

CHAPTER 500 STAKEHOLDER ENGAGEMENT | TECHNICAL COMMITTEE MEETING #5 MINUTES

RE: Chapter 500 Stakeholder Engagement, Technical Committee Meeting #5
DATE: Thursday, November 14, 2024
TIME: 6:00pm – 8:30pm
LOCATION: Remote via Microsoft Teams
INVITEES: Kerem Gungor, Cody Obropta, Jeff Dennis, Tracy Krueger, and David Waddell (Maine DEP)
Bina Skordas (FB Environmental Associates)
Chapter 500 Technical Committee & Steering Committee

SUMMARY

The Chapter 500 Technical Committee convened to review progress on updates to Maine’s stormwater standards as part of the ongoing rulemaking process. Discussions focused on the refinement of basic and general standards, the development of a sensitive and threatened watershed list, and adjustments to groundwater recharge requirements. Members also discussed the implementation of stormwater treatment measures, balancing regulatory fairness for developers, and addressing site-specific challenges like wetland crossings and urban stream impacts.

The committee explored updates to key standards, including new requirements for protecting natural drainage networks, setbacks for wetlands, and runoff volume reduction measures. Stakeholders emphasized the importance of developing clear and actionable rules, particularly for small-scale projects and sensitive areas. To address stakeholder concerns, the committee proposed expanding eligibility for permit-by-rule (PBR) approvals and streamlining compliance pathways while maintaining environmental protections. Action items and next steps include finalizing technical memos, continuing subcommittee work, and preparing materials for upcoming committee and steering group meetings.

REVIEW: TECHNICAL COMMITTEE TASKS

Project Timeline & Activities Overview

Timeline

- Next Technical Committee meetings are scheduled for December 6th and tentatively scheduled for December 11th
- The Steering Committee will meet on November 25th and December 16th

Activities Overview – Change in Terminology

- Core LID standards → Basic Standards
- Groundwater Recharge → Runoff Volume Reduction
- Stormwater Quality Related Standards → New General Standards

Activities Overview – Stormwater Manual Update

- Received proposals for the Stormwater Manual RFP contractor; evaluation process will begin soon.
- The contractor expected to be onboard by December to work alongside rule drafting until final rulemaking.
 - Will have 12 meetings with department staff and workgroup
- A workgroup with panel experts will guide the manual development process.

- Timeline: December 2024 = anticipated start date; July 2026 = project ends
- Pursuing a sole source contract with a company that developed EPA Region 1 performance curves to create sizing and performance curves for vegetated buffers.
- New standards will incorporate vegetation measures, including forested and meadow buffers, which are widely used in Maine but not common in the rest of New England.

Memo: Overview of New Chapter 500 Standards

Purpose and Background

This memo summarizes updates to Chapter 500, addressing current shortcomings by tailoring standards to specific locations and stressors. Current rules apply uniform General Standards, often leading to unnecessary or insufficient stormwater controls. The proposed updates prioritize preserving natural infrastructure, addressing watershed-specific stressors, and managing post-development stormwater volume in areas of growth.

Urban and Impaired Streams & Sensitive and Threatened Regions and Watersheds

- Urban Impaired Streams (UIS)
 - Definition and criteria remain the same as in Chapter 502, listed in Appendix B.
 - Projects in UIS watersheds must meet General Standards if they create $\geq 20,000$ sq. ft. of impervious area or ≥ 5 acres of developed area.
- Sensitive and Threatened Regions and Watersheds (STRW)
 - UIS inclusion provides additional protection for already impaired urban streams.
 - Streams in urbanizing areas are at risk of impairment due to development, and prevention is more cost-effective than restoration.
 - The Stormwater Management Law (SML) requires a Sensitive and Threatened Regions and Watersheds list, now being developed for Chapter 502.
 - The STRW list will be regularly updated using GIS data and include urban and urbanizing municipalities as Sensitive and Threatened Regions. “Land development is dynamic, so we need to monitor it. We don’t want this list to be static and just sit there collecting dust.” – Kerem Gungor

Basic Standards

- Incorporates Low Impact Development (LID) principles to protect wetlands and natural drainage through site layout and design.
 - “First look at your site and see all these important features. If your parcel has natural drainage ways or wetlands, just don't impact them. That's the gist of it.” – Kerem Gungor
- **Erosion and Sediment Control:** Appendix A will move to the Construction General Permit, no longer part of Chapter 500.
- **Permit-by-Rule (PBR):** Includes a PBR process for eligible projects, reducing burdens for applicants and reviewers, provided all Basic Standards are met.
- **General Standards Exemption:** Projects meeting certain criteria only need to meet Basic Standards, avoiding high maintenance engineered treatment measures.
- **Basic Standards apply to:**
 - Activities licensed under the State’s SML with ≥ 1 acre of disturbed area.
 - Activities under the Site Location of Development Act.
- **PBR Eligibility Criteria:**
 - In lake/urban impaired watersheds: $< 20,000$ sq. ft. impervious area and < 5 acres developed.
 - In sensitive/threatened watersheds: < 1 acre impervious area and < 5 acres developed.
 - In non-lake watersheds: < 3 acres impervious area and < 20 acres developed.

- Wetland and Natural Drainage Network Protection
- Stormwater Conveyance Hydraulic Capacity
- Inspection, Maintenance, and Good Housekeeping

Questions

1. *If a project meets the new Basic Standards but has unavoidable wetland impacts, how does that affect the stormwater permitting process? Does it change the path from a Permit by Rule (PBR) to requiring an individual stormwater permit?*
 - a. Short answer, yes
2. *Under the Basic Standards, if a site protects wetlands and maintains buffers, is there any concern about an increase in stormwater flow or peak flow from the site, assuming the wetlands will absorb the impact?*
 - a. Right, maintaining buffers, natural drainageways, and wetlands serves the purpose of managing stormwater flow effectively. Additionally, it's important to note that in many Maine watersheds, especially rural and undeveloped areas, stormwater projects are approved infrequently. In some cases, years can pass between projects, meaning there isn't a constant influx of stormwater impacts in these areas.
3. *The MS4 communities and then the those added to the sensitive and threatened would then have to do additional treatment going into the general standards then?*
 - a. Correct, they will still need to meet the basic standards. Might come up with alternative analysis for impacts. Something along the lines of what NERPA requires.
4. *As you move into redevelopment areas, particularly in sensitive, threatened, and urbanizing areas, will there be a reduced standard under the general standards to avoid discouraging development in these urban areas?*
 - a. Yes

General Standards

1. Focus on 1. Runoff Volume Reduction and 2. Stressor Guided Stormwater Treatment.
2. Projects must implement engineered structural treatment measures based on size and location; redevelopment faces reduced requirements.
3. SCM Performance Curves: Utilized to quantify water quality benefits, based on long-term pollutant removal performance from New England weather data.
4. **General Standards apply to projects that:**
 - Create $\geq 20,000$ sq. ft. impervious area or ≥ 5 acres of developed area in Urban Impaired Stream Watersheds.
 - Create ≥ 1 acre impervious area or ≥ 5 acres of developed area in Sensitive and Threatened Watersheds.
 - Create ≥ 3 acres of impervious area or ≥ 20 acres of developed area in non-lake watersheds (Site Law Projects).
 - Cannot comply with Basic Standards.
5. "Redevelopment will still need to comply with the general standards, but we're suggesting a lower requirement for runoff volume reduction to account for site constraints." – Kerem Gungor
6. **Runoff Volume Reduction Standard:** Aims to reduce post-development runoff volume and replicate pre-development hydrology. Waivers are available if applicants meet channel protection standards.
 - a. New Development: Full Runoff Volume Reduction Standard applies in Urban Impaired Stream watersheds. Reduced standard (75%) applies to projects in Sensitive & Threatened Regions, Site Law-triggering projects, and those not fully meeting Basic Standards.
 - b. Redevelopment: Runoff Volume Reduction Standard applies at a reduced level compared to new development.

- 7. Stressor Guided Stormwater Treatment Standard:** Focuses on three stressors: nitrogen, phosphorus, and chloride. Nitrogen targets coastal watersheds, and phosphorus targets non-coastal watersheds.
- a. Nitrogen and Phosphorus Stressors:
 - i. New Development: Requires minimum annual nutrient load reductions using SCM performance curves. Rooftops excluded from nutrient load reduction.
 - ii. Redevelopment: Reduced nutrient load reduction requirements to encourage redevelopment over greenfield development.
 - iii. Stormwater Control Measure (SCM) Hierarchy. Designers must prioritize SCMs:
 1. Non-structural Retention Measures
 2. Structural Retention Measures
 3. Structural Treatment Measures
 - b. Chloride Stressor:
 - i. Control methods under development, including a draft point system.
 - ii. Control measures include minimizing salt application area, reducing salt amounts, and mitigating baseflow toxicity.
 - iii. SCM options for chloride include source control and structural measures.

Phosphorous Standards

- The phosphorus standard remains unchanged from the current Chapter 500 version.
- An allowable per-acre phosphorus allocation for each lake will be determined by the Department, or applicants may propose an alternative allocation for approval.
- The phosphorus standard applies in addition to the new Basic Standards.
- It applies to projects that:
 - Require a Site Law permit in a lake watershed.
 - Create $\geq 20,000$ sq. ft. of impervious area or ≥ 5 acres of developed area in the watershed of a Lake Most at Risk for Development.
 - Create ≥ 1 acre of impervious area or ≥ 5 acres of developed area in a lake watershed.
- It also applies to projects not meeting the new General Standards that:
 - Create $\geq 20,000$ sq. ft. of impervious area or ≥ 5 acres of developed area in the watershed of a Lake Most at Risk for Development but result in < 3 acres of impervious area and < 5 acres of developed area and are not located in a severely blooming lake.
 - Create ≥ 1 acre of impervious area or ≥ 5 acres of developed area in a lake watershed but result in < 3 acres of impervious area and < 5 acres of developed area.

Flooding Standard

- The Flooding Standard remains unchanged from the current version in Chapter 500, except for the source of precipitation data and the addition of an optional detention waiver for UIS watersheds.
- The Department proposes using NOAA Atlas 14 with an 18% modifier to account for climate change until NOAA Atlas 15 is released, at which point it will be used.
- The Flooding Standard applies to projects that:
 - Result in 3+ acres of impervious area or 20+ acres of developed area.
 - Require a Site Law Permit.

Questions/Discussion

1. *I just wanted to confirm if I'm correct in understanding that, according to your flow chart, the standard is being lowered for Urban Impaired Streams (UIS). Currently, UIS projects only trigger the standard at a Site Law project size, but this proposal would trigger it at a lower threshold. Is that accurate?*
 - a. Great question, and a topic we should talk more about. CH.500 Section 4H. Currently, projects have a lower threshold for the General Standards, set at 20,000 square feet of impervious area. These standards apply if the projects are in the direct watershed of an UIS. However, if they are in urban areas or suburbs and are Site Law projects, they must comply with the UIS Standard, which has not yet been fully addressed in our discussions.
2. *I can see an issue with abutting towns having different standards. Instead of having designated regions and watersheds, apply the General Standards statewide. Allow rural developers who want to apply for a PBR Basic Standard to demonstrate to DEP that their site qualifies or does not meet the criteria for triggering the General Standards. This would allow them to follow the Basic Standards instead. I'm raising this point for consideration, as developers may face challenges with frequent updates to Chapter 502 that add new Sensitive and Threatened Watersheds to the list. This could create a moving target for developers who need to stay informed about changes as they evaluate potential sites for development, potentially leading to opposition in the future.*
3. *If I understand correctly, a project outside Urban Impaired Streams or Sensitive and Threatened Watersheds could have up to three acres of new impervious cover and qualify for a Permit by Rule, if it meets all Basic Standards. If a project fails to meet one of the Basic Standards, it will require an individual permit, and I wonder if a graduated system could be used before jumping to a full individual permit.*
 - a. That can be considered.
4. *The core or basic standards are important in rural areas without current impairments to prevent future degradation, but at some point, there may be fairness concerns. As development increases and impairments trigger stricter standards, earlier developers may not have faced those requirements, which could lead to questions about why newer projects are being held to higher standards. This shift could spark conversations about long-term fairness, as developers may question why they are now required to meet more stringent standards while earlier projects were not.*
 - a. The goal of maintaining wetlands and natural drainage areas is to prevent long-term degradation, not just to require cheaper BMPs for early developers and more expensive ones later. By preserving these natural features now, future development will have less impact on the watershed, reducing the likelihood of impairment or becoming threatened. While this may not fully resolve fairness concerns, it highlights the long-term benefits of protecting natural resources early on.
5. *Jeff Dennis: Lake watersheds are highly sensitive and require proactive protection because once degraded, they cannot be restored. Streams, however, are generally more resilient, with most classified as Class B, meaning they meet high aquatic life criteria and are healthy overall. Most areas of the state easily maintain Class B standards, even in regions like Buxton or Shapleigh, where some growth is expected near sensitive regions. Significant population increases would be required to cause widespread stream impairments, which is unlikely in Maine's foreseeable future given the abundance of undeveloped land.*
 - a. Impervious cover growth was very small. Most areas of the state saw no impervious cover growth for 20 years.

DRAFT CONSENSUS REPORT

Cody Obropta explained, on behalf of the Groundwater Recharge Subcommittee, the Draft Consensus Report.

Summary

- The new "runoff volume reduction standard" replaces the term "groundwater recharge" to reflect its purpose better.
- Aims to offset pre-development infiltration loss, reduce post-development runoff, and align post-development hydrology with pre-development conditions.
- Based on the Taunton Watershed Project and aligned with practices in other New England states.

Applicability

- Full standard applies to projects in Urban Impaired Stream watersheds.
- A reduced standard (75%) applies to Sensitive & Threatened Regions, Site Law projects (outside UIS watersheds), and projects unable to meet new Basic Standards.

Technical Implementation

- Projects must reduce runoff volume using stormwater control measures (SCMs) like infiltration, capture/reuse, and evapotranspiration.
- Waivers may be granted if projects maximize compliance and release remaining volume over 36-72 hours.
 - *Comment: Is that at the start of the rainfall event or end of rainfall event?* Going to start at maximum ponding, and that ponding should be released (drawn down) over 36-72.
- Soil testing and hydraulic conductivity tests required to determine hydrologic soil group and infiltration rates.

Table 1. Average annual impervious cover runoff volume reduction requirements as they apply to the urban impaired stream projects.

Predevelopment Land Cover Being Converted to Impervious Cover (IC)	Percent Reduction in Average Annual IC Runoff Volume (Meadow/Forest)
Meadow/Forest (HSG A)	68% / 73%
Meadow/Forest (HSG B)	62% / 70%
Meadow/Forest (HSG C)	51% / 58%
Meadow/Forest (HSG D)	40% / 50%

Design Standards and Specifications

- Soil Testing Requirements
 - Conduct at least one soil exploration per half acre of proposed impervious area to confirm or determine the hydrologic soil group (HSG).
 - For infiltration-based stormwater control measures (SCMs) without underdrains, conduct at least two in-situ hydraulic conductivity tests to determine infiltration rate, applying a safety factor of 2.
- Projects with Underdrains
 - Use design infiltration rates based on soil texture instead of hydraulic conductivity testing, but still conduct soil exploration per Chapter 500 rules.
- Non-Structural SCMs

- Less rigorous soil testing requirements will apply.
- Groundwater and Drainage Area Requirements
 - Maintain a minimum of one-foot separation from the seasonal high groundwater table for structural SCMs.
 - A maximum contributory drainage area for certain infiltration SCMs may be established by the stormwater control measure subcommittee.

Waivers and Limitations

- Exclusions for sites with hazardous materials, near public water supplies, or within certain karst feature zones.
- Alternative volume control requires maximizing compliance and slow-release mechanisms (a period of 36-72 hours) for excess runoff.

Subcommittee Information

- Subcommittee includes DEP engineers, biologists, and external experts.
- Four meetings held between March and October 2024, with technical memos prepared to guide implementation.

Questions/Discussion

- 1.** *Need to distinguish between meadow vs forest cover, maybe for the Definition Group.*
- 2.** *Are we going to require runoff volume reduction in lake watersheds? Kerem said he personally believes it should be required to stay consistent with the requirement for non-lake watersheds*
 - a.** Cody: If they are going to need to meet stressor-guided requirements, they're going to need to meet this as well because it is more in-line with what the other projects are doing. However, if a project opts to follow the phosphorus standard, I would lean toward also requiring the runoff volume reduction standard, though I can see a case for applying only the existing phosphorus standards as they currently stand.
 - b.** Kerem: It's important to remember that some projects will be in direct lake watersheds but will discharge into lake tributaries rather than directly into the lake itself.
 - c.** Jeff: I haven't evaluated the streams yet, but I think most lake watersheds are rural enough that, if they didn't drain to a lake, they would only need to meet the core LID or Basic Standards, qualify for a Permit by Rule, and not be required to meet the volume reduction standard. Most streams in these lake watersheds are in rural settings and not currently threatened, so we need to consider this before requiring stricter standards simply because they are in a lake watershed. Without the presence of the lake, many of these streams would likely qualify for a Permit by Rule (PBR). So I think we have it covered in lake watersheds.
- 3.** *Doug: I support incorporating retention and infiltration measures, as increasing droughts are stressing vegetation like maples and oaks, causing issues like splitting bark and branch drop. Keeping water on the landscape to infiltrate, rather than running off into water bodies, can help maintain healthier ecosystems around lakes and watersheds.*
- 4.** *John K: I agree with you that if a project is not in a heavily threatened watershed, lakes or ponds in sensitive and threatened areas, as well as more urban watersheds, will still require the recharge and general standards, correct?*
 - a.** Kerem: Correct. Jeff: The question is whether municipalities requiring the phosphorus standard, some of which have had it in place for 25 years, would also require projects to meet the general standard. We want to avoid a situation where projects are obligated to meet both the phosphorus and general standards due to municipal requirements.

GIS FOR NATURAL DRAINAGEWAY AND WETLAND PROTECTION

Kerem explained how to leverage GIS capabilities for more efficient implementation of New Basic Standards.

Wetland and Drainage Way Protection + GIS and Flow Accumulation for NDWs

- The focus is on protecting jurisdictional wetlands and natural drainage ways (NDWs) using National Wetlands Inventory (NWI) and high-resolution hydrology data.
- Two types of NDWs are considered:
 - NDW 1: Higher-order streams with a 75-foot no-disturbance setback.
 - NDW 2: Smaller streams with a 15-foot no-disturbance setback.
- GIS tools like flow accumulation maps help identify NDWs, with a minimum drainage area set at 6.2 acres for NDW 2.
- Flow lines are created using NHT+ data to locate NDW 2s in areas like Berwick and York.

Development Examples

- In Berwick, a residential site could develop the area while avoiding the 15-foot buffer around NDW 2.
 - Can assist regulators with conducting a desktop analysis for compliance purposes
- In York, the development is more complex due to the presence of both a first-order stream and NDW 2, with additional buffers of 15 feet and 75 feet to consider.
- Developers can build outside the identified buffers, but altering drainage divides could impact the site's stormwater management and may require further analysis.

Next Steps

- An SCM subcommittee meeting is scheduled for Monday, with a Steering Committee meeting on the 25th.
- Further feedback, including suggestions from Peter and Joe Laverrier's comments, will be incorporated as the project progresses.

Questions/Discussion

- 1.** *John K: How will the current Chapter 500 wetland buffer standard interact with the new Basic Standards, especially when stormwater is being directed into buffers around these wetlands? Also, regarding the buffer standard in Chapter 500, the requirement limits stormwater flow to 0.009 CFS per linear foot, which seems impractical for larger sites—how does that factor into the new approach?*
 - a.** Kerem: I'm glad you brought it up, John, as we haven't discussed that yet. Dave has been working on it, and I can defer to him, but we're considering improvements to that standard. It needs to be reevaluated for the new Chapter 500. The sizing standard, which dates back to older studies like John Simon's, is something we can look into in more detail with the Stormwater Manual project. We're aiming to avoid specifying every stormwater measure in the rules and hope to provide more flexibility.
 - b.** Jeff: I think that when we're using the performance curves to size buffers, some of those issues will be addressed. The devil will be in the details of how you lay out the level spreaders and how you break up the impervious watersheds to fit them into a reasonably short level spreader.
 - c.** Kerem: Yes, that's correct. Currently, there's an impervious area disconnection curve, which is the closest we have to stormwater buffers, but it's mainly for lawn areas that receive runoff from impervious surfaces like pavement. With the new curves we're developing, we'll be able to size buffers based on pollutant removal versus impervious cover for the buffer area. So, I think what Jeff said is spot on—this will take care of that sizing issue. The current study was based on Hydrocod 1, but the new performance curves will use a continuous simulation approach. If we can get good monitoring data, it will also be calibrated, so it will be a much more realistic model than what we currently have.

SUBCOMMITTEE UPDATES

Core LID (10/28/2024)

Deliverables

- Revised Core LID Proposal
- DEP Memo: Updates to proposed Core LID Standards

Sensitive and Threatened (11/6/2024)

Deliverables

- Summary of S&T Identification Criteria
- S&T Region Proposed List
- DEP Report on Effects of Urbanization on Aquatic Life of Maine Streams

Groundwater Recharge (10/21)

Focus Areas

- Transitioning from static groundwater recharge requirements to runoff volume reduction measures.
- Ensuring stormwater management approaches are adaptable to climate variability and evolving development needs.

Deliverables

- Groundwater Submission Requirements
- Consensus Report (in progress)

Stormwater Control Measures (11/4/2024 & 11/18/2024)

Focus Areas

- Updating the manual to provide clear, actionable guidance for implementing Chapter 500 standards.
- Ensuring the manual remains flexible to accommodate emerging technologies and methodologies.

Deliverables

- DEP Memo: Replacing the current Chapter 500 General Standards

ATTENDEES

Facilitator	<ul style="list-style-type: none">• Bina Skordas (FB Environmental Associates)
Maine DEP Representatives	<ul style="list-style-type: none">• Kerem Gungor• Cody Obropta• Jeff Dennis• Tracy Krueger• David Waddell
Technical Committee Members	<ul style="list-style-type: none">• Andy Johnston• Aubrey Strauss• Paul Ostrowski• Peter Newkirk• Ryan Barnes• Rodney Kelshaw

	<ul style="list-style-type: none">• Mark Bergeron
Observers and Stakeholders	<ul style="list-style-type: none">• Brenda Zollich• Cindy Dionne• Doug Roncarati• Fred Dillon• John Kuchinski• John McMeeking• Matt Marks• Alexis Racioppi• Nathan Robbins• Rick L• Gregg Wood• Ben Torres

Figure 1. Timeline

Committee Meetings									
Committee	2023	2024							
	December	February	March	April	June	July	September	November	December
Steering	1 (12/5)	2 & 3 (2/5 & 2/26)				4 (7/15)	5 (9/23)	6 (11/25)	7 (12/16)
Technical			1 (3/18)	2 (4/1)	3 (6/25)		4 (9/9)	5 (11/14)	6&7 (12/6 & 12/11)
Subcom.	December	March	April	June	July	August	October	November	December
Core LID		1 (3/25)	2 (4/12)			3 (8/2)	4 (10/28)		
Ground. Recharge		1 (3/26)	2 (4/5)			3 (8/2)	4 (10/21)		
Definitions		1 (3/29)	2 & 3 (4/5 & 4/26)					TBD	TBD
S&T					1 (7/31)			2 (11/6)	
SCM						1 (8/12)		2 & 3 (11/4 & 11/18)	

Figure 2. New Development in a Lake Watershed

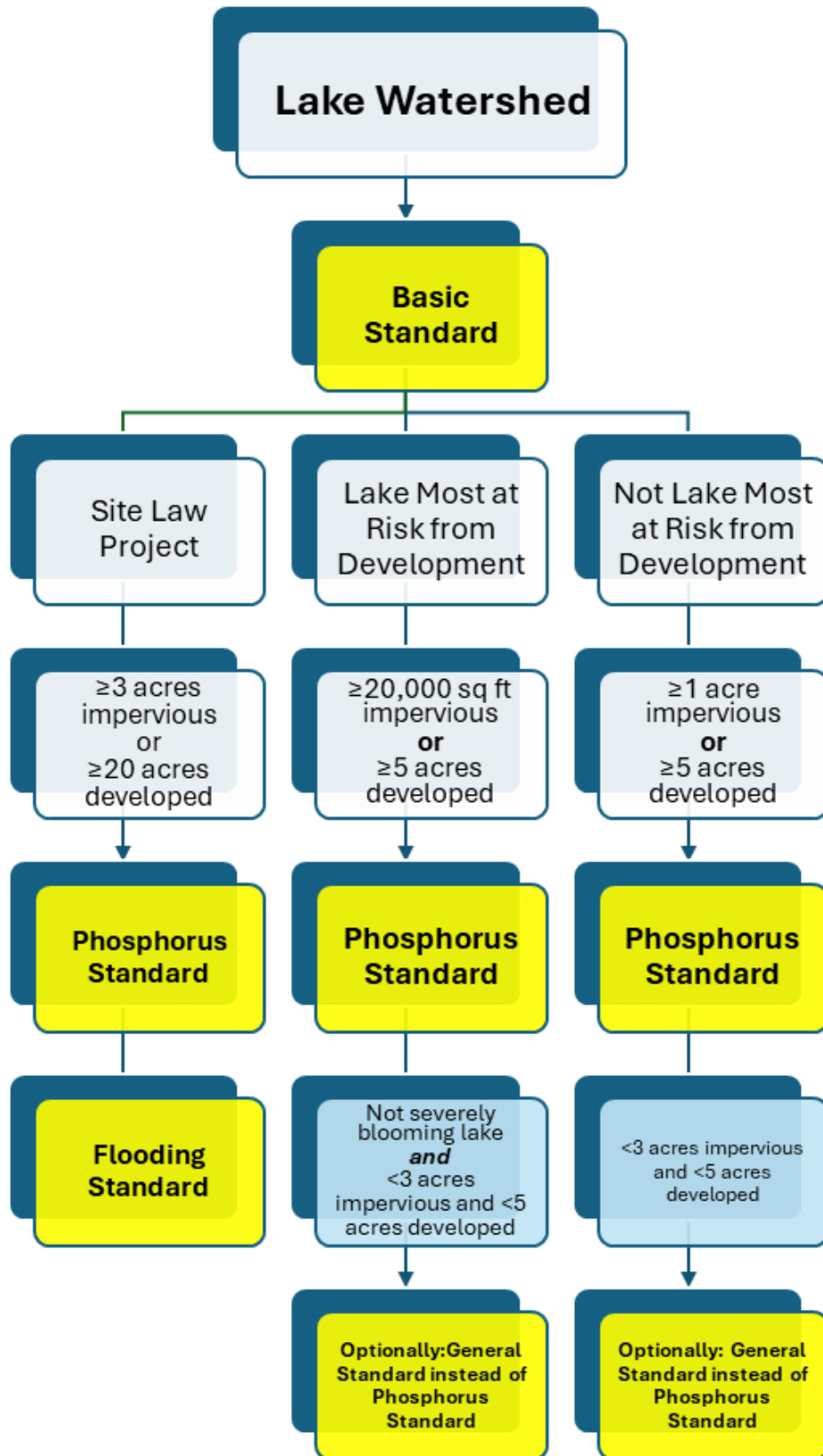


Figure 3. New Development in Non-Lake Watershed

