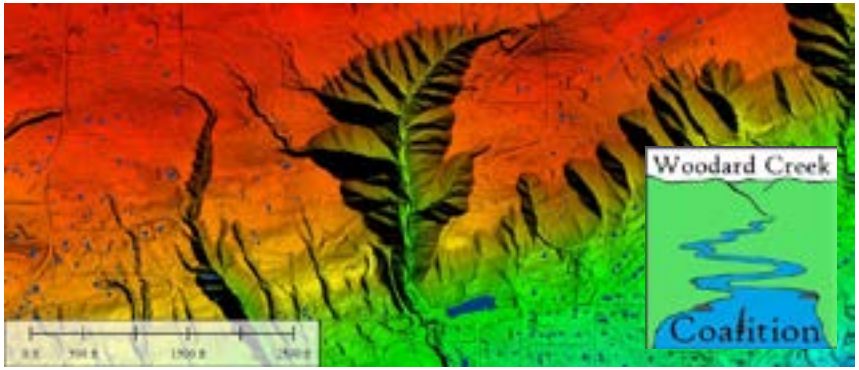
Woodard Creek
Watershed Plan



WOODARD CREEK COALITION
Homer, Alaska
November, 2016

Cover Images
Upper Left: After brushing a trail at the Pratt Museum, volunteers lay down a layer of sand before surfacing with wood chips. Source: Savanna Bradley.
Lower Right: Woodard Creek flooding in 2002. Source: Jim Preston.Source: Jim Preston.
Upper Right: New large design culvert at Soundview Ave. Source: Lisa Holzapfel.
Lower Left: Woodard Creek flows through private property. Source: Lisa Holzapfel.
Bottom: LIDAR image of Woodard Creek. Source: Kenai Watershed Forum.

ACKNOWLEDGEMENTS

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City of Homer Alaska

Homer Council on the Arts

Transportation & Public Facilities, State of Alaska

Cook Inletkeeper — Clean Water · Healthy Salmon

Kachemak Bay Research Reserve

National Park Service

U.S. Fish & Wildlife Service

Alaska Department of Fish and Game

KBCS

Homer Soil & Water Conservation District

mapp

UAA Alaska Center for Conservation Science, University of Alaska Anchorage

Pratt Museum

Bunnell Street Arts Center

South Peninsula Hospital

Kenai Watershed Forum

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Woodard Creek Watershed

Background

Woodard Creek is Homer's most prominent perennial stream, and it has a rich history as an early settling place for homesteaders seeking year-round water supply. It runs from its headwaters atop the bluff above Homer through a steep, lush canyon, then it meanders through Homer's central business district before emptying into the Kachemak Bay Critical Habitat at Bishop's Beach.

The Woodard Creek watershed rests largely in an area considered urban/residential under the City of Homer building code, and it supports a broad variety of commercial, residential and recreational uses. For example, the South Peninsula Hospital and associated health services occupy a prominent portion of the watershed. The Pratt Museum, the Saint John's Catholic Church, and nearly a dozen small businesses also reside within the watershed. Additionally, the ever-popular Hornaday Park and the Homer Playground run alongside Woodard Creek just below Woodard Canyon. As a result, the Woodard Creek watershed is heavily-used by residents and tourists alike, and the watershed's flood control and drainage functions play a vital role supporting these important uses.

While development in the Woodard Creek watershed is relatively dense by Alaska standards, the area supports vibrant ecological and aesthetic functions and values. Although development has changed the natural flow and characteristics of Woodard Creek— through culverts, channelization, and riparian encroachment— significant sections of the creek remain largely in their natural state. As a result, Woodard Creek continues to support a diversity of flora and fauna, including large and small mammals, birds, plants, insects, and the microbes and nutrients the natural systems need to flourish.

In short, Woodard Creek is Homer's unpolished gem. While there are a number of daunting challenges to bring Woodard Creek back to its full ecological, economic, and recreational potential, it also provides enormous opportunities to enhance the quality of life for everyone who lives, works, plays, or visits Homer. This plan focuses on addressing these challenges and opportunities.

Regulations and Relevant Plans

As an urban watershed lying in the heart of downtown Homer, the Woodard Creek watershed has benefited from a considerable history of planning and mapping, and it falls subject to a variety of plans and rules designed to protect and enhance its functions and values, including but not limited to:

- City of Homer Capital Improvement Plan
- The City of Homer & Soil Conservation Service 'Green Infrastructure' program
- The City of Homer Planning & Zoning rules, including rules and maps for slope-restricted areas and storm water management (Ordinance 10-56)

- City of Homer Non-Motorized Transportation and Trails Plan
- City of Homer Karen Hornaday Park Master Plan
- City of Homer Park, Art, Recreation, and Culture Needs Assessment
- The Homer Parks & Recreation Advisory Commission Strategic Plan and Priorities
- The Safe Routes to School Plan
- The National Safe Routes to School Plan
- Clean Water Act Water Quality Standards & Wetlands Dredge & Fill laws and rules
- City of Homer Comprehensive Plan
- City of Homer Storm Water Plan
- City of Homer Stormwater and Meltwater Management and Mitigation Handbook

- City of Homer
- Kachemak Bay Conservation Society
- Cook Inletkeeper
- Friends of Woodard Creek & Karen Hornaday Park
- The Pratt Museum
- Homer Council on the Arts
- Bunnell Street Art Center
- Homer Soil & Water Conservation District
- Alaska Department of Transportation
- Alaska Department of Fish and Game
- Kachemak Bay Research Reserve
- Mobilizing for Action through Planning and Partnerships (MAPP)
- South Peninsula Hospital
- Kenai Watershed Forum

Woodard Creek Coalition

Mission

The Woodard Creek Coalition (WCC) brings together diverse groups, property owners, and citizens to promote the health and safety of the Woodard Creek watershed as a community asset.

Members

The Woodard Creek Coalition was developed out of the Friends of Woodard Creek & Karen Hornaday Park, which formed to promote improvements and trails in Karen Hornaday Park. The Woodard Creek Coalition is composed of over thirty-five individuals, ten businesses and government agencies. Coalition members are interested in protection of the watershed and promotion of daylighting Woodard Creek where it passes through culverts. In addition to interested citizens along Woodard Creek, the following Homer area entities are represented:

Woodard Creek Watershed Plan

Benefits

Watershed planning is important to sustain and enhance the physical, biological, chemical and social functions that shape and support the plant, animal, and human communities within a watershed boundary. In other words, both natural and manmade forces define a watershed, and it's therefore vital to understand and properly manage these forces to support the functions and values desired by the people living, working and recreating there.

For the people and groups comprising the Woodard Creek Coalition, the vision for the watershed focused on "a vibrant, healthy, and safe community asset valued for its economic, ecological and recreational benefits." To achieve this ambitious vision, the Coalition identified two goals: 1) improve public awareness, access and engagement with Woodard Creek; and 2) restore and protect the natural functions and flow of Woodard Creek.

Development Process

The development process around the Woodard Creek watershed can be described in two words: ongoing and inclusive. The current iteration of the Woodard Creek Coalition coalesced around a number of points of interest and concern involving Hornaday Park and the Pratt Museum expansion in early 2014. However, regular water quality monitoring started in Woodard Creek in 1996, and the first formalized report about the Woodard Creek watershed came about in 2000. Other events ensued: the historic floods of 2002 prompted community efforts to address steep slope development and culvert issues; a graduate student kick-started Woodard Creek community conversations in 2009 as part of her

Flow chart depicting the Woodard Creek Coalition's planning process. Source: Lisa Holzapfel and Heather Rice.

thesis work; and a 2012 report compiled water quality and other data. Although the planning history around Woodard Creek is not thoroughly documented, and it's likely additional efforts pre-dated 2000 due to the historical use and importance of the area.

In its current form, the Woodard Creek Coalition formed when several organizations came together with a shared desire to enhance the quality of life in the Woodard Creek watershed, including the Pratt Museum, Cook Inletkeeper, the Homer Soil & Water Conservation District, the Kachemak Bay Conservation Society, Friends of Woodard Creek, the City of Homer Parks & Recreation Advisory Planning Committee, and several dedicated property owners.

The groups convened and quickly recognized the need for additional resources; a successful application to the National Park Service Rivers, Trails, and Conservation Assistance Program (RTCA) brought professional planning and facilitation capacity to the group. Over the next two years, the Woodard Creek Coalition made considerable progress engaging the local community, developing an organizational structure, and adopting a vision and the goals and objectives to achieve it. Along the way, the Coalition held community meetings to gather input, formed committees to parcel out work assignments, and continued to meet regularly to refine its work and pinpoint opportunities for success.

In late 2016, the RTCA technical assistance award came to a close, and the group worked to finalize this plan, with the intent to revisit it on a regular basis – at least annually—to assess new challenges and to explore new opportunities. The Woodard Creek Coalition plans to hold an annual community meeting to re-visit and revise the plan to reflect current priorities. Members of the community are invited to participate in annual plan updates, and community feedback regarding the WCC vision and action plan is always welcome.

Accomplishments

Woodard Creek Coalition was formed in the fall of 2014. Members meet once a month to plan and implement projects to promote Woodard Creek as a community asset.

Accomplishments to date include but are not limited to:

- Received National Park Service - Rivers Trails Conservation Assistance recipient, 2014-2016
- Created an organization and governance plan including vision and mission statements - 2015
- Created a logo- February 2015
- Created an outreach plan- June 2015

Public Awareness Activities:

- Held an open house at Islands and Oceans - February 2015
- Published newspaper articles - October 2015
- Painted the street - Pioneer Ave, Homer Council on the Arts, and Pratt Museum Parking lots - August 2015
- Participated in “Shore” Public Art Performance at Bunnell Street Gallery- June 2015
- Maintain a Facebook Page with over 400 likes - ongoing
- Delivered presentation about Woodard Creek to Homer City Council - January 2015
- Featured on Coffee Table program on KBBI radio - October 2015
- Hosted Woodard Creek Celebration at the Pratt Museum - February 2016

Early Citizen engagement: Heather Rice of the National Park Service’s Rivers, Trails, and Conservation Assistance Program leads a group planning conversation. Source: Lisa Holzapfel.

Other:

- Surveyed Woodard Creek - May 2015
- Gathered numerous research and historical documents on Woodard Creek - Ongoing
- Acquired Woodard Creek watershed parcel along Pioneer Avenue (donation to the Pratt) - February 2016
- Received resolution from the City of Homer recognizing the efforts of WCC - 2015
- Held a weekend workshop confirming Coalition vision and mission statements and defining Coalition goals and objectives - February 2016
- Held a weekend workshop identifying priority tasks and action plans - May 2016
- Mapped out a trail plan for Karen Hornaday Park along Woodard Creek - July 2016
- Built a trail connecting Pratt Museum to Pioneer Avenue along Woodard Creek - June/August 2016
- Developed a plan to enhance Woodard Creek pocket parks along Spruceview Avenue - June/July 2016
- Working on a plan for Woodard Creek Cultural Center with Pratt Museum and Homer Council on the Arts - 2015/2016

II. Watershed Characterization

"Watershed planning is important to sustain and enhance the physical, biological, chemical, and social functions that shape and support the plant, animal, and human communities within a watershed boundary. In other words, both natural and manmade forces define a watershed."

Location

Woodard Creek is a small headwater stream originating in the bluffs above Homer, Alaska. The short and steep creek flows approximately 2.2 miles before terminating in Kachemak Bay, draining about 0.6 square miles (384 acres) (Lord 2016).

Topography and Watershed Features

In the upper watershed, Woodard Creek is confined in Woodard Canyon, a steep-sided valley some 300 feet deep. Downstream, the creek remains confined in a valley approximately 20 feet deep, becoming shallower in some areas due to historic human activities. The final mile of Woodard Creek flows through a municipal park and some 45 residential and commercial properties before flowing to Kachemak Bay at a beach front bluff. Most of Woodard Creek is deeply incised in shallow surface glacial loess deposits and older, poorly consolidated sandstone, siltstone and claystone of the Kenai Formation (Barnes and Cobb 1959).

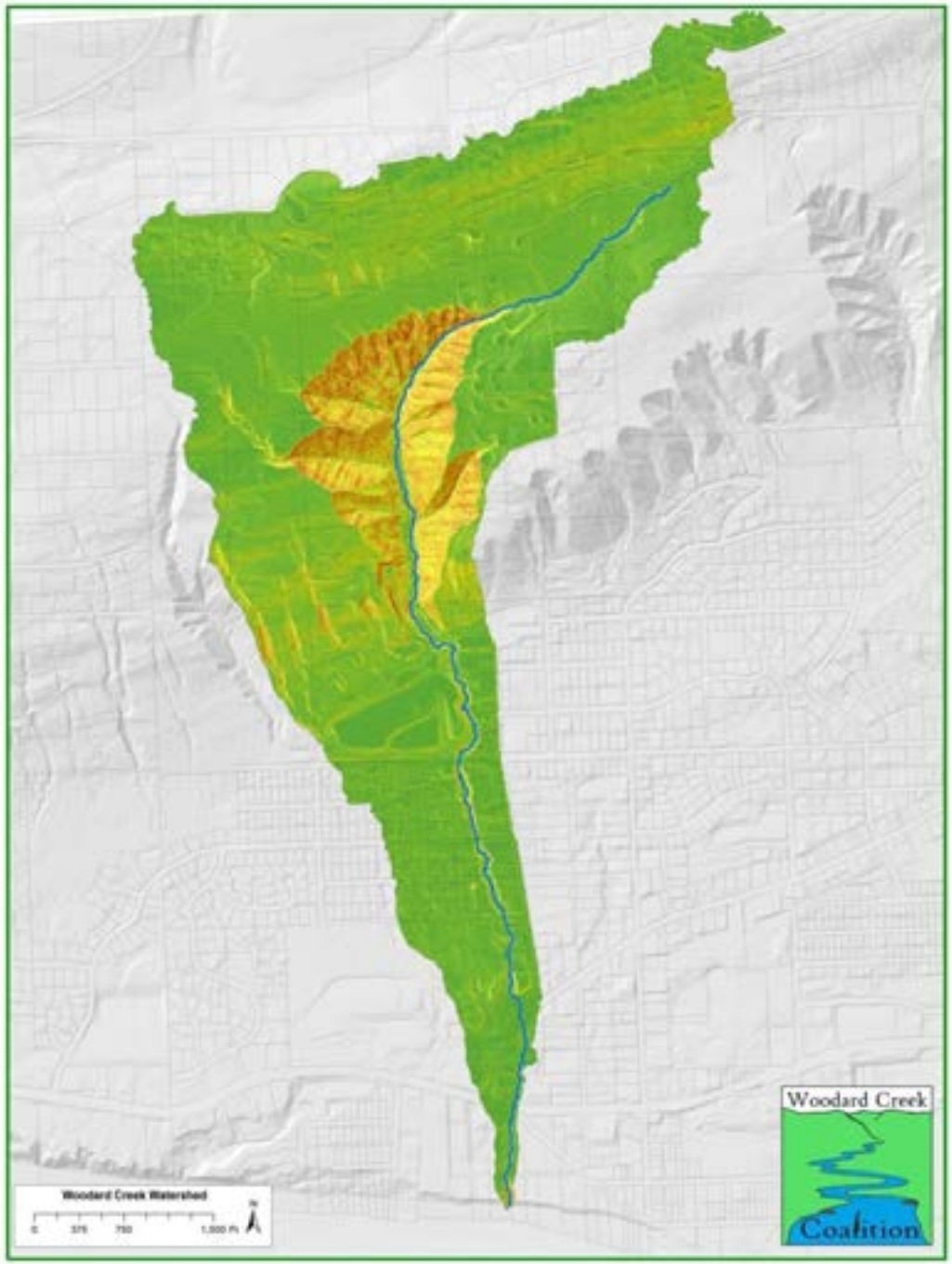
Climate

The climate of Kachemak Bay and Homer is moderated by the maritime influence of the northern Gulf of Alaska waters. Homer lies in the Gulf Coast Maritime Climate Zone. The winters are mild and summers are cool with the minimum daily temperature during winter at -1° F and the maximum daily temperature during summer at 76° F. The maximum daily precipitation totals 1.1 inches with a total annual precipitation of 24.1 inches, including 55 inches of snow. Since 1989, the water balance (difference between precipitation and potential evapotranspiration) has declined from 10.2 inches to 5.9 inches of water on average (Berg 2006). The growing season is about 127 days based on probabilities of last spring frost and first fall frost at the Homer AP, AK climate station. Wind speeds at the Homer climate station average 5.7 knots in the winter, with extremes as high as 75-100 knots.

Hydrology and Channel Stability

The average width of Woodard Creek is 4 feet and the average depth is 3.6 inches, with approximately 1 foot depth to bankfull. Gravel comprises the majority of the stream bed, though fine grained banks and occasional boulders of coal occur in the upper reach above Fairview Drive. (Rice and Dekker 2015).

Culverts are the major grade control on Woodard Creek. Ten culverts—measuring a total length of 1,065 feet— convey Woodard Creek at road crossings. Culverts and hardened downstream riprap ramps have reduced large scale valley erosion in developed portions of Homer; however, many



LIDAR image of Woodard Creek watershed. Source: Kachemak Bay NERR.

culverts are undersized and/or poorly placed, which reduces the capacity of Woodard Creek to pass flood flows and debris. Erosion remains a concern in sections of the creek immediately downstream from the culverts; downstream from the Homer Council of the Arts parking lot culvert, bare soil and slumping trees provide evidence of active erosion of valley walls. (Rice and Dekker 2015).

Homer's cool summers and moderately cold winters result in low rates of both evaporation and transpiration. A typical rainfall event occurs in mid to late summer and early fall. In well drained areas, precipitation percolates through the soil and is effective in recharging the groundwater supply. In areas with fine–grained deposits, which have low permeability, there is greater runoff and frequently saturated soil conditions, with the water table near the surface (Kroll 2000).

Flooding in Homer falls into a number of categories including: rainfall-runoff floods, snowmelt floods, ground-water flooding, and stream/creek flash floods. The rainfall intensity, duration, distribution and geomorphic characteristics of the watershed all play a role in determining the magnitude of the flood. Runoff flooding is the most common type of flood. Snowmelt floods usually occur in the spring or early summer. Ground-water flooding occurs when water accumulates and saturates the soil. The water-table rises along streams and on discharge slopes and floods low-lying areas, including homes, septic tanks, and other facilities. Steep coastal areas with heavy rains in general are subject to flash floods. They are usually swift moving and

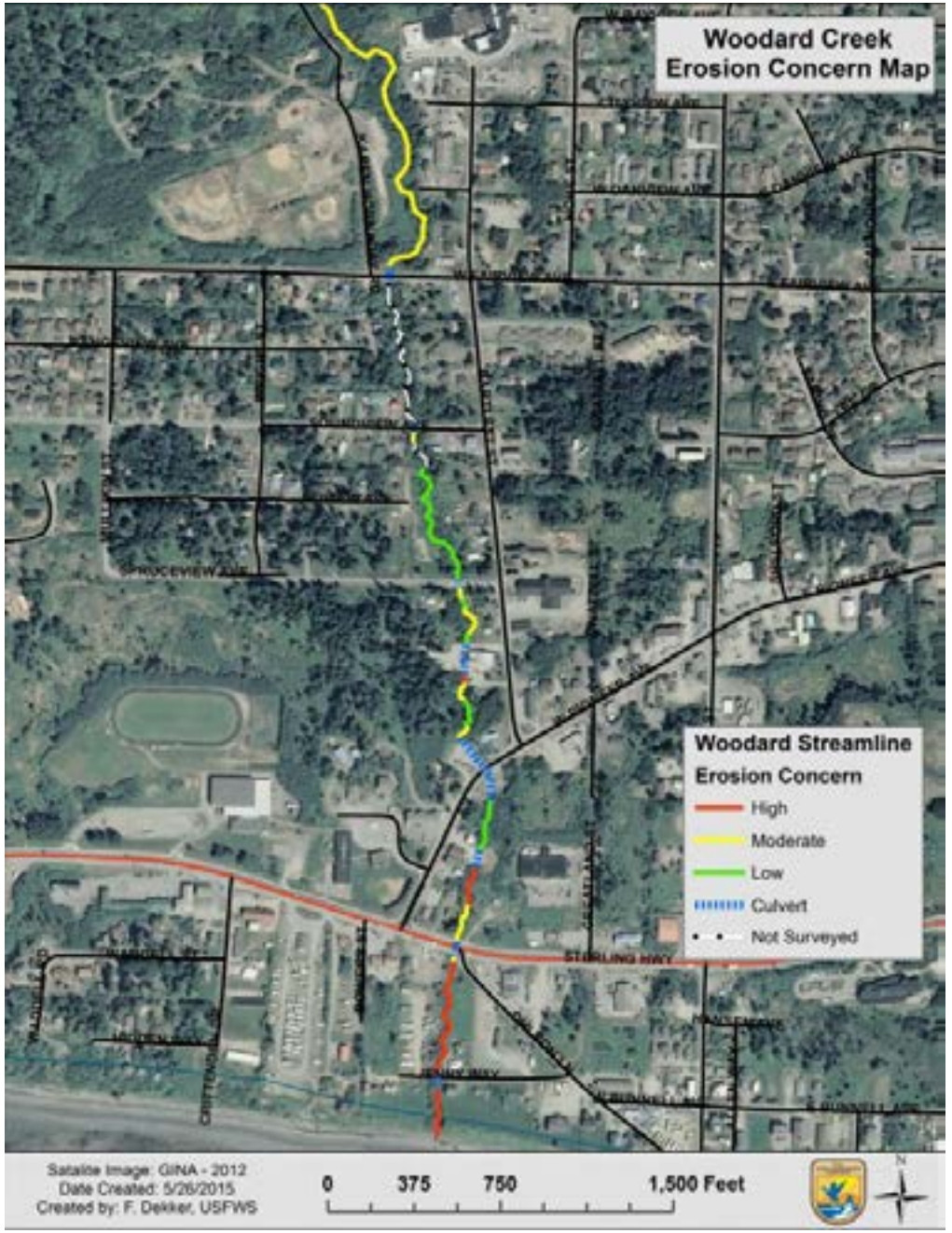
debris filled, causing them to be very powerful and destructive. Major flood events occurred on the lower Kenai Peninsula in 2002 resulting in several flash floods which closed roads and washed away bridges. Several small creeks and streams in the Homer area produced substantial debris laden flows during this time (City of Homer 2016).

Wetlands are formed where there is a change in topography that slows or holds this shallow water flow long enough to create certain conditions of vegetation, hydrology and soil development. Wetland features make up about 20% of the watershed (Lord 2016). Most are located above Woodard Canyon, but some are within town in the lower reaches.

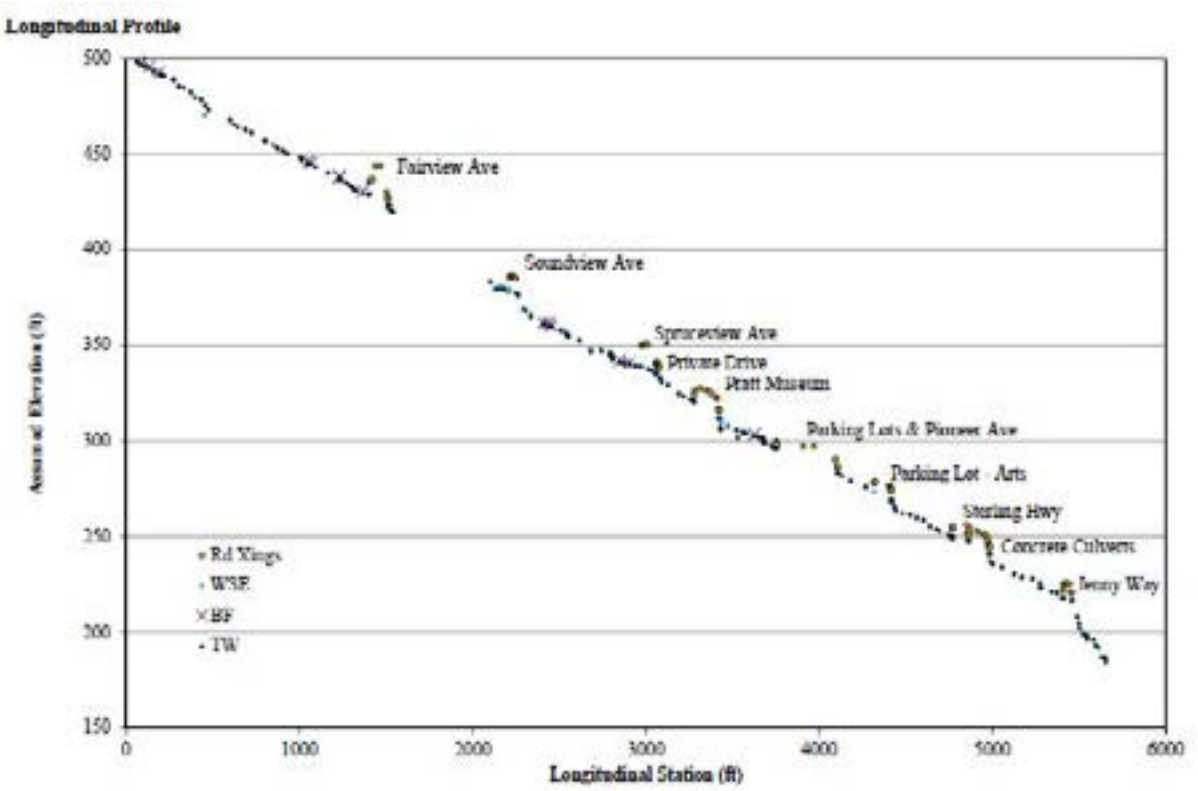
Soils

The Homer area is underlain geologically by the Kenai formation, a gently folded sedimentary deposit several thousand feet thick. It consists of a sequence of moderately-to-weakly hardened, fine-to-medium sandstones, interbedded with silt-stone and clay-stone layers and lenses of lignitic and sub-bituminous coal, ranging from a few feet to seven feet in thickness (Kroll 2000). Sedimentary rocks and debris are frequently exposed in deep gullies like Woodard Canyon that dissect the hillside. A thin cap of glacial till covers the Kenai formation on the top of the hills and covers much of the lower part of the watershed. The till varies from coarse moraine material to poorly-sorted silty gravels.

Soils are closely related to surficial deposits, but frequently intergrade and have complex horizons due to the wide variety of formative



Erosion concern map of the Woodard Creek, where high concern correlates to bare eroding banks. Source: Rice and Dekker 2015.



Longitudinal profile survey with road crossings (Rd Xings), water surface elevation (WSE), bankfull elevation (BF) and stream thalweg (TW) shown. Source: Rice and Dekker 2015.

processes (Kroll 2000). The upper watershed of Woodard Creek is primarily Kachemak silt loam which is well drained, and the lower watershed is primarily Beluga silt loam which is poorly drained (Natural Resources Conservation Service 2016).

Flora and Fauna

The upper half of the Woodard Creek watershed is fairly undeveloped and offers a variety of habitat types. Alder stands are predominant throughout Woodard Canyon and are scattered throughout the upper reaches of the watershed, along with mixed forest and spruce stands. The lower reaches are mostly urban, making up about 28% of the watershed. Since the lower reaches of the watershed are heavily developed, this does not provide good habitat for terrestrial wildlife. Moose have been observed browsing and dropping young in forested patches of town. Eagles and other birds have been seen nesting in the area as well. The upper, undeveloped reaches provide much more appropriate habitat for these animals. Woodard Creek does not support anadromous fish populations.

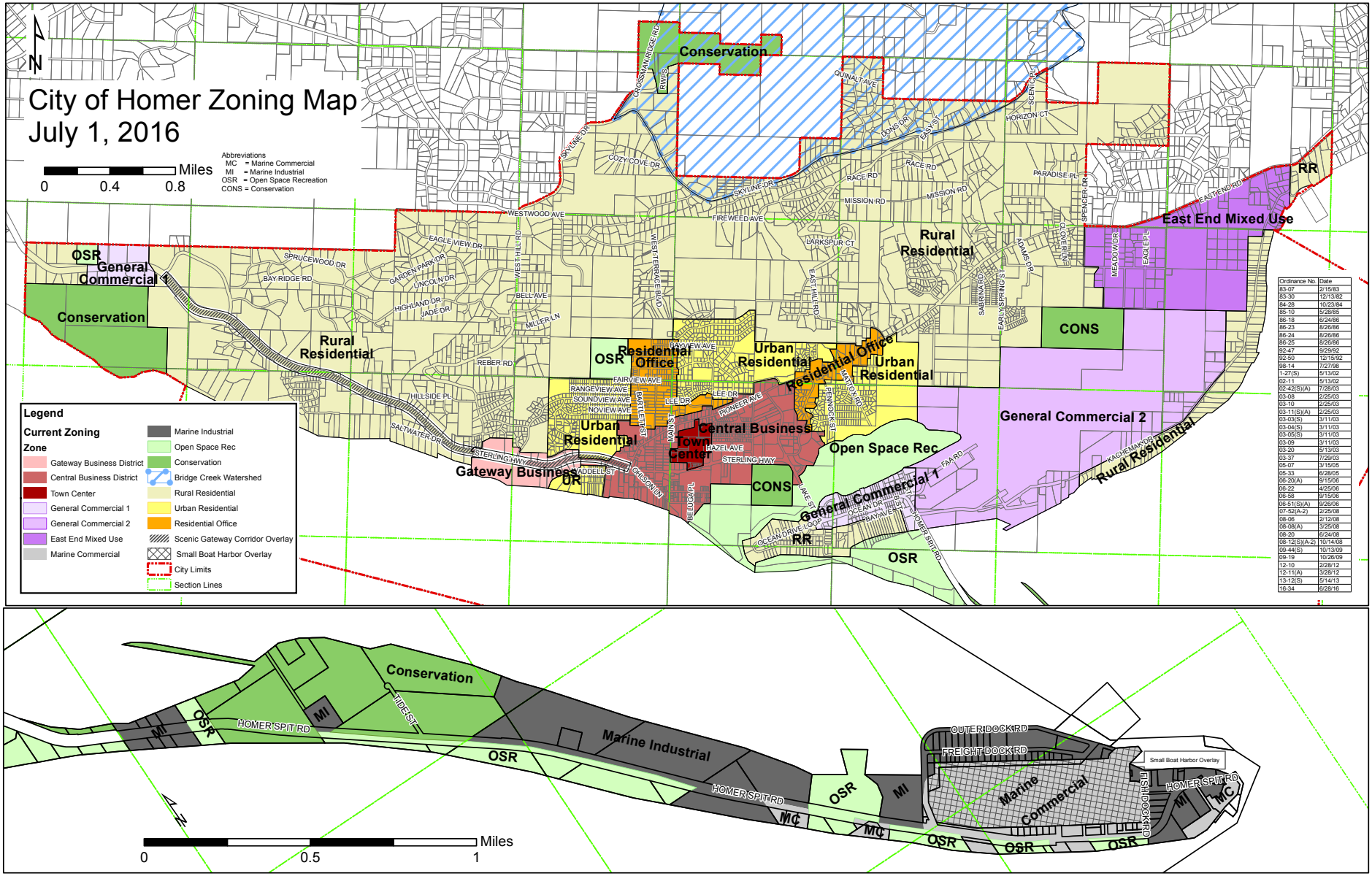
Stormwater and Impervious Surfaces

Due to the limited growing season and low pH of soils, decomposition is slow in many of the vegetated areas of Homer. This results in a deep/dense layer of dead material on the surface of local soils. While much of Homer has underlying soil with a limited infiltration capacity, this layer of organic material is effective in absorbing and slowing large volumes of runoff. Some water does infiltrate in areas of sandy or gravelly glacial deposits or through pervious subsurface layers, but most stormwater continues slowly downhill in shallow subsurface flow. In Homer, individual impacts will appear to be very small, but their cumulative effect is much greater than in areas with more defined drainage systems (City of Homer et al. 2007).

In 2002, a GIS impervious surface analysis conducted by Cook Inletkeeper concluded that 11% of the watershed is considered impervious surface. Concerns for Woodard Creek are exceedances in fecal coliform counts, temperature, and turbidity with high urban development, culvert placement in the lower reaches, and storm water draining from Bartlett Road and Pioneer Avenue (Lord 2016).

Ownership and Land Use

Private-owned parcels make up about 78% of the watershed ownership (Lord 2016). City of Homer-owned parcels make up about 10% of ownership, including land surrounding the South Peninsula Hospital and Karen Hornaday Park and a parcel north of the Pratt



City of Homer 2013 Zoning Map. Source: City of Homer.

Museum on Bartlett Street. Kenai Peninsula Borough owns some small parcels just outside of the hospital area. A large parcel in the upper reaches of Woodard Canyon, owned by Alaska Department of Natural Resources, makes up about 11% of land ownership. Land use in the watershed is a mix of rural residential in the headwaters, and recreational open space, urban residential, residential office and central business district (City of Homer 2016).

Population

The estimated number of year-round residents within the Southern Kenai Peninsula is about 14,000, which includes several small, culturally diverse communities (MAPP of the Southern Kenai Peninsula 2014). In addition, the community sees a large influx of seasonal residents who are not tallied in these numbers and the area attracts over 100,000 visitors each year. Close to half of the population is largely in or in close proximity to the service and commerce hub of Homer. The city of Homer has a population of 5,050 (U.S. Census Bureau 2012). Changing age distribution in this area between 2000 and 2010 suggests that it will see greater recreation and culture participation by seniors and stable or decreased participation by other age groups (City of Homer 2015).

Recreation

The City of Homer has long been a recreation destination for visitors and residents alike. Whether it is RV campers, cruise ship passengers, afterschool visitors to the playground, or a jogger on their lunch break, access to the outdoors that is maintained and accessible is one of Homer's most valuable assets. An ongoing theme from residents through multiple public meetings is the desire for increased connectivity of trails in the Homer area. Recreation services are supported by two departments and three divisions of the City of Homer. The Community Recreation program, under the direction of the Department of Administration, provides programing and facility access in two main non-municipal locations and one city-owned property, the HERC building near the edge of Woodard Creek. The Division of Parks in the Public Works Department maintains recreation facilities, primarily parks, trails and campgrounds. Some stakeholders advocated consolidating these functions under a single Parks and Recreation Department to provide better services (City of Homer 2015).

III. Watershed Issues

Public Awareness & Access

Challenges arise in connecting people to watershed resources and increasing awareness about the unintended impacts that daily activities and local changes may have on Woodard Creek. General awareness of Woodard Creek is limited, due largely to the fact that over 10% of the creek is culverted. Few people understand how everyday activities impact Woodard Creek, and fewer still understand the appropriate stewardship actions needed to protect Woodard Creek. Currently, there are few public access points or paths along Woodard Creek and there is not widespread knowledge about existing creek access. The population within the watershed and surrounding community is growing, bringing new perspectives and opportunities for community connections.

Development

Like any urbanized watershed, the Woodard Creek watershed suffers from a variety of development and related impacts that impair

Woodard Creek Coalition leads an exploration walk down Woodard Creek. Source: Lisa Holzapfel.

Woodard Creek Coalition members walk down Bartlett Avenue, around private property. Source: Lisa Holzapfel. Woodard Creek flooding the road near Karen Hornaday Park in 2002. Source: Jim Preston.

its natural functions and values. Some impacts are historical, while some are ongoing, and they include:

Steep slope development

The City Steep Slope Development Ordinance permits questionable development; there is little awareness of the risks associated with steep slope development and limited understanding of appropriate development practices on or near the bluff, which is subject to slope failure. An ill-conceived road in the steep confines of Woodard Canyon played a significant role in historic flooding events in 2002. Current and future development is at risk due to the potential for catastrophic landslides or collapse, which can have downstream impacts.

Land clearing and accelerated runoff

The area around Woodard Creek's headwater springs has been cleared; the removal of this vegetation has removed an important buffer for accelerated flows above Woodard Canyon.

Culverts

There are 10 culverts totaling 1065 feet along Woodard Creek; 8 of them are traditional pipe culverts, which present problems for natural flow, infiltration and ecological regimes. After Homer experienced two one-hundred-year flood events during the winter of 2002, the City replaced culverts under Fairview, Spruceview and Soundview road crossings. Unfortunately, these improvements have changed sediment transportation rates, increasing flood danger in smaller culverts.

There are unsafe conditions around the small culvert openings south of the Sterling Highway.

Channelization

Extensive channelization along Woodard Creek has undermined the system's ability to support natural functions. Some areas of the creek have eroded down many feet, causing the Woodard Creek to become a deep gulch.

Impervious cover

Development in the lower watershed— high densities of roads, parking pads, and rooftops— has reduced the watershed's infiltration capacity, accelerated polluted runoff, and increased thermal discharges.

Nonpoint source pollution

Leaking oils and fuels from motor vehicles, along with pet waste, wash into Woodard Creek during precipitation events.

Riparian encroachment

Filling and grading immediately adjacent to Woodard Creek has increased erosion concerns and blocked pedestrian access.

Wetlands dredge and fill activity

The removal of wetlands – especially in the area just below Woodard Canyon – undermines the watershed's natural capacity to assimilate flood waters.

Woodard Creek outflow to Kachemak Bay. Source: Lisa Holzapfel.

Pioneer Avenue culvert outlet. Source: Lisa Holzapfel.

Fairview Avenue culverts. Source: Bill Spencer.

IV. Goals and Objectives

The Woodard Creek Coalition developed the following goals and objectives in order to address the identified issues and achieve the community vision for the Woodard Creek Watershed.

In setting its goals and objectives, the Woodard Creek Coalition brought together a diverse set of people, groups, and interests. Like similar planning efforts, each group member had varying perspectives on what needed to be done, and how to do it. In the end, the group worked through a variety of options, and agreed to focus on a simple, two-tiered goal structure: "Goal 1" relates to people, and how to move them to act, while "Goal 2" focuses on the natural environment, and how to protect and restore it.

GOAL 1: Improve public awareness, access, and engagement with Woodard Creek

The purpose of this goal is to educate people about the important functions and values of Woodard Creek, and by doing so, create the community momentum and political will needed to foster broad-based support for Woodard Creek enhancements.

Objective 1.1: Create and enhance public access points

In general, the Homer public does not care about Woodard Creek because they do not know it exists. Increasing access points – including gathering spaces, recreation areas, and picnic and camping sites - will invariably lead to increased community interest and support. During its deliberations over the past two years, the Woodard Creek Coalition identified areas around Karen Hornaday Park, the Pratt Museum, and Pioneer Avenue as priorities for enhanced access. Additionally, the group identified the new box culvert under Spruceview Avenue as a model for streambed access which should be emulated, and highlighted removal of the Pioneer Avenue culvert as a priority. The Woodard Creek Coalition will develop projects in order to increase access and public awareness around these sites.

Objective 1.2: Increase outreach, education and stewardship opportunities

As the community increasingly views Woodard Creek as a valuable asset, it is important to provide open and specific avenues for individuals and groups to get involved. As community awareness and support grow, there will be increased opportunities for trails work, trash clean up, culvert sweeps, creek walks and other activities.

Objective 1.3: Integrate Woodard Creek into local planning efforts

Considerable work went into developing the Woodard Creek Watershed Plan. This plan's permanence rests on whether it becomes formalized into local and regional planning efforts. The Woodard Creek Coalition will seek to incorporate this plan into City of Homer planning efforts.

A flyer from the Woodard Creek Celebration at the Pratt Museum. Source: Pratt Museum.

Top: The view down Woodard Creek in Karen Hornaday Park. Source: Lisa Holzapfel. Bottom: Parking lot fill at Karen Hornaday Park. Source: Marti McCleery.

GOAL 2: Restore and protect the natural functions and flow of Woodard Creek

This goal supports two important considerations: (1) natural flow and function implicate flood control and drainage, which are important to property values and economic viability; and (2) natural flow and function are essential to maintaining and enhancing the ecological and aesthetic values of the watershed.

Objective 2.1: Characterize the upper watershed

To restore and protect the natural flow and functions of Woodard Creek, we must first understand them. Upper Woodard Creek contains the steepest and widest elements of the watershed, and as a result, this region has the greatest propensity to affect flow regimes. In order to better inform planning decisions, the Woodard Creek Coalition will encourage improved understanding of the upper watershed's slope, soil composition, impervious cover, and related issues.

Objective 2.2: Identify, study, and address high risk areas in the watershed

Development in and around Woodard Creek has intensified high risk areas where flooding, culvert jams, and related problems may occur during high-water events. In pursuing this objective, the Woodard Creek Coalition will address two related issues: (1) protecting private and public property from erosion and flooding, and (2) returning Woodard Creek to a more natural stream course, which can more readily ameliorate such risks.

Objective 2.3: Address stream bank fill at Karen Hornaday Park

The parking lot fill at Hornaday Park is one of the most controversial issues in the Woodard Creek watershed. In the winter-spring of 2007, hundreds of loads of fill were dumped to increase parking at Karen Hornaday Park, completely blocking out the potential to experience Woodard Creek. While parking remains an issue for park users, there are other parking options that do not implicate Woodard Creek. The Woodard Creek Coalition will pursue opportunities to open Woodard Creek to the Homer community and to address aggressive channelization, by reverting to a more natural riparian area at Karen Hornaday Park.

Objective 2.4: Address stream channelization and culverting in the lower watershed

Lower Woodard Creek – from Pioneer Avenue to Bishop's Beach – is largely hidden from public view by culverts and private property. Additionally, the culverts under the Homer Bypass are a severe hazard for any child caught inside. As a result— for safety, aesthetic, and ecological reasons— the Woodard Creek Coalition will encourage the local community to address channelization and culverts in the lower watershed.

Objective 2.5: Protect natural systems

This catch-all objective simply recognizes that natural systems provides a variety of inherent benefits in the form of natural capital; in order to enhance the quality of life in the Homer area, we must improve the things that support all life – i.e., our natural systems.

V. Action Plan

The following action plan describes the Woodard Creek Coalition's strategy for improving the Woodard Creek watershed. With input from members of the public, the Woodard Creek Coalition has identified several key projects to increase public engagement and enhance natural systems. After considering the level of feasibility, timeliness, and public interest for each project, 5 projects were determined to be of the highest priority for 2016. The action plan below provides thorough detail regarding the Woodard Creek Coalition's priority projects for 2016, as well as a summary list of other projects for future consideration. The action plan will be reviewed and updated annually to reflect current priorities and highlight achievements to date.

Priority Projects

Due to their high degree of feasibility, timeliness, and perceived public interest, the following projects were identified as top priorities during the Woodard Creek Coalition's 2016 Priority- Setting Workshop. The Woodard Creek Coalition plans to meet annually to reassess top priorities for the year.

Priority Projects

1. Develop trail to showcase Woodard Creek at Karen Hornaday Park
2. Develop trail to showcase Woodard Creek at Pratt Museum
3. Assess existing access and property boundaries along Woodard Creek
4. Develop Spruceview Park
5. Develop the Woodard Creek Arts and Culture Complex

1. Develop trail to showcase Woodard Creek at Karen Hornaday Park

This project contributes to the objectives, "create and enhance public access points" and "address stream bank fill at Karen Hornaday Park."

Entrance to Karen Hornaday Park, where the Woodard Creek Trail, Fairview Ave Connection, and a safe pedestrian connection to the park converge. The left side slope would be developed into trail. Source: Lisa Holzaphel.

The view of Kachemak Bay from Karen Hornaday Park. Source: Lisa Holzaphel.

Karen Hornaday Park lies at the heart of the Woodard Creek Watershed and provides a central focus for exploring the watershed and understanding the watershed values. A trail radiating out from Karen Hornaday Park is proposed to connect the neighborhood and community to the watershed with easy access via the park. The proposed Karen Hornaday Park Woodard Creek Trail consists of the following segments:

Segment 1: Danview Avenue Connection

This trail segment will connect the community to Woodard Creek via Danview Avenue. The proposed trail will be built to footpath standards, and will draw on help from community volunteers. The proposed trail will consist of a wooden footbridge across Woodard Creek; the footbridge will be sited at a nearly level streamside site in order to allow for environmental education explorations and interpretation. Footbridge site selection will take into consideration stream hydrology/ flood stage and soil/bank stability, and will ensure minimal disturbance to the stream. This trail segment will connect with the Karen Hornaday Park access road at the park entrance near Fairview Avenue. This segment of the trail will introduce people to the real nature of the watershed, by traversing a level bench along and above (but in proximity to) Woodard Creek.

Segment 2: Fairview Avenue Connection

This trail segment will connect the community to the Woodard Creek watershed along a level bench paralleling Fairview Avenue and extending to the western boundary of Karen Hornaday Park. This trail segment will be built as a community footpath trail and provide the community additional access to Karen Hornaday Park, and will connect to the

Karen Hornaday Park
Proposed Trail System

park's existing trail system. Connection to the Reber Trail will be explored at a later phase in development.

Segment 3: Safe Pedestrian Connection within Karen Hornaday Park

This trail segment will provide safe pedestrian access from Fairview Avenue along the park entrance road, with a connection to the sport fields and day use area/playground/campground. A side trail connection coming off of the pedestrian trail will connect with the lower sports field; this side trail will be built to footpath standards through help from community volunteers. This proposed connection to the sports field will address the unsafe conditions that currently exist in the area; children frequently access the sports field via the narrow park entrance road and may be obscured by thickets of alder.

Development of a separate pedestrian trail along the park entrance road will be explored at a later phase, through revisiting the Karen Hornaday Park Master Plan and exploring the option of a minor eastward relocation of the park entrance road to accommodate parking at the lower sports field along with a safe pedestrian pathway into the main body of the park. A separated hard-surface pedestrian pathway built to ADA standards along the park entrance road will require contracting with professional engineering services, in order to develop design options with construction feasibility and cost estimates for the alignment of the park entrance road, pedestrian pathway, and lower sports field parking.

2. Develop trail to showcase Woodard Creek at Pratt Museum

This project contributes to the objective, "create and enhance public access points."

Volunteers put finishing touches to bridge over Woodard Creek. Source: Savanna Bradley.

Brushed loop leading from Woodard Creek to upper trail. Source: Savanna Bradley.

At the end of 2015, a generous donation by a community member allowed the Pratt Museum to purchase a small piece of property south of the museum along Woodard Creek, providing a connection to Pioneer Avenue. During the spring of 2016, volunteers marked and began to clear a route for the trail to connect with the Pratt Museum's existing system. During a community work day in June 2016, volunteers roughed in the trail and constructed a foot bridge.

In August, volunteers finished the trail, providing access (for the first time) to a beautiful section of free-flowing creek just above Pioneer Avenue. Another leg completes a loop with the existing Pratt Museum trails. The museum has designed updated trail maps displaying the new routes. Temporary versions have been printed and installed, pending funding for permanent maps. The initial development phase has been made possible through funding from the Pratt Museum and community donations, as well as time donated by community volunteers.

In the future, the Pratt Museum site will daylight the portion of Woodard Creek behind the current museum building and extend the trail, connecting it to the new paths around the new museum building. As this development occurs, interpretive signage and educational programming will be created in order to increase awareness and understanding of Woodard Creek.

New map updating Pratt Museum Forest Trails. Source: Pratt Museum.

3. Assess existing access and property boundaries along Woodard Creek

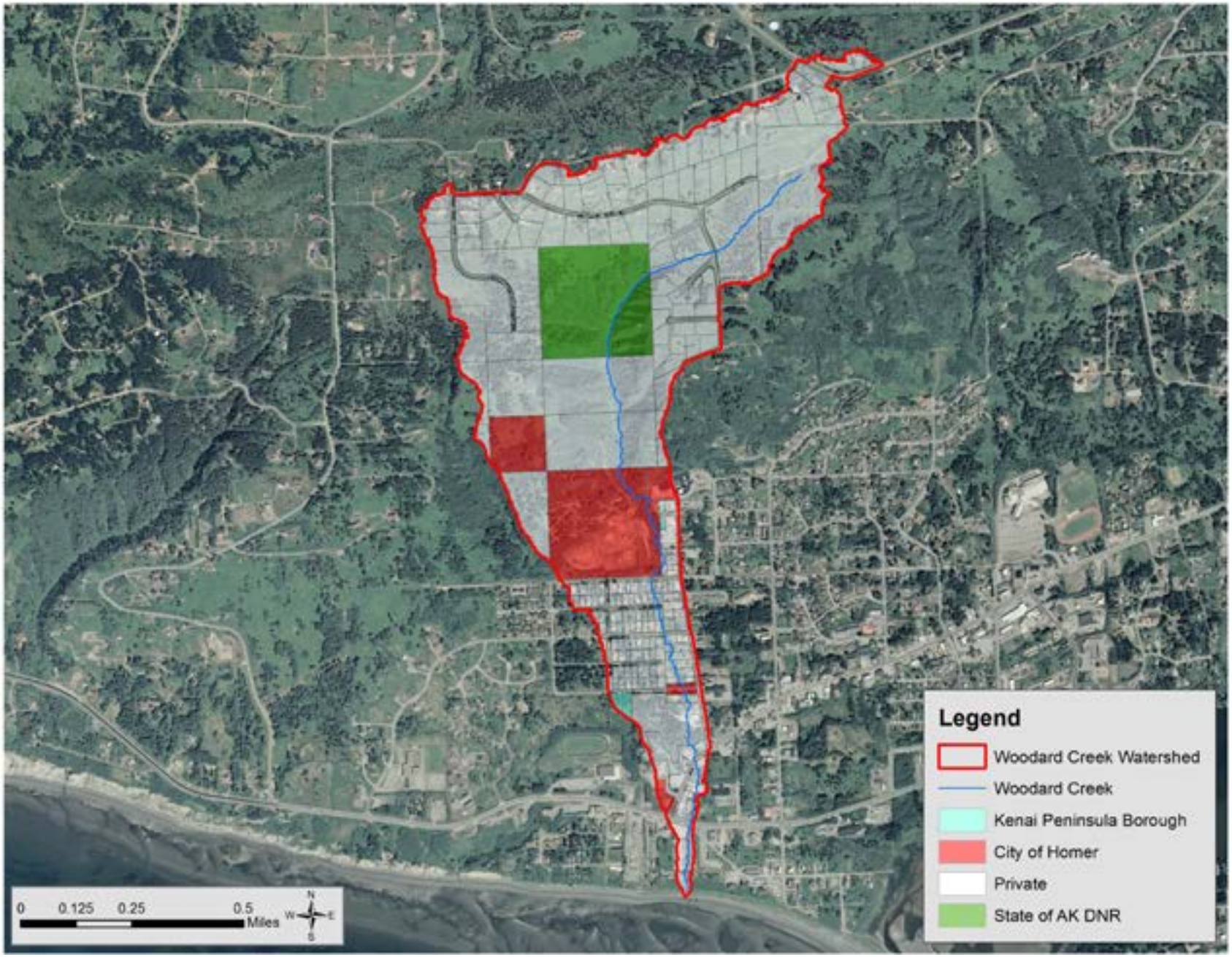
This project contributes to the objective, "create and enhance public access points."

Understanding the location of potential public access points to Woodard Creek allows the Woodard Creek Coalition to increase awareness about the creek. Strides for forward access have been accomplished recently, largely due to the efforts of the Woodard Creek Coalition and Friends of Woodard Creek. The Pratt Museum has dramatically increased access with acquisition of property and a new trail between Pioneer Avenue and Spruceview Avenue, and has plans to daylight a portion of the creek, pending funding. Plans are in progress for trail access at Karen Hornaday Park. Further improved access potential is proposed, and in progress, with the Hanson/City of Homer project, increasing Woodard Creek/ Spruceview Park by 47% with increased creek frontage.

The Woodard Creek Coalition will continue to review and assess the watershed for public access points. To date, the group has researched public records for easements, rights of way, and properties for existing or potential access to Woodard Creek. Research began with a consultation with the City of Homer Planning Department to assess any records of easements pertaining to access points along Woodard Creek. The City had no information on any easements. A similar inquiry was made to the Kenai Peninsula Borough with the same result. Research of individual recorded easements and subdivision plats was not within the scope of this research and is unlikely to produce any easements. The known access points to Woodard Creek include the following:

- State lands within the upper region of the watershed
- Karen Hornaday Park
- Street rights of way crossing Woodard Creek between Karen Hornaday Park and Pioneer Avenue
- Woodard Creek Park (aka Spruceview Park)
- Museum Lands between Spruceview Avenue and Pioneer Avenue
- Sterling Highway

Private property comprises the majority of land along Woodard Creek. Since Woodard Creek is not a navigable stream, the stream bed is owned by the individual property owners, precluding public access without permission of the owner.



Land ownership within the Woodard Creek Watershed (Watershed boundary: Kachemak Bay National Estuarine Research Reserve, 2017; Basemap: Kenai Peninsula Borough imagery, 2012; Ownership parcels: Kenai Peninsula Borough GIS Division, 2017).

4. Develop Spruceview Park

This project contributes to the objective, "create and enhance public access points."

Concept maps for the development of Spruceview Park. Source: Marvin Hanson.

This project would create a pocket park for enhanced appreciation of Woodard Creek. The proposal would subdivide properties, dedicate Spruceview Avenue rights of way, consolidate lots into useable areas separated by the creek, and improve the potential of all properties by using topographical features to enhance best land use. Park land would be increased by approximately 5,000 sf (47%) and would be consolidated west of Woodard Creek, with increased frontage on the creek.

This concept proposal addresses four parcels of property with Bunnell's Subdivision No. 17, City of Homer. Lots 10A and 11A are private property owned by Marvin Hanson, Lots 11B and 12A are public property of the City of Homer. Lot 11B is currently designated as park lands. Lot 12A contains Spruceview Avenue, which has not yet been dedicated as public right of way (see maps).

All four properties are segmented by Woodard Creek, creating topographically separated areas on each side of the creek, a poor configuration for best land use. Lot 11B (park land) is a thirty food wide strip bisected by the creek and has very limited use in its present configuration.

All costs of subdivision would be paid by Marvin Hanson, with no costs to the City of Homer. The exact area of City property accrued by Hanson would be appended to the consolidated park land.

5. Develop the Woodard Creek Arts and Culture Complex

This project contributes to the objective, "create and enhance public access points."

Homer residents review concept plans for the Woodard Creek Arts and Culture Complex. Source: Lisa Holzapfel.

The Homer Parks, Art, Recreation and Culture needs assessment showed a need and community support for a cultural complex. In July of 2016, the Pratt Museum and Homer Council on the Arts (HCOA) announced the concept of the Woodard Creek Arts and Culture Complex (WCACC). The proposed WCACC will include the new Pratt Museum building, as well as the current museum building and all associated structures. The Pratt Museum and the Homer Council on the Arts are discussing the possibility of converting the old Pratt Museum building into a cultural complex that could potentially house a variety of community activities.

Since there is no community center currently in Homer, the WCACC could provide space for a multitude of community activities. Although the concept of the WCACC is in its infancy, several ideas have emerged regarding uses for the complex, including:

- Using the space for conferences and meetings
- Renting the space to local organizations for events and community activities
- Creating art-making spaces for artists
- Housing art classes and workshops of all kinds
- Building a small theater space that would hold around 200 patrons.

Development of the WCACC would increase community presence in the area and provide an excellent opportunity to increase awareness about Woodard Creek. Please note: Because this project is in the early planning phases, it is not summarized in the Priority Project Summary Table that follows. The Woodard Creek Coalition will continue to be engaged as the WCACC concept is developed.

Priority Project Summary Table

Task	Description	Leader	Timeline	Funding Source	Cost	Objectives Met	Measures of Success	Status
1. Develop trail to showcase Woodard Creek at Karen Hornaday Park								
1	Survey Karen Hornaday Park eastern boundary	Robert Archibald	Start: 4/25/16 Finish: 4/25/16	Friends of Woodard Creek	$780	Eastern boundary of the park along Woodard Creek established for clear delineation	Boundary survey completed	Completed 4/25/16
2	Watershed trail connection from Danview Avenue to Fairview Avenue	Robert Archibald	Start: 6/18/16 Finish: 6/18/16	Volunteer	Volunteer	Field recon. confirms feasibility of trail connections and foobridge feasible	Field marking and ground-truthing	Completed 6/18/16
3	Fairview Avenue connection from Karen Hornaday Park	Deb Lowney	Start: 08/01/16 Finish:_____	Volunteer	Volunteer	Field recon. feasilibty of trail along a bench - Fairview Avenue	Review ground conditions and vegetative cover	
4	Trail and footbridge design Danview to Fairview Segment 1	Robert Archibald	Start: 6/24/16 Finish:_____	Pro bono engineering footbridge by Jack Cushing	Pro bono	Field locate bridge and design standard and define footpath standard with the City and Park Commission	Completed design for segments 1 & 2	
5	Fairview Avenue Trail Segment 2 design standards	Robert Archibald & Deb Lowney	Start: 6/30/16 Finish:_____	Work with City and Park Commission on design standards utilize HART funds	Contract for private design services or City Public Works	Engineering design. Construction standards. Cost estimation.	'Plans Ready' design and construction documents	
6	Locate footpath from Fairview to Lower Sport Field - portion of Segment 3	Robert Archibald and Deb Lowney	Start: 6/24/16 Finish:_____	Volunteer Community Activism	Volunteer	Field staking of footpath to lower sport field	Follow contour of slope and crosscut construction of trail by volunteers	
7	Segment 4: Park entrance road and pedestrian safety	Robert Archibald and Deb Lowney	Start: 6/24/16 Finish:_____	HART funds	Contract for professional design services	Complete design in time for cost estimation for CIP and City budget request	Update park master plan	
8	Community involvement trail Segments 1-4	Woodard Creek Coalition	Start:_____ Finish:_____	Existing Council funds	Outreach to stakeholders and community	Targeted fundraising for each of 4 trail segments	Funds raised and segments completed	
9	Hold public event dedicated to trail building	Robert Archibald & Deb Lowney	2017	City of Homer Parks & Recreation	Parks/ Trails Day	Public Education/Outreach	Attendance	

Priority Project Summary Table								
Task	**Description**	**Leader**	**Timeline**	**Funding Source**	**Cost**	**Objectives Met**	**Measures of Success**	**Status**
10	Design and install trail signs at all ends of new trail	Robert Archibald & Deb Lowney	TBD	City of Homer Parks & Recreation	$300	Outreach & Education	Installation and public use	
11	Develop interpretive panels along Woodard Creek portions of trail in Karen Hornaday Park	Robert Archibald & Deb Lowney	TBD	TBD	$1000	Outreach & Education	Installation and positive public feedback	
2. Develop trail to showcase Woodard Creek at Pratt Museum								
1	Hold public event dedicated to trail building	Pratt Director & Building Manager, Coalition volutneers	Start: 6/11/16 Finish: 6/11/16	Pratt Museum	$300	Yes	Trail opened up, bridge built	In progress
2	Hold second public event dedicated to trail building	Pratt Building Manager	Start: Mid-August Finish: TBD	Pratt Museum	$100		Complete trail	In progress
3	Design and install updated trail signs at both ends of new trail along creek	Pratt Curator	Start: 2016 Finish: 2016	Pratt Museum, Community Donations	$500			Design complete, print and install after completion of lower trail
4	Develop interpretive panels along the trail	Pratt Curator	Start: TBD Finish: TBD	TBD	$2000+		Installation of panels, positive public reaction	In planning stages
3. Research, assess, and report on existing access and property boudnaries along Woodard Creek								
1	Research City and Borough records for easements and right-of-way access	Mary Hanson	Start: 5/16 Finish: 8/16	N/A	$0	Research to increase and enhance access points along the creek	Report submitted	Completed

Priority Project Summary Table

Task	Description	Leader	Timeline	Funding Source	Cost	Objectives Met	Measures of Success	Status
4. Subdivide and consolidate private and City of Homer properties								
1	Enhance private and City park lands through best use	Marvin Hanson	Start: 6/16 Finish:_____	Marvin Hanson	$25,000	Increase park area by 47%, enhance potential of all properties	Finalization of subdivision, dedication of park lands	In progress
1a	Review of Concept Proposal by Woodard Creek Coaltion	Woodard Creek Coalition	Start: 6/16 Finish:_____	N/A	$0	N/A	N/A	In progress
1b	Consultation with Public Works Director and City Planning	Marvin Hanson	Start: 9/16 Finish:_____					In progress
1c	Presentation to Parks & Recreation	Marvin Hanson	Start: 9/16 Finish:_____					In progress
1d	Survey & Engineer's Report	Marvin Hanson	Start: 10/16 Finish:_____					In progress
1e	Presentation to City and Borough Planning Commissions	Marvin Hanson	Start: 1/17 Finish:_____					In progress
1f	Finalization of subdivision, dedication of park	Marvin Hanson	Start: 4/17 Finish:_____					In progress

Projects for Future Consideration

Task	Description	Objectives Met
1. Identify areas prone to overflow (culverts, low banks) and work wiht Homer Public Works Department to mitigate flooding.		
1	Map areas with low banks	• Identify, study, and address high risk areas in the Woodard Creek Watershed
2	Inventory debris in culverts	• Identify, study, and address high risk areas in the Woodard Creek Watershed
3	Remove debris from culverts as necessary	• Identify, study, and address high risk areas in the Woodard Creek Watershed • Protect natural systems
2. Daylight Woodard Creek throughout the watershed.		
1	Work with the City of Homer to daylight Woodard Creek at Fairview Avenue	• Address stream channelization and culverting in the lower watershed • Increase outreach, education, and stewardship opportunities
2	Work with the City of Homer to daylight Woodard Creek at Homer Bypass	• Address stream channelization and culverting in the lower watershed • Increase outreach, education, and stewardship opportunities
3	Work with the City of Homer to daylight Woodard Creek at Pioneer Avenue	• Address stream channelization and culverting in the lower watershed • Increase outreach, education, and stewardship opportunities
4	Work with the City of Homer to daylight Woodard Creek at the area below Homer Bypass	• Address stream channelization and culverting in the lower watershed • Increase outreach, education, and stewardship opportunities
5	Work with the Pratt Museum to daylight Woodard Creek on Pratt Museum land	• Address stream channelization and culverting in the lower watershed • Increase outreach, education, and stewardship opportunities
3. Add buffer strips along Woodard Creek		
1	Identify priority areas for buffer strips	• Protect natural systems
2	Install buffer strips in key areas	• Protect natural systems
4. Install features to reduce flow in key areas		
1	Identify priority areas for waterfalls	• Protect natural systems
2	Install waterfalls in the stream in key areas	• Protect natural systems
5. Paint the roads to show where Woodard Creek flows		
1	Coordinate annual road painting at Pioneer Avenue	• Increase outreach, education, and stewardship opportunities
6. Develop program to engage the community in keeping Woodard Creek clean		
1	Host annual Woodard Creek clean-up	• Increase outreach, education, and stewardship opportunities • Protect natural systems
2	Encourage participation in adopt-a-stream program	• Increase outreach, education, and stewardship opportunities • Protect natural systems
7. Develop program to educate the community about Woodard Creek		
1	Create an outdoor classroom for the community to learn about Woodard Creek	• Increase outreach, education, and stewardship opportunities • Protect natural systems
2	Deliver presentations at schools, council meetings, and local interest groups	• Increase outreach, education, and stewardship opportunities

Projects for Future Consideration

Task	Description	Objectives Met
8. Develop observation points for community members to view Woodard Creek		
1	Identify priority areas for observation points	• Create and enhance public access points
9. Continue to work with partners to acquire properties for public access along Woodard Creek		
1	Identify priority properties for public access	• Create and enhance public access points
10. Increase pedestrian access to Woodard Creek at the beach near Crittenden Drive		
1		• Create and enhance public access points
11. Discourage culverts in new road development		
1		• Integrate Woodard Creek into local planning efforts
12. Connect Woodard Creek trails to existing trail systems.		
1		• Integrate Woodard Creek into local planning efforts • Create and enhance public access points
13. Include Woodard Creek plans in the Homer Comprehensive Plan		
1		• Integrate Woodard Creek into local planning efforts
14. Restrict vehicular access on Gordon Road		
1		• Integrate Woodard Creek into local planning efforts • Protect natural systems
15. Develop partnerships with other groups with mutual interests		
1	Maintain open and ongoing communication with potential partners, continue to invite partners to clean-up days	• Integrate Woodard Creek into local planning efforts • Increase outreach, education, and stewardship opportunities • Protect natural systems
16. Develop watershed best management practices for property owners and land managers		
1	Develop document that describes best management practices in Woodard Creek Watershed	• Increase outreach, education, and stewardship opportunities • Protect natural systems
2	Disseminate document to property owners and land managers in the Woodard Creek Watershed	• Increase outreach, education, and stewardship opportunities • Protect natural systems
17. Create incentive system to encourage property owners and land managers to implement best management practices		
1		• Increase outreach, education, and stewardship opportunities • Protect natural systems
18. Map impervious cover in the Woodard Creek Watershed		
1		• Identify, study, and address high risk areas in the Woodard Creek Watershed

VI. References

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