Killin Wetlands Access Master Plan

Washington County, Oregon



December 2015

Metro | *Making a great place*

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Metro | *Making a great place*

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NW Cedar Canyon Road

BACKGROUND AND SUMMARY

The Killin Wetlands Natural Area is a 589.6-acre parcel near the town of Banks in Washington County. The land provides a rare example of a peat wetland in Oregon and supports significant wildlife populations. Historically, from between the 1850s and the 1980s, the land was used as a dairy farm. Some upland portions of the property continue to be leased for cropland. The wetland has long been known to birders as a destination to observe wildlife. Because there are no public improvements, visitors sometimes park in the adjacent road right of way and set-up cameras on the road's shoulder.

Project kick-off meeting

Recognizing the lands unique habitat value, Metro Regional Government, acquired 373 acres in 2002 and 212 acres in 2012. Since acquisition, some farm buildings have been removed, land has been re-vegetated, and hydrology patterns in the pasture restored. Currently, some buildings from the farm remain, including the iconic barn and a single family residence. Parts of the natural area will remain in the cultivation of wheat and other crops, maintaining the land's agricultural legacy.

Looking south over the wetlands

PURPOSE OF PLAN

Barn from wetland

In 2013, voters across the Portland metropolitan area approved a five-year levy to help care for regional parks and natural areas. The major areas of focus of the levy include:

- **Natural area restoration and maintenance**
- **Natural area improvements for visitors**
- **Park maintenance**
- **Volunteer programs**
- **Conservation education**
- **Community grants**

This Access Master Plan identifies improvements that will provide safe public access for visitors to view wildlife with minimum impact on the natural resources. The study area is primarily the uplands area around the existing development and the upland areas between the road and the wetland. These areas provide the best opportunity for access, parking, trails, and viewing. This report summarizes general site conditions, the planning process and resulting proposed Access Master Plan. A number of figures used in project presentations are included in the appendix.

Wetland view

General goals for development of the site:

- **Protect and enhance the natural, scenic and cultural resources**
- **Identify the best destinations for wildlife viewing**
- **Provide safe automobile access from NW Cedar Canyon Road**
- **Design simple durable forms consistent with farm vernacular**
- **Provide facilities for education programs and groups**
- **Determine a strategy to preserve the old dairy barn**
- **Improve maintenance operations and natural area management**
- **Develop in a scale and character that the community supports**

Looking west through farmstead

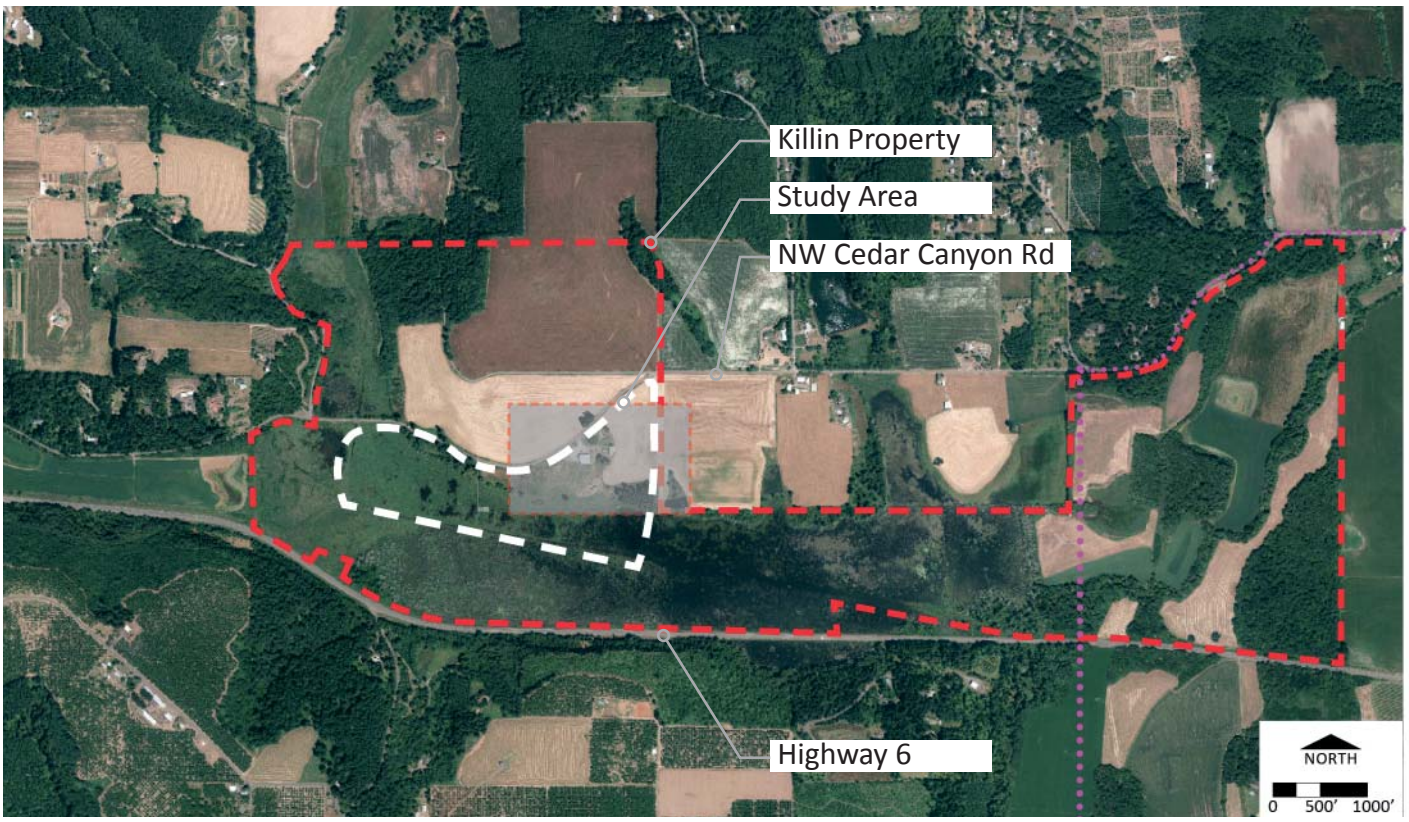
SETTING AND LOCATION

The site is located approximately two miles from the city of Banks in Washington County jurisdiction. The site is located outside of the Banks urban growth boundary and is surrounded by land zoned for farm and forest.

Access to the site is from NW Cedar Canyon Road which connects to State Highway 6, one mile west of the farm site. NW Cedar Canyon Road is a narrow (approximately 22'), two-lane road that primarily provides access to farms and residences. Traffic counts on the road tally approximately 64 vehicles daily (see Appendix G).

Facts:

Property:	46280 NW Cedar Canyon Road
Jurisdiction:	Washington County
Acres:	589.6
Zoning:	Exclusive Farm Use (EFU)/Agriculture and Forest - 20 (AF-20)
Upland area:	AF20
Wetland:	EFU
Tax lots:	T:2N, R:4W, Sec:25, TL:900



SITE RESOURCES

The planning and design focus centered on the farm site and wetland areas near the old dairy barn. Where at one time the farm site provided a good prospect for the farming families to look over their dairy herd, now that same site provides future visitors views of the open water and wildlife.

A number of site conditions and the historic development affect the use and development of the site and informed the basis for design. These include soils, topography hydrology, vegetation, views and existing improvements. For maps of these conditions, see Appendix A.

Wetland matrix

Soils

At Killin, wetlands are largely underlain with Labish soils - a type of organic “beaver soil” with areas of Wapato soil on the higher western regions of the wetlands. The site’s upper wetland soil layer, comprised largely of peat, has become severely damaged since it was dewatered beginning in the 1870s (or 1890s) for grazing purposes. These soils are rare in the Willamette Valley and have been mostly destroyed. This wetland remains the best example of a peat wetland in the Willamette Valley.

Upland slope

From the 1870s, the stream was channelized and the wetlands were drained. The exposure to air while being grazed oxidized the upper soil layer causing the soil elevation to fall an estimated three to six feet. The full recovery of the wetalnds will happen only after the organic soil layer has re-accumulated; a process that will take decades, or perhaps centuries.

View from upland to wetland

Topography

Site topography varies from flat on the wetland areas to gradually sloping between the road and the wetland and moderate at the farm site. Grounds near these buildings provides the most suitable area for day use development.

The elevation change from the wetland to the barn is approximately 30 feet. This grade change provides an excellent prospect to view wildlife from both the barn area and upland areas below the barn. The sloping site also provides some vertical separation from NW Cedar Canyon Road which helps to buffer the proposed day use area.

Emergent wetland/open water

Barn Owl Pellets

Birds in the wetland

Killin Wetlands support wildlife from insects to large mammals. Killin's wildlife diversity includes:

- *Northern red-legged frogs*
- *Willow flycatcher*
- *Ducks*
- *Other water fowl*
- *Shore birds*
- *Wading birds*
- *Bittern*
- *Rail*
- *Bald eagles*
- *Cutthroat trout and other juvenile salmonids*
- *Beaver*
- *Deer*
- *Elk*
- *Black bear (possibly)*
- *Nutrias and bullfrogs, two non-native species are present.*

Hydrology

The Killin Wetland Site Conservation Plan, produced by Metro, states that from the 1870s to 2000, creeks at the site were ditched and periodically dredged to support cultivation and grazing. Most agricultural practices within the floodplain stopped during the mid-1990s, a few years prior to Metro's acquisition. Abundant beaver activity at the site has influenced the development of a perennially flooded wetland. Water levels have risen in recent years but are not expected to rise significantly higher. Open water may decrease in the coming decades as peat soil levels rebuild and hold more of the runoff.

Vegetation and Wildlife

A small collection of Willamette Valley peat-laden wetlands, such as Killin, support several typically montane or coastal plants not found elsewhere in the Willamette Valley. These plants include Geyer Willow (*Salix geyeriana*), bogbean (*Menyanthes trifoliata*), Oregon bentgrass (*Agrostis oregonensis*) and narrowleaf cattail (*Typha augustifolia*). Vegetation on the site consists of upland forest, shrub wetlands, emergent wetlands (open water), and riparian forest. Reed Canarygrass, an invasive species, was introduced to the site in the 1930s as cattle fodder. The "graveyard" of dead and dying ash and willow trees around the wetland's edge, killed by persistent inundation when the flooding returned after agricultural practices ceased, now stand as a visible testament to the wetland bottom's degradation. Since acquisition, Metro's approach to wetland management focuses on habitat restoration; however, wetland revegetation has limited success due to perennial flooding and the established Reed Canarygrass. In some higher elevations along the perimeter of the wetland, Geyer Willow has been successfully re-established.

Adjacent uplands have been managed to suppress pasture grasses and Himalayan Blackberry and to establish fir, cedar, ash, Oregon Grape and other native species. Some of the upland fields are farmed and will continue to be farmed.

At the old dairy barn, the grounds include a few trees, shrubs and extensive lawn. The most distinctive tree is a mature black walnut with a wide drip line. Future development should respect the dripline of the tree.

Aspect and Views

From the proposed day use areas and trails, views into the wetland are primarily to the south looking into the sun. This can be problematic for wildlife viewing at certain times of the day. Development of areas where visitors can take advantage of east and west views and areas beneath the shade of trees will provide viewing options that are not directed into the sun.

Improvements

A variety of buildings remain on the property. The old dairybarn has a dominant presence on the site. It can be seen in the distance from Highway 6 and provides an orientation and reference for visitors. The second floor of the barn is a large open wood structure that is architecturally distinctive. Structurally the barn is in good condition. On the exterior, a number of improvements need to be made to secure the structure. These include improvements to the windows, doors and siding. On the south side of the barn, two later shed additions/ accessory units to the barn have been constructed. They were used for equipment storage and other farm use. The shed additions have structural problems that need to be addressed if they are to remain on the site. As part of this plan, an architectural assessment was completed, see Appendix E.

Barn and Accessory Shed Additions

Inside of Hayloft in Barn

Chicken Coop

A small chicken coop remains from the farm operation. The coop is generally of the era of the barn and contributes visually to the farm scene. The coop is on a block foundation and if necessary could be easily moved. The interior of the building is in rough condition but could be salvaged.

Chicken Coop

Residence

The existing ranch-style residence was constructed about late 1960s. According to Metro real estate managers, the house is in average condition. Consistent with many homes of this era, a number of improvements would need to be made to make it serviceable for continued occupancy.

Residence

Equipment shed

An open wood structure and metal roofed shed is on the east side of the barn. Historically it has been used for equipment storage. It is in usable condition.

Utilities

The site is not served by municipal sewer and water. A well and pump house is located between the barn and the house. The well provides approximately 10 gallons per minute water supply. Sanitary sewer is accommodated by a septic system. The location of the drainfield is on the southeast side of the house.

Equipment Shed

Design Team site visit

PROCESS

The planning process for the Killin Wetlands Access Master Plan began in November 2014. The plan has been developed with oversight from Metro Parks and Nature Department staff, project stakeholders, members of the community and input from Councilor Kathryn Harrington acting as project liaison from the Metro Council.

The Metro team of reviewers was comprised of managers, scientists, land and property managers, planners, and naturalists. Key stakeholders have included members of the community, the Audubon Society, the City of Banks, Tualatin Watershed Council, Bicycle Transportation Alliance, and neighbors.

Community input at the first open house

Two open houses were held to give community members the opportunity to view alternatives and the preferred design. The meetings were held at the community room at the Banks Fire Station. Approximately 45 community members attended the first meeting on February 18, 2015. Site features, site history and preliminary alternatives were presented. Comments from these meetings were collected and incorporated into the plans. Generally people were enthusiastic about the approach to provide day use access.

A second meeting was held on May 19, 2015 to review the refined concept plan. About 20 community members attended the meeting. Generally, consensus of the program and design was expressed.

Second open house

Following minor tweaks based on feedback, a final preferred design was developed and received approval from Metro's Parks and Nature Department staff.

In addition to meetings, public open houses and stakeholder outreach, the analysis and alternatives were posted on the Metro website.

DEVELOPMENT PROGRAM

This project seeks to provide safe visitor access without impacting neighbors or natural resources. The site limitations that will limit development include: limited flat upland area situated between the wetland and NW Cedar Canyon Road, existing trees and vegetation, existing grades, and proximity to adjacent farmland.

To accommodate the anticipated visitors, the site development program will include the following items:

- Entry drive and parking for 20 vehicles and 1 school bus
- Potential future overflow for 10 cars
- Flexible space to accommodate classes and small events
- Blinds and a shelter for viewing
- Trails
- Restroom
- Benches and picnic tables
- Signs / information kiosk
- Security gates
- Incorporation of art

Early Idea: Overlook

CONCEPT ALTERNATIVES

The design team produced a number of preliminary design concepts. Each concept balanced habitat restoration, created public access, buffered farming and provided opportunities to view wildlife.

Initially, seven alternatives were reviewed by Metro staff. The concepts varied in number and location of entries; removal of the residence; circulation and parking location. Each design was tested using the development program to determine how well the scheme respected the barn area, the views of the wetland and surrounding area, provided adequate buffer between the road and farm, as well as an appropriate entry for a day use facility. A zone diagram was developed to give a general method to determine how alternatives met project goals.

Early Idea: Typical Trail

Design Goals

Barn Zone

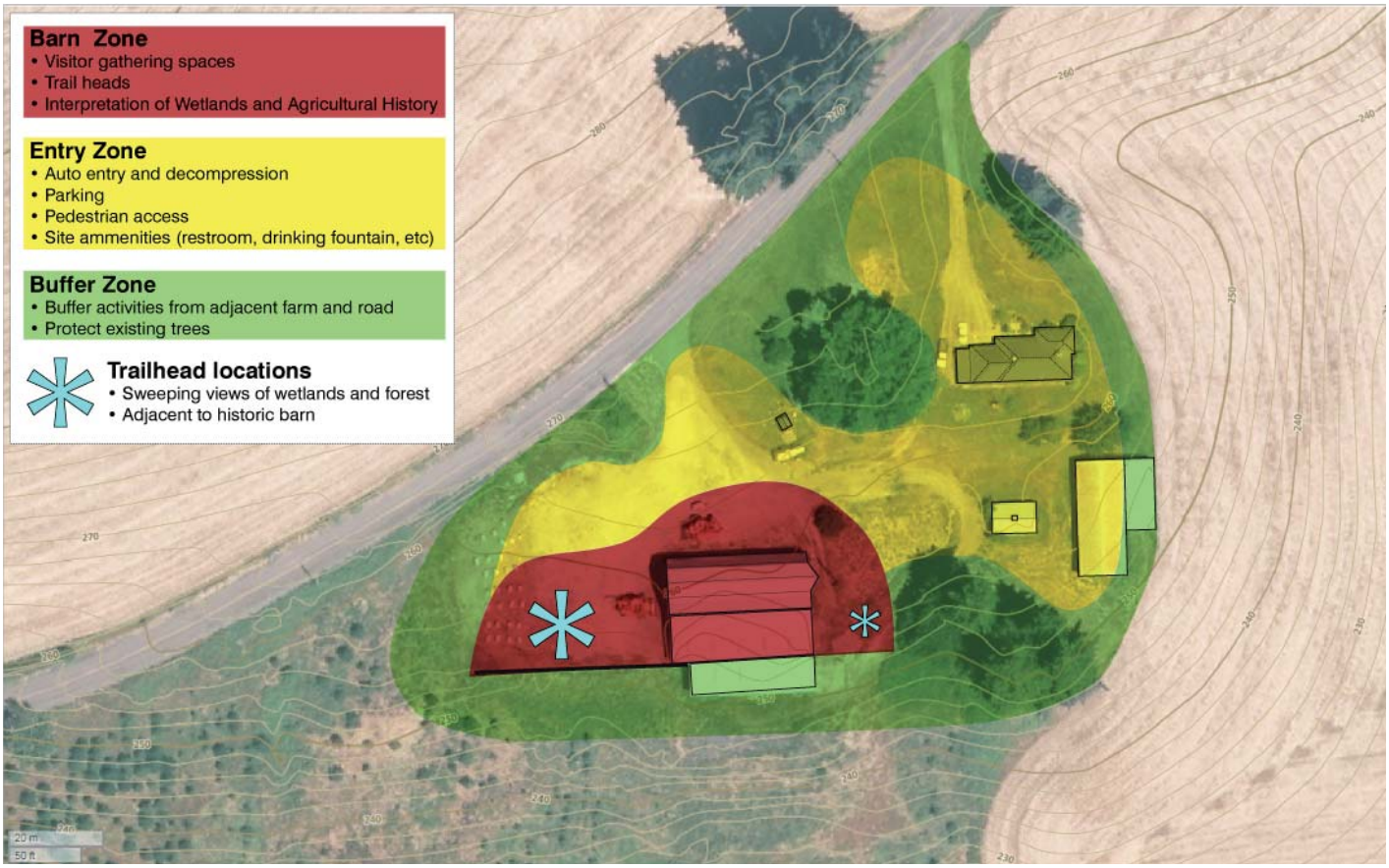
- Provide visitor gathering spaces
- Organize trail heads
- Provide space for interpretation of wildlife and site history

Buffer Zone

- Provide buffer from development from Cedar Canyon Road
- Provide space from development and adjacent farms
- Protect significant existing trees

Entry Zone

- Provide safe entry and visitor orientation to site character
- Organize parking for simple and easy circulation
- Provide direct pedestrian access from parking to entry
- Provide space for site amenities (restroom, benches, picnic tables, bike racks, drinking fountain, information signs, art)

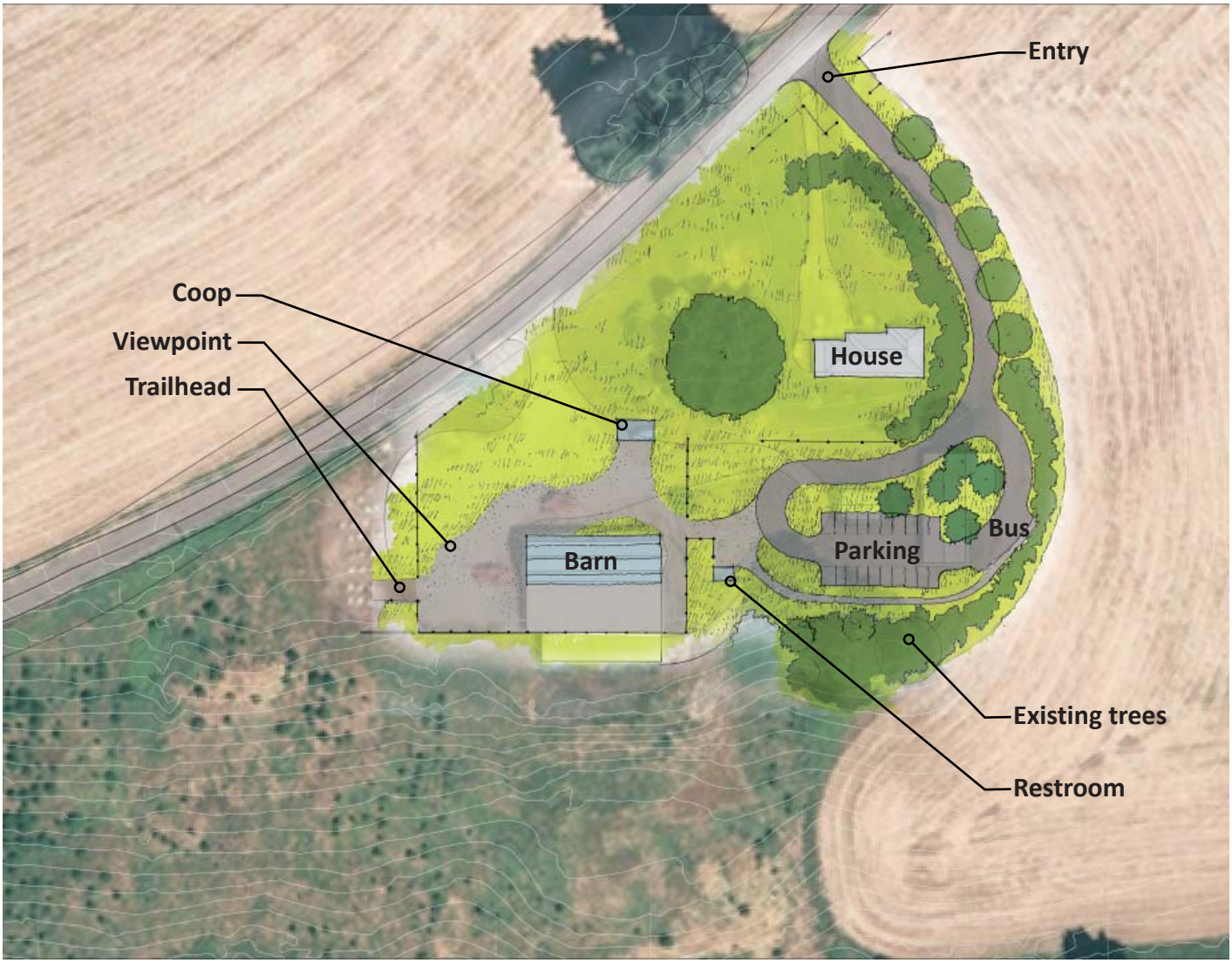


Refined Alternatives

Four refined alternatives that best met the development goals were shown at the first public meeting and reviewed by Metro staff. Two of the alternatives retain the existing residence and two remove the residence. All of the alternatives use existing property driveways.

Alternative 1: One Way Loop

- Maintains the existing residence
- Loop road gets fairly close to home
- Need to relocate chicken coop
- Potentially impacts fir trees on the south side of the parking lot
- Limited opportunities for expansion of parking



Alternative 2: Entry Road adjacent to field

- Opportunity to maintain the existing residence
- Entry road may require cultivated field area to be adjusted
- Limited opportunities for expansion of parking

Alternative 3: Loop Entry Road

- Removes the existing residence
- Pedestrians circulation along the edge of parking area
- Provides narrower drive aisle

Alternative 4: Maximizes open space by the barn

- Removes the existing residence
- Moves parking to the east, adjacent to the farm
- Relocates the coop building
- Limited opportunities for expansion of parking

Trail /Destinations Alternatives

Trail route alternatives are limited because of the narrow nature of the site. Grade change between the barn and the viewing areas did offer the opportunity to analyze different trail routes based on grade.

- Routes using both 8% and 5% grades were reviewed.
- Three primary thoughts in the location of the trails are:
    1] Provide reasonable and universally accessible access
    2] Provide a more direct route to the west side of the site to some of the more desirable viewing areas
    3] Provide spurs to viewing destinations off the main trail
- Provide some seating opportunities off the trail
- Screen the trail to minimize impact of humans on the wildlife

Preliminary 5% trail option

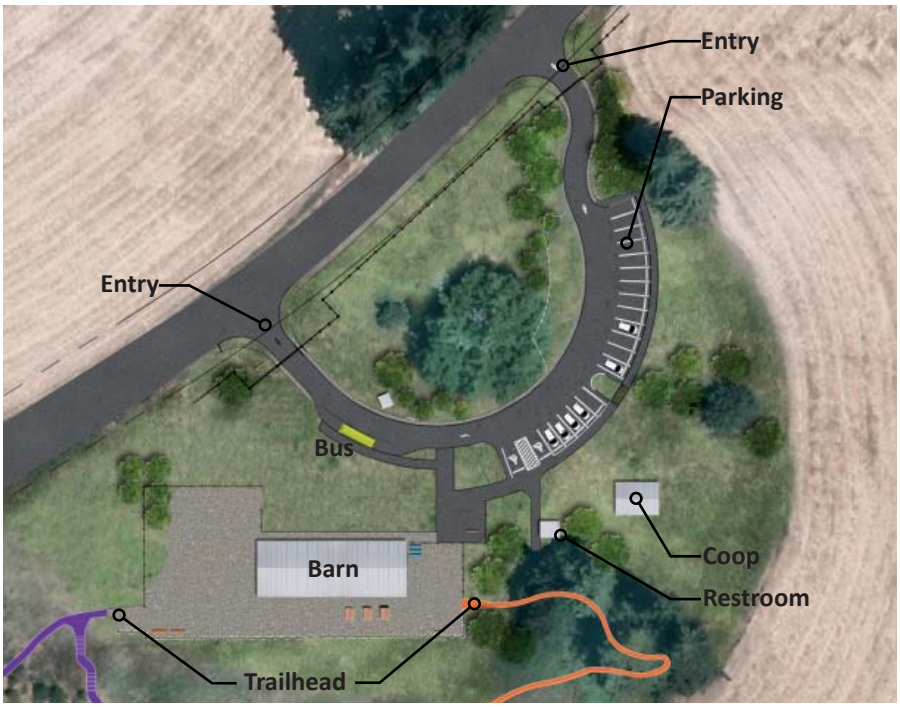
View to west from the wetland edge

Wetland from below the barn

REFINED SITE DESIGN

The preferred alternative is the loop entry road. This alternative was reviewed and selected by Metro's Parks and Nature Department staff because it is simple, easy to expand as demand increases, provides visitors clear orientation to the entry, improves visibility and safety, and protects site resources. The barn naturally becomes a favorable location for day-use facilities, trailheads, and a small parking lot. The goal is to keep most improvements within the area that already houses the barn in order to maintain a "light touch" on the landscape and habitat. Natural resources and habitat restoration efforts will be focused on sensitive areas, such as the unique wetland and surrounding upland areas (see Appendix C).

Entry to the site is marked by an agricultural style wood fence and the Metro entry monument sign. The one-way drive gives visitors clear orientation to the pedestrian entry on the east side of the barn. A path is provided directly from the parking area to the site entry. Parking is located and graded so that the visibility of the cars and asphalt from the overlook and trails is minimized. Parking lot stormwater is accommodated by sheet flow to moderately graded swales in the grass area on the south side of the parking area. The intent is to minimize or eliminate the need for catch basins and piping. Parking in this location will require removal of the residence and carport. The existing steel shed will also be removed to open up the views from the day use area to the adjacent agricultural field.



From the site entry, pedestrians are directed to the overlook at the south side of the barn. This overlook utilizes the existing 6-foot retaining wall to give the visitor an immediate panorama of the wetland. The close proximity of the overlook to accessible parking is valuable.

The barn is in relatively good condition. It will require some cosmetic upgrades (while maintaining access for the resident barn owl), but will serve as a natural gathering space and an iconic nod to the area's agricultural and cultural history. The refined site design shows removal of the two shed additions, or accessory units, on the south side of the barn that have structural stability issues. Removal of the sheds also reveals the south side of the barn, enhances the gathering space, and opens up the terrace for wetland viewing.

Agricultural fencing defines the area around the barn by marking the flexible gathering space, organizing site use, and identifying trailheads. The grounds provide space for picnic tables, benches, art and potential exhibits or small educational events. Opportunities to view inside the barn may be provided in the future.

Trailheads are located at the east and west sides of the barn. Trails lead to viewing destinations which are sited on spurs off the main trails. The destinations are intended to have casual seating, and natural or structured blinds. The destinations are located to disperse visitors and give the best access to some of the more desirable viewing areas. Future planting along the trails will be grouped to accent views and screen visitors from the overlook. Additional vegetation between the trails and the wetland may help prevent birds from flushing from the wetland due to visitor use.

Wetland from below the barn

North side of barn

East side of barn

Trail and blind illustration

Trails are designed to reasonably accommodate visitors that may have limited mobility. Because of the topography, there may be some higher challenge trail lengths with steeper grades. Overall the intent is to keep the trail tread at or below 5%. Most of the trails are soft surface and are between 3 and 4 feet wide.

A shelter is shown at the edge of the lower terrace. The shelter is sited to the east of the barn out of direct line of site from the barn overlook. Planting on the back side of the shelter will diminish its view from the barn overlook. The shelter could provide an opportunity for groups or classes to gather in a place away from the main entry.

Shelter on terrace illustration

A boardwalk is shown on the west end of the site. The boardwalk is shown as a way for visitors to get closer to open water. Because of the nature of the peat soils and the fluctuating water, the boardwalk may need to be designed as a tethered floating system. Specific engineering and feasibility was not completed as part of this work.

Boardwalk illustration

Architecture

Public access will require that some improvements to secure the barn are completed. Generally this will involve securing the doors, fixing siding and windows and determining a way to secure the open hay racks on the south side of the barn. Additional concepts for phased barn improvements access and interpretation are included in the architectural study in the Appendix.

Barn modification concept illustration

Material Recycling Reuse

Materials on buildings scheduled to be removed include posts, timber siding and galvanized roofing. Design sketches were produced with the idea that some of these materials could be utilized for blinds, the shelter, and fencing. A list of the materials is included on the design development drawings (see Appendix D).

Wood and roofing for salvage

COSTS

A cost estimate was prepared based on elements shown in the refined concept plan. The estimate is based on the diagrammatic plan, and assumptions have been made for materials, quality, and construction. The construction estimate is based on 2015 unit costs for each specific work item.

The estimates include a 20% contingency to cover unforeseen costs. As plans are refined, estimates should be updated to reflect the level of completion. Soft costs for permitting, additional studies, and engineering were not included.

Item of work	Approximate Cost
Site Protection	$5,200
Demolition / Recycling	$6,900
Salvage and Recycling Buildings	$26,500
Dairy Barn Stabilization	$91,000
Buildings (Restroom, shelter)	$160,000
Roads and Parking	$124,000
Paths @ day use area (Asphalt, gravel, concrete	$87,850
Paths (Boardwalk, stairs, soft trails)	$152,700
Miscellaneous Items (Blinds)	$30,000
Site furnishings (Bike racks, signs etc)	$100,200
Fencing and Gates	$48,500
Planting / Landscape	$30,985
Utilities (Water)	$6,000
Stormwater	$3,000
Electrical (Security lighting)	$10,000
Construction Total	**$882,835**
Mobilization @ 10%	**$88,284**
OH&P @ 09%	**$87,401**
Contingency @ 20%	**$176,567**
Total Cost	**$1,235,086**

PHASING

This access master plan identifies safe public access into the site. It also reflects a long term vision for amenities or facilities identified through the public outreach process. Phase 1 of the master plan implementation will address safe visitor access. Phase one is anticipated to provide the following:

- Main barn stabilization and deconstruction of accessory buildings
- Removal of residence, steel shed, carport
- Parking and access and automatic entry gates (2)
- Gathering area around the barn
- Railings at the overlook
- Trails
- Bird blind (1 of 3)
- Stormwater
- Wayfinding signage
- Art (Quilt block)

When additional funds are identified, a future phase of the project could include the following improvements identified in the master plan:

- Fencing
- Interpretive information
- Restroom (vault toilet)
- Shelter
- Boardwalk
- Remaining bird blinds (2 of 3)
- Security lighting
- Improvements and access to the barn
- % for Art

PERMITTING

- Land Use: The project will need to obtain a Type II land use from Washington County. As part of the application, a public meeting will need to be held, site posted describing the land use action, and adjacent properties contacted by mail. The process, not including preparation of the application, takes 5-6 months. Additional information on the application requirements can be obtained from the Washington County website.

- Construction Permits: The permits for construction will need to be obtained from Washington County. Permits for park construction generally include a grading permit, building permit, and possibly a public facilities permit.

- Grading: A grading and drainage permit from Washington County will most likely be necessary. The threshold for obtaining a grading permit is 150 cubic yards. Preliminary plans indicate that this threshold will be exceeded. Along with the grading permit, a NPDES 1200-C permit will be necessary from the State Department of Environmental Quality. This permit is triggered when more than one acre of land is disturbed. The project should meet that threshold. The project is not in the jurisdiction of Clean Water Services and won't be subject to CWS permitting.

- Building Permit: The preliminary plans show construction of walls at the barn overlook. These walls are necessary to resolve grades at the trail head locations. Because of the height of the walls, review will be necessary by Washington County building department. The walls will need to be reviewed and designed by a structural engineer. A geotechnical review of soil conditions will need to be completed for the footing design. Depending on the type and extent of improvements to the barn, building permits will also be necessary for components of the barn construction.

- Public Facilities Permit: A Washington County Public Facilities permit may be required if road / right of way improvements are necessary. Detailed plans have not been reviewed by the County and at this time it is not known if improvements will be required. If roadway improvements are required, the county would most likely require a geotechnical study to determine the proper pavement section.

APPENDIX

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Site Analysis Presentation

Appendix A

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Preliminary Options Presentation

Appendix B

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Final Design Presentation

Appendix C

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Design Development Drawings

Appendix D

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Architectural Study for Barn

Appendix E

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Electrical Memorandum

Appendix F

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Site Entry and Site Infrastructure Memorandum

Appendix G

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Bibliography of Technical Documents

Appendix H