

CITY OF WHITEFISH IRRIGATION & LANDSCAPE MASTER PLAN

LANDSCAPE ANALYSIS,
RECOMMENDATIONS &
GUIDELINES



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406.862.4225
 www.forestoration.com
 PO Box 1043 Whitefish, MT 59937

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION.....1

CHAPTER 2: EXISTING CONDITIONS & SITE ISSUES.....2

 A) DEVELOPED PARKLAND.....3

 B) UNDEVELOPED PARKLAND.....11

 C) OTHER IRRIGATED SPACES.....15

CHAPTER 3: SITE TYPE GUIDELINES.....19

CHAPTER 4: LANDSCAPE RECOMMENDATIONS.....24

 A) DEVELOPED PARKLAND.....25

 B) OTHER IRRIGATED SPACES.....45

 C) UNDEVELOPED PARKLAND.....54

CHAPTER 5: PRIORITIES.....55

CHAPTER 6: LANDSCAPE DESIGN, INSTALL & MAINTENANCE GUIDELINES.....56

 A) DESIGN CONSIDERATIONS.....57

 B) PLANT SELECTION: CONTAINERIZED PLANTS.....67

 C) PLANT SELECTION: SEED.....93

 D) WEED MITIGATION.....102

 E) DEER BROWSE MITIGATION.....104

 F) GRAVEL, STONE & BOULDER OPTIONS.....105

 G) MULCH OPTIONS.....107

 H) EDGING OPTIONS.....107

 I) INSTALLATION.....108

 J) MAINTENANCE.....109

1. INTRODUCTION

PURPOSE

The City of Whitefish owns and manages a wide variety of landscapes, from public parks to boulevard strips and natural areas, many of which are in disrepair and in need of updating. Within all these areas are differing habitats composed of varying plant types. In order to decrease the use of potable water for irrigation and to both protect and enhance pollinator and wildlife habitat, the use of both native and non-native species to minimize and potentially replace sod is a crucial step toward creating drought-tolerant and healthy City landscapes.

This Master Plan provides the following:

- An analysis of existing selected City landscapes
- Landscaping guidelines based on site type
- Recommendations for the future development of these landscapes
- Priorities to consider when redesigning a landscape
- Landscape design, installation, and maintenance guidelines

This guide is intended to be used as a planning tool for the design, installation, and maintenance of City landscapes, with a heavy focus on native plant selection. It will also provide a foundation for the City to develop future landscapes with a unified theme, so that there is consistency between plants, mulch, materials, and other landscape elements.

BENEFITS OF A CITY OF WHITEFISH LANDSCAPING GUIDE BOOK

Historically, the City of Whitefish has produced many documents that lend planning and guidelines tools for the development of its parks and open spaces. A specific plant, mulch, and materials guide for landscapes has not yet been produced, however.

Landscape design offers an opportunity to create a sense of place and to tie the user mentally to the greater landscape beyond. Located in the Crown of the Continent, Whitefish possesses the unique opportunity to tie its urban landscapes, both visually and ecologically, to the landscapes found in Glacier National Park and other surrounding natural areas. Through intentional design, the use of themes, and carefully selected plants and materials, City-wide landscapes will over time possess their own unique style, be place-based, and have consistency in both aesthetic and function.

2. EXISTING CONDITIONS & SITE ISSUES

LANDSCAPE ANALYSIS

The following report provides a thorough assessment of existing landscape conditions, including vegetation, soils, and general site characteristics for the following right-of-ways and open spaces. See the Irrigation Analysis & Recommendations report for irrigation findings.

WHAT: KEY ISSUES

1. Unnecessary Sod: In many open spaces within the City of Whitefish, sod serves a purpose to either tolerate foot traffic or provide a surface to recreate, socialize, or play on. However, sod exists in many other locations within the City and is compacted, dormant, dying, or unnecessary. All of these particular sod areas possess potential to be converted into landscapes that utilize native or non-native drought tolerant plants, thereby reducing or eliminating irrigation while increasing biodiversity and pollinator habitat.
2. Landscapes in Disrepair: Most, if not all, of the open spaces and right-of-ways evaluated for this report include outdated landscapes in need of repair or updating. Current site conditions include compacted and exposed soils, dead or dormant sod, upheaving or broken edging, exposed landscape fabric, presence of invasive species, presence of debris, and lack of design intent or theme.
3. Lack of Design Intent: Throughout City of Whitefish parks, open spaces, and right-of-ways there are inconsistent landscape themes that contribute greatly to an inefficient use of space. This pattern can result in landscapes that require unnecessary maintenance and/or water and also potentially prevent a landscape from possessing its own unique character and “sense of place”. For example, lack of design intent could result in a boulevard that is filled with water-intensive sod that could instead be filled with drought tolerant native plants on a drip system. This lack of intent can also be seen through mismatched mulches or plant selection that feels alien to our Montana landscape.

WHERE: Nearly all “Developed Parkland” and “Other Irrigated Sites” exhibits one or more of these issues. Good design can prevent these issues in “Undeveloped Parkland” in the future.

WHY: Landscapes that utilize most or all native plants are a relatively new design theme to be implemented in City of Whitefish open spaces and right-of-ways. Guidelines have not yet been created for the successful implementation of how to design, install, and maintain a native plant landscape. Furthermore, City landscape maintenance staff is neither currently able to upkeep all existing landscapes, nor is it prepared to take on the maintenance of future ones. It seems to be apparent that the Parks Department would benefit from more staff. Interdepartmental communication in conjunction with Native Plant Landscape guidelines could help City landscapes be designed, installed, and maintained properly.

HOW: Develop guidelines for the design, installation, and maintenance of native plant landscapes.

A) DEVELOPED PARKLAND - EXISTING CONDITIONS

CITY BEACH

Sod Areas: Larger tracts of lawn are well-used by the community. Some areas are compacted, dormant, or dying.

Planter Beds: Outdated and in disrepair. Consist of plants such as Cinquefoil (non-native), Juniper (non-native), and Snowberry (native). In some beds plastic edging is broken or upheaving and landscape fabric is visible. Some beds are lacking plants, perhaps due to foot traffic, while other beds are overgrown.

Circulation: Social trails exist in some lawn areas and through some planter beds, visible by compaction and lack of plant growth.

General Observations: Sod is unnecessary in areas that are either too small to be utilized for community gathering, or that do not receive enough foot traffic to merit serving as a pathway.



Photos from Left to Right: A small, steep strip of sod that could be transformed into a native planter bed. An area filled with weeds and exposed landscape fabric. A sod area likely not used for gathering that could also be transformed into a native planter bed.



Left Photo: a high-trafficked sod area that should remain as is. **Right Photo:** A planter bed divided by warped plastic edging with native Snowberry and mulch on one side and patchy grass on the other side. Consider converting to native planter beds in areas that are too shady to support sod growth.

SOROPTIMIST PARK

Consists of sod, weeds, and non-native shrubs, as well as native and non-native trees. Sod outside of the chain link fence is dying or dormant and is unnecessary in these areas. Concrete edging on the west side of park is no longer functional. This park possesses potential to convert some under-utilized sod into either gravel areas for parking (outside of the chainlink fence) or a native plant landscape that could reduce water use and increase pollinator activity.



Photos From Left to Right: Thistle-infested sod. Concrete edging that grass has grown into. Dying and/or dormant sod outside of the chain link fence.

MOUNTAIN TRAILS PARK

West Side Existing Landscape: Large expanse of lawn. Pavers in paver patio between the Ski Heritage Center and the field are sinking in some places. River rock bed surrounding the Ice Den is mostly effective. Concrete edging is found on the south side of the building and not on the west side. Some plastic edging dividing sod and a planter bed on the south side is heaving.

Island Between Alpine Market & Mountain Trails Park: Filled with sod, boulders, concrete, and broken asphalt.

East Side Existing Landscape: Islands and planter beds consist of sod and non-native boulevard trees and shrubs (Juniper, Spirea, and Cinquefoil). Trees are surrounded by plastic edging that is filled in with grass. Outer edges of parking lot consist of native vegetation including Aspen, Snowberry, Serviceberry, Woods Rose, Cottonwood, and Fireweed.



Top Photos from Left to Right: The island between Alpine Market and Mountain Trails Park, filled with debris and dry sod. An island in the parking lot on the east side of the Ice Den, filled with sod, plastic edging, and non-native trees. The native ecosystem directly surrounding some of Mountain trails park. Both sod islands pictured here could be converted to a native plant landscape. **Bottom Photo:** A planter bed on the east side of the Ice Den filled with non-native shrubs, gravel mulch, and exposed landscape fabric.

KAY BELLER PARK

Riparian Area: Eroding and compacted from high use. Dangerous debris exists on the shoreline, including concrete blocks, metal strips, netting, landscape fabric, and wooden stakes. Certain areas possess old concrete retainment that is failing in some places.

Sod areas: Grass is healthy in some areas and compacted and/or dead or dormant in others.

Planter beds: Non-native perennials, such as roses.

General Observations: This park merits careful evaluation of sod use. If under-utilized, opportunities exist to convert some sod into planted areas that would bring more character to the park and reduce water use.



RIVERSIDE PARK

This park consists of a mix of native and non-native sod grass, shrubs, and trees.

Tennis Courts: Sod area north of tennis courts appears to be under-utilized. Landscape fabric is visible from gravel falling away from tennis court. Access to tennis court entrances is awkward and visually unclear. The lawn west of the tennis courts is compacted, leaving soil exposed and unsightly. The large gravel path extending from the southeast corner of the tennis courts to the parking lot and beyond lacks direction and is unclear in its intended use and size. Landscape fabric is also exposed under this path.

Parking Lot: Currently lacks sufficient parking to meet summer demand. Tree and shrub species and layout surrounding parking lot appears to have a piecemeal layout and composition.

Main Lawn: Provides ample space for the community to gather and recreate.

River Access: The recent addition of river rock to the main beach has made the river more accessible. Access from Obrien Ave is steep and compacted. This high-use area merits safer and more aesthetic accessibility.

Sod Areas on Obrien Ave: Irregular shaped sod areas are either dormant, dying, or highly compacted and contain weeds.



Photos from Left to Right: Park access from Obrien Ave consists of dormant and/or dying grass, compacted and exposed soils, and steep and slippery river access. Lawn west of the tennis courts is also dormant and/or dying with compacted and exposed soils. An entrance to the tennis courts, with patchy gravel, exposed landscape fabric, and pavers placed in an unclear location and quantity.



Left photo: Sloping lawn with stone steps leading to the newly improved beach; this landscape is both functional and aesthetically pleasing. **Right photo:** The large gravel path extending from the tennis courts to the parking lot; size, design, and intent is unclear.

KIDDIE/BAKER PARK

Healthy and useful sod exists in largest expanses. Certain sod areas that are filled with weeds or other obstacles to mowing (i.e. boulders or steep angles) are unnecessary and could be converted to native planter beds. Some trees are surrounded by a ring of plastic edging filled with grass. The Red-osier Dogwood vegetative screen on the north end provides a successful buffer to 5th Street. The planter bed surrounding the steps entering Kiddie Park on the west side is filled with sparse non-native plants and mulch.



Left photo: An entry bed on the west side of the park consisting of sparsely planted non-native plants, mulch, and plastic edging. **Right photo:** A small patch of sod alongside the pedestrian path that is narrow, contains weeds, and creates maintenance challenges.

MEMORIAL PARK

This popular neighborhood park provides recreational activities for a wide demographic and includes pickle ball courts, basketball courts, and a playground.

Undeveloped Field: The large field on the south end of the park consists of dying or dormant grass, invasive species, and some scattered native trees and shrubs. Carefully design this area for the future to include an efficient irrigation system and well-thought out landscape plan; allocated appropriate resources to properly maintain both.

Sod Areas: All sod areas, except the baseball field, exist in irregular shapes or boulevard strips. Much of these areas are partial to full shade and exist as the understory to existing mature trees. Boulevards consist of dormant or dying sod, or are compacted and devoid of vegetation, excluding mature trees.



Left Photo: The large field on the south end of the park, consisting of weeds and dormant/dying grasses. **Right Photo:** Two boulevard strips on the north end that are narrow, shady, and partially dormant/dying.

ARMORY PARK

Consists of large expanses of grass and weeds and includes baseball fields and a playground. Certain grass areas on steep grades surrounding the Skateboard Park are compacted, patchy, dormant, or dead. Consider converting to a native landscape and using landscape boulders for slope stability on steep grades or under conifer trees where sod is failing.

GROUSE MOUNTAIN PARK

This park consists of soccer fields and tennis courts as well as a picnic area and non-native trees. Plastic edging surrounding some trees is no longer useful and is filled with sod. Most sod areas are healthy and useful except on the northern and western sides of the main parking lot. Sod in these areas appears to be dormant or dead and is filled with weeds. All concrete blocks denoting parking spots are out place. Sod on all sides of the main parking lot could be converted to low-maintenance native landscapes with drip irrigation. This would also provide more curb appeal as these areas line Highway 93. A low point exists in the

northeastern corner of the parking lot that contains silt, cattails, and parking blocks. This area either needs to be re-graded and topped with new asphalt to provide appropriate parking or should be converted into a rain garden or swale. Location of picnic tables and benches in Grouse Mountain Park appear to be arbitrary.



Left Photo: The main parking lot of Grouse Mountain Park, consisting of misplaced parking blocks and dying or dormant sod. **Right Photo:** The small, unusual wetland in the northeastern corner of the main parking lot.

DEPOT PARK

Consists of large expanses of sod as well as planter beds containing non-native plants (with the exception of Quaking Aspen). Sod is well-irrigated and in good condition. Planter beds are surfaced with either gravel or bark mulch. Mulched rings around trees in lawn areas are well-maintained.

JAMES R. BAKKE NATURE RESERVE

This reserve is a unique and beautiful property consisting of mostly non-native grasses, mixed native and non-native trees, and a sinuous pedestrian trail with informational signage. Some invasive species are present such as Oxeye Daisy and European Yarrow. Opportunities for further community engagement and use exist on the north end of the park.

ROUNDHOUSE LANDING

This landscape includes a gravel access road from Railway St. as well as a few gravel access paths from the Whitefish River Trail. Vegetation consists of native trees, shrubs and grasses, as well as non-native grasses and invasive species. Stone steps that link existing trails to the Whitefish River are exposed and lack consistent rise and tread, potentially creating a safety

hazard. Landscape fabric is exposed and surrounding soils are eroding from compaction and high use. Creating consistent and safe stone steps will potentially prevent people from walking on the side, thus preventing further erosion. Some shrubs are encroaching on the stone steps, making travel difficult. Vegetation directly running along the access road appears to be compacted and dormant and/or dying. It appears social trails exist within this vegetation. Clearly delineating gravel areas from vegetated areas while accommodating social trails will prevent future compaction of plants.



Left Photo: Stone steps are derelict, uneven, and eroding on the sides. **Right Photo:** Compacted vegetation lining the access road.

B) UNDEVELOPED PARKLAND - EXISTING CONDITIONS

TRAILVIEW PARK

This park was dedicated to the City of Whitefish and is yet to be developed. The existing landscape consists of native and non-native trees, non-native grasses, and some invasive species. Some of the property is disturbed on the south end due to recent construction. An ephemeral creek or wetland runs east to west through the park, bisecting it in half. A paved recreational trail runs along the west side of the park and includes a bridge over the ephemeral wetland. Significant grade changes exist on the property now and should be considered when designing the future park.



A view looking north toward Big Mountain and Creekwood. This image reveals site disturbance and topography changes in the foreground, the ephemeral wetland in the middle, and a majestic mature Ponderosa Pine in the background.

COTTONWOOD PARK

This park has not yet been dedicated to the City, but merits future planning and design for irrigation efficiency as well as pollinator and community use.

CLOUD 9 PARK

This park has been dedicated to the City, but has not yet been planned. A future design is merited for irrigation efficiency as well as pollinator and community use.

CREEKWOOD PARK

An unmarked and undeveloped park acting as a corridor for native plants and wildlife.

CANOE PARK

This is a covert and unmarked park off of Riverside Ave. There is available parking but it is not established. Access to the Whitefish River is provided by a wide patchy gravel path that gets progressively steeper as it moves toward the water. Eventually this path turns into a steep social trail that moves through tall non-native grasses. Vegetation at this park consists of non-native grasses, invasive species, and mature willow trees. Some debris exists on site, such as concrete and old furniture. The river's edge has compacted soils with narrow and limited river access. This park currently lacks design and intention, yet possesses immense opportunity for design development in the future and could be an asset to the community.



Left Photo: The entrance to canoe park, including a patchy gravel path, mowed grasses, and non-mowed grasses and weeds. **Right Photo:** The view of Canoe Park from Walgreens across the river; the gravel access road, steep social trail, concrete slab, and limited river access are visible.

RIVERTRAIL PARK

An unmarked and undeveloped park acting as a corridor for native plants, non-native plants, and wildlife. A mowed path through non-native grasses brings the user to a channel of the Whitefish River. Use and intent of this park is unknown.

RIVER'S EDGE PARK

Includes both a paved pedestrian trail with limited public access, as well as an unpaved social trail through an established native forest. This corridor runs right along the Whitefish River and consists of both native and non-native plants.

RIVERWOOD PARK

A paved trail that lines the Whitefish River is surrounded by native trees and shrubs intermixed with non-native grasses. A bridge, pavilion, and trash receptacle identify this corridor as a public park. River access near the bridge is undeveloped.

RIVERLAKES PARK

A paved pedestrian path lines the south side of a pond filled with Common Cattail. This pond is surrounded by non-native grasses and invasive species. Access to the Whitefish River is unmarked and uninviting. The river corridor is filled with both non-native and native plants.

SKYE PARK

This relatively new park is comprised of both native and non-native plants including non-native grasses, native Willow and Cottonwood, and native Wild Mint. An informal social trail exists from the paved pedestrian trail above to the dock down below. Some of the bank is supported by railroad ties and native shrubs. Some riprap in this area is falling into the river, exposing landscape fabric beneath. River access is undefined both from the paved pedestrian trail and at the water's edge and could be developed.



Left Photo: An overview of Skye Park, including a social trail from the paved pedestrian path, railroad ties and native shrubs stabilizing the bank, and undefined river access at the water's edge. **Right Photo:** Riprap under the bridge with exposed landscape fabric beneath.



Left Photo: a native Willow and Cottonwood community developing on top of railroad ties that provide some bank stabilization. **Right Photo:** A Wild Mint plant near the water's edge.

C) OTHER IRRIGATED SPACES - EXISTING CONDITIONS

WHITEFISH LIBRARY

Planter beds in this landscape consist of two different themes: shrubs with lava rock and shrubs with yellow shale. They are generally outdated, mismatched and in need of updating. Similar to the O'Shaughnessy, the Whitefish Library lacks a consistent landscape that enhances its own unique character. Intentional landscape design has the opportunity to create a sense of place, and this landscape feels alien. Landscape elements include Horizontal Juniper, Spirea, landscape boulders, exposed fabric, and surface treatments such as lava rock or yellow shale. Planter beds do not match nearby City of Whitefish bulbouts in character or plantings.



Left Photo: The existing landscape at the main entrance to the library that possesses an out-of-place character due to being filled with non-native plants and lava rock. **Right Photo:** A planter bed to the north of the library, including yellow shale, steel edging, sod, and sparse plantings; this landscape is more place-based and uses local materials that better reflect our region, thereby creating a sense of place.

O'SHAUGHNESSY

Mixed landscapes including sod filled with weeds as well as planter beds topped with lava rock, yellow shale, or other rocks. Mismatched mulch types throughout multiple planter beds creates a theme that is incoherent, deterring the O'Shaughnessy from possessing its own unique character. Some landscape fabric is exposed. Existing steel edging is efficient and aesthetically successful. Species makeup is dominantly non-native shrubs with some native shrubs. Areas consisting of sod that do not get used for community benefit are potentially unnecessary and could be replaced with native planter beds.



Three different rock mulches in three separate planter beds. These lack continuity.



An unnecessary sod area that could be transformed into a native planter bed, thereby reducing water use and enhancing aesthetic appeal as well as pollinator activity.

HWY 93 SOUTH

Consists mostly of over-watered sod and some landscape beds depending on business ownership within the corridor. Large opportunities exist in this corridor to convert sod to native landscapes that bring more local character and less water usage to the main entry of Whitefish. A long-term maintenance plan needs to be developed for the future.

HWY 93 NORTH

Boulevard strips consist of sod, weeds, and non-native trees. Medians consist of gravel, non-native plants, and invasive species. Opportunities exist to convert both into native landscapes that enhance local character and lessen water usage.

WHITEFISH MANOR BIKE PATH

A paved pedestrian path that connects Kay Beller Park to Riverside Park, via the alley parallel to O'Brien Ave. This path has a planter bed that runs along the east side that is filled with 2" shale and non-native plants, such as roses. Some invasive species are present, such as Toadflax.

2ND STREET PARKING LOT

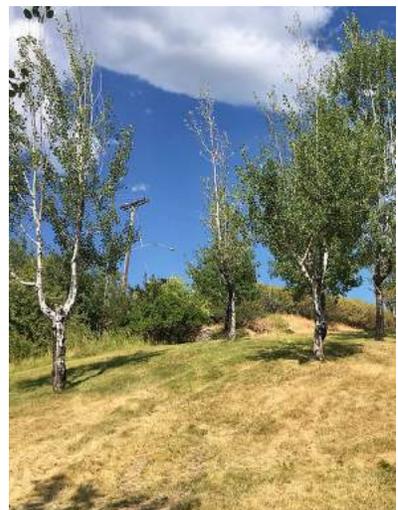
Established planter beds consisting of non-native plants (with the exception of Quaking Aspen). There is potential for adding or substituting native plants in the future.

CITY HALL

Boulevard strips consisting of non-native trees, grasses, and perennial flowers. Beds are surfaced with a bark mulch. There is potential for adding or substituting native plants in the future.

EDGEWOOD OVERFLOW LOT

This landscape consists entirely of sod grass, maple trees and aspen trees. Boulevard Maple trees are surrounded by a circle of plastic edging and landscape fabric that is no longer effective. Sod has entirely grown into areas with edging and fabric. All Maple trees have sunscald on the southwest side. In nature, aspen trees naturally colonize, creating a "family" and grove. Aspen trees on the slope east of the parking lot have been continuously pruned throughout time to grow as single stem individual trees, resulting in poor vigor and growth. Sod is dried and yellowing or browning.



Photos from Left to Right: A Maple tree surrounded by old plastic edging and sod that has grown in. A naturally growing aspen grove just north of the property. Unhealthy Aspens isolated as single trees surrounded by sod.

BULBOUTS ON CENTRAL AVE

These planter beds include non-native perennial grasses and flowers as well as Quaking Aspen. They are surfaced with either bark mulch or gravel. Some native species could be added or substituted in the future.

FLOWER BASKETS

Abundant non-native floral displays that add color and vibrancy to downtown and that should remain as is.

3. SITE TYPE GUIDELINES

GENERAL GUIDELINES

The following guidelines are intended to be used as a tool for informing decisions when designing or re-designing landscapes within City parks, open spaces, or right-of-ways.

Section IX. Park Development Guidelines of the City of Whitefish Parks and Recreation Master Plan places City parks in the following classification system:

1. Pocket Park
2. Neighborhood Parks
3. Community Park
4. Natural Area/Open Space Park
5. Sports Complex
6. Special Use Park
7. Linear Park
8. Lake/Water Access Park
9. Cultural Heritage Park

Page 9-1, IX. Park Development Guidelines, Parks and Recreation Master Plan states the following guidelines:

1. All parks should be developed in accordance with other goals, guidelines, and policies within this plan.
2. Parks should be developed and upgraded in a manner that minimizes maintenance efforts over time. These efforts include preserving, to the greatest extent possible, areas of naturalized and/or native landscape, an emphasis on hardy, drought-tolerant plantings and low-grow grass mix, and minimizing lawn planting to areas that are appropriate.
3. Parks that have significant infrastructure components should receive careful consideration regarding long-term operations and maintenance commitments.
4. The Park Board can use this information in evaluating the maintenance of existing parks, development of new parks, land acquisition and the acceptance of park land dedication by developers.

Landscapes within City parks, open spaces, and right-of-ways should follow these guidelines, with the addition of the following:

1. All landscapes within City parks, open spaces, and right-of-ways should be developed in accordance with the guidelines and recommendations within this plan.
2. Landscapes should be developed and upgraded in a manner that minimizes maintenance and irrigation over time. Landscapes should preserve areas of naturalized and/or native plants, include hardy and site-specific plantings and low-grow grass mixes, and minimize lawn to areas that are appropriate.

As a continuation of Section IX. Park Development Guidelines of the Parks and Recreation Master Plan, this Master Plan provides specific guidelines for landscape types found with City parks and open spaces. These include:

1. Boulevard Strips
2. Medians
3. Sod Areas (Non-Recreation)
4. Sod Areas (Recreation)
5. Native Planter Beds
6. Non-native Planter Beds
7. Water Access Landscapes

SPECIFIC GUIDELINES

1. BOULEVARD STRIPS

Description: Boulevard strips are narrow, linear landscapes that typically separate a roadway from either a sidewalk or parking lot. This strip of land is typically landscaped with sod and overhead sprinklers and often consists of compacted soils.

Planning Guidelines and Design Standards

1. If sod, weed-infested soils, or extremely compacted soils are present, excavate below the existing root zone (approximately 4-6 inches) and replace with 6 inches of soil. Amend soils with organic material.
2. These landscapes should consist of low-maintenance and low-growing grasses, flowers, and/or shrubs. See City of Whitefish Approved Boulevard Trees for tree species selection.
3. For quicker establishment, use nursery stock (containerized plants). If establishing from seed, use an appropriate seed mix. See page 93 for seed mix options and page 65 for the pros and cons of establishing plants from nursery stock vs. seed.
4. To decrease irrigation and preserve line of site, use site-appropriate and drought-tolerant native plants or non-native plants that grow no taller than 36 inches in height, and do not exceed 18 inches within 20 feet of any intersection, alley, or driveway approach.
5. For sparse plantings, use drip irrigation. For dense plantings, use overhead irrigation. All irrigation systems are to follow guidelines outlined in the Irrigation Analysis, Installation & Retrofit Requirements document.
6. Use an organic mulch that has a "natural" appearance and is dark brown in color such as Soil Pep. Apply a 2-3" depth.
7. In order to maintain a weed-free landscape, create a weed management plan specific to the site. See page 102 for weed mitigation methods.
8. If street access is desired from a sidewalk, use either concrete or a site-appropriate gravel. See page 105 for gravel recommendations.

2. MEDIANS

Description: Medians are small landscape islands that exist within parking lots or between roadways. They often consist of sod and linear, non-native tree plantings.

Planning Guidelines and Design Standards

1. If sod, weed-infested soils, or extremely compacted soils are present, excavate below the existing root zone (approximately 4-6 inches) and replace with 6 inches of soil. Amend soils with organic material.
2. These landscapes should consist of low maintenance grasses, wildflowers, small shrubs, and/or trees. See City of Whitefish Approved Boulevard Trees for tree species selection.
3. For quicker establishment, use nursery stock (containerized plants). If establishing from seed, use an appropriate seed mix. See page 93 for native seed mix options and page 65 for the pros and cons of establishing plants from nursery stock vs. seed.
4. Where appropriate, small landscape boulders no larger than 2 feet in diameter can be placed at least 5 feet from any roadway or parking area to add texture.
5. To decrease irrigation and preserve line of site, use site-appropriate and drought-tolerant native plants or non-native plants that grow no taller than 36 inches in height, and do not exceed 18 inches within 20 feet of any intersection, alley, or driveway approach.
6. For sparse plantings, use drip irrigation. For dense plantings, use overhead irrigation. All irrigation systems are to follow guidelines outlined in the Irrigation Analysis, Installation & Retrofit Requirements document.
7. Use an organic mulch that has a "natural" appearance and is dark brown in color such, as Soil Pep. Apply a 2-3" depth.
8. In order to maintain a weed-free landscape, create a weed management plan specific to the site. See page 102 for weed mitigation methods.

3. SOD AREAS (NON-RECREATION)

Description: Non-recreation sod areas include any areas landscaped with Kentucky Bluegrass or similar sod-type grasses that are not used for recreation or socializing. In general, many of these exist throughout the City and are unnecessary or irrigation-intensive. If not used for passive recreation, socializing, or community gathering, consider converting existing landscapes to or designing new landscapes with site-appropriate native and non-native plants.

Planning Guidelines and Design Standards

1. Carefully consider the intention and application of sod before installing in any landscaped area. Use as a medium for passive recreation, socializing, or community gathering.
2. If sod exists in an irregular shape that is difficult to maintain and is not intended for the uses listed above, consider converting the space to a native/non-native planter bed.
3. If converting from sod to planter bed, ensure a planting medium that consists of a 6" depth of weed-free soils. Amend soils with organic material. Use an organic mulch that has a "natural" appearance and is dark brown in color, such as Soil Pep.
4. See Irrigation Analysis, Installation & Retrofit Requirements document.

4. SOD AREAS (RECREATION)

Description: Recreation sod areas include any areas landscaped with Kentucky Bluegrass or similar sod-type grasses that are used for active recreation or socializing.

Planning Guidelines and Design Standards

1. Carefully consider the intention and application of sod before installing in any landscaped area. Use as a medium for active recreation, socializing, or community gathering.
2. See Irrigation Analysis, Installation & Retrofit Requirements document.

5. NATIVE PLANTER BED

Description: Native planter beds consist of areas that are landscaped with native plants. Existing native beds may or may not have landscape fabric and mulch. Native plants can be combined with drought-tolerant non-native plants.

Planning Guidelines and Design Standards

1. Whether converting an existing landscape to a native planter bed or designing a new native planter bed, ensure a planting medium that consists of a 6" depth of weed-free soils. Amend soils with organic material. Use an organic mulch that has a "natural" appearance and is dark brown in color, such as Soil Pep.
2. If converting from sod to native planter bed, excavate sod areas out.
3. Refer to page 67 for site-specific species selection.
4. Refer to page 65 for plant density and weed management guidelines.
5. All irrigation systems are to follow guidelines outlined in the Irrigation Analysis, Installation & Retrofit Requirements document.
6. In order to maintain a weed-free landscape, create a weed management plan specific to the site. See page 102 for weed mitigation methods.

6. NON-NATIVE PLANTER BED

Description: Non-native planter beds consist of areas that are landscaped with non-native plants. Existing non-native beds may or may not have landscape fabric and mulch. Native plants can be combined with drought-tolerant non-native plants.

Planning Guidelines and Design Standards

1. Whether converting an existing landscape to a non-native planter bed or designing a new non-native planter bed, ensure a planting medium that consists of a 6" depth of weed-free soils. Amend soils with organic material. Use an organic mulch that has a "natural" appearance and is dark brown in color, such as Soil Pep.
2. Refer to page 67 for site-specific species selection.
3. Refer to page 65 for plant density and weed management guidelines.
4. All irrigation systems are to follow guidelines outlined in the Irrigation Analysis, Installation & Retrofit Requirements document.

5. In order to maintain a weed-free landscape, create a weed management plan specific to the site. See page 102 for weed mitigation methods.

7. WATER ACCESS LANDSCAPES

Description: Water Access Landscapes refer to landscapes that exist adjacent to a waterway, including the Whitefish River and Whitefish Lake.

Planning Guidelines and Design Standards

1. If foot traffic is significant, consider the use of stone steps and/or gravel to create an access path, depending on grade and water drainage. This prevents compaction and erosion from occurring in areas where use is not demarcated.
2. To prevent foot traffic and to strengthen the health and structural integrity of the water's edge, use water-loving native plants.
3. See <https://centerfornativeplants.com/wp-content/uploads/2020/02/cnp-rain-garden-species.pdf> for water-loving native species.

4. LANDSCAPE RECOMMENDATIONS

Parkland and Open Spaces

Developed Parkland			
Park	Acres	Irrigation	Irrigation Comments
City Beach	2	Yes	Grass area only
Soroptimist Park	1	Yes	All
Mountain Trails Park	4.5	Yes	Grass area only
Kay Beller Park	1	Yes	
Riverside Park	5	Yes	
Kiddie Park	2	Yes	
Memorial Park	9.5	Yes	Southeastern portion not irrigated / Twins on well
Armory Park	30	Yes	Softball fields and undeveloped land not irrigated
Grouse Mountain Park	7.8	Yes	Irrigated from lake water
Depot Park	2	Yes	All
James R. Bakke Nature Reserve	4	No	Nature Reserve
Roundhouse Landing	.5	No	River access point and bike path connection

Undeveloped Parkland			
Park	Acres	Irrigation	Comments
Trailview Park	1.3	No	Will be trailhead, parking lot, and restroom facility
Cottonwood Park	.33	No	Not yet accepted. Will be accepted when adjacent lot develops.
Cloud 9 Park	.5	No	Connects to Cottonwood
Creekwood Park	4.43	No	Drainage area, undevelopable
Canoe Park	.8	No	River access
Rivertrail Park	.77	No	River corridor and bike path
River's Edge Park	3.67	No	River corridor and bike path
Riverwood Park	4.5	No	Drainage
Riverlakes Park	20.8	No	Pond and river corridor
Skye Park	.5	No	River access point

Other Irrigated Spaces			
Location	Distance	Irrigation	Irrigation Comments
Whitefish Library	.5 acres	Yes	Grass area and north boulevard area
O'Shaughnessy	.33 acres	Yes	Grass area and north boulevard area
Hwy 93 S	1.28 miles	Yes	Intermittent connections
Hwy 93 N	2.5 miles	Yes	Sections never have worked properly since installation, including medians
Whitefish Manor Bike Path	.09 miles	Yes	Along bike path
2 nd Street Parking Lot	.06 miles	Yes	Boulevard irrigation
City Hall	.07 miles	Yes	Boulevard irrigation
Edgewood Overflow Lot	.04 miles	Yes	Boulevard irrigation
Bulbouts on Central Ave	16 bulbouts	Yes	Bulbouts
Flower baskets	75 plus	Yes	Driplines
Landscape beds		Yes	Dripline in parks

A) DEVELOPED PARKLAND

CITY BEACH: SPECIAL USE PARK

SITE TYPES INCLUDE:

- ③ SOD AREAS (NON-RECREATION)
- ④ SOD AREAS (RECREATION)
- ⑤ NATIVE PLANTER BEDS
- ⑥ NON-NATIVE PLANTER BEDS





- ③ Shady, irregular shaped, and unnecessary sod areas that could be converted to part-sun or full-shade native planter beds.
- ⑤ An existing native planter bed in need of updating. Remove landscape fabric and weeds and replace with part-sun to full-shade native grasses, flowers, groundcovers, or shrubs.

SOROPTOMIST PARK: POCKET PARK

SITE TYPES INCLUDE:

④ SOD AREAS (RECREATION)

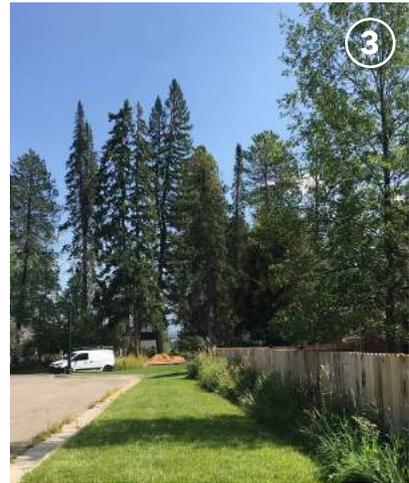
This park consists mostly of sod. If irrigation reduction and increased biodiversity is desired, convert some sod areas to native plant landscape. Limit sod to areas that are specifically used for recreation, gathering, or socializing. See conceptual site plan on the next page for landscape conversion ideas.



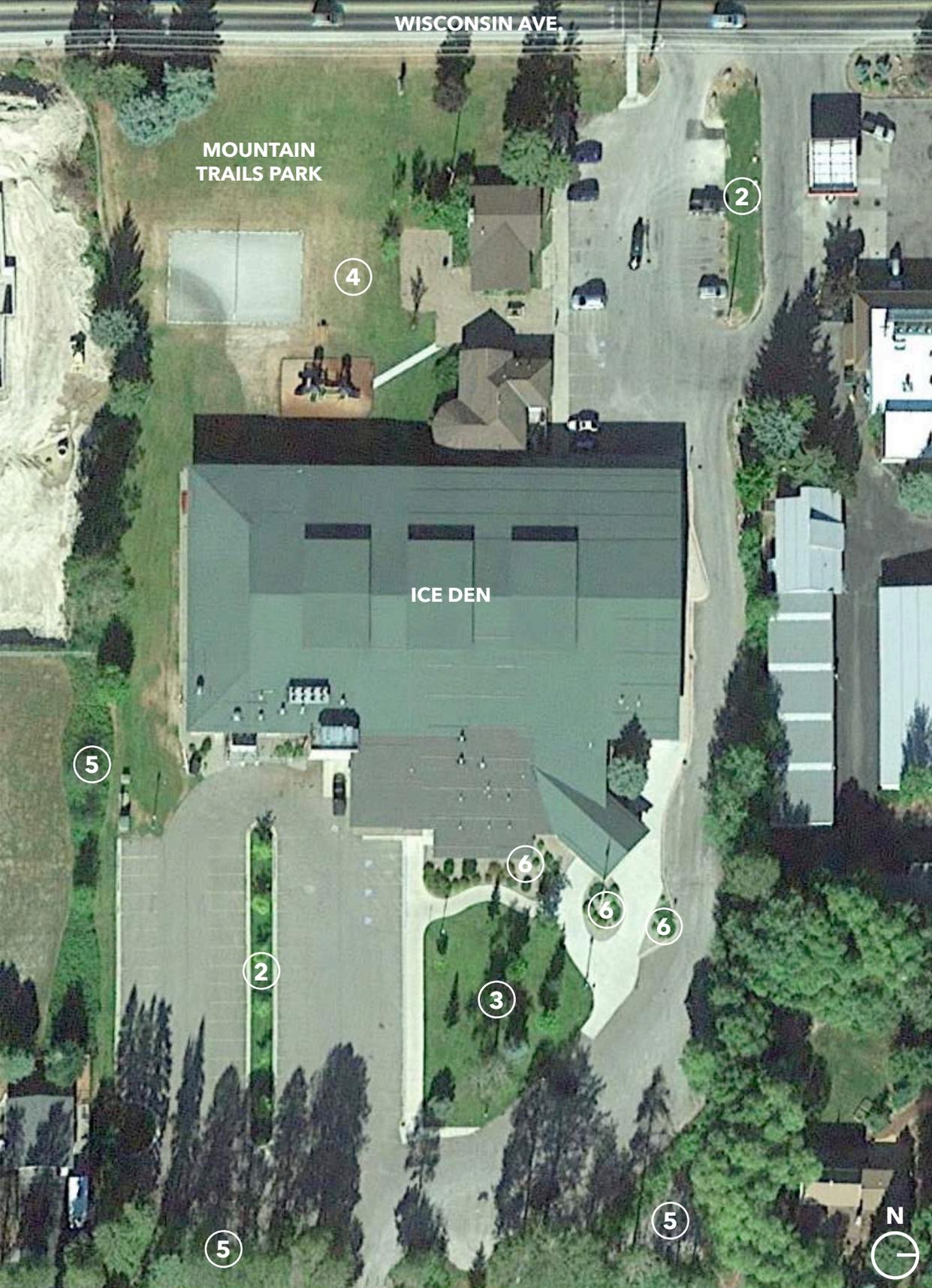
MOUNTAIN TRAILS PARK: SPECIAL USE PARK

SITE TYPES INCLUDE:

- ② MEDIANS
- ③ SOD AREAS (NON-RECREATION)
- ④ SOD AREAS (RECREATION)
- ⑤ NATIVE PLANTER BEDS
- ⑥ NON-NATIVE PLANTER BEDS



- ② Medians landscaped with sod that could be converted to drought tolerant native/non-native plant landscapes.
- ③ Non-recreation sod areas that could be converted to drought tolerant native/non-native plant landscapes.
- ④ Recreation sod areas that should remain as is.
- ⑤ Native plant communities that should remain intact.
- ⑥ Non-native planter beds that are sparse and outdated. Add more appropriate plants.



WISCONSIN AVE.

MOUNTAIN TRAILS PARK

ICE DEN

2

4

5

6

6

6

2

3

5

5



KAY BELLER PARK: POCKET PARK

SITE TYPES INCLUDE:

- ③ SOD AREAS (NON-RECREATION)
- ④ SOD AREAS (RECREATION)
- ⑥ NON-NATIVE PLANTER BEDS
- ⑦ WATER ACCESS LANDSCAPES



- ③ Non-recreation sod areas that could be converted to a native/non-native landscape. Consider the section of sod right off Hwy 93 to be a high profile landscape and major entrance into town.
- ④ Recreation sod areas that are used for gatherings and as a boat launch. Consider the use and traffic of this lawn and if any areas merit conversion to a landscape.
- ⑥ Non-native planter beds that are sparse. Consider adding more appropriate plants.
- ⑦ A major re-design and install is needed at the water's edge. Define/delineate water access and foot traffic from native plantings that enhance and stabilize the water's edge.



HWY 93

KAY BELLER
PARK

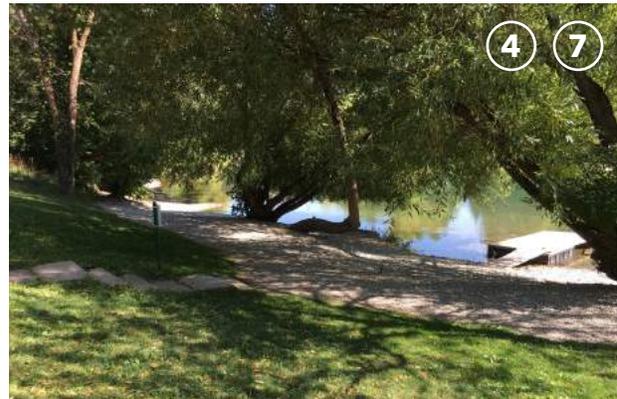
WHITEFISH
RIVER



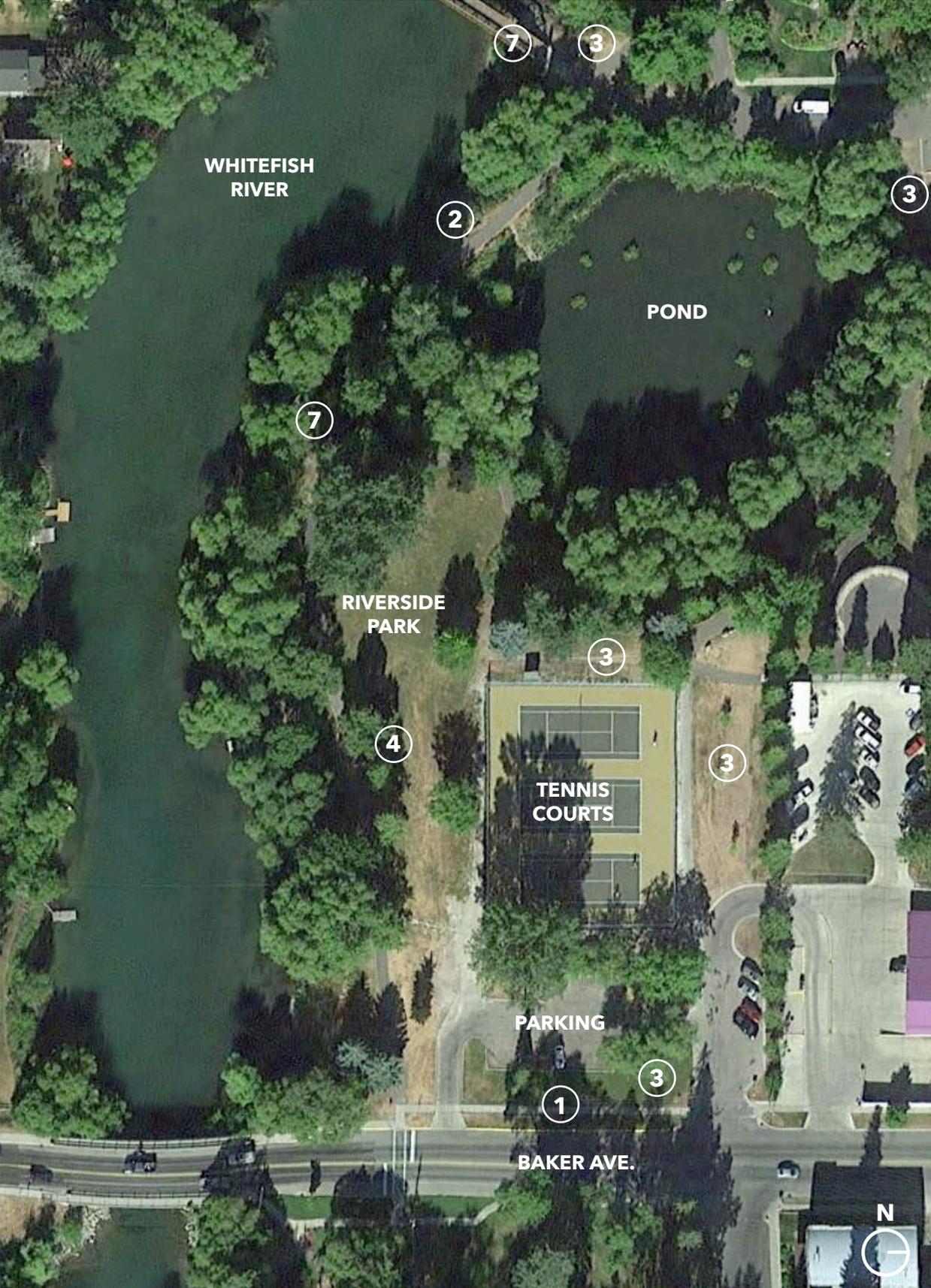
RIVERSIDE PARK: NEIGHBORHOOD PARK

SITE TYPES INCLUDE:

- ① BOULEVARD STRIPS
- ③ SOD AREAS (NON-RECREATION)
- ④ SOD AREAS (RECREATION)
- ⑦ WATER ACCESS LANDSCAPES



- ① If appropriate, consider boulevard conversion along Baker Ave.
- ③ Riverside park contains many irregular-shaped sod areas that receive high foot traffic or are dormant/dying late summer. Consider conversion to a path medium or landscape bed depending on location and use. Consider converting the sod area north of the tennis courts into supplemental parking in the future.
- ④ Sod area near boat launch that is useful and should remain as is.
- ③ **Top Right:** This water access point receives high foot traffic and consists of both dormant/dying sod as well as a steep, eroding bank. Delineate a path to the river with native plantings on either side.
- ⑦ **Bottom Right:** A successful example of delineation between plants stabilizing the slope vs. designated areas for foot traffic and water access.



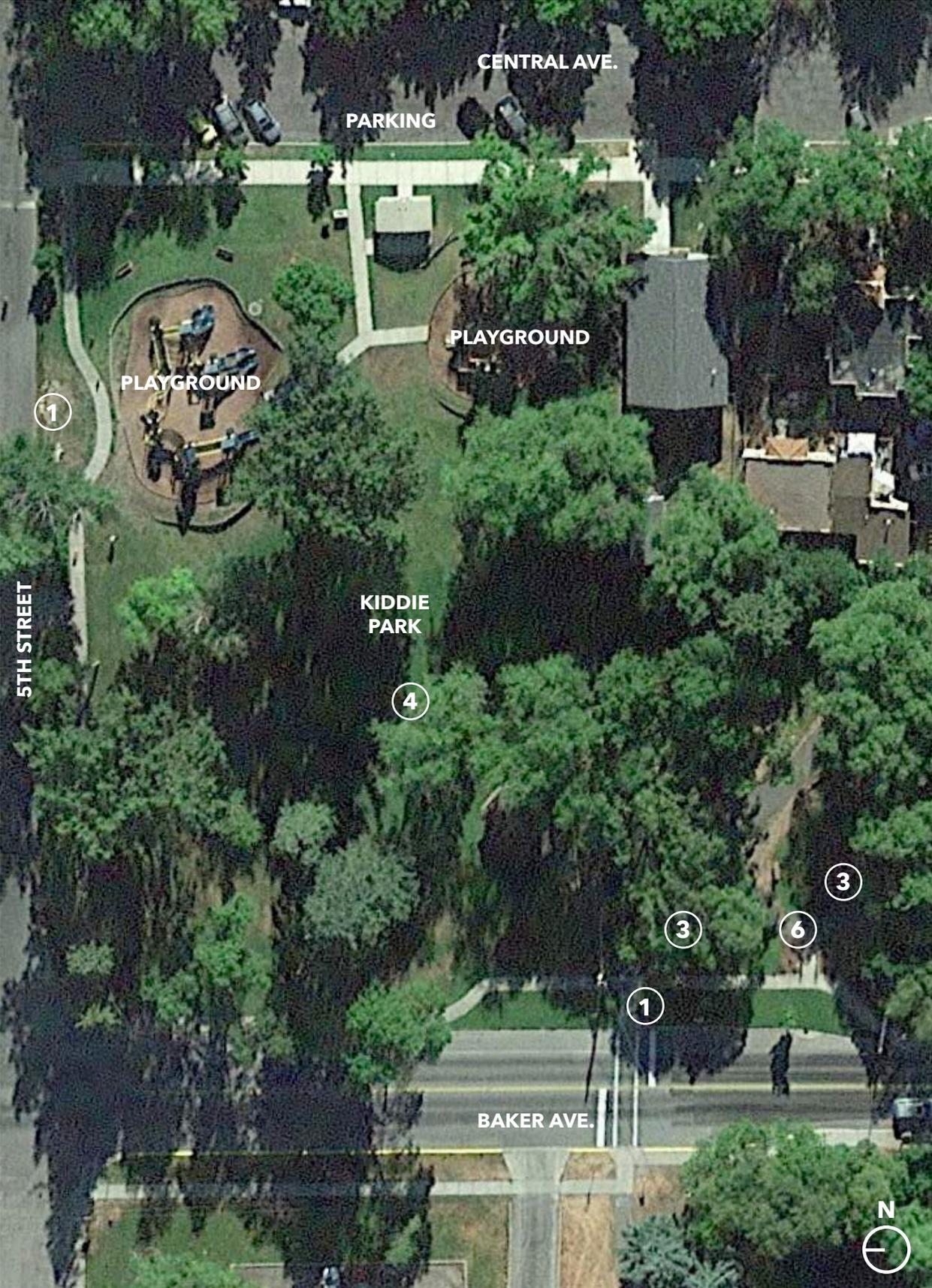
KIDDIE PARK: NEIGHBORHOOD PARK

SITE TYPES INCLUDE:

- ① BOULEVARD STRIPS
- ③ SOD AREAS (NON-RECREATION)
- ④ SOD AREAS (RECREATION)
- ⑥ NON-NATIVE PLANTER BEDS



- ① If appropriate, consider boulevard conversion along Baker Ave. If these sod areas are not used for recreation or socializing, consider a landscape conversion.
- ③ Non-recreation sod areas that could be converted to a landscape with part-sun plants.
- ④ Sod areas within Kiddie park that are used for recreation or socializing should remain as is.
- ⑥ A non-native and high profile landscape bed that is sparsely planted. Consider adding more appropriate plants.



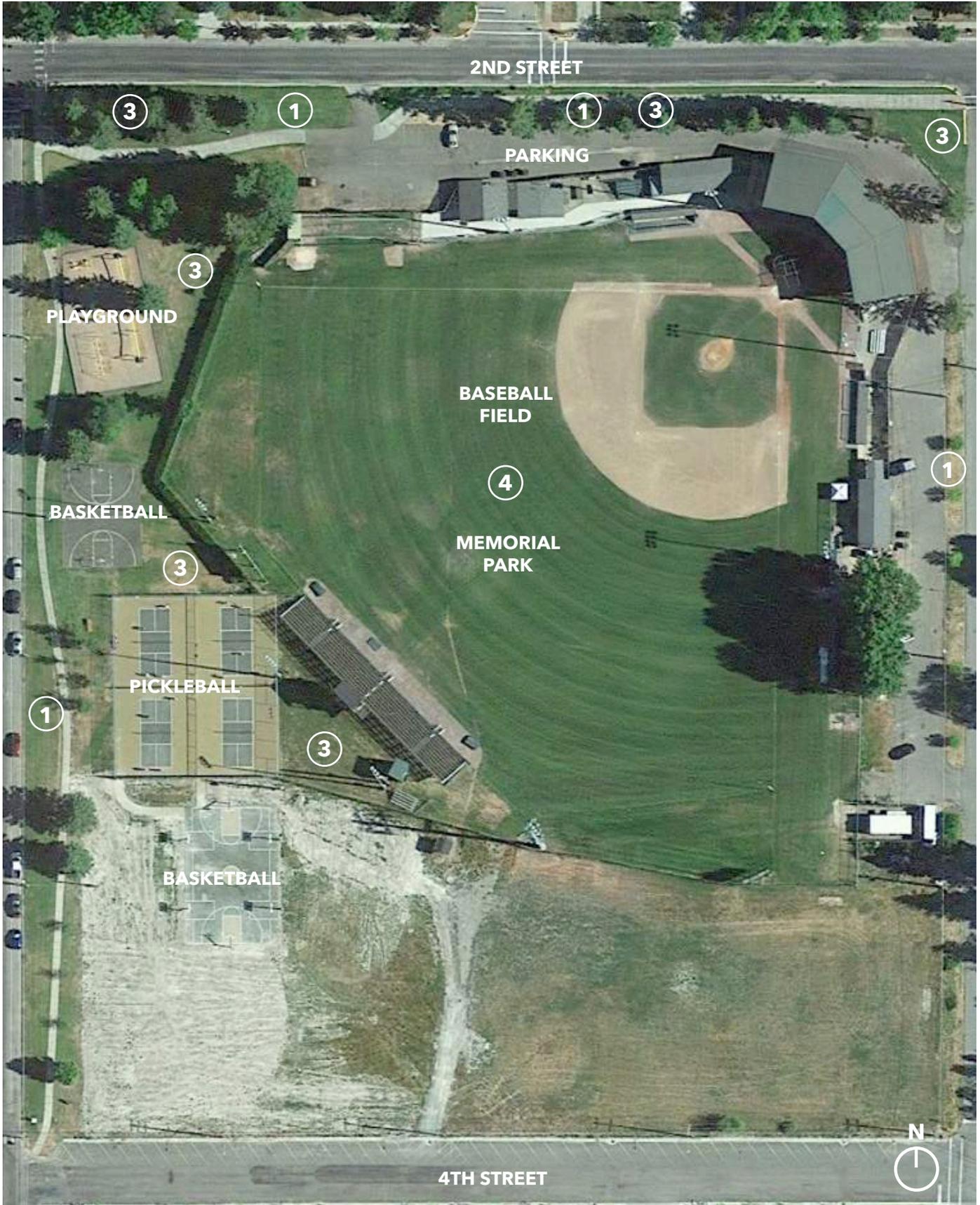
MEMORIAL PARK: NEIGHBORHOOD PARK

SITE TYPES INCLUDE:

- ① BOULEVARD STRIPS
- ③ SOD AREAS (NON-RECREATION)
- ④ SOD AREAS (RECREATION)



- ① Unless there is high foot traffic in any of these sod areas, consider boulevard conversion to a drought tolerant native and/or non-native landscape.
- ③ Irregular shaped non-recreation sod areas that could be converted to a drought tolerant native and/or non-native landscape.
- ④ Sod areas within Memorial Park that are used for recreation and gathering and that should remain as is.



2ND STREET

PARKING

PLAYGROUND

BASEBALL
FIELD

BASKETBALL

MEMORIAL
PARK

PICKLEBALL

BASKETBALL

4TH STREET

N

ARMORY PARK: COMMUNITY PARK

SITE TYPES INCLUDE:

- ③ SOD AREAS (NON-RECREATION)
- ④ SOD AREAS (RECREATION)

Armory Park currently consists mostly of sod. For the future development of this park, carefully consider the application of sod and its specific use for either recreation, community gathering, or general socializing.

In areas that receive adequate sun, are near gathering spaces, and do not merit the application of sod, consider installing a pollinator garden. High profile spaces that are viewed and enjoyed by many visitors may benefit by having colorful, floral displays during the growing season. These plants would also add ecological diversity to the park, contributing to habitat for pollinators. For species selection, refer to page 67 or the following link:

<https://centerfornativeplants.com/get-gardening/plant-selection/>

In areas that consist of low points or that receive more moisture, consider installing a rain garden. These aid in adding plant diversity to the park as well as filtering stormwater. Refer to the following link for species selection as well as design guides:

<https://centerfornativeplants.com/wp-content/uploads/2020/02/cnp-rain-garden-species.pdf>
<https://flatheadcd.org/rain-garden/>
<https://flatheadcd.org/programs/landowner-assistance/flathead-rain-garden-initiative/>

- ③ Non-recreation sod areas. If appropriate, consider converting areas to drought tolerant native or non-native landscapes.
- ④ Recreation sod areas that should remain as is. Carefully consider application of sod in future spaces.



GROUSE MOUNTAIN PARK: SPORTS COMPLEX

SITE TYPES INCLUDE:

- ① BOULEVARD STRIPS
- ③ SOD AREAS (NON-RECREATION)
- ④ SOD AREAS (RECREATION)



- ① Boulevard strips that consist of patchy and/or dormant sod. To reduce irrigation, consider conversion to a native or drought tolerant landscape.
- ③ Non-recreation sod areas that could be converted to a native and/or drought tolerant landscape.

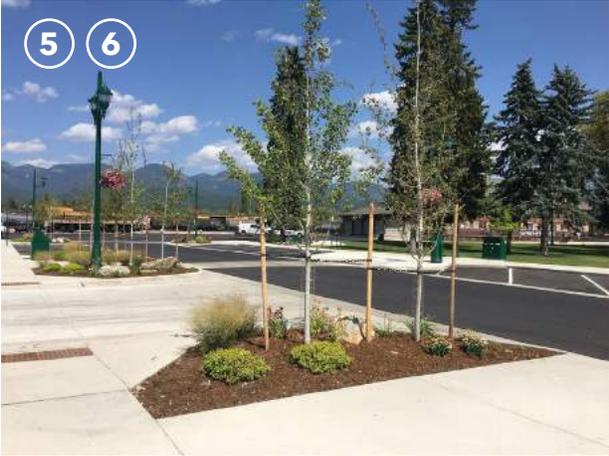
Grouse Mountain Park parking lot is in general disrepair and in need of updating. Remove or properly place parking blocks, re-grade the parking lot to address issues with low points, or re-design the area to include an intentionally designed rain garden.



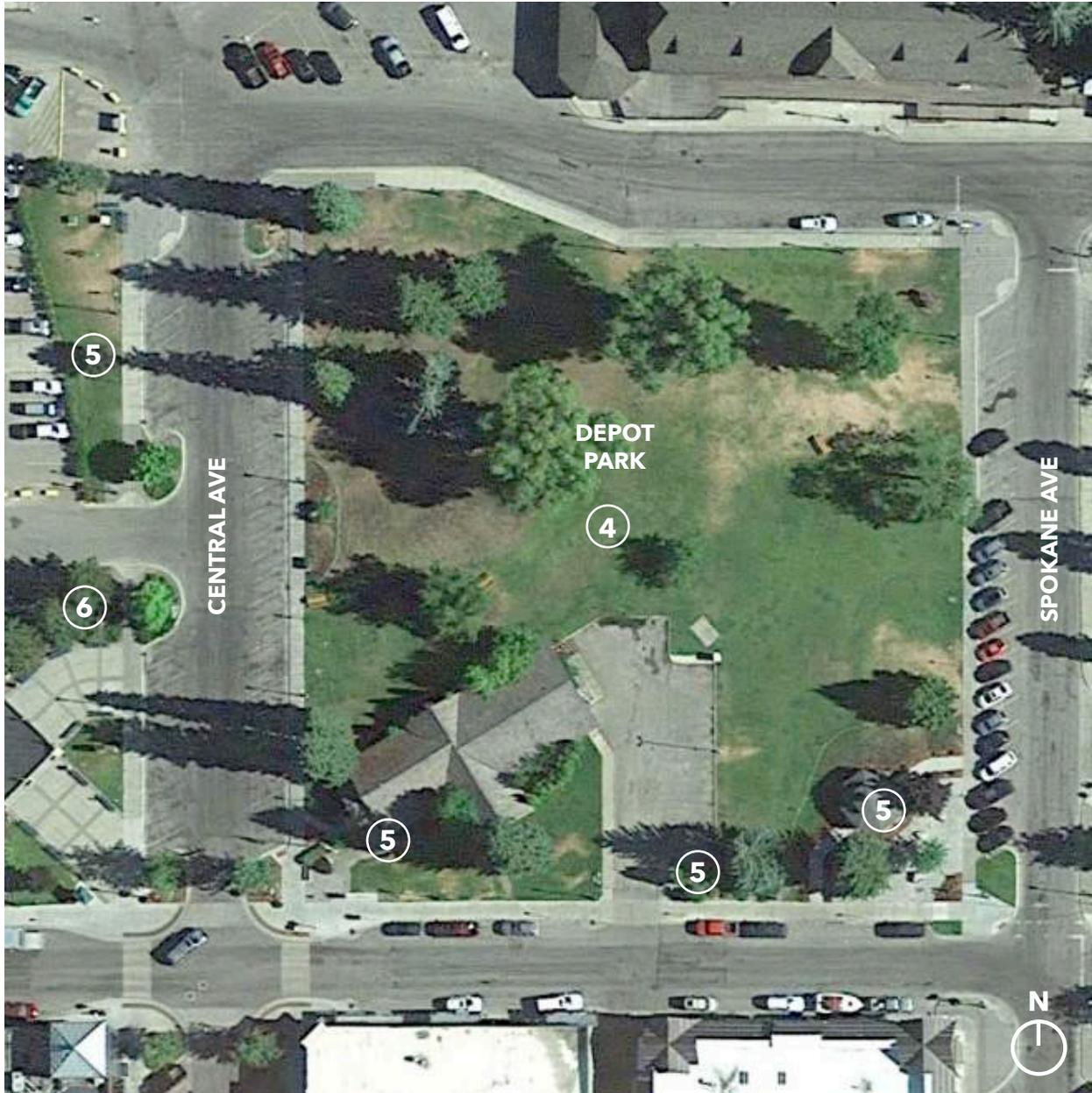
DEPOT PARK: SPECIAL USE PARK

SITE TYPES INCLUDE:

- ④ SOD AREAS (RECREATION)
- ⑤ ⑥ NATIVE / NON-NATIVE PLANTER BEDS



- ⑤ Planter beds in or near Depot park consist of both native and non-native species.
- ⑥ Consider the application of deer resistant and drought tolerant native or non-native plants when additions or replacements are needed. For consistency in aesthetics and materials, reduce mulch types to two selections in the future, instead of three or more. Furthermore, avoid large swaths of unplanted gravel, unless the area receives high foot traffic or the intention is to provide a path surfacing.



The heart of Depot Park consists dominantly of sod grass. This application of sod is appropriate as it is frequently used for community gathering. For newer planter beds that consist mostly of non-native plants, consider inserting native drought tolerant and deer resistant plants when replacements or additions are needed.

Four planter bed surface treatments can be seen at or surrounding Depot Park: round river rock, angular gravel, organic mulch, and lava rock (Whitefish Library). To create a theme and more consistency throughout these City spaces, consider the use of one or two matching mulches, instead of four different mulch types. See page 107 for mulch recommendations.

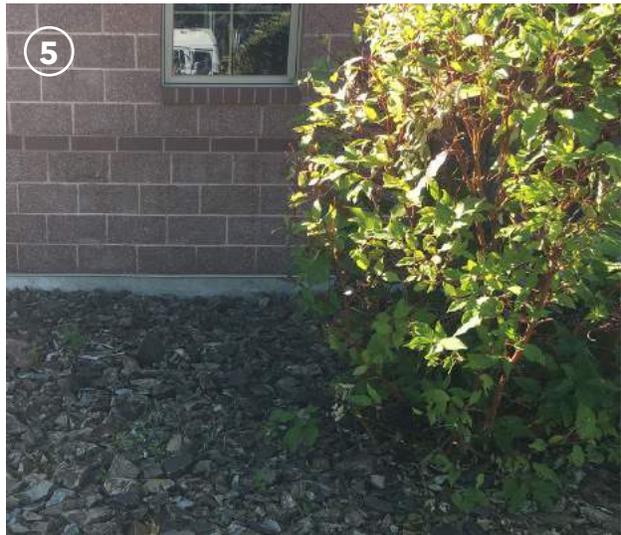
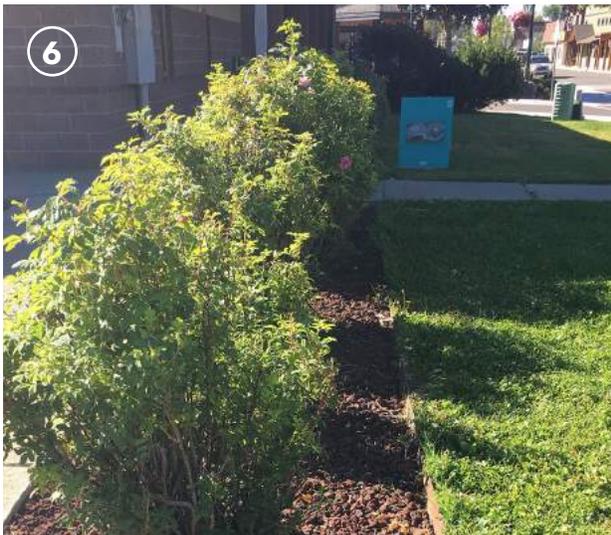
Note this aerial image is outdated. Numbers on the map correlate with present site conditions.

B) OTHER IRRIGATED SPACES

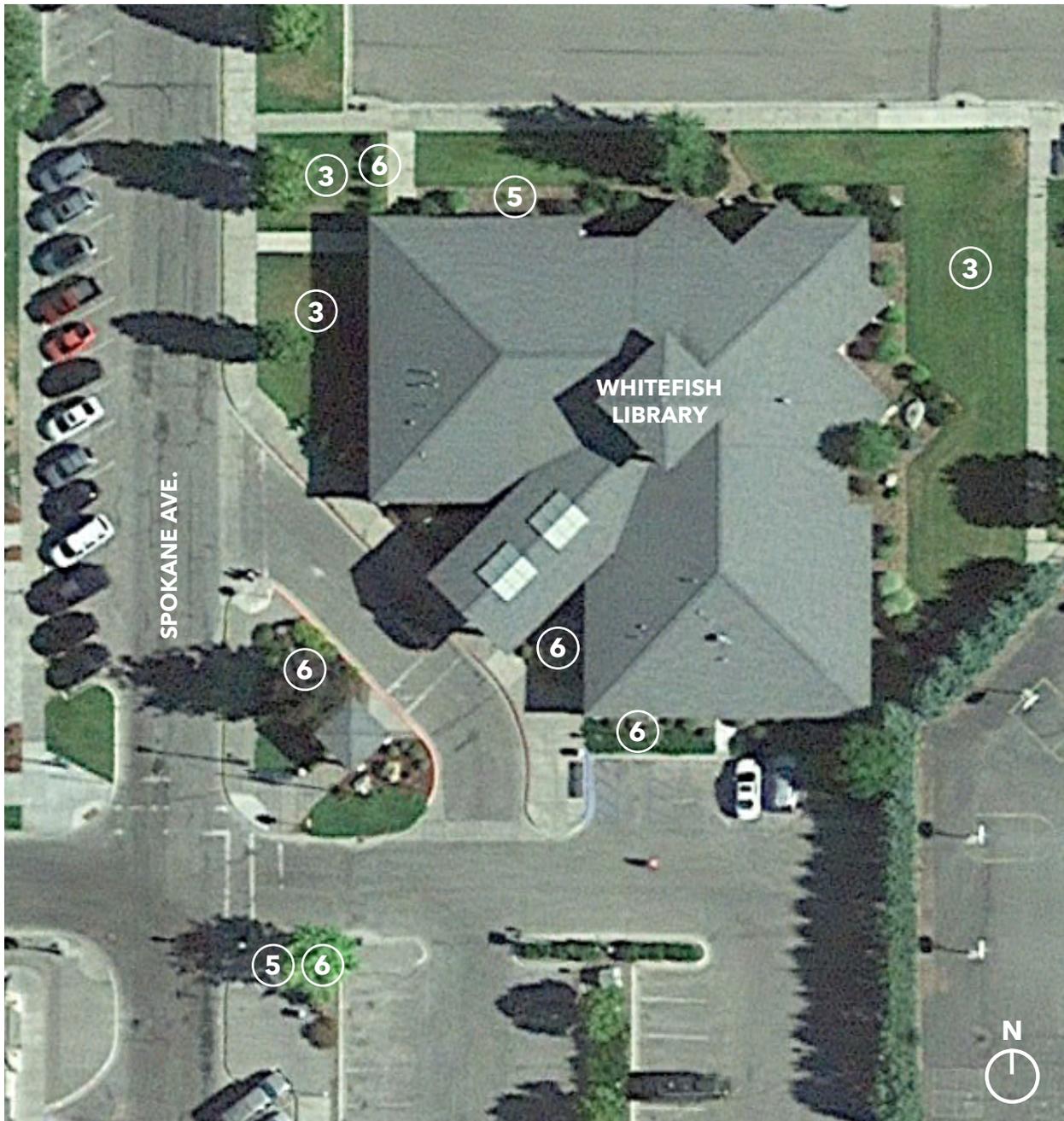
WHITEFISH LIBRARY

SITE TYPES INCLUDE:

- ③ SOD AREAS (NON-RECREATION)
- ⑤ NATIVE PLANTER BEDS
- ⑥ NON-NATIVE PLANTER BEDS



The overall character and style of the landscape surrounding the Whitefish Library is mismatched and lacks a theme. Three different mulches are used, creating a distracting landscape. Create a theme that is repeated throughout beds, one that gives character and an identity to the building. Eliminate lava rock as a mulch option. Use shale or organic mulch. Refer to page 107 for organic mulch options.

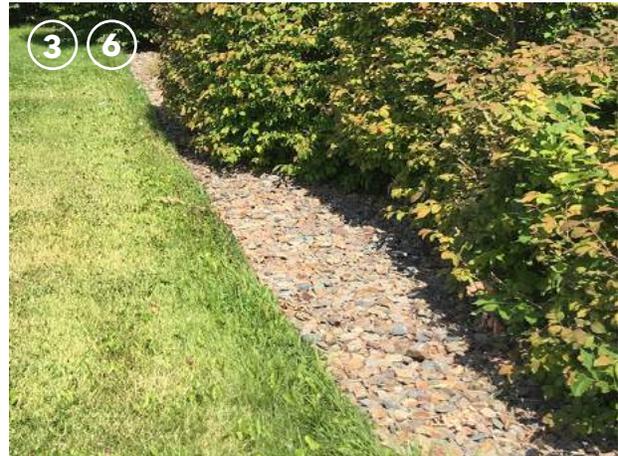


- ③ Non-recreation sod areas. If reduced irrigation is desired, consider conversion to a drought tolerant landscape. Consider educational opportunities to learn through the landscape.
- ⑤ An existing city bulbout with more appropriate plantings and mulch. A yellow shale bed with sparse dogwood plantings (north side of building). Add more plants.
- ⑥ Non-native planter beds that lack a sense of place and are outdated. Use native plants and organic mulch or yellow shale to create a better sense of place and match nearby planter beds.

O'SHAUGHNESSY

SITE TYPES INCLUDE:

- ③ SOD AREAS (NON-RECREATION)
- ⑤ NATIVE PLANTER BEDS
- ⑥ NON-NATIVE PLANTER BEDS



- ③ Non-recreation sod areas that could be converted to native/drought tolerant planter beds. Install a pollinator garden at the entrance to the O'Shaughnessy.
- ⑤ Native planter bed that is sparsely planted. Consider adding plants.
- ⑥ Planter beds that are non-native, lack diversity, and are outdated. Convert plants to native and/or drought tolerant selections.

The overall character and style of the landscape surrounding the O'Shaughnessy is mismatched and lacks a theme. Three different mulches are used, creating a distracting landscape. Create a theme that is repeated throughout beds, one that gives character and an identity to the building. Eliminate lava rock as a mulch option. Use shale or organic mulch.



HWY 93 SOUTH

SITE TYPES INCLUDE:

- ① BOULEVARD STRIPS
- ③ SOD AREAS (NON-RECREATION)
- ⑥ NON-NATIVE PLANTER BEDS W/SOME NATIVE TREE SPECIES



- ① Boulevard strips filled with sod and water waste from an irrigation system in need of repair. Fix irrigation issues before considering landscape alternatives.



Highway 93 South consists mostly of non-recreation sod areas and boulevard strips filled with sod. Fixing irrigation issues outlined in the Irrigation Analysis, Installation & Retrofit Requirements is the first crucial step in reducing water waste along this corridor.

Beyond irrigation, conversion of this corridor from sod to native species will require careful consideration and a long-term maintenance plan. It is imperative to evaluate the staff available to maintain such a large corridor if landscape conversion is desired. Management of expectations from the public should also be considered as aesthetics will change if plants shift from sod to native bunchgrasses.

If conversion to drought tolerant native and/or non-native landscapes and boulevards is desired, select extremely hardy and low-growing species that can tolerate heat and road salt.

HWY 93 NORTH

SITE TYPES INCLUDE:

- ① BOULEVARD STRIPS
- ② MEDIANS
- ③ SOD AREAS (NON-RECREATION)



- ① Top: A boulevard strip filled with sod. Consider converting the sod strip to match the bunchgrass hillside across the sidewalk, a landscape that uses significant less water and does not require mowing.
- ① Bottom: A boulevard strip filled with gravel and weeds across from a non-recreation sod area. Consider staff available to maintain a landscape conversion if desired in this area. Otherwise consider gravel atop commercial landscape fabric.
- ② A median filled with Cheatgrass, gravel, and non-native plants. Consider staff availability and safety if a landscape conversion is desired. If converting, select extremely hardy and low-growing species and create a management plan for controlling invasive species. Ensure new soil is weed and grass seed free.



Highway 93 North consists of sodded boulevard strips, non-native medians, and non-recreation sod areas. Fixing irrigation issues outlined in the Irrigation Analysis, Installation & Retrofit Requirements is the first crucial step in reducing water waste along this corridor.

Beyond irrigation, conversion of this corridor from sod to native or other hardy species will require careful consideration and a long-term maintenance plan. It is imperative to evaluate the staff available to maintain such a large corridor if landscape conversion is desired. Management of expectations from the public should also be considered as aesthetics will change if plants shift from sod to native bunchgrasses.

If conversion to drought tolerant boulevards and medians is desired, select extremely hardy and low-growing species that can tolerate heat and road salts.

2ND STREET PARKING LOT

Consider adding native and/or drought tolerant non-native plants if conversion or plant additions are desired or required.

CITY HALL

Consists of Aspen, Karl Foerster Feather Reed Grass, and non-native perennial plantings. Consider using native grasses and forbs to increase pollinator activity and decrease water use.

EDGEWOOD OVERFLOW LOT

This area consists of sod boulevards and non-recreation sod on the hillside to the east of the parking lot. Though a large undertaking that will require careful planning and maintenance, consider converting the sodded hillside to a native grass and wildflower meadow. This sod is not used for anything and turns dormant mid-late summer. Sod also restricts Aspen from forming natural groves.

BULBOUTS ON CENTRAL AVE

These planters consist of native Aspen and non-native grasses, flowers, and shrubs. If additions or conversion is desired, use native grasses, flowers, and shrubs to increase pollinator activity and decrease water use.

C) UNDEVELOPED PARKLAND

Trailview Park
Cottonwood Park
Cloud 9 Park
Creekwood Park
Canoe Park
Rivertrail Park
River's Edge Park
Riverwood Park
Riverlakes Park
Skye Park

- » For the future development of any of these spaces, carefully consider the application of sod and its primary use for recreation or gathering.
- » Preserve as many native plant communities as possible as they are difficult to replicate once destroyed or removed.
- » Consider native sod salvage prior to building if possible. This allows native plant communities to be excavated, stored and watered, then placed back into the landscape following a build.
- » If new planting areas are desired, primarily use native plants with the addition of drought tolerant non-native plants if the setting is appropriate (high profile and/or urban landscapes). Keep natural areas as native as possible (Trailview, Creekwood, Rivertrail, River's Edge, Riverwood, Riverlakes, and Skye Park).

5. PRIORITIES

Though most of the irrigated sites evaluated for this report require attention and updating, concentrate efforts towards landscapes that include one or several of the following:

1. Severe water waste; fix existing, outdated, and inefficient irrigation systems prior to considering landscape conversions.
2. Sites that are small, manageable, and low-cost to set a standard and theme for the City. Consider the median between Alpine Market and Mountain Trails Park.
3. High profile spaces that are viewed by a wide audience. This could be a great way to create public feedback. Consider the O'Shaughnessy or Whitefish Library.
4. Landscapes that pose a safety hazard.
5. Spaces that are highly eroded and require more immediate attention.

6. LANDSCAPE DESIGN, INSTALL & MAINTENANCE GUIDELINES

THIS SECTION COVERS THE FOLLOWING MATERIAL:

- A) DESIGN CONSIDERATIONS
- B) PLANT SELECTION: CONTAINERIZED PLANTS
- C) PLANT SELECTION: SEED
- D) WEED MITIGATION
- E) DEER BROWSE MITIGATION
- F) GRAVEL, STONE & BOULDER OPTIONS
- G) MULCH OPTIONS
- H) EDGING OPTIONS
- I) INSTALLATION
- J) MAINTENANCE



A) DESIGN CONSIDERATIONS

SITE ANALYSIS

This is the first step in gaining familiarity with a landscape. Findings can be used to inform design decisions. Site evaluation should include, but is not limited to, the following:

EXISTING SITE CONDITIONS

- » Aspect
- » Sun exposure
- » Grade & water drainage
- » Water access
- » Soil type
- » Site disturbance
- » Presence of weeds
- » Existing plant species
- » Unnecessary sod
- » Architectural styles
- » Utilities

QUESTIONS TO CONSIDER

- » Is the landscape steep or flat?
- » What direction does it face?
- » Are there any notable low points or high points?
- » Is there access to irrigation?
- » What type of soil is on site?
- » Has the site been disturbed? Will it be disturbed in the future?
- » Are any invasive species present?
- » What plant species are currently thriving or struggling?
- » Are there existing structures nearby? What is the architectural style and color of those structures? Do they cast shade?
- » Does the landscape exist atop any utility lines such as power or water?



**LANDSCAPE IS
SLOPING TOWARD
BEACH**

**PART-SHADE
SPARSE
PLANTINGS**

HIGH-USE SOD AREA

EXISTING HEDGE

**IRREGULAR SHAPED SOD
AREA THAT IS UNDER-
UTILIZED & DIFFICULT TO
MAINTAIN**

GOALS

Consider what the long term goal is for the space, how it will be used, and who will be interacting with or caring for the space. The goal of this project is to use less treated water for the irrigation of selected City owned or managed landscapes, and to install or replace these landscapes with appropriate native or drought tolerant plants.

QUESTIONS TO CONSIDER

- » What is the desired outcome or look of this landscape bed?



GOALS FOR CENTRAL AVE MEDIAN

- » Use of native plants
- » Low maintenance
- » Drought tolerant

DESIGN

Combine site analysis and goals for the space to inform design decisions. Design considerations can include: form and flow, circulation, design style, preserving or blocking views, intentional sod areas, habitat, application of stone or gravel, and the intended use of the space. Ideas will vary depending on size and location of the landscape.

The next step of design is plant selection. Considerations may include the use of native plants vs. ornamental plants, the use of containerized plants vs. seed, color, texture, bloom time, mature height and spread, irrigation requirements, and sun requirements.

Following plant selection, consider weed mitigation and wildlife browse. Weed mitigation considerations include whether to use landscape fabric or not, existing presence of weeds, and the maintenance and spacing of both existing or additional plants.

DESIGN CONSIDERATIONS

- » Form & Flow / Design Style
- » Circulation
- » Vegetation as a screen or barrier
- » Intentional sod areas
- » Habitat
- » Intended use of space
- » Plant selection

PLANT SELECTION

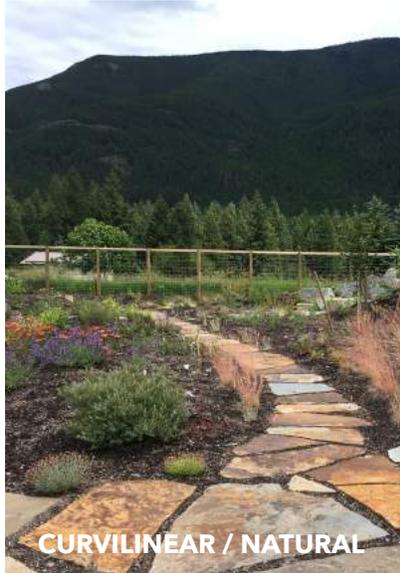
- » Native vs. Ornamental
- » Color
- » Texture
- » Bloom time
- » Mature height and spread
- » Irrigation requirements
- » Sun requirements
- » Pollinator habitat

WEED MITIGATION & DEER BROWSE MITIGATION

- » Landscape fabric vs. no fabric
- » Planting density
- » Herbicide application
- » Caging/Enclosures
- » Deer Repellent

FORM & FLOW / DESIGN STYLE

Typically landscapes follow two forms, curvilinear or linear. Curvilinear landscapes design with sinuous curves. This type of design tends to feel more natural and organic. Linear or angular landscapes use straight lines and tend to feel more modern. Sometimes curvilinear and linear lines can be combined to form a landscape that has both natural and contemporary elements. Look to surrounding architecture if applicable to inform the lines within the landscape.



CIRCULATION

Circulation refers to how people move throughout a site, whether on a path, through a lawn, or up or down stairs. Circulation creates access.



VEGETATION AS A SCREEN OR BARRIER

Plants are often used as a tool for screening or creating a barrier, be it for preserving a view, blocking a view, or creating separation between two areas. Consider the mature height and spread of the plant when using as a vegetative screen or barrier.



Views of Whitefish Lake & Big Mountain are preserved.



Cinquefoil creates a barrier between the street & sidewalk but does not block views of the lake.

INTENTIONAL SOD AREAS

Design sod to only exist in areas with a specified intention, use, shape, and size. Recreation or social gathering areas are appropriate applications of sod.



An irregular-shaped sod area that is likely difficult to maintain. This entrance could instead have a planter bed that enhances the character of the building.



Sod used intentionally for recreation.

HABITAT

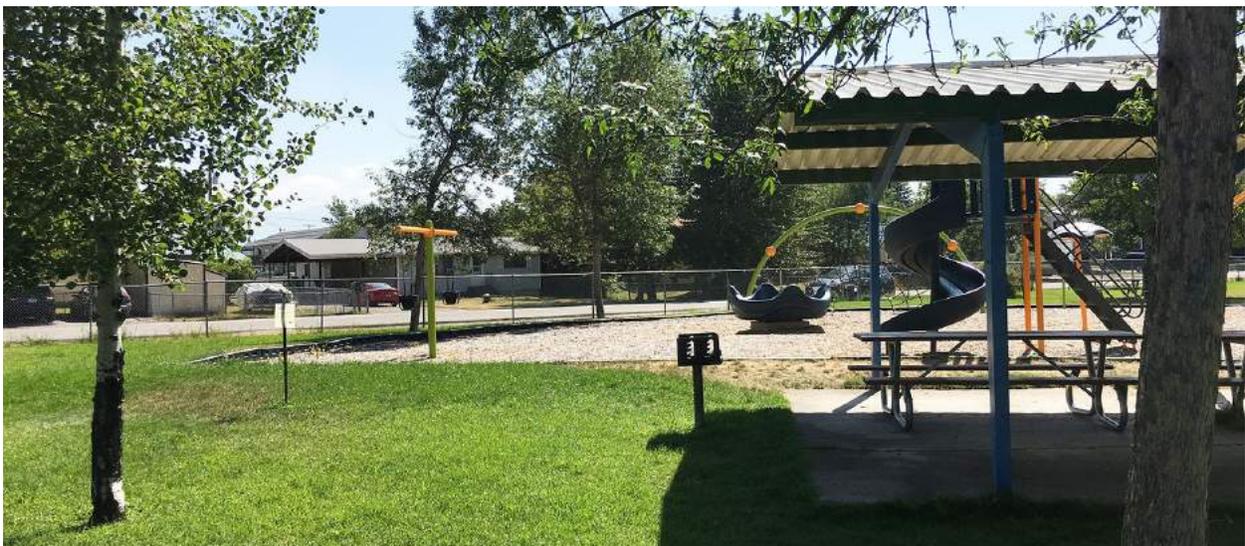
Plants, particularly native plants, provide important habitat and forage for many pollinator and wildlife species. Include species that support these populations when possible.



INTENDED USE OF SPACE

Consider how the landscape will be utilized. Examples include:

- » Recreation or play
- » Socializing or community gathering
- » Enhancing aesthetics
- » Pollinator habitat
- » Boulevards
- » Barriers or screens



PLANT SELECTION / DESIGN

NATIVE VS. ORNAMENTAL

Native: "Native plants are plant species that have evolved in place over geologic time or occur naturally in a specific region or area" - Montana Native Plant Society

Ornamental: Non-native plants primarily chosen for aesthetic qualities.

COLOR

Consider picking a "theme." More than three colors in one "theme" can look "busy."

MATURE HEIGHT & SPREAD

Consider how large the plant will be at maturity, *not* at time of planting. Layer plants so that tall ones are in the back and shorter ones are in the front. (Trees and shrubs in the back, taller grasses or flowers in the back or the middle, groundcovers in the front.)

TEXTURE

Different textures exist in plant form, shape, leaves, petals, etc. Combine flowers with grasses and groundcovers for a variety in interest.

BLOOM TIME

Select plants for a variety in blooms all season from April through September.

LEARN FROM NATURE

Take note of plant groupings you see in nature and attempt mimicking them in the selected landscape. (Paintbrush, Silky Lupine & Mariposa Lily / Pearly Everlasting & Fireweed)

IRRIGATION

What are the water requirements of the plants you are selecting? Group water-loving plants together and hot and dry-loving plants together, relative to the site microclimate. What type of irrigation is available? A permanent system vs. a temporary system? What best fits the selected plants' needs?

Provide irrigation to all native and non-native plants for at least the first two years following planting until roots are established. Plants may need supplemental water during the peak of summer.

SUN/LIGHT REQUIREMENTS

Does the plant require full sun, part sun/shade, or full shade? Familiarize yourself with the selected site and consider appropriate locations for certain light requirements.

PLANT DENSITY / WEED MANAGEMENT

Generally speaking, there are two ways to develop landscape beds: with or without landscape fabric. If the desired outcome is a lush and dense garden with healthy plant communities, avoid using fabric and increase plant density so that plants may freely spread and naturalize. Weed mitigation may be more intensive the first two years. Following year two or three, if plants are well-established and thriving, they will fill in gaps and outcompete weeds (this is highly dependent on the presence of weeds and weed seeds in the soil prior to and following planting). If the desired aesthetic is sparse plantings, consider using commercial grade landscape fabric with three to four inches of organic mulch on top.

PLANT LAYOUT

Other than color, texture, bloom time, height, spread, and sun requirements, plant massings create a stronger design aesthetic than if one species is planted as an individual. Clump together species in groups of 3, 4, 5, 6, 7, etc. in order to achieve a "natural" appearance. Avoid planting a species in quantities of one or two. Plants typically grow in communities and will have more of a vibrant "pop" of color during its bloom time if grouped in clumps, rather than planted as individuals.

CONTAINERIZED PLANTS VS. SEED

When installing a new landscape, plants can be established either from containerized nursery stock or from seed. Both have different timelines and outcomes. Both require site-specific and long-term maintenance plans to ensure the success of the landscape. Certain landscapes may include a combination of both nursery stock and seed.

Pros of Seed

- » More cost efficient
- » Easier to install (less labor)
- » Establishment of thick plant communities

Cons of Seed

- » Takes longer to establish
- » Less control over individual plant location & quantity
- » Difficult to control weeds

Pros of Nursery Stock

- » Instant garden look
- » More control over desired look
- » More ideal method for establishing wildflowers

Cons of Nursery Stock

- » More expensive
- » More labor intensive at install

RESOURCES

<https://centerfornativeplants.com/products/wildflowers/>

<https://centerfornativeplants.com/products/shrubs/>

<https://centerfornativeplants.com/products/grasses/>

<https://centerfornativeplants.com/products/trees/>

<https://centerfornativeplants.com/products/groundcovers/>

<https://centerfornativeplants.com/products/graminoids-2/>

<https://centerfornativeplants.com/get-gardening/plant-selection/>

“The Know Maintenance Perennial Garden” by Roy Diblik

NOTES

All plants sourced from Center for Native Plants are subject to availability.

Unless labeled otherwise, the following plant photos are property of Forestation and Center for Native Plants and are not to be used or distributed without permission.

B) PLANT SELECTION: CONTAINERIZED PLANTS

DROUGHT TOLERANT PLANTS: NATIVE FLOWERS

Native plants are adapted to their local environment, making them a smart and efficient choice for landscape beds since they require little to no long-term irrigation following establishment. We still recommend irrigation for the first two seasons for root development

The following species are appropriate for City sites that receive full sun. These selections assume establishment is from a containerized plant, not from seed.

- » Yarrow
- » Pearly Everlasting
- » Field Pussytoes
- » Rosy Pussytoes
- » Purple Prairie Clover
- » Cutleaf Daisy
- » Aspen Fleabane
- » Parsnip-flowered Buckwheat
- » Cushion Buckwheat



DROUGHT TOLERANT PLANTS: NATIVE FLOWERS

- » Sulphur Buckwheat
- » Blanketflower
- » Sticky Geranium
- » Maximilian Sunflower

- » Alumroot
- » Scarlet Gilli
- » Dotted Blazing Star
- » Alberta Penstemon

- » Firecracker Penstemon
- » Lyall's Penstemon
- » Rocky Mtn. Penstemon
- » Rocky Mtn. Beeplant



COURTESY OF PETER LESICA



DROUGHT TOLERANT PLANTS: NATIVE FLOWERS & GROUNDCOVERS

- » Yellow Prairie Coneflower
- » Queen's Crown Stonecrop
- » Black-eyed Susan
- » Stonecrop

- » Oregon Grape
- » Spreading Dogbane

- » Kinnikinnick



DROUGHT TOLERANT PLANTS: NATIVE GRASSES

- » Sideoats Grama
- » Little Bluestem



- » Blue Grama
- » Idaho Fescue



- » Prairie Junegrass
- » Bluebunch Wheatgrass



DROUGHT TOLERANT PLANTS: NATIVE SHRUBS

- » Silver Sagebrush
- » White Sage
- » Rubber Rabbitbrush
- » Horizontal Juniper

- » Rocky Mountain Juniper
- » Mockorange
- » Western Sand Cherry

- » Three-leaved Sumac
- » Wax Currant
- » Buffaloberry



COURTESY OF MARILEE LOVIT

Our Most Drought Tolerant Species

Once properly established, drought tolerant plants require little supplemental water. They have naturally adapted to dry conditions and have special mechanisms that help them survive periods of drought. This list of species is a general primer. Drought tolerant plants are not to be confused with xeric species. Ask our nursery staff about the difference between the two and how to properly establish your drought tolerant native plant!

FORBS

Yarrow	<i>(Achillea millefolium)</i>
Pearly Everlasting	<i>(Anaphalis margaritacea)</i>
Field Pussytoes	<i>(Antennaria neglecta)</i>
Rosy Pussytoes	<i>(Antennaria rosea)</i>
Showy Milkweed	<i>(Asclepias speciosa)</i>
Arrowleaf Balsamroot	<i>(Balsamorhiza sagittata)</i>
Purple Prairie Clover	<i>(Dalea purpurea)</i>
Ballhead Sandwort	<i>(Eremogone congesta)</i>
Cutleaf Daisy	<i>(Erigeron compositus)</i>
Lanceleaf Daisy	<i>(Erigeron linearis)</i>
Aspen Fleabane	<i>(Erigeron speciosus)</i>
Parsnip-flowered Buckwheat	<i>(Eriogonum heracleoides)</i>
Cushion Buckwheat	<i>(Eriogonum ovalifolium)</i>
Sulphur Buckwheat	<i>(Eriogonum umbellatum)</i>
Yellow Bells	<i>(Fritillaria pudica)</i>
Blanketflower	<i>(Gaillardia aristata)</i>
Sticky Geranium	<i>(Geranium viscosissimum)</i>
Maximilian Sunflower	<i>(Helianthus maximiliana)</i>
Alumroot	<i>(Heuchera cylindrica)</i>
Scarlet Gilia	<i>(Ipomopsis aggregata)</i>
Bitterroot	<i>(Lewisia rediviva)</i>
Dotted Blazing Star	<i>(Liatris punctata)</i>
Silky Lupine	<i>(Lupinus sericeus)</i>
Prickly Pear Cactus	<i>(Opuntia fragilis)</i>
Alberta Penstemon	<i>(Penstemon albertinus)</i>
Firecracker Penstemon	<i>(Penstemon eatonii)</i>
Fuzzy-tongue Penstemon	<i>(Penstemon eriantherus)</i>
Lyall's Penstemon	<i>(Penstemon lyallii)</i>
Rocky Mountain Penstemon	<i>(Penstemon strictus)</i>
Wilcox Penstemon	<i>(Penstemon wilcoxii)</i>
Rocky Mountain Beeplant	<i>(Peritoma serrulata)</i>
Silver-leaf Phacelia	<i>(Phacelia hastata)</i>
Silky Phacelia	<i>(Phacelia sericea)</i>
Jacob's Ladder	<i>(Polemonium pulcherrimum)</i>
Yellow Prairie Coneflower	<i>(Ratibida columnifera)</i>
Queen's Crown Stonecrop	<i>(Rhodiola rhodantha)</i>

Black-eyed Susan	<i>(Rudbeckia hirta)</i>
Stonecrop	<i>(Sedum stenopetalum)</i>
Munro's Globemallow	<i>(Sphaeralcea munroana)</i>
Yucca	<i>(Yucca glauca)</i>

SHRUBS

Silver Sagebrush	<i>(Artemisia cana)</i>
White Sage	<i>(Artemisia ludoviciana)</i>
Red-stemmed Buckbrush	<i>(Ceanothus sanguineus)</i>
Curl Leaf Mtn. Mahogany	<i>(Cercocarpus ledifolius)</i>
Mountain Mahogany	<i>(Cercocarpus montanus)</i>
Rubber Rabbitbrush	<i>(Ericameria nauseosa)</i>
Horizontal Juniper	<i>(Juniperus horizontalis)</i>
Rocky Mountain Juniper	<i>(Juniperus scopulorum)</i>
Mock-orange	<i>(Philadelphus lewisii)</i>
Western Sand Cherry	<i>(Prunus besseyi)</i>
Antelope Bitterbrush	<i>(Purshia tridentata)</i>
Three-Leaved Sumac	<i>(Rhus trilobata)</i>
Wax Currant	<i>(Ribes cereum)</i>
Silver Buffaloberry	<i>(Shepherdia argentea)</i>
Buffaloberry	<i>(Shepherdia canadensis)</i>

GRASSES

Sideoats Grama	<i>(Bouteloua curtipendula)</i>
Blue Grama	<i>(Bouteloua gracilis)</i>
Rough Fescue	<i>(Festuca campestris)</i>
Idaho Fescue	<i>(Festuca idahoensis)</i>
Prairie Junegrass	<i>(Koeleria macrantha)</i>
Rough-leaved Ricegrass	<i>(Oryzopsis asperifolia)</i>
Bluebunch Wheatgrass	<i>(Pseudoroegneria spicata)</i>
Little Bluestem	<i>(Schizachyrium scoparium)</i>

GROUNDCOVERS

Spreading Dogbane	<i>(Apocynum androsaemifolium)</i>
Kinnikinnick	<i>(Arctostaphylos uva-ursi)</i>
Oregon Grape	<i>(Berberis repens)</i>

POLLINATOR PLANTS: NATIVE FLOWERS

Evidence suggests that pollinator populations are declining due to habitat loss and widespread use of herbicides and pesticides. Include these species in landscapes to support pollinator health and to add abundant vibrancy and color to a landscape. Select species with varying bloom times, shapes, colors, and aromas.

The following species are appropriate for City sites that receive part to full sun and irrigation for at least the first two seasons following planting. These selections assume establishment is from a containerized plant, not from seed.

- » Horsemint
- » Rosy Pussytoes
- » Heartleaf Arnica
- » Milkweed species
- » Harebell
- » Paintbrush
- » Fireweed
- » Purple Prairie Clover
- » Purple Coneflower



POLLINATOR PLANTS: NATIVE FLOWERS

- » Aspen Fleabane
- » Sulphur Buckwheat
- » Showy Aster
- » Blanketflower

- » Sticky Geranium
- » Maximilian Sunflower
- » Golden Aster
- » Alumroot

- » Scarlet Gilia
- » Dotted Blazing Star
- » Blue Flax
- » Beebalm



POLLINATOR PLANTS: NATIVE FLOWERS & GROUNDCOVERS

- » ALL Penstemon Species
- » Rocky Mtn. Beeplant
- » Yellow Prairie Coneflower

- » Goldenrod

- » Leafy Aster
- » Birch-leaved Spirea
- » Oregon Grape
- » Kinnikinnick



POLLINATOR PLANTS: NATIVE SHRUBS

- » Serviceberry
- » White Sage
- » Red-osier Dogwood
- » Twinberry Honeysuckle

- » Mockorange
- » Western Sand Cherry
- » Chokecherry
- » Golden Currant

- » Woods Rose
- » Blue Elderberry
- » Douglas Spirea
- » Snowberry



Our Best Species for Pollinators

Evidence has shown that pollinator populations are in rapid decline due to habitat loss and the widespread use of herbicides and pesticides. To help reverse this decline, incorporate the following species into your pollinator garden. It is important to remember that pollinators come in all different shapes and sizes from bees, bats, butterflies, hummingbirds, and even ants!

To successfully accommodate each type of pollinator, add a lot of diversity to your garden! Choose wildflowers that bloom throughout the season with varying shapes, colors, and aromas. Incorporate trees and shrubs for habitat, use grasses as host plants for butterfly larvae, and integrate a clean water source for the pollinators.

FORBS

Horsemint	<i>(Agastache urticifolia)</i>
Rosy Pussytoes	<i>(Antennaria rosea)</i>
Heart-leaf Arnica	<i>(Arnica cordifolia)</i>
Showy Milkweed	<i>(Asclepias speciosa)</i>
Swamp Milkweed	<i>(Asclepias incarnata)</i>
Arrowleaf Balsamroot	<i>(Balsamorhiza sagittata)</i>
Harebell	<i>(Campanula rotundifolia)</i>
Paintbrush	<i>(Castilleja spp.)</i>
Fireweed	<i>(Chamerion angustifolium)</i>
Clarkia	<i>(Clarkia pulchella)</i>
Purple Prairie Clover	<i>(Dalea purpurea)</i>
Purple Coneflower	<i>(Echinacea angustifolia)</i>
Ballhead Sandwort	<i>(Eremogone congesta)</i>
ALL Fleabane Species	<i>(Erigeron spp.)</i>
Sulfur Buckwheat	<i>(Eriogonum umbellatum)</i>
Showy Aster	<i>(Eurybia conspicua)</i>
Blanketflower	<i>(Gaillardia aristata)</i>
Sticky Geranium	<i>(Geranium viscosissimum)</i>
Maximilian Sunflower	<i>(Helianthus maximiliani)</i>
Golden Aster	<i>(Heterotheca villosa)</i>
Alumroot	<i>(Heuchera cylindrica)</i>
Scarlet Gilia	<i>(Ipomopsis aggregata)</i>
Dotted Blazing Star	<i>(Liatris punctata)</i>
Blue Flax	<i>(Linum lewisii)</i>
Silky Lupine	<i>(Lupinus sericea)</i>
Beebalm	<i>(Monarda fistulosa)</i>
Yellow Evening Primrose	<i>(Oenothera villosa)</i>
ALL Penstemon Species	<i>(Penstemon spp.)</i>
Rocky Mountain Beeplant	<i>(Peritoma serrulata)</i>
Silver-leaf Phacelia	<i>(Phacelia hastata)</i>
Silky Phacelia	<i>(Phacelia sericea)</i>
Yellow Prairie Coneflower	<i>(Ratibida columnifera)</i>

Canada Goldenrod	<i>(Solidago canadensis)</i>
Leafy Aster	<i>(Symphyotrichum foliaceum)</i>
Yucca	<i>(Yucca glauca)</i>

SHRUBS

Thinleaf Alder	<i>(Alnus incana)</i>
Serviceberry	<i>(Amelanchier alnifolia)</i>
ALL Sage Species	<i>(Artemisia spp.)</i>
Fernbush	<i>(Chamaebatiaria millefolium)</i>
Red-osier Dogwood	<i>(Cornus sericea)</i>
Rubber Rabbitbrush	<i>(Ericameria nauseosa)</i>
ALL Honeysuckle Species	<i>(Lonicera spp.)</i>
Mock Orange	<i>(Philadelphus lewisii)</i>
Western Sand Cherry	<i>(Prunus besseyi)</i>
Chokecherry	<i>(Prunus virginiana)</i>
ALL Currant Species	<i>(Ribes spp.)</i>
Nootka Rose	<i>(Rosa nutkana)</i>
Woods Rose	<i>(Rosa woodsii)</i>
ALL Willow Species	<i>(Salix spp.)</i>
Blue Elderberry	<i>(Sambucus cerulea)</i>
Buffaloberry	<i>(Shepherdia canadensis)</i>
Douglas Spirea	<i>(Spiraea douglasii)</i>
Snowberry	<i>(Symphoricarpos albus)</i>

GROUNDCOVERS

Birch-leaved Spirea	<i>(Spiraea betulifolia)</i>
Kinnikinnick	<i>(Arctostaphylos uva-ursi)</i>
Oregon Grape	<i>(Berberis repens)</i>

(Grasses and Trees on next page.)

SHADE-LOVING PLANTS: NATIVE FLOWERS

Most landscapes possess patches of shade, whether casted by existing trees, shrubs, buildings, or other objects. This list includes species that thrive in habitats that are either seasonally wet or dry.

The following species are appropriate for City sites that receive full sun and either drip irrigation or no irrigation. These selections assume establishment is from a containerized plant, not from seed.

- » Horsemint
- » Nodding Onion
- » Wild Chives

- » Cutleaf Anemone
- » Yellow Columbine
- » Red Columbine

- » Blue Columbine
- » Heartleaf Arnica
- » Blue Camas



SHADE-LOVING PLANTS: NATIVE FLOWERS

- » Harebell
- » Fireweed
- » Shooting Star
- » Showy Aster

- » Northern Bedstraw
- » Large-leaved Avens
- » Mountain Hollyhock
- » Rocky Mountain Iris

- » Wild Mint
- » Yellow Monkeyflower
- » Red Monkeyflower
- » Self-heal



SHADE-LOVING PLANTS: NATIVE FLOWERS & GROUNDCOVERS

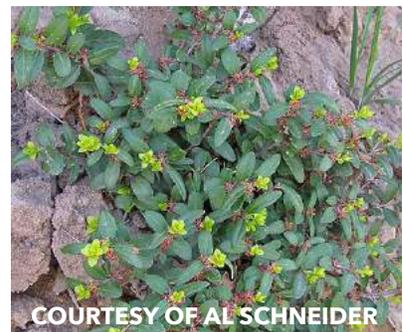
- » Skullcap
- » Arrowleaf Groundsel
- » Blue-eyed Grass
- » Fringecup



- » Kinnikinnick
- » Oregon Grape
- » Bunchberry
- » ALL Fern Species



- » ALL Strawberry Species
- » Twinflower
- » Mountain Lover
- » Birch-leaved Spirea

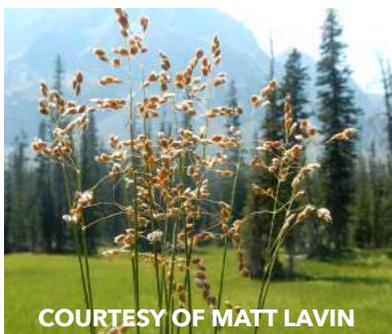


SHADE-LOVING PLANTS: GRASSES

- » Ticklegrass
- » Sweetgrass
- » ALL Sedge Species

- » Pinegrass
- » Tufted Hairgrass

- » Slender Hairgrass
- » Blue Wildrye



SHADE-LOVING PLANTS: NATIVE SHRUBS

- » Rocky Mountain Maple
- » Thinleaf Alder
- » Serviceberry
- » Red-osier Dogwood

- » Black Hawthorn
- » Oceanspray
- » Twinberry Honeysuckle
- » Utah Honeysuckle

- » Mallow Ninebark
- » Chokecherry
- » ALL Currant Species
- » ALL Rose Species



SHADE-LOVING PLANTS: NATIVE SHRUBS

- » Red Raspberry
- » Thimbleberry
- » Thimbleberry
- » ALL Willow Species

- » Blue Elderberry
- » Snowberry
- » Douglas Spirea

- » Mountain Ash



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SHADE-LOVING PLANTS: NATIVE TREES

- » Paper Birch
- » Western White Pine
- » Western Red Cedar

- » Quaking Aspen
- » Quaking Aspen
- » Western Hemlock

- » Black Cottonwood
- » Douglas Fir



COURTESY OF PETER LESICA



Our Shade Loving Species

Most landscapes have patches of shade. Some have fully shaded zones that are either seasonally wet or dry. The shade loving species on this list thrive in both of these habitats. This list will help you select plants that create interest in those forgotten corners of our gardens. Ask our nursery staff which species will do well in each type of habitat.

FORBS

Horsemint	<i>(Agastache urticifolia)</i>
Nodding Onion	<i>(Allium cernuum)</i>
Wild Chives	<i>(Allium schoenoprasum)</i>
Cutleaf Anemone	<i>(Anemone multifida)</i>
ALL Columbine Species	<i>(Aquilegia spp.)</i>
Heart-leaf Arnica	<i>(Arnica cordifolia)</i>
Blue Camas	<i>(Camassia quamash)</i>
Harebell	<i>(Campanula rotundifolia)</i>
Fireweed	<i>(Chamerion angustifolium)</i>
Shooting Star	<i>(Dodecatheon pulchellum)</i>
Glacier Lily	<i>(Erythronium grandiflorum)</i>
Showy Aster	<i>(Eurybia conspicua)</i>
Northern Bedstraw	<i>(Galium boreale)</i>
Richardson's Geranium	<i>(Geranium richardsonii)</i>
Large-leaved Avens	<i>(Geum macrophyllum)</i>
Mountain Hollyhock	<i>(Iliamna rivularis)</i>
Rocky Mountain Iris	<i>(Iris missouriensis)</i>
Solomon's Seal	<i>(Maianthemum stellatum)</i>
Wild Mint	<i>(Mentha arvensis)</i>
Yellow Monkeyflower	<i>(Mimulus guttatus)</i>
Red Monkeyflower	<i>(Mimulus lewisii)</i>
Self-heal	<i>(Prunella vulgaris)</i>
Skullcap	<i>(Scutellaria lateriflora)</i>
Arrowleaf Groundsel	<i>(Senecio triangularis)</i>
Blue-eyed Grass	<i>(Sisyrinchium idahoense)</i>
Fringecup	<i>(Tellima grandiflora)</i>
Stinging Nettle	<i>(Urtica dioica)</i>

SHRUBS

Rocky Mountain Maple	<i>(Acer glabrum)</i>
Thinleaf Alder	<i>(Alnus incana)</i>
Serviceberry	<i>(Amelanchier alnifolia)</i>
Wild Sarsaparilla	<i>(Aralia nudicaulis)</i>
Red-osier Dogwood	<i>(Cornus sericea)</i>
Black Hawthorn	<i>(Crataegus douglasii)</i>
Oceanspray	<i>(Holodiscus discolor)</i>

Twinberry Honeysuckle	<i>(Lonicera involucrata)</i>
Utah Honeysuckle	<i>(Lonicera utahensis)</i>
Mallow Ninebark	<i>(Physocarpus malvaceus)</i>
Chokecherry	<i>(Prunus virginiana)</i>
ALL Currant Species	<i>(Ribes spp.)</i>
Nootka Rose	<i>(Rosa nutkana)</i>
Wood's Rose	<i>(Rosa woodsii)</i>
Red Raspberry	<i>(Rubus idaeus)</i>
Thimbleberry	<i>(Rubus parviflorus)</i>
ALL Willow Species	<i>(Salix spp.)</i>
Blue Elderberry	<i>(Sambucus cerulea)</i>
Mountain Ash	<i>(Sorbus scopulina)</i>
Douglas Spirea	<i>(Spiraea douglasii)</i>
Snowberry	<i>(Symphoricarpos albus)</i>
Mountain Huckleberry	<i>(Vaccinium membranaceum)</i>

GRASSES

Ticklegrass	<i>(Agrostis scabra)</i>
Sweetgrass	<i>(Anthoxanthum hirtum)</i>
Pinegrass	<i>(Calamagrostis rubescens)</i>
ALL Sedge Species	<i>(Carex spp.)</i>
Tufted Hairgrass	<i>(Deschampsia cespitosa)</i>
Slender Hairgrass	<i>(Deschampsia elongata)</i>
Blue Wildrye	<i>(Elymus glaucus)</i>
Western Fescue	<i>(Festuca occidentalis)</i>

GROUNDCOVERS

Kinnikinnick	<i>(Arctostaphylos uva-ursi)</i>
Oregon Grape	<i>(Berberis repens)</i>
Bunchberry Dogwood	<i>(Cornus canadensis)</i>
ALL Fern Species	<i>(Dryopteris spp.)</i>
ALL Strawberry Species	<i>(Fragaria spp.)</i>
Twinflower	<i>(Linnaea borealis)</i>
Mountain Lover	<i>(Paxistima myrsinites)</i>
Birch-leaved Spirea	<i>(Spiraea betulifolia)</i>

(Trees and Vines continued on next page.)

DEER RESISTANT PLANTS: NATIVE FLOWERS

Though no plant is truly deer proof, the following species can be used to decrease browse.

The following species are appropriate for City sites where deer are frequently present. Remember that the only true deer-proof plant is one enclosed by a fence or enclosure.

- » Alumroot
- » Aspen Fleabane
- » Beebalm

- » Black-eyed Susan
- » Blanketflower
- » Canada Goldenrod

- » Cutleaf Daisy
- » Dotted Blazing Star
- » Fuzzy-tongue Penstemon



DEER RESISTANT PLANTS: NATIVE FLOWERS

- » Golden Aster
- » Horsemint
- » Leafy Aster
- » Nodding Onion

- » Pearly Everlasting
- » Prairie Smoke
- » Purple Coneflower
- » Rocky Mountain Beeplant

- » Rosy Pussytoes
- » Showy Goldeneye
- » Showy Milkweed
- » Sulphur Buckwheat



COURTESY OF AL SCHNEIDER



COURTESY OF AL SCHNEIDER



DEER RESISTANT PLANTS: NATIVE FLOWERS, GROUNDCOVERS & SHRUBS

- » Wild Mint
- » Yarrow
- » Yellow Prairie Coneflower
- » Birch-leaved Spirea

- » Kinnikinnick
- » Oregon Grape
- » Big Sage
- » Black Hawthorn

- » Buffaloberry
- » Fernbush
- » Juniper Species
- » Rabbitbrush



DEER RESISTANT PLANTS: NATIVE SHRUBS & TREES

- » Serviceberry
- » Shrubby Cinquefoil
- » Three-leaved Sumac
- » Wax Currant

- » White Sage
- » Paper Birch
- » Douglas Fir

- » Engelmann Spruce
- » Western Larch



Center for Native Plants Most Deer Resistant Species

Keep in mind that the only deer-proof plant is one enclosed by a fence. The list of plants below are known to be deer resistant, but deer will eat any plant when hungry enough, say in the spring or during a drought, and fawn will sample anything as they learn what's good to eat.

FORBS

Alumroot (*Heuchera cylindrica*)
 Arrowleaf Balsamroot (*Balsamorhiza sagittata*)
 Aspen Fleabane (*Erigeron speciosus*)
 Beebalm (*Monarda fistulosa*)
 Black-eyed Susan (*Rudbeckia hirta*)
 Blanketflower (*Gaillardia aristata*)
 Canada Goldenrod (*Solidago canadensis*)
 Cutleaf Daisy (*Erigeron compositus*)
 Dotted Blazing Star (*Liatris punctata*)
 Fuzzy-tongue Penstemon (*Penstemon eriantherus*)
 Hairy Golden Aster (*Heterotheca villosa*)
 Heart-leaf Arnica (*Arnica cordifolia*)
 Horsemint (*Agastache urticifolia*)
 Lanceleaf Daisy (*Erigeron linearis*)
 Leafy Aster (*Symphotrichum foliaceum*)
 Munro's Globemallow (*Sphaeralcea munroana*)
 Nodding Onion (*Allium cernuum*)
 Pearly Everlasting (*Anaphalis margaritacea*)
 Plains Coreopsis (*Coreopsis tinctoria*)
 Prairie Smoke (*Geum triflorum*)
 Prickly Pear Cactus (*Opuntia fragilis*)
 Purple Coneflower (*Echinacea angustifolia*)
 Rocky Mountain Beeplant (*Peritoma serrulata*)
 Rosy Pussytoes (*Antennaria rosea*)
 Showy Goldeneye (*Heliomeris multiflora*)
 Showy Milkweed (*Asclepias speciosa*)
 Silky Lupine (*Lupinus sericeus*)
 Stonecrop (*Sedum stenopelatum*)
 Sulphur Buckwheat (*Eriogonum umbellatum*)
 Wild Mint (*Mentha arvensis*)

Yarrow (*Achillea millefolium*)

Yellow Prairie Coneflower (*Ratibida columnifera*)

Yucca (*Yucca glauca*)

SHRUBS

Big Sage (*Artemisia tridentata*)

Black Hawthorn (*Crataegus douglasii*)

Buffaloberry (*Shepherdia canadensis*)

Fernbush (*Chamaebatiaria millefolium*)

Juniper spp. (*Juniperus* spp.)

Rubber Rabbitbrush (*Ericameria nauseosa*)

Serviceberry (*Amelanchier alnifolia*)

Shrubby Cinquefoil (*Dasiphora fruticosa*)

Three-leaved Sumac (*Rhus trilobata*)

Wax Currant (*Ribes cereum*)

White Sage (*Artemisia ludoviciana*)

GRASSES

Most of our grasses are deer resistant. Ask our native plant specialists about which ones aren't.

GROUNDCOVERS

Birch-leaved Spirea (*Spiraea betulifolia*)

Kinnikinnick (*Arctostaphylos uva-ursi*)

Oregon-grape (*Berberis repens*)

TREES

Betula spp.

Douglas Fir (*Pseudotsuga menziesii*)

Engelmann Spruce (*Picea engelmannii*)

Western Larch (*Larix occidentalis*)

DROUGHT TOLERANT NON-NATIVE FLOWERS

Consider the following species for high-profile landscapes where robust blooms are desired. Note that irrigation is highly recommended for all plants for a minimum of two years to ensure plant establishment. Following establishment, these plants can tolerate periods of drought but may require supplemental water during the peak of summer. Select varieties that are Zone 3 or 4.

Note other drought tolerant non-native plants exist. This list is a short summary. Consult with a nursery that sells non-native plants to carefully select site -appropriate species.

- » Catmint Varieties
- » Salvia Varieties
- » Russian Sage

- » Gayfeather Varieties
- » Purple Coneflower
- » Yarrow Varieties

- » Peony Varieties
- » Autumn Joy Sedum
- » Lavender Varieties



DROUGHT TOLERANT NON-NATIVE SHRUBS

- » Amur Maple
- » Chokeberry
- » Forsythia



Consider the following species for a variety in seasonal colors and textures. These species are adapted to Montana and can tolerate drought once established, but ideally require irrigation the first two years and supplemental water during the peak of summer.

Note other drought tolerant non-native shrubs exist. This list is a short summary. Consult with a nursery that sells non-native plants to carefully select site-appropriate species.

- » Nanking Cherry
- » Pawnee Buttes Western Sand Cherry
- » Common Lilac
- » Gro Low Sumac



C) PLANT SELECTION: SEED



DROUGHT TOLERANT WILDFLOWER SEED MIX (30% OF TOTAL SEED MIX**)

% OF PLS	SPECIES	COMMON NAME
12.00%	<i>Peritoma serrulata</i>	Rocky Mountain Beeplant*
11.45%	<i>Coreopsis tinctoria</i>	Plains Coreopsis*
11.95%	<i>Gaillardia aristata</i>	Blanketflower
11.93%	<i>Linum lewisii</i>	Blue Flax
11.51%	<i>Ratibida columnifera</i>	Prairie Coneflower
11.71%	<i>Ratibida columnifera x pulchra</i>	Mexican Hat Coneflower
3.90%	<i>Penstemon palmeri</i>	Palmer's Penstemon
2.00%	<i>Peritoma lutea</i>	Yellow Beeplant*
1.98%	<i>Dalea purpurea</i>	Purple Prairie Clover
1.85%	<i>Eriogonum umbellatum</i>	Sulfur Buckwheat
1.91%	<i>Liatris punctata</i>	Blazing Star/Gayfeather
1.98%	<i>Thelesperma filifolium</i>	Green Threadleaf
1.99%	<i>Sphaeralcea munroana</i>	Munro Globemallow



DROUGHT TOLERANT GRASS SEED MIX (70% OF TOTAL SEED MIX)**

% OF PLS	SPECIES	COMMON NAME
40%	<i>Agropyron spicatum</i>	Bluebunch Wheatgrass
20%	<i>Festuca idahoensis</i>	Idaho Fescue
20%	<i>Festuca campestris</i>	Rough Fescue
10%	<i>Bouteloua gracilis</i>	Blue Grama
10%	<i>Pascopyrum smithii</i>	Western Wheatgrass

*Denotes an annual forb species.

**Blending rates should have a 70%-30% ratio. Seeding rates should be applied at 1 lb./1000 sq. feet.

Sites that incorporate wildflower seed include areas of high visibility: public spaces, roadsides with no slope and good aspect ratio, or areas with an overall goal of beautification. These mixes are less appropriate for harsh sites that receive foot traffic, have been heavily disturbed, or have ongoing pressure from invasive species.

Native grass and wildflower mixes are slow to establish, but beautiful and drought tolerant in time. Most native mixes, including this specified mix, include mostly perennial species, along with the addition of some annual species. These annual species germinate and grow quicker, thus creating coverage sooner than the perennials, while preventing growth of weeds.

POLLINATOR WILDFLOWER SEED MIX

POLLINATOR WILDFLOWER SEED MIX (30% OF TOTAL SEED MIX**)

% OF PLS	SPECIES	COMMON NAME
12.00%	<i>Peritoma serrulata</i>	Rocky Mountain Beeplant*
10.06%	<i>Gaillardia aristata</i>	Blanketflower
11.93%	<i>Linum lewisii</i>	Blue Flax
11.51%	<i>Penstemon strictus</i>	Rocky Mtn. Penstemon
9.97%	<i>Dalea purpurea</i>	Purple Prairie Clover
9.95%	<i>Lupinus argentea</i>	Silver Lupine
7.85%	<i>Hedysarum boreale</i>	Sweetvetch
3.11%	<i>Erigeron speciosus</i>	Aspen Fleabane
4.62%	<i>Eriogonum umbellatum</i>	Sulfur Buckwheat
3.00%	<i>Aquilegia coerulea</i>	Blue Columbine
2.93%	<i>Penstemon virgatus</i>	Wand Beardtongue
2.99%	<i>Symphyotrichum laeve</i>	Smooth Aster
2.40%	<i>Achillea millefolium</i>	Yarrow
.88%	<i>Hymenoxys hoopseii</i>	Orange Mtn. Daisy
.21%	<i>Castilleja integra</i>	Indian Paintbrush
.22%	<i>Heliomeris multiflora</i>	Showy Goldeneye



POLLINATOR GRASS SEED MIX (70% OF TOTAL SEED MIX)**

% OF PLS	SPECIES	COMMON NAME
40%	<i>Koeleria macrantha</i>	Prairie Junegrass
30%	<i>Festuca idahoensis</i>	Idaho Fescue
20%	<i>Deschampsia cespitosa</i>	Tufted Hairgrass
10%	<i>Pascopyrum smithii</i>	Western Wheatgrass

*Denotes an annual forb species.

**Blending rates should have a 70%-30% ratio. Seeding rates should be applied at 1 lb./1000 sq. feet.

Sites that incorporate wildflower seed include areas of high visibility: public spaces, roadsides with no slope and good aspect ratio, and an overall goal of beautification. These mixes are less appropriate for harsh sites that receive foot traffic, have been heavily disturbed, or have ongoing pressure from invasive species.

Native grass and wildflower mixes are slow to establish, but beautiful and drought tolerant in time. Most native mixes, including this specified mix, include mostly perennial species, along with the addition of some annual species. These annual species germinate and grow quicker, thus creating coverage sooner than the perennials, while preventing growth of weeds.



**SHADE
TOLERANT
WILDFLOWER
SEED MIX**

POLLINATOR WILDFLOWER SEED MIX (30% OF TOTAL SEED MIX*)

% OF PLS	SPECIES	COMMON NAME
13.91%	<i>Lupinus alpestris</i>	Mountain Lupine
13.95%	<i>Wyethia amplexicaulis</i>	Mule's Ears
9.75%	<i>Delphinium occidentale</i>	Western Larkspur
9.59%	<i>Penstemon strictus</i>	Rocky Mtn. Penstemon
7.59%	<i>Rudbeckia occidentalis</i>	Western Coneflower
5.62%	<i>Penstemon venustus</i>	Blue Mtn. Penstemon
2.20%	<i>Hymenoxys hoopseii</i>	Orange Mtn. Daisy
3.91%	<i>Agastache urticifolia</i>	Horsemint
2.49%	<i>Erigeron speciosus</i>	Aspen Fleabane
3.98%	<i>Lupinus sericeus</i>	Silky Lupine
3.86%	<i>Penstemon rydbergii</i>	Rydberg's Penstemon
1.66%	<i>Achillea millefolium</i>	Yarrow
2.00%	<i>Aquilegia coerulea</i>	Blue Columbine
0.40%	<i>Castilleja sulphurea</i>	Sulfur Paintbrush
.45%	<i>Heliomeris multiflora</i>	Showy Goldeneye



POLLINATOR GRASS SEED MIX (70% OF TOTAL SEED MIX*)

% OF PLS	SPECIES	COMMON NAME
30%	<i>Agropyron trachycaulum</i>	Slender Wheatgrass
30%	<i>Deschampsia elongata</i>	Slender Hairgrass
20%	<i>Elymus glaucus</i>	Blue Wildrye
20%	<i>Agrostis scabra</i>	Ticklegrass

*Blending rates should have a 70%-30% ratio. Seeding rates should be applied at 1 lb./1000 sq. feet.

Sites that incorporate wildflower seed include areas of high visibility: public spaces, roadsides with no slope and good aspect ratio, and an overall goal of beautification. These mixes are less appropriate for harsh sites that receive foot traffic, have been heavily disturbed, or have ongoing pressure from invasive species.

Native grass and wildflower mixes are slow to establish, but beautiful and drought tolerant in time. Most native mixes, including this specified mix, include mostly perennial species, along with the addition of some annual species. These annual species germinate and grow quicker, thus creating coverage sooner than the perennials, while preventing growth of weeds.



OTHER SEED MIXES

FOR HIGH TRAFFIC, COMPACTED, AND/OR DISTURBED SITES

Seeding is very site specific. Often times, each site requires different species, ratios, rates, and seeding times. The below mixes and rates include generalized guidelines. Final seed selection and rate is both goal and site specific.

FLATHEAD VALLEY MIX

(For open & sunny naturalized areas with no mowing or foot traffic)

30% Bluebunch Wheatgrass

30% Green Needlegrass

25% Slender Wheatgrass

15% Western Wheatgrass

Seeding Rate: .57-69 lbs/1000 SF or 25-30 lbs/acre

FLATHEAD FOREST MIX

(For part-sun understory naturalized areas with no mowing or foot traffic)

35% Slender Wheatgrass

20% Mountain Brome

20% Bluebunch Wheatgrass

25% Blue Wildrye

Seeding Rate: .55 lbs/1000 SF or 24 lbs/acre

NO MOW FESCUE MIX / LAWN ALTERNATIVE

(For medians, boulevards, low-grow natural lawns, or erosion control)

15% Sheep Fescue

20% Hard Fescue

25% Creeping Red Fescue

20% Chewings Fescue

20% Annual Rye

Seeding Rate: 6 lbs/1000 SF or 261 lbs/acre

SOURCE

Westland Seed, Ronan MT

LOCAL SOURCE

Center for Native Plants, Whitefish MT

PLANTING NATIVE SEED MIXES

WHEN TO PLANT

Planting time varies and depends on the climate, rainfall patterns and species you are planting. Generally speaking, plant late enough in the fall that your seed remains dormant and does not germinate until spring. Perennials can be planted in early fall if there are at least 10-12 weeks of growing time before the plants go into winter dormancy. Late November is an excellent time to sow native seed in Montana.

SITE PREPARATION

Most native species perform best in disturbed soils. Loosen compacted soil by scraping, tilling or scarifying. If soil is tilled, take care not to plant seeds deeper than 1/4 inch. For best results plant on cleared ground. Remove all weeds, grasses and existing vegetation before planting. Tilling should be utilized only when soil is very compact. If soil is tilled, weed management should be considered prior to sowing seed.

PLANTING RATE

A planting rate in the minimum range is usually sufficient to establish a good stand of wildflowers on prepared soil with adequate maintenance. The maximum rate is recommended when adequate soil preparation and weed control are not possible, or when a maximum display is required. Poor perennial establishment may result if the maximum seeding rate is exceeded. Refer to the recommendations for each seed mix. On average, a seed mix will be planted from 35 pounds to 45 pounds per acre. Planting rates will vary from site to site depending on annual rainfall, aspect, slope, soil type and the end goals of your project. A general rule of thumb is to adhere to a 70% to 30% ratio with grass and wildflower seed.

PLANTING DEPTH

For most natives, broadcasting is the most common, but drilling is also widely used. Most natives should be planted no deeper than 1/4 inch and seeds are seldom, if ever, buried. After broadcasting, it is recommended to gently compact the soil using a lawn roller or similar device. Light compaction will greatly improve germination by providing seed-to-soil contact and improved moisture absorption through seed coats. Mulch may be used and can greatly improve germination for plantings on dry sites. Use mulch that is weed free and use sparingly.

PLANTING METHODS

- » **BROADCAST:** This method is the most simple and common planting process. Rake seeds in lightly, covering them no more than 2-3 times their thickness. Some seeds will show on the surface. Excessive cover on will result in poor germination
- » **DRILLING:** Drilling is often used on large plots, roads, golf courses or reclamation projects. Drill to a maximum of 1/4 inch. Seeds planted deeper than 1/4 inch will likely not germinate.
- » **HYDROSEEDING:** If hydroseeding is the method of application, hydro mulching will provide a top cover.

MOISTURE

Planted areas *must* be kept consistently moist for 4-6 weeks during the early season until seedlings are well established. During this period, daily watering may be necessary if rainfall is inadequate. Thereafter, watering should be gradually reduced. Montana typically has sufficient precipitation and snowpack in the spring to meet this requirement. Supplemental moisture is usually not necessary in our climate, but should be considered.

MAINTENANCE

Maintenance is essential to a successful wildflower planting. The site should be evaluated periodically during the growing season to determine if expectations are being met. Practicing the following strategies will aid in a productive long-term wildflower stand:

- » **WEED CONTROL:** Monthly weed control is essential to a healthy and satisfying wildflower stand. Weeds should be eliminated as soon as they can be recognized either by pulling, spot-spraying with a general herbicide, or selective cutting with a string trimmer.
- » **FERTILIZATION:** Fertilizers are usually not necessary for native seed plantings. If soil fertility is exceptionally low, a low nitrogen fertilizer can be used. Organic matter such as compost is also an option. If you suspect a problem with soil fertility, we recommend a soil test and/or plant tissue analysis.
- » **SUPPLEMENTAL WATERING:** Water is critical to wildflower maintenance. In moist climates, regular rainfall may make supplemental watering unnecessary. In arid climates or during drought conditions, up to 1/2 inch of supplemental water per week may be required to maintain an optimal display. After a recommended 3-year period, the native planting should be mature enough to eliminate any supplemental watering.
- » **RESEEDING:** If long-lasting color from annuals is desired it is best to reseed annuals every year. In the fall remove dead seed stalks and excessive plant material by mowing or cutting to a height of four to six inches. Perennial plantings can be reseeded if there are bare spots in the area. Spring reseeded should be completed as soon as the ground is workable.
- » **FALL MOWING AND CLEANUP:** For a neat appearance, mow wildflowers to a height of four to six inches after they have "gone to seed". In our climate, November is a good timeframe to mow should your concern be aesthetics and utilizing the viable seed to reseed your plot. However, many native plantings are left untouched in the fall to enhance forage and habitat for many wildlife species. Your goal and objective should be considered prior to implementing either of these philosophies.

D) WEED MITIGATION

Whether a site is well-established or recently disturbed, presence of invasive species is a common challenge to overcome when managing landscapes. It is expected that the disturbance from a sod-alternative landscape installation would provide the opportunity for noxious weeds to establish. Noxious weeds are non-native plant species that limit the land's ability to be used for agriculture, forestry, livestock, and wildlife. Noxious weeds also can reduce native plant communities and negatively affect the aesthetics of natural areas.

An effective integrated weed management plan utilizes both chemical (application of herbicides) and mechanical (utilizing hand pulling, seed-head removal, and mowing) strategies to control noxious weeds. This integrated approach increases the effectiveness and decreases possible negative environmental effects.

Part of an integrated approach is using desired species to compete against noxious weeds. Establishing plants early and choosing species that are competitive against weeds is crucial. Typically three years after newly installed plants are established, desired plants will start to compete and fill space that otherwise would be occupied by weeds.

After 3 years, it is expected that noxious weed control efforts will decrease, and efforts should concentrate on isolated areas of persistent weeds or new infestations. Yearly monitoring of sites is important for early detection of source pollutions of weed and evaluating success of previous applications. Monitoring, followed by control measures, will prevent establishment of new and larger infestations that can be costly to manage. Many noxious weeds will have seeds that persist in the soil and can be viable for 7-13 years. Even though there will be dramatically less weeds, with continued mitigations efforts, it will be necessary to continue to apply chemical and mechanical strategies to prevent new infestations.

Spraying herbicide before plants go to flower will aid in reducing negative effects to important pollinators. Once weeds go to flower, mechanical strategies can be implement to avoid use of herbicides. The table on the following page lists common noxious weeds found in the Whitefish area, strategies to reduce these weeds, application rates, and timing of the implementation.

WEED MITIGATION CONTINUED

The table below lists common noxious weeds found in the Whitefish area, strategies to reduce these weeds, application rates, and timing of the implementation.

WEED SPECIES	MANAGEMENT STRATEGIES	APPLICATION RATE	TIMING OF APPLICATIONS
Orange & Yellow Hawkweed (<i>Hieracium</i>)	Chemical Application of Milestone	4-6 pints/acre	Spring
St. Johnswart (<i>Hypericum perforatum</i>)	Chemical Application of Milestone	4-6 pints/acre	Late spring
Spotted Knapweed (<i>Centaurea maculosa</i>)	Chemical Application of Milestone (Rangestar is also an effective herbicide) Mechanical Application: Hand pulling	4-6 pints/acre	Fall and Spring
Yellow Toadflax (<i>Linaria vulgaris</i>)	Chemical Application of Escort (Tordon should also be considered for control)	1.5-2oz/acre	Spring
Common Tansy (<i>Tanacetum vulgare</i>)	Chemical Application of Escort (Tordon should also be considered for control)	3.3oz/acre	Before plant goes to flower
Canada Thistle (<i>Cirsium arvense</i>)	Chemical Application of Milestone. 2 applications (Spring and Fall of the same year) will be most effective in treating established areas. Transline is also an effective herbicide and should be considered.	4-6 pints/acre	Spring and Fall
Mullein (<i>Verbascum Thapsus</i>)	Chemical application of Chaparral (Escort could also be considered) Mechanical Application: Hand pulling plants that are going to seed Mechanical Application: Hand pulling plants that are going to seed	2.5-3.3oz/acre	Spring
Oxeye Daisy (<i>Leucanthemum vulgate</i>)	Chemical application of Milestone	4-6 pints/acre	Spring (before plant goes to flower)

E) DEER BROWSE MITIGATION

Though no plant is truly “deer proof,” certain measures can help decrease browse of landscape plants.

ENCLOSE LANDSCAPED AREA WITH A FENCE

The only deer proof plant is one enclosed by a fence. Enclose individual plants, the trunk of a tree, or an entire garden. Fence height around the landscape should be 6.5 feet or more. Polypropylene or wire mesh and wood are typical fence materials. Wireless deer fences are also an option.

USE DEER RESISTANT PLANTS

While there is no guarantee that deer will entirely leave these species alone, they are known to be effective in reducing browse.

These plant characteristics may keep deer in search of something more delectable:

- » Silver or grey-green foliage, such as Prairie Smoke (*Geum triflorum*)
- » Fuzzy or prickly foliage, such as Golden-aster (*Heterotheca villosa*)
- » Milky sap, such as Showy Milkweed (*Asclepias speciosa*)
- » Strong scents, such as Nodding Onion (*Allium cernuum*)
- » An undesirable taste, such as Yarrow (*Achillea millefolium*)

Refer to page 86 or the link below for Center for Native Plants deer resistant plants.

<https://centerfornativeplants.com/get-gardening/plant-selection/>

DESIGN A DEER RESISTANT GARDEN

- » Install a border of deer resistant plants that “fence” in less resistant plants.
- » Install a border wall of plants that are allowed to be browsed. The strategy here is to satisfy deer with accessible food with hope that they will move on afterward.
- » Use repellent sprays. Several commercial deer repellent sprays, such as Liquid Fence, are available at garden and hardware stores. These highly scented deer-repellent sprays have odors that ward off deer, but not long-term. Deer will adapt to any offensive scent. Have several scented solutions on hand to spray alternately.

F) GRAVEL, STONE & BOULDER OPTIONS

Three primary color palettes for stone are available in the Flathead Valley:

1. Yellow shale (gold)
2. Grays with rust tones (i.e. crushed McGregor Lake)
3. Argillites (blue/purple)

These stones come in two textures:

1. Angular
2. Rounded

Yellow shale, crushed McGregor Lake, and other gray-tone stones come in angular pieces in varying sizes. Argillite (blue/purple) stone comes in both angular and rounded options. Only use rounded stones in landscapes relating to or invoking the feeling of water: swales, beaches, dry creek beds, etc.

Avoid using large swaths of gravel as a mulch surfacing. Stone not only absorbs heat and evaporates irrigation water, but prevents plants from creating communities (the most healthy habitat for a plant to thrive in). Match gravels so that one park or site does not contain more than two color palettes.

COLOR PALETTE #1 & #2 / TEXTURE #1

AGGREGATES



3/4" YELLOW SHALE:
FOR PATHS OR PADS



2" YELLOW SHALE: FOR
DRIP STRIPS



1-2" OR 3" MCGREGOR
LAKE: FOR PATHS &
DRIP STRIPS

LANDSCAPE BOULDERS



MCGREGOR LAKE: FOR
TEXTURE OR SEATS



AUTUMN GOLD: FOR
TEXTURE OR SEATS

COLOR PALETTE #3 / TEXTURE #1 & #2

AGGREGATES



CRUSHED 5/16": FOR
PATHS OR TRAILS



WASHED DRAIN ROCK/
RIVER ROCK: FOR
SWALES, BEACHES,
DRY CREEK BEDS

LANDSCAPE BOULDERS



ROUND BOULDERS
(ARGILLITES): FOR
WATER FEATURES OR
SLOPE RETAINMENT

SOURCES

YELLOW SHALE

STEEL MOUNTAIN ROCK PRODUCTS, COLUMBIA FALLS MT

MCGREGOR LAKE & AUTUMN GOLD

MONTANA ROCKWORKS, KALISPELL MT

CRUSHED 5/16"

WHITE ROCK AGGREGATE, KALISPELL MT

WASHED DRAIN ROCK / RIVER ROCK - 1" OR 2"

AVAILABLE AT MOST LOCAL QUARRIES: SCHELLINGER, T-BEND & LHC

G) MULCH OPTIONS

SOIL PEP



MEDIUM SHREDDED CEDAR



H) EDGING OPTIONS



SOURCE

PACIFIC STEEL & RECYCLING, KALISPELL MT

If edging is desired, source 4" or 6" steel edging. Use edging to separate sod from planter beds, or to create a clean and defined edge between differing surfaces (mulch and gravel, sod and gravel, sod and mulch, etc.) Secure edging with welded rebar stakes for best long-term edging structure. "J" stakes can be used as well, though they may migrate over time.

Photo: Steel edging separates a planter bed from a gravel path, and a gravel path from sod.



Photo: Steel edging and yellow shale. Steel rusts over time, creating a unique appearance.

I) INSTALLATION

The installation of a landscape may include the following:

- Materials
 - » Soil, plants, compost, mycorrhizal inoculant, exclosures or repellents for plant protection against deer, edging, landscape fabric, staples, gravel, landscape boulders, pavers, stone, stakes, and steps.
- Equipment (Machinery and Tools)
- Hauling (Materials)
- Labor

Installation guidelines for installing a new landscape from nursery stock:

1. If sod, weed-infested soils, or extremely compacted soils are present, consider excavating below the existing root zone (approximately 4-6 inches) and replace with 6 inches of soil. Ideally, soils are weed-free and rich in organic material. Many local soils sourced within the Flathead Valley can contain weed and grass species. Carefully evaluate soil sources to mitigate potential future issues.
2. If the landscape is brand new, ensure planting areas have a 6 inch depth of weed-free and organic rich soils.
3. If landscape boulders are desired, source stone that matches gravel or other textures and colors nearby. See page 105 for gravel and stone options.
4. Use commercial-grade landscape fabric if sparse plantings are desired. If robust plantings are desired, avoid landscape fabric. Instead, plant densely and let plants fill in and outcompete weeds over time in conjunction with a weed management plan.
5. Use site-appropriate native plants or non-native plants, or a combination of both.
6. For quicker establishment and more control over the desired aesthetic, use nursery stock (containerized plants). If establishing from seed, use an appropriate seed mix. See page 93 for native seed mix options and page 65 for the pros and cons of establishing plants from nursery stock vs. seed.
7. Apply mycorrhizal inoculant to each plant's root system upon installation for growth stimulation.
8. Consider deer browse mitigation. Exclosure newly planted trees and shrubs with steel gauge caging. If entire landscape cannot be enclosed, use a deer repellent spray for grasses and forbs; this often requires frequent application. See page 104 for deer browse mitigation technique.
9. For sparse plantings, consider drip irrigation. For dense plantings, consider overhead irrigation. Note that the ability for water to evenly distribute throughout soils is highly dependent on soil composition. Healthy organic soils help to both hold and evenly distribute water throughout a planting area.
10. All irrigation systems are to follow guidelines outlined in the Irrigation Analysis, Installation & Retrofit Requirements document.
11. Use an organic mulch that has a "natural" appearance and is dark brown in color such as Soil Pep or Medium Shredded Cedar. Apply a 2-3" depth. See page 107 for mulch options.
12. Use steel edging to separate sod from planter beds, or to create clean and defined edges between different surfaces (i.e. to separate a gravel drip strip and sod or a gravel path from a planter bed).

J) MAINTENANCE

Maintenance is a crucial step in order to ensure the long-term success of a landscape. Keep in mind that no landscape is maintenance free, and that methods and expectations will differ between a landscape established from seed vs. nursery stock.

Develop a maintenance plan that is specific to each landscape. Consider weeds, mowing, irrigation needs, plant replacement, and general upkeep such as trash removal or periodic mulch applications. Keep in mind that landscapes are not static and that change over time is natural.

Following installation of a new landscape established from nursery stock, ensure weeds are properly managed so that intended perennial species do not become overwhelmed and outcompeted.

Though landscapes from seed are cheaper to install, they typically require more maintenance and upkeep to ensure the desired results.