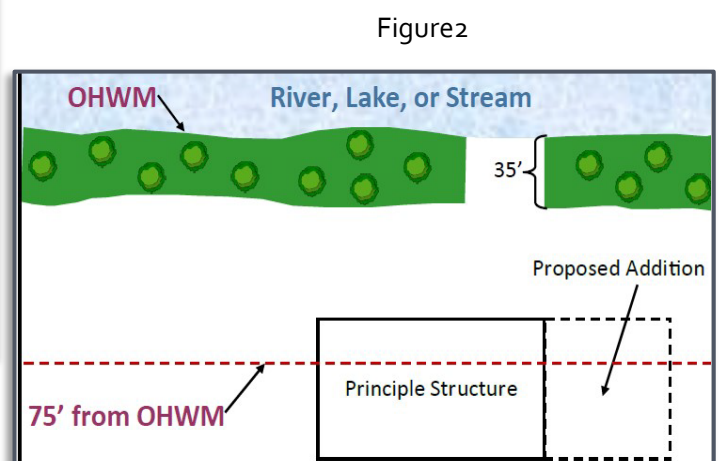


Figure 2

Mitigation Plan

Meeting mitigation ordinance requirements will require careful planning and use of approved management practices. Once it is determined that mitigation is required, you will need to sign a **mitigation affidavit**. This is a legally binding document that will beholden you, the landowner, to **complete and maintain** in perpetuity 3 mitigation practices proportional to the land disturbance being created. This form is provided by CPZ (\$30.00 recording fee.) The following section explains your mitigation options, which you will officially select via the affidavit.

Mitigation requires a thorough **site plan** and a **schedule of implementation**, indicating when and where you will be completing the mitigation. There are many resources available to complete this on your own, but the final plan must be approved by CPZ. Our department is available to create the plan for you. This costs \$175 and includes the \$30.00 affidavit recording fee.

Site Plan Requirements:

- Location of existing structures
- Boundary of the mitigation practices
- Scale (1inch = 10 feet recommended)
- North arrow
- Location of ordinary high water mark
- Location of viewing/access corridor
- Existing shrubs and trees
- Location of erosion control practices to be installed during practice establishment e.g. silt fences.
- Location of practices to address channelized/concentrated flow

Implementation Schedule Must Include:

- Preparation schedule
- Planting dates and schedule
- Care and handling of plant materials
- Watering plan
- Maintenance plan including management of invasive species.

Understand the Process

Ordinance Reference: [Section 22.209.01](#)

Resources for mitigation plans: View these to get an idea of what a mitigation plan requires and looks like.

- [Decisions Tool: Managing Runoff with Healthy Lakes & Rivers Practices](#)
- [Self-evaluation Checklist for Waterfront Runoff](#)
- [Technical Guidance: Controlling Runoff and Erosion](#)
- [WI Healthy Lakes and Rivers Action Plan](#)
- [Native Planting Guide](#)
- [Wisconsin Biology Technical Note](#)

Mitigation Options

Choose 3 of the following 4:

- Remove all non-conforming accessory structures.
- Evaluate and upgrade the private onsite waste treatment system (POWTS).
- Establish a vegetated buffer.
- Establishment of a storm-water practice.

Remove All Non-Conforming Accessory Structures.

A **non-conforming structure** is a structure that existed lawfully before the effective date of the most recent zoning ordinance but does not meet the current standards for the zoning district it is in.

An **accessory structure** is a building whose use is subordinate to the principal structure on the same parcel. For example, one's principal structure is a single-family home. A garden shed on the same parcel is an accessory structure.

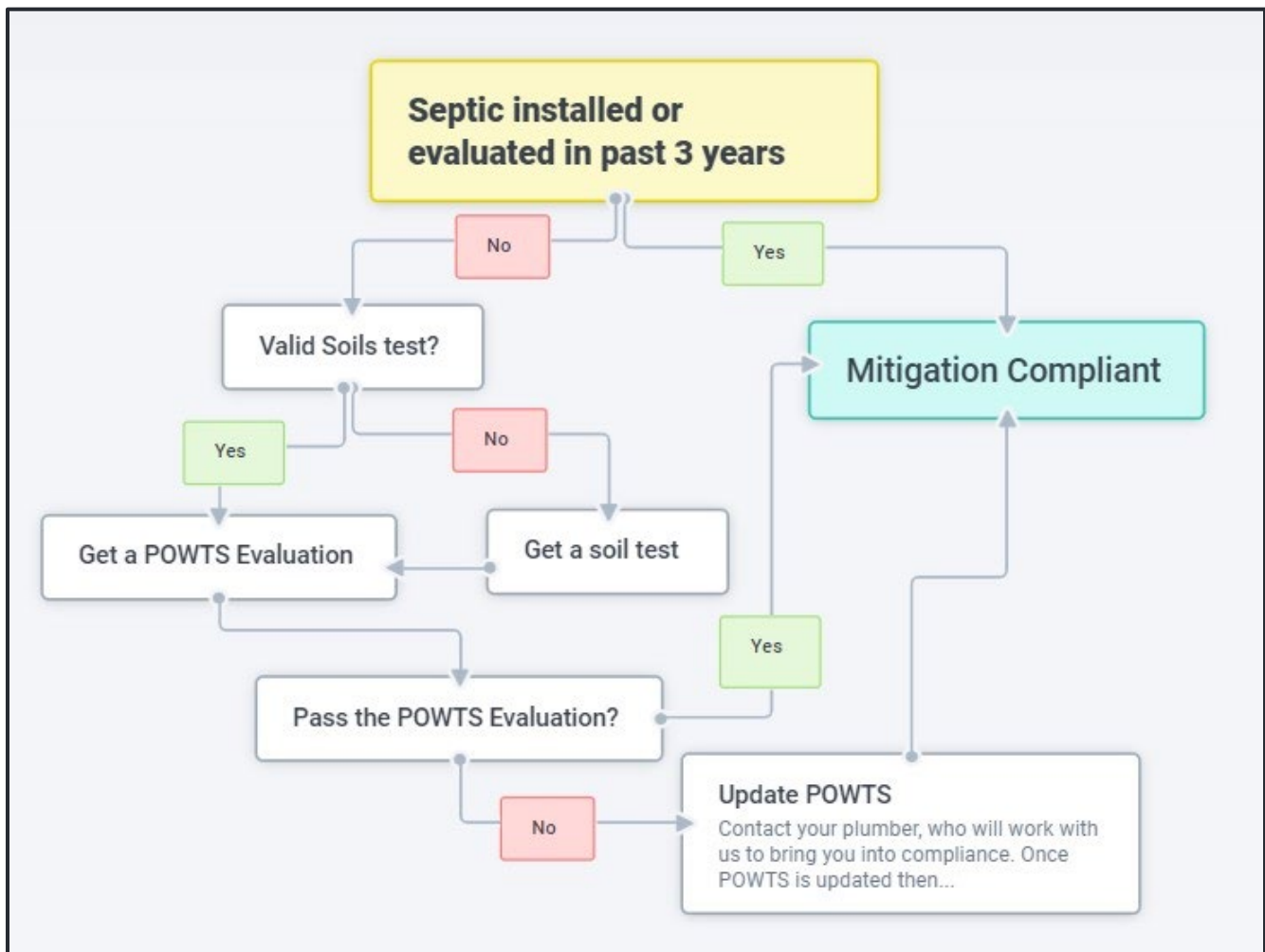
This option applies to accessory structures located between the OHWM and 75 ft building setback. This does not apply to detached garages in good repair located at the same distance as a principal structure from the OHWM.

If you do not have any non-conforming accessory structures to remove between the OHWM and the 75 ft building setback, you are considered compliant with this option, and it can count towards your mitigation plan compliance.

Evaluate and Upgrade the Private Onsite Waste Treatment System (POWTS).

When you pick this as one of your mitigation options, first contact CPZ and ask for the POWTS department.

If your septic system was installed or evaluated within the past 3 years, you automatically fulfill this mitigation option. If this time frame has been longer, have your plumber submit [a POWTS Evaluation Form](#). An evaluation also requires a valid soils test. Having your system evaluated does not automatically mean it will need to be updated. Reference the graphic below.



Lists of certified and licensed plumbers who can complete a POWTS Evaluation and certified soil testers who can complete a soil test are available at:

<https://www.marathoncounty.gov/services/zoning/septic-systems-powts>

Establish a Vegetated Buffer.

A vegetated buffer is a protected area of vegetation along the water's edge. Vegetated buffers provide many benefits including erosion prevention, water quality protection and improvement, natural scenic beauty, privacy from boaters and neighbors, increased property values, and increased fish and wildlife habitat.




A complete and functional shoreland buffer includes three layers of native vegetation: trees, shrubs, and groundcovers (wildflowers, grasses, sedges, and ferns) and the removal of non-native plant species (e.g., purple loosestrife).

When establishing a vegetated buffer under mitigation standards, the buffer zone must cover at least 70% of half of the shoreland setback area that is nearest to the water. For example, if the nearest structure is setback 80 feet from the OHWM, the buffer must cover 70% of 40 feet from the OHWM with the minimum distance being 35 ft from the OHWM.

Supplemental Planting Standard:

Vegetated buffers must meet the Supplemental Planting Standard. There shall be plantings of native species which at a minimum will result in the following:

In every 100 square feet there shall be:

	One tree (minimum 3 species)
	Two shrubs (minimum 4 species)
	Seventy plugs of ground cover or approved seed mix

If plant density cannot be met, documentation by the applicant may be submitted for approval showing that all of [Section 22.101.04](#), purpose, and intent, are being met or exceeded and is thus approved by Marathon County CPZ.

Planting Considerations:

- Soil type
- Slope
- Sun exposure

Plan Shall Include:

- Site diagram or map
- Preparation schedule
- Planting dates and schedule
- Care and handling of plant materials
- Watering plan
- Maintenance plan including management of invasive species.

No Mow Zone (“Natural Recovery”)¹⁵

As an option for creating a vegetated buffer, no-mow zones are acceptable and are encouraged where feasible. Native vegetation will recover naturally when the site is protected from disturbance and where adequate seed and/or root sources and appropriate site conditions are present. Wet shoreline margins, where turf grasses are not well established, are particularly suited to natural recovery. Results may be slower than for planted buffers, but there is virtually no cost, and the result may appear more natural. An area where a dense growth of turf grasses has been maintained for several years is usually not well suited to natural recovery. Turf grasses frequently out-compete native vegetation, and the area may lack native seed sources. Areas with extensive stands of invasive weeds should also not be left to recover naturally.

How to: Stop mowing a zone adjacent to the shoreline as wide as feasible for your property. Prioritize lawn areas and move them back from the shoreline wherever possible. For sloped banks, the no-mow zone should extend beyond the top of a bank to stabilize the shore. A “no-mow” zone allows native plants to colonize the area but jump-starting the vegetation by planting a few favorite native species can help speed up the process.¹⁶ No mow zones are susceptible to takeovers of invasive species. Managing this must be a part of your mitigation plan.

Resources

- [Native Planting Guide](#)
- [Wisconsin Biology Technical Note](#)
- [Shoreline Stabilization](#)
- [Shoreland Restoration Guide](#)
- [Rusk County Shoreline Restoration Guide](#)
- [A Homeowners Guide to Native Shoreline Gardens](#)

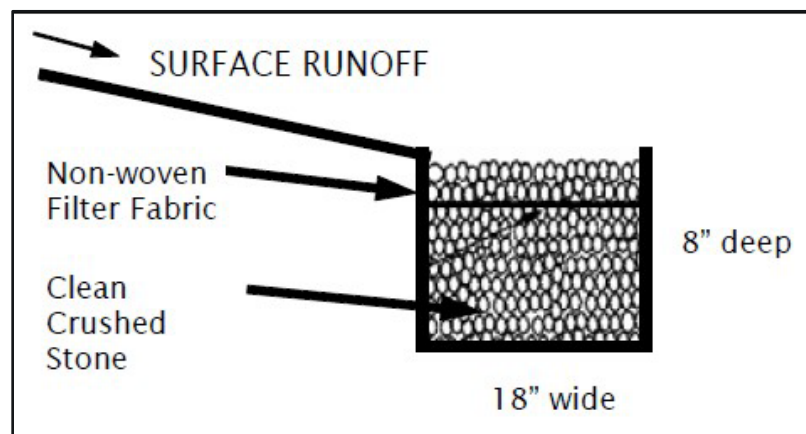
Establishment of a Storm-Water Practice

The following are some of the approved stormwater practices for mitigation. This is not a complete how-to guide nor an exhaustive list of approved practices. Contact CPZ for more ideas and resources.

Infiltration Trench/Basins¹⁷

Purpose

Infiltration trenches collect and infiltrate runoff from paved driveways, rooftops, and other areas, and work best in well-drained soils like sands and gravels. Also, they can only effectively handle smaller rainfall events, so are not well suited for areas that receive large amounts of sediment (e.g., gravel driveways as they will fill quickly).



Resources:

- [Vermont: Guide to Stormwater Management](#)
- [Controlling Runoff and Erosions from Your Waterfront Property](#)
- [A Shoreland Homeowner's Guide to Stormwater Management](#)
- [New Hampshire Homeowner's Guide to Stormwater Management](#)

Maintenance

To maintain these structures, periodically remove accumulated debris and weeds from the surface. Non-woven geotextile fabric will extend the life of these structures; however, they will eventually clog over time and the stone will need to be removed and washed to clean out the accumulated sediment and debris.

Rain Barrels¹⁸

Purpose

Rain barrels provide an innovative way to capture rainwater from your roof and store it for later use. Water collected from rain barrels can be used to water lawns, gardens, and indoor plants. You can lower your water bill, conserve well water in the dry season, and reduce polluted stormwater runoff.

Resources

- [Mississippi Watershed Management Program: Using Rain barrels](#)
- [How to Install Your Rain Barrel](#)
- [Controlling Runoff and Erosions from Your Waterfront Property](#)
- [Vermont: Guide to Stormwater Management](#)
- [A Shoreland Homeowner's Guide to Stormwater Management](#)
- [New Hampshire Homeowner's Guide to Stormwater Management](#)



Maintenance

Gutters and downspouts should be clean of debris. Leaves and pine needles can clog gutters and prevent water from reaching the rain barrel. Furthermore, check the screen on the rain barrel after each storm event and remove debris that has plugged the screen. Freezing water can damage your barrel. Rain barrels should be drained and stored before freezing weather sets in to prevent ice damage. They can be stored outside if they are turned upside down and the faucet is covered. Be sure to put something heavy on your rain barrel so it doesn't roll away. Rain barrels can also be stored inside a garage or other protected area.

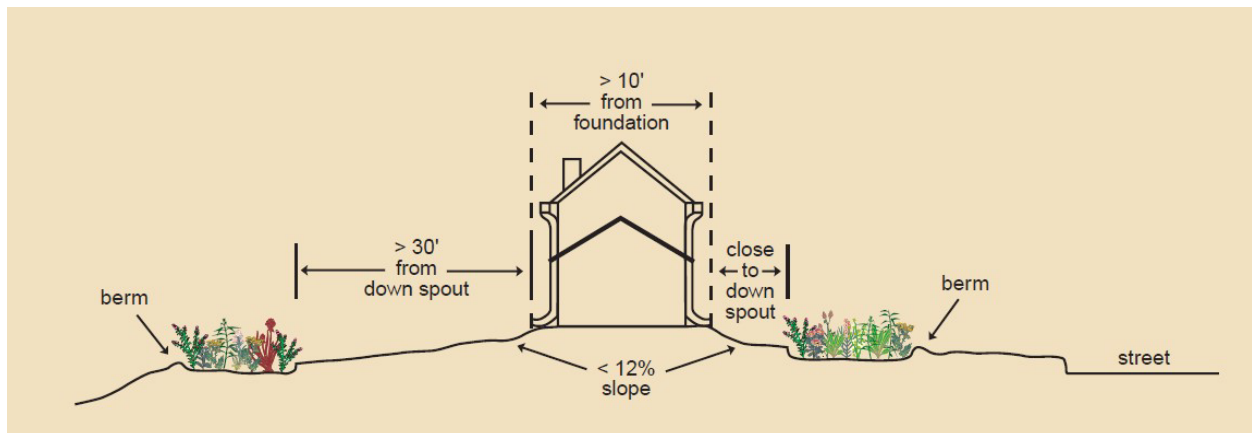
Rain Gardens

Purpose

Rain gardens are attractive and functional landscaped areas that are designed to capture and filter stormwater from roofs, driveways, and other hard surfaces. They collect water in bowl-shaped, vegetated areas, and allow it to slowly soak into the ground.¹⁸ Rain gardens can be located within the 75 ft and 35 ft setbacks.

Resources:

- [Rain Gardens: A Beautiful Way to Reduce Runoff Pollution!](#)
- [Rain Gardens: A Guide for Homeowners and Landscapers](#)
- [Rain Garden Network](#)
- [Rain Gardens: a how-to manual for homeowners](#)
- [Native Plants for Rain Gardens](#)



Maintenance

Please note that fertilizer use is restricted within the vegetated buffer. Fertilizer cannot be used within 35 feet of the OHWM. From 35 feet to 250 feet, low phosphate, slow-release nitrogen fertilizer (such as kelp meal, bone meal, or compost) may be used on vegetated areas. Rain gardens will also need to be maintained for invasive plants. Include your invasive plant management plan with your mitigation plan.

SUBMITTING DOCUMENTS

Zoning and regulatory applications and forms are available for public use to ensure any and all developments and projects proposed within Marathon County's jurisdiction adhere to all applicable standards and regulations while providing user-friendly help sheets and guides to assist residents, agents, and contractors while they navigate the regulatory process.

For your convenience, follow the order of the permit checklist, found at the beginning of this document. This is the general order of the permitting process. Documents can be submitted via mail, fax, or email. Payments can be accepted via cash, check (made out to Marathon County), or card (additional 3% convenience fee).

CONTACT

Phone:

715-261-6000

Email:

cpz@co.marathon.wi.us

Mail:

Marathon County CPZ
210 River Drive
Wausau WI 54403

In Person:

Appointments are preferred therefore please give our office a call to schedule an appointment with zoning and regulatory staff.

210 River Drive
Wausau WI 54403

Monday - Friday
8:00am - 4:30pm

References

1. <https://dnr.wisconsin.gov/topic/Lakes>
2. <https://dnr.wisconsin.gov/topic/Rivers/FactsResources.html>
3. Wyatt, Z. (2020). *The Public Trust Doctrine*. Madison: WI Legislative Reference Bureau.
4. Ordinance of 1787: The Northwest Territorial Government, art IV.
5. Marathon County Code of Ordinances, Ch. 22 Sec. 22.201.04
6. Marathon County Conservation, 2023.
7. Wis. Stat. § 281.31
8. Marathoncounty.gov
9. <https://dnr.wisconsin.gov/topic/Waterways/Permits/PermitProcess.html>
10. Marathon County Code of Ordinances, Ch. 22 Sec. 22.501.01.
11. Markham, Lynn and Dudzik, Ross (2012). *Impervious Surfaces. How they Impact Fish, Wildlife and Waterfront Property Values*. UW-Extensions for Land Use Education.
<https://www3.uwsp.edu/cnr-ap/clue/Documents/Water/ImperviousSurfaces2013.pdf>
12. Markham Lynn (2003). *Shoreland Development Density and Impervious Surface*. Center for Land Use Education, UW-Stevens Point.
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15. Wisconsin Biology Technical Note
16. https://dec.vermont.gov/sites/dec/files/wsm/lakes/Lakewise/docs/LP_BMPSHOREestablishing%20NoMowZones.pdf
17. https://danecountystormwatermanual.com/doku.php?id=infiltration_basin
18. https://www.elvdnh.com/pdf_docs/2015/nhdes-wd-10-8.pdf