GallatinWater COLLABORATIVE

POLICY MEMO

To: Gallatin Water Collaborative Members
From: Gallatin Watershed Council
Date: 8/01/2025
Re: The City of Bozeman Unified Development Code Update - Streams and Wetlands

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INTRODUCTION

The Gallatin Water Collaborative (The Collaborative) is an initiative that brings stakeholders together in their efforts to protect, enhance, and restore water resources for the future of people and wildlife in the Gallatin Watershed. Recognizing policy as an impactful tool that can enact landscape-scale change, The Collaborative is considering Bozeman's Unified Development Code Update (UDC) as an opportunity to improve watershed stewardship within the City and the Gallatin Watershed as a whole.

This policy memo outlines recommended updates to the UDC related to streams and wetlands. These natural systems—streams, rivers, wetlands, floodplains, riparian zones, and adjacent uplands—work together to provide clean water, support fish and wildlife, safely convey floodwaters, and slow and store runoff. They also offer valuable recreational opportunities and contribute to our mental and physical well-being. Bozeman, built on a high groundwater table and surrounding three major waterways—Bozeman Creek, Bridger Creek, and the East Gallatin River—faces considerable flood risks to homes, businesses, property, and infrastructure. The way we manage land and water in the city not only shapes the quality of life for Bozeman residents but also affects the broader Gallatin Valley ecosystem. Laced with spring creeks and wetlands, and at the intersection of several wildlife corridors, Bozeman plays a key role in sustaining everything from spawning trout to migrating sandhill cranes.[1] We also have many downstream neighbors that rely on access to cold, clean water. Therefore, the goals of the recommendations are to ensure:

1. Streams and wetlands are an amenity to the City of Bozeman, providing beautiful spaces and critical ecosystem services to downtown and residential neighborhoods;
2. The waters that pass through the City of Bozeman are stewarded to serve the greater Gallatin Watershed community of people and wildlife.

The following sections provide background on the UDC and the Collaborative's priorities. An issue analysis then explores what effective urban watershed stewardship looks like to support the goals outlined above, and Bozeman's current strengths and vulnerabilities. This analysis sets the foundation for the recommendations, which are first introduced conceptually and then organized by article, division, and section of the UDC. Recommendations are grouped into three categories, listing ideas for how to:

1. Prioritize impact avoidance and ecological enhancement of streams and wetlands in the development process;
2. Carefully consider and minimize impacts when they are necessary and appropriate; and
3. Mitigate adverse impacts locally.

This is a critical moment to influence policy. Once code revisions are adopted, the public's ability to promote best practices on individual projects becomes significantly limited. The authority of staff and the Commission is based solely on regulatory compliance, and there are state-imposed limits on public engagement during application review. It also takes significant capacity for individuals and organizations to keep track of the large volume of project proposals. With this

[1] City of Bozeman, and Gallatin County. *Gallatin Valley Sensitive Lands Protection Plan*. 26 December 2023.

update, we have an opportunity to be proactive and make the protection, enhancement, and restoration of critical lands an integral component of growth and development.

BACKGROUND

The Gallatin Water Collaborative

The Gallatin Water Collaborative (The Collaborative) formed in 2021 to coordinate efforts to protect, enhance, and restore water resources and secure a future for people and wildlife in the Gallatin Watershed. We formed because our community depends on and cares deeply about the health of our water resources. As our community and climate change, we recognize the need to make management decisions in consideration of the watershed as a whole, and with the understanding that our actions are interconnected. The Collaborative is made up of over 50 stakeholders across the Gallatin Valley, including conservation organizations, government agencies, scientists, engineers, agricultural producers, recreationists, and developers.

The group has developed prioritized goals and actions that will result in long-term water security, so that the people and wildlife in our watershed have access to enough clean water to thrive. Our efforts are driven by these objectives:

1. Water Availability - Groundwater and surface water supply is managed collaboratively and efficiently to support all water uses.
2. Water Quality - The water quality of groundwater and surface water within the watershed is sufficient to support all designated beneficial uses.
3. Resilient Lands - The ecosystem services of critical natural features are maintained within the watershed.[2]

Engaging in Bozeman's development code update strongly supports all three objectives of The Collaborative.

The Unified Development Code

The UDC regulates land use within the City of Bozeman, spanning zoning, subdivision and site development, parking and transportation, affordable housing, and environmental protection - and it is the primary tool for managing urban streams and wetlands. It is the rule book all residents and developers must follow as they undertake anything within the City limits, from a

[2] The Gallatin Water Collaborative. *The Gallatin Water Collaborative*, https://www.gallatinwatercollaborative.org/. Accessed 8 July 2025.

renovation to their home, to the new construction of a multi-acre housing complex. It also provides the authority for City staff and the Commission to influence proposed projects. For public engagement to hold weight and have the potential to sway a decision, arguments must be based on whether a development is following the letter of the law. The Montana Land Use and Planning Act, passed in 2023, emphasizes public engagement throughout the development of land use plans, maps, zoning regulations, and subdivision regulations, while also aiming to create a more predictable and efficient development process by allowing for a streamlined administrative review of site-specific development applications that align with adopted plans.[3]

The City is unpacking the whole UDC - all 500+ pages - with the goals to "improve usability" and "accommodate growth while meeting community goals." They are also looking at pieces of it separately to tackle specific topics. Wetlands and Watercourses, both under *Article 6. - Natural Resource Protection*, have their own process, initiated when wetland protection was established as a Commission priority in 2023. The Parks Department is also working at its own pace, incorporating the goals and recommendations from its recently adopted Parks Recreation and Active Transportation Plan (PRAT Plan) into the Code. All three of these efforts are happening now, and all three have significant opportunities to improve watershed stewardship.

Streams and wetland regulations show up throughout the UDC, but the most relevant areas in the Code are:

- *Article 6. - Natural Resources, Division 38.610. - Wetland Regulations*
- *Article 6. - Natural Resources, Division 38.620. - Watercourse Setbacks*
- *Article 7. - Permits, Legislative Actions and Procedures, Division 38.710. - Submittal Materials and Requirements*

The City's guiding documents empower changes to the UDC, and as the City adopts new guiding documents over time, local regulations are updated to keep pace with the vision and goals of our community. The most relevant guiding documents are included in the list below. A detailed breakout of plans, section references, and specific language is provided in Attachment A.

- Bozeman Community Plan
- Bozeman Climate Action Plan
- Gallatin Valley Sensitive Lands Protection Plan
- City of Bozeman Parks Recreation and Active Transportation Plan (PRAT Plan)
- Bozeman Creek Enhancement Plan

[3] Lynch, Kelly A. *Montana Land Use and Planning Act (SB 382)*. 10 January 2024. *The Montana Department of Natural Resources and Conservation*, https://dnrc.mt.gov/_docs/water/Comprehensive-Water-Review/meeting-materials/Montana-Land-Use-Planning-Act-SB382.pdf. Accessed 8 July 2025. PowerPoint Presentation.

ISSUE ANALYSIS

This section provides the basis for the following recommendations for updates to Bozeman's development code. It starts by exploring the question: What does good watershed stewardship look like in an urban setting? This question is addressed by looking to our past as a lesson for the future and outlining best management practices. Finally, we lay out our current strengths and vulnerabilities to set the stage for providing recommendations.

What does good urban watershed stewardship look like?

Looking to the past as a lesson for the future.

It is helpful to start by orienting in our history to establish a "reference ecosystem." While we can't return to a time before Bozeman, we can learn from the past to understand what this system looked like at its healthiest, and use this as a basis for imagining a more sustainable future. Captain William Clark's journal entry on July 14, 1806, sets the datum, describing his party's progress through the Gallatin Valley, encountering "inoumerable" and "emence quantities of beaver" and swamps that were several miles wide with a multitude of stream channels so convoluted as to "render the passage impracticable."[4] Bozeman sits on an alluvial fan, characterized by a cobbly aquifer and shallow groundwater table. In this geologic setting, we would expect a mosaic of complex, multithreaded stream-wetland systems, their channels changing often as beaver dams were built and breached. Relics of this wetter and wilder time can still be seen today from a bird's eye view as horseshoe-shaped channel scars stamped across the valley floor, persisting through time and land use changes. This look into the past tells us that the streams in the Gallatin Valley are meant to be surrounded by wetlands and crowded by thick stands of cottonwoods, aspen, willows, and dogwood.

Since that fateful journey, the Gallatin Watershed has undergone three major, defining shifts in hydrology: the removal of beaver, the rise of agriculture, and now, rapid urban development. Bozeman is built on - and expanding into - a highly altered landscape: farm fields that were once beaver swamps. These three land use changes fundamentally impacted how streams function in the Gallatin Valley. Once, a network of low, pervious check dams, deep-rooted plants, and dense woody vegetation stabilized soil, slowed stormwater, tamed floods, and attenuated pollution. Today, most of our wetlands are either gone or degraded, and over 40% of the stream miles in

[4] Clark, William. July 14, 1806. The Journals of the Lewis and Clark Expedition. Ed. Gary Moulton. Lincoln: U of Nebraska Press, 2002. The Journals of the Lewis and Clark Expedition. 2005. U of Nebraska Press / U of Nebraska-Lincoln Libraries-Electronic Text Center. 8 July 2025 <https://lewisandclarkjournals.unl.edu/item/lc.jrn.1806-07-14>

the Lower Gallatin Watershed lack appropriate riparian cover, replaced by crops, lawns, and pavement. In many places, streams and their floodplains are constrained by roads, railways, bridges, culverts, and rip-rap. About 4.5 miles of bank armor have been mapped on the East Gallatin River, about 10% of its total length, and "by 1965 much of the riparian corridor had been cleared and substantial sections of river had been channelized (straightened)" to make room for farming and infrastructure.[5] Over the last 150 years, we have removed the natural tools that keep our streams healthy.

The combined effect is that streams are more destructive and polluted, and the system is showing the strain. The Montana Department of Environmental Quality reports that 12 of the 23 major streams in the Lower Gallatin Watershed are impaired and unable to sustain a cold water fishery - several of which flow right through the center of Bozeman.[6] Most summers, agricultural water rights holders make sacrifices to keep water flowing in our streams, and "hoot owl" restrictions limit angling days. It is predicted that increased drought frequency and severity (due to natural conditions and human use) will make retaining water, especially cold water, throughout the year even more challenging, which can lead to habitat loss, conflict between water users, and a negative impact on tourism and recreation industries.[7] Each year, we invest millions of private and taxpayer dollars to secure channels in place in order to protect threatened homes, roads, bridges, and irrigation diversions and pivots, and each year we invest millions more in restoration projects to restore degraded stream reaches. The further we stray from the sights that William Clark beheld, the more unstable the system becomes.

Understanding best management practices.

The management strategies to recover our water resources and protect them from additional harm are, in large part, actually quite simple: streams and wetlands need space and continuity to provide the services we rely on as a community. Streams, riparian areas, groundwater, and uplands are a single, interconnected system where the health of one directly affects the others. With enough, uninterrupted space, the system can provide essential ecosystem services:

- **Flooding and erosion control:** Stream channels and their floodplains are meant to shift as flooding and erosion renew ecosystems by scouring streambeds and transporting

[5] Thatcher, Tony, and Karin Boyd. *East Gallatin River Channel Migration Mapping*. Ruby Valley Conservation District, 31 December 2017.
[6] Montana Department of Environmental Quality Water Quality Planning Bureau Watershed Management Section. *Lower Gallatin Planning Area TMDLs & Framework Water Quality Improvement Plan*. Document Number M05-TMDL-02aF ed., Montana Department of Environmental Quality, March 2013, https://deq.mt.gov/files/Water/WQPB/TMDL/PDF/LowerGallatin/M05-TMDL-02a.pdf. Accessed 8 July 2025.
[7] *Whitlock C, Cross W, Maxwell B, Silverman N, Wade AA. 2017. 2017 Montana Climate Assessment. Bozeman and Missoula MT: Montana State University and University of Montana, Montana Institute on Ecosystems. 318 p. doi:10.15788/m2ww8w.*

sediment and nutrients. But when floodplains are constricted and riparian areas altered, the result is more severe flooding, rapid erosion, and unpredictable channel migration that threatens nearby property and infrastructure.

- **Groundwater recharge:** Streams and wetlands that slow and store water—through flooding, beavers, and log jams—help raise groundwater levels, meter out our limited water supply, and strengthen drought resilience.

- **Water treatment:** A buffer of native riparian vegetation and wetlands improves water quality by filtering pollution from stormwater and shallow groundwater, cooling water temperatures, and stabilizing streambanks.

- **Fish and aquatic habitat:** Bozeman's spring creeks are critical spawning habitat for the fishery at large, and maintaining cool, clean, connected tributaries to the East Gallatin River is key to the vitality of the iconic blue-ribbon trout stream. Our headwater streams are especially sensitive to water quality, temperature, and seasonal flow regimes that support different stages of the aquatic life cycle. Streamside buffers with intact floodplanes and riparian vegetation mitigate water quality, flow rates, and channel morphology. Trees and shrubs also provide shade and instream habitat structure. All of these factors are vital to ensure the long-term persistence of our trout, whitefish, and other cold-water aquatic species.

- **Wildlife habitat:** Wetlands and riparian areas have the greatest plant and animal diversity in the state, representing only about 4% of Montana's land cover and supporting nearly all of our wildlife for at least part of their life cycle. Space away from human activity, contiguous migration corridors, and access to surrounding uplands are all integral to the value of these areas for wildlife.[8]

The question then becomes: how much space do streams and wetlands need? The answer depends on context, specifically, their potential to provide ecosystem services, and the functions required of the buffer. In an urban setting, there are unique considerations. For example, many urban streams and wetlands are not appropriate for roaming moose and bears, but may still serve as a pocket of bird habitat. Or, streams constrained by roads and buildings may have significantly reduced flood carrying capacity that can not practically be restored (pending a massive and visionary effort!). In *What is an Urban Riverscape?*, Murphy et al. categorize stream reaches from near-natural to fully enclosed, recommending management strategies tailored to each type. This framework helps planners differentiate between areas with high functional potential, such as new developments on the city's edge, versus more limited

[8]Gallatin Watershed Council, et al. *The Watercourse Commons Report*. Gallatin Water Collaborative, 2024.

options in the denser downtown core. Similarly, in Washington State, wetland buffer widths are based on assessing potential functions and values, adjacent land use, buffer characteristics, and intended functions.[9] Establishing stream and wetland buffer widths is ultimately about managing the impacts of new growth to allow for a desirable future "based on contemporary conditions, evidence of past conditions, and the recovery potential of any given reach."[10]

Many other communities and researchers have asked the same question, and extensive studies exist on appropriate setback sizes for streams and wetlands. Table 1 summarizes values from scientific literature across the Northwest.

Table 1: Summary of Setback With Recommendations Found in Scientific Literature

Source	Setting	Setback Function (if noted)	Setback Width*
Montana Fish Wildlife and Parks Recommendation for Subdivision Development in Montana	River		250' vegetated + 50' building setback
	Perennial Streams		150' vegetated + 50' building setback
	Wetlands		100' vegetated + 30' building setback
Montana Department of Environmental Quality Scientific Recommendations on the Size of Stream Vegetated Buffers, Part 1, 2, and 3	Streams/Rivers	Protect water quality	100'
	Streams/Rivers	Protect fish and aquatic Life	100'
	Streams/Rivers	Protect wildlife habitat	300' (more for certain wildlife species)
Wetlands in Washington State, Volume 2: Guidance for Protecting and Managing Wetlands	Wetlands with minimal habitat functions and low-intensity land uses adjacent to the wetland		25' - 75'
	Wetlands with moderate habitat functions and moderate- or high-intensity land uses adjacent to the wetland		75' - 150'
	Wetlands with high habitat functions, regardless of the intensity of the land uses adjacent to the wetland.		150' - 300'
	Wetlands	Wildlife habitat	100' - 1000'
	Wetlands	Sediment removal	30' - 100'
	Wetlands	Nitrogen removal	100' - 180'
	Wetlands	Phosphorus removal	30' - 100'

**Setback widths are applied to all sides of a waterbody and measured from the ordinary high water mark or the boundary of a delineated wetland*

[9] Granger, T., T. Hruby, A. McMillan, D. Peters, J. Rubey, D. Sheldon, S. Stanley, E. Stockdale. April 2005. Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands. Washington State Department of Ecology. Publication #05-06-008. Olympia, WA.

[10] Murphy B, Nelson PA, Gilbert J, Sholtes J (2025) What is an urban riverscape? Typological naming of urban riverscapes to support planning and management. PLOS Water 4(4): e0000345. https://doi.org/10.1371/ journal.pwat.0000345

The Watercourse Commons Report (Attachment B) offers scientific guidance for streamside buffers in the Gallatin Watershed to ensure long-term water availability, water quality, and resilient landscapes. Developed by a coalition of local experts and stakeholders through the Gallatin Water Collaborative, the report highlights the vital ecological functions of riparian areas—flood control, groundwater recharge, pollution filtering, fish and wildlife habitat—and calls for consistent, science-based setbacks across jurisdictions. It recommends vegetated buffers of 300 feet for large rivers, 150 feet for medium or ecologically significant streams, and 100 feet for small streams, based on a synthesis of best available science from Montana Fish Wildlife and Parks and Montana Department of Environmental Quality. The guide emphasizes that streams need space to function naturally and underscores the importance of coordinated, proactive streamside management to adapt to a changing climate and protect Gallatin Valley's water resources.

Recommendations from the *Watercourse Commons Report* were included in the Gallatin County Future Land Use Map, which was adopted into the Gallatin County Growth Plan in 2024.[11] They were then incorporated into Gallatin County Subdivision Regulations in 2025, which now require watercourse setbacks to protect vegetated riparian areas. A 300-foot setback from the Ordinary High Water Mark is required for structures along the East and West Gallatin, Madison, Jefferson, and Missouri Rivers (excluding those solely for agricultural use). All other watercourses require a 150-foot setback. Roads may cross setbacks if designed to minimize encroachment. Additionally, native vegetation must be preserved within 250 feet of major rivers and within 100 feet of other watercourses, with limited vegetation management (e.g., weed control, deadfall removal, selective pruning) allowed in these areas. Any impacts to the watercourse setback must be mitigated.[12]

Where are our strengths and vulnerabilities?

Strengths

Bozeman has relatively progressive stream and wetland codes and a shared commitment to watershed stewardship across the community, City departments, and the Commission. Residents consistently express their value for clean water, reflected in the City's guiding documents that provide a unified vision for action. We are not starting from scratch, and are fortunate to be building on a strong foundation of existing regulations, public support, and leadership that recognizes the importance of protecting water resources. There have been good steps in the direction of good urban watershed stewardship, but these processes are iterative:

[11] Gallatin County. *Gallatin County Growth Policy: Envision Gallatin Tomorrow Together*. Gallatin County, 10 December 2024, pp. 8-34.
[12] Gallatin County. *Gallatin County Subdivision Regulations*. Gallatin County, 28 January 2025, pp. 6-1.

updates to the UDC are a matter of revisiting and refining existing code, and maintaining the momentum of planning efforts long underway.

Current development code lays out relatively progressive protections for streams and wetlands in Montana, and although the setbacks are smaller than what is recommended by the consensus of best practices, the codes have resulted in prized open spaces within the City. Bozeman asserts jurisdiction over wetlands not regulated by the US Army Corps of Engineers - including isolated wetlands, and impacts as small as 400 square feet - and extends watercourse setbacks around adjacent wetlands. The current UDC imposes watercourse setbacks of 100 feet on either side of the East Gallatin River, 75 feet on Bozeman Creek and Bridger Creek, and 50 feet on all other watercourses. It is required to replant watercourse setbacks with native grasses, forbs, trees, and shrubs. For developments granted preliminary plan or plat approval prior to July 10, 2002, the setbacks are smaller, with 100 feet on either side of the East Gallatin River and 35 feet on all other watercourses.

Many of the recommendations provided in this memo are not new and are derived from existing City guiding documents. These documents are a result of consistent and intentional engagement by Collaborative stakeholders throughout various planning processes to elevate the importance of water resources and represent the best available science. Updates to the UDC are a matter of taking the next step and putting the guidance and recommendations from these plans into action. For example, the PRAT Plan and Sensitive Lands Protection Plan both prioritize natural resource stewardship. Goal 4 in the PRAT Plan is to “Steward and sustain Natural resources across the parks and trails system” and calls for accepting wetlands and watercourse setbacks as parkland, requiring natural resource analyses early in development review, and building technical capacity to better protect wetlands and watercourses throughout the development process. The Sensitive Lands Protection Plan highlights Bozeman’s streams and wetlands as rich in biodiversity, vital for habitat connectivity and wildlife migration, and high risk for development, resulting in some of the highest priority areas to protect within the City. It recommends tools such as local wetland mitigation solutions; riparian buffers protected through overlay zoning, Channel Migration Zone easements, and strategic parkland acquisition; dedicated natural resource staff; and improved landscape standards that protect and enhance native plant communities. Other plans, including The Climate Action Plan, Bozeman Community Plan, and Bozeman Creek Enhancement Plan, all have recommendations in line with those provided below. See Attachment A. for a detailed breakout of plans, section references, and specific language.

Over the last several years, the Commission has prioritized wetland protection and stream restoration. Commission priorities set in 2023 oriented the City toward developing a local wetland mitigation bank and prioritizing updates to the wetland code. Both initiatives are now

well on their way, and the following recommendations are intended to help carry them across the finish line. In 2024, the City also prioritized restoration projects, including creating a resiliency plan for Bozeman Creek, developing the Cattail Creek Anchor Route, and partnering on Branch Out Bozeman, an urban forest initiative with the goal of using trees to improve water quality. These Commission priorities demonstrate a care and understanding for water resources, and a desire to be less reactive and more proactive.

Vulnerabilities

Despite these strengths, we are still losing wetlands to development, and watercourse buffers are often encroached upon. In some cases, this is due to gaps in regulatory protection and challenges with local versus federal jurisdiction. In other cases, existing rules and regulations play out on the ground differently than intended, where streams and wetlands can sometimes fall through the cracks during the development review process, leading to avoidable and undesirable impacts. The core issue isn't necessarily the codes themselves, but primarily their usability and consistent enforcement. Some of the key challenges are:

1. The City lacks reliable technical capacity to ensure proper guidance and oversight of stream and wetland impacts. Although wetland review is sometimes contracted to third-party consultants, this isn't always the case. The Code references a non-existent "review authority" and a now-defunct "wetland review board," leaving no clear oversight for aquatic resources. Additionally, post-construction inspection is self-certified, providing limited accountability that what was proposed matches what was installed.

2. Projects are often planted squarely across a site with limited concessions for streams and wetlands, resulting in unnecessary conflicts that require either costly redesigns for developers and/or ecological losses. The challenge is twofold: first, streams and wetlands are perceived as relatively low priority in site planning, and second, detailed delineation of these features is not required until site plan review, after significant investment has already been made into the project design. In contrast, the transportation grid is predetermined and seen as fixed, so it gets overlaid early in the planning process and strongly influences the layout of buildings and other infrastructure.

   While publicly available maps of wetlands, riparian areas, and watercourses are useful for broad-scale land use planning, they lack the accuracy and completeness needed for site-specific design. Many watercourses in the Gallatin Valley are not mapped, and it is often unclear whether a feature is a natural stream, irrigation ditch, or both. Wetlands can also be difficult to identify without on-site assessment, as their presence depends

on subtle indicators in soil, vegetation, and hydrology that are not visible on aerial imagery or during a casual site visit.

3. Where there is subjectivity, the Code is applied inconsistently. Phrases like “wholly man-made water source” and “in the public interest” are overused to justify exemptions, especially amid development pressure and rising land costs.

4. Wetland “buffers” are required, but are not applied in practice due to an open-ended definition, where “the review authority may recommend conditions of approval for proposed regulated activities…requiring the provision of a wetland buffer of a size appropriate for the particular proposed activity and the particular regulated wetland area.”

5. Impacts to federally jurisdictional wetlands are mitigated to a private wetland bank in Twin Bridges. Streams and wetlands classified as “Waters of the US” (WOTUS) are regulated by the US Army Corps of Engineers under the Clean Water Act. Recently, the threshold for what qualifies as WOTUS has narrowed significantly, now covering only “navigable waters” and wetlands with a “continuous surface connection” to them. It is important to note that federal rules don’t offer protection but rather facilitate the mitigation of impacts at a “watershed scale,” which in our case means anywhere within the Upper Missouri Watershed. In practice, impacts to wetlands within Bozeman are offset at the Upper Missouri Mitigation Bank in Twin Bridges—effectively exporting ecosystem services to a private ranch on the Jefferson River.

6. When stream and wetland impacts are proposed, Bozeman lacks a standardized, science-based impact assessment. Applicant justifications, staff evaluations, and board or commission discussions are often subjective, with inconsistent consideration of scientific data or state and federal regulations. As a result, both decision-makers and developers navigate complex topics like hydrogeomorphology, wildlife biology, and aquatic ecology without clear guidance, effectively reinventing the wheel for each project. The standard variance criteria—focused on historical appropriateness, minimal effects on neighboring properties, and general public welfare—do not address the specific needs of natural resource management. This leaves us vulnerable to cumulative impacts and the repetition of past poor practices. A consistent, science-driven evaluation process, specific to water resources, is needed.

7. When stream and wetland impacts are proposed, Bozeman lacks a standardized mitigation process. Impact mitigation is applied inconsistently and is a missed opportunity to retain ecosystem services locally and invest the mitigation efforts in streams and wetlands within our neighborhoods.

8. Landscape designs for wetlands and watercourse setbacks are often ecologically inappropriate, featuring non-native species and large swaths of turf grass.

9. Stream and wetland impacts and stewardship opportunities are not considered holistically across City departments, missing chances to share technical expertise and align incentives. For example, a site plan may create space for a stormwater detention pond while filling natural wetlands—nature's superior "stormwater facility." Park planners can support stewardship by accepting wetlands and setbacks as parkland dedication and requesting enhancements before ownership transfer, but they need technical expertise to guide these negotiations. The transportation grid often causes the greatest harm to streams and wetlands, directly and indirectly, as it forces a particular layout of the site. It is difficult to balance competing priorities: protecting water resources requires City departments to work together, promote creative, science-based site planning, and deliver a clear, unified message that water resources are a priority.

10. Submittal requirements for streams and wetlands are highly variable and confusing throughout the UDC, spanning multiple sections in multiple articles in addition to a supplemental Wetland Review Checklist.

RECOMMENDATIONS

The goal of these recommendations is for good urban watershed stewardship to be the clear and intuitive path through the development process, securing Bozeman's streams and wetlands for the welfare of its residents and the health of the greater Gallatin Watershed. The recommendations include changes to stream and wetland regulations that are based on a historic reference ecosystem for when the system was at its healthiest, as well as consideration for what is both necessary and feasible today. Proposed changes also integrate guidance from the City's adopted planning documents. And finally, the recommendations seek to address common challenges faced in the development review process, and improve overall usability of stream and wetland codes throughout the UDC.

We start by outlining the recommendations conceptually. Then, we attempt to insert these recommendations into each relevant section of the UDC.

Conceptual Recommendations

First, prioritize impact avoidance and ecological enhancement.

1. Make the stewardship of streams and wetlands a front-and-center priority throughout the UDC. Help get everyone—city staff, Commissions, Community Board Members, the community, developers—on the same team. Stewardship should be loud and clear, woven into the purpose and intent of the UDC, guiding community design, shaping site planning, and embedded in every step of the development review process. The location of streams and wetlands should shape site design as much as, if not more than, the transportation grid overlay.

2. Establish wetland setbacks for ALL wetlands, regardless of their federal status. Washington State has essentially bypassed federal management of its wetlands by creating stringent setbacks that pre-empt any direct impacts that would require a 404 permit.[13]

3. Increase stream and wetland setback widths based on best management practices to ensure their full ecological value as critical natural infrastructure. Table 2 outlines the recommendations for stream and wetland setback widths. Values were derived from a synthesis of scientific literature, provided in Table 1 under the Issue Analysis, and are consistent with Gallatin County Subdivision Regulations. It is also recommended that the City inventory high-value water resources to identify where wider setbacks should be enforced.

Table 2: Recommended Stream and Wetland Setbacks for the UDC

Setting	Setback Width*
Large rivers - including the East Gallatin River below Bridger Creek	300'
Medium size and ecologically significant streams - including the East Gallatin River above Bridger Creek, Bozeman Creek, and Bridger Creek	150'
All the rest	100'
Wetlands adjacent to watercourses	Extend applicable watercourse setbacks around adjacent wetlands
Isolated wetlands	100'

**Setback widths are applied to all sides of a waterbody and measured from the ordinary high water mark or the boundary of a delineated wetland*

[13] Granger, T., T. Hruby, A. McMillan, D. Peters, J. Rubey, D. Sheldon, S. Stanley, E. Stockdale. April 2005. Wetlands in Washington State - Volume 2: Guidance for Protecting and Managing Wetlands. Washington State Department of Ecology. Publication #05-06-008. Olympia, WA.

4. Leverage incentives from multiple departments, such as parks, stormwater, and transportation, to maximize buildable land while protecting more contiguous open space around high-value sensitive lands that serve multiple purposes. Accept wetlands, watercourses, and their associated setbacks as parkland dedication. Incentivize stormwater facilities to be designed appropriately for multi-use park space.

5. Improve the usability of stream and wetland codes. Wherever possible, take advantage of similarities between streams and wetlands to make their regulations consistent and streamlined. Simplify the layout of the two sections to mirror one-another, and consolidate information that is consistent, such as intent/purpose and submittal requirements. Significant overlap exists in the site investigation, mapping, and application and review process. Develop a "water resources packet" as a standardized submittal requirement. Ensure strong, clear, and consistent language through the UDC.

6. Enhance streams and wetlands during the development process. Require that setback planting plans be designed by a wetland professional/ecologist/botanist with at least three years of experience with revegetation in the intermountain west/Montana/Bozeman. Create a supplementary Wetland and Watercourse Setback Planting Guide, similar to the Landscape and Irrigation Design Manual.

7. Require an aquatic resources delineation by a qualified professional—including streams, wetlands, and irrigation ditches—at the pre-application stage. Alternatively, the code should strongly recommend this delineation at the pre-application stage and clearly state that the developer assumes all risk for redesigns if a later assessment reveals impacts due to inaccurate or incomplete mapping. Identifying major site constraints early on in the development process makes good economic sense and helps align all parties toward a common goal from the beginning. Establish a culture where the location of streams and wetlands influence site design at least as much as, if not more than, the transportation grid.

8. Codify adequate technical capacity to provide guidance throughout the development process, review applications, assess potential impacts, and perform site inspections. There is a highly trained expert on staff to advocate for well-planned and safely designed roads, and drywall screw patterns require an on-site certification from a city Building Inspector. Similar levels of support and accountability should be extended to streams and wetlands to ensure the stewardship of essential public resources.

Second, minimize impacts carefully.

9. Allow for reduced stream and wetland setbacks through a scientifically robust risk assessment. Require developers to characterize: 1) *potential functional value* of the water resource to provide flood and erosion control, fish and wildlife habitat, recreation, and stormwater treatment and infiltration, where potential is based on surrounding land use, infrastructure constraints, and a future condition where reasonable improvements have been made to the stream or wetland; 2) proposed disturbances and the risks they pose to the potential functional value; and 3) measures to minimize or replace those risks. The City should establish standardized evaluation criteria for reviewers to consider variance, deviation, and departure requests related to water resources. Refer to Wetlands in Washington State Volume 2: Guidance for Protecting and Managing Wetlands as a model, and Table 1 as a guide for appropriate setback width adjustments.

Third, mitigate adverse impacts locally.

10. Develop a federally accredited wetland mitigation bank in the East Gallatin Watershed to be available for wetland impacts administered by the US Army Corps of Engineers.

11. Develop a standardized mitigation process for wetland impacts that fall under City jurisdiction (including impacts to setbacks that adversely affect the functional value of the wetland). Use mitigation to invest in the retention and enhancement of stream and wetland ecosystem services for the betterment of Bozeman Residents and the health of the East Gallatin Watershed at large.

Recommendations by Code Section

Note: The following section references align with the Bozeman Development Code updated draft text as of May 6, 2025.

ARTICLE 1. - GENERAL PROVISIONS
Division 38.100. - In General; Sec. 38.100.040. - Intent and purpose of chapter.

1. Include a clear commitment to protecting sensitive lands, including streams and wetlands, in the interest of watershed health and the public welfare of Bozeman residents. State that the City encourages development that fits with the natural capacity of a site and provides multi-functional open space.

ARTICLE 4. - COMMUNITY DESIGN
Division 38.410. - Community Design And Elements; Sec. 38.410.020. - Neighborhood centers.

2. Remove the following phrase from #6: “However, any part of the center used for stormwater management does not count towards park dedication requirements.”

Division 38.420. - Park and Recreation Requirements; Sec. 38.420.010. - General.

3. Include natural resource stewardship as a park priority. Adapt language from the PRAT Plan, which seeks to strengthen the City’s participation in actively protecting and managing sensitive lands “in order to adapt to climate change, sustain ecosystem services, and provide for the recreational use and enjoyment for generations to come.”

Division 38.420. - Park and Recreation Requirements; Sec. 38.420.020. - Park area requirements.

4. Accept wetlands, watercourses, and their associated setbacks as parkland dedication.
5. Incentivize stormwater facilities to be designed appropriately for multi-use park space and accepted as parkland dedication.

ARTICLE 5. - PROJECT DESIGN

Division 38.500. - Introduction, Sec. 38.500.010 - Purpose.

6. Include natural resource stewardship as a priority in site design.

ARTICLE 6. - NATURAL RESOURCES.

7. Include an introductory division that outlines purpose and intent and consolidates submittal requirements and review processes that pertain to all listed natural resource divisions. For wetlands and watercourses, there is significant overlap in their site assessment and delineations, mapping, submittal materials, and technical oversight and review. This can help with consistency and clarity.

Division 38.610. - Wetland Regulations.

8. Establish wetlands setbacks for ALL wetlands, regardless of their federal status.
9. Standardize wetland setbacks according to scientific best practices: watercourse setbacks should extend around adjacent wetlands and 100’ setbacks are applied to isolated wetlands.
10. Enforce wider setbacks to high-value streams and wetlands based on a water resources inventory.
11. Allow reduced stream and wetland setbacks through scientifically robust risk assessment. Use Wetlands in Washington State Volume 2: Guidance for Protecting and Managing Wetlands as a model.
12. Require mitigation of impacts to wetlands under the City’s jurisdiction.

13. Standardize a mitigation process for adverse impacts to wetlands under the City's jurisdiction.
14. In the list of exemptions, replace the phrase "wholly human-made water source" with "the maintenance of irrigation and stormwater facilities."
15. Specify a water resource specialist as the "review authority" and establish them as a required standing member of the Design Review Committee (see recommendations under Article 7).
16. Require that setback planting plans be designed by a wetland ecologist.
17. Create an external, supplementary Wetland and Watercourse Setback Planting Guide, similar to the Landscape and Irrigation Design Manual.

Division 38.620. - Watercourse Setbacks.

18. Change the title to "*Stream Regulations.*" This is more consistent with the title of *Division 38.610. - Wetland Regulations.*
19. Include an *Intent and applicability* section for streams, as is included in *Division 38.610. - Wetland Regulations*. Or consolidate *Intent and applicability* for streams and wetlands into one section.
20. Specify a water resource specialist as the "review authority" and establish them as a required standing member of the DRC (see Article 7. recommendations).
21. Increase setback widths to match scientific best practices: 300' for the East Gallatin River, 150' for Bozeman Creek, and 100' for all other watercourses.
22. Enforce wider setbacks to high-value streams and wetlands based on a water resources inventory.
23. Allow reduced stream and wetland setbacks through scientifically robust risk assessment. Use Wetlands in Washington State Volume 2: Guidance for Protecting and Managing Wetlands as a model.
24. Require mitigation of impacts to streams.
25. Include a *Submittal Materials* section, as is included in *Division 38.610. - Wetland Regulations*, or consolidate *Submittal Materials* for streams and wetlands into one section.
26. Remove *Sec. 38.620.030. - Other provisions,* particularly the line "An agricultural use, activity or structure is considered abandoned if not used for agricultural purposes for more than 180 consecutive days," which is incorrect per MCA 85-2-404.
27. Require that setback planting plans be signed by a wetland ecologist.
28. Create an external, supplementary Wetland and Watercourse Setback Planting Guide, similar to the Landscape and Irrigation Design Manual.

ARTICLE 7. - PERMITS, LEGISLATIVE ACTIONS AND PROCEDURES

Division 38.700. - Jurisdiction And Scope Of Authority; Sec. 38.700.010. - Review Authority.

29. Establish a water resource specialist as the review authority for water resources.

Division 38.700. - Jurisdiction And Scope Of Authority; Sec. 38.700.170. - Development Review Committee (Drc) And Administrative Design Review Staff (Adr).

30. Include a water resource specialist as a required standing member of the DRC.

Division 38.710. - Submittal Materials And Requirements.

31. Ensure consistency in the language and burden of proof required for water resources throughout this division. Standardize the types of information required for water resources in platting, site planning, and parks planning.
32. Throughout the application process, collate a "water resources packet" where information pertaining to streams and wetlands can be easily found, including delineations, proposed impacts, risk assessments, and mitigation strategies.

Division 38.710. - Submittal Materials And Requirements; Sec. 38.710.030. - Subdivision Pre-Application Submittal Materials.

33. Include a "Water Resources" heading (separate from "Topographic Features").
34. Require an aquatic resources delineation by a qualified professional—including streams, wetlands, and irrigation ditches—at the pre-application stage. Alternatively, the code should strongly recommend this delineation at the pre-application stage and clearly state that the developer assumes all risk for redesigns if a later assessment reveals impacts due to inaccurate or incomplete mapping.

Division 38.710. - Submittal Materials And Requirements; Sec. 38.710.120. - Submittal Materials For Regulated Activities In Wetlands.

35. Move to *Division 38.610 Wetland Regulations* and consolidate with similar subsections in this division. Consider creating a combined *Submittal Materials* section for streams and wetlands. Make this the one-stop shop for what is required, instead of having things scattered throughout the UDC. This recommendation is consistent with the organization of information for *Division 38.600 Floodplain Regulations*, and helps people find and understand applicable information more easily.
36. Throughout the application process, collate a "water resources packet" where information pertaining to streams and wetlands can be easily found, including delineations, proposed impacts, risk assessments, and mitigation strategies.

CONCLUSION

The Unified Development Code update represents a significant opportunity to align Bozeman's land use regulations with our community's shared values, scientific understanding, and long-term vision for watershed health. The Gallatin Water Collaborative has developed a set of practical, science-based recommendations to ensure that Bozeman's streams and wetlands are not only protected, but integrated meaningfully into the city's growth and development. These natural systems are not obstacles to development, but are assets that safeguard our water supply, reduce flood risk, support biodiversity, and enhance quality of life for residents.

By adopting the recommendations outlined in this memo, the City of Bozeman can set a precedent for proactive urban watershed stewardship that benefits both people and wildlife. This is not about reinventing the wheel: it's about taking the next step, turning existing plans into action, and improving the clarity, consistency, and effectiveness of the development review process. With strong leadership and clear regulatory guidance, Bozeman has the opportunity to shape a future where development and ecological resilience go hand in hand, securing clean water, healthy streams, and vibrant natural spaces for generations to come.