

Attachment 1

DETERMINATION OF NO IMPAIRMENT

Spruce Railroad Trail

Chapter 1 of the EA describes the related federal acts and policies regarding the prohibition against impairing natural and cultural resources and values in units of the national park system. The prohibition against impairment originates in the National Park Service (NPS) Organic Act, which directs that the NPS shall:

*...Promote and regulate the use of the...national parks...which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them **unimpaired** for the enjoyment of future generations.*

According to NPS Management Policies, an action constitutes an impairment when its impact “would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values” (NPS 2006, sec. 1.4.5). To determine impairment, the NPS must evaluate “the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts” (NPS 2006, sec. 1.4.5).

National park system units vary based on their enabling legislation, natural and cultural resources present, and park missions; likewise, the activities appropriate for each park and for areas in each park also vary. For example, an action found appropriate in one area administered by the NPS could impair resources in another park. As stated in the NPS Management Policies 2006 (NPS 2006, sec. 1.4.5), an impact on any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; or
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park’s General Management Plan or other relevant NPS planning documents.

The NPS has issued interim *Guidance for Impairment Determinations in NPS NEPA Documents (Interim Guidance)* (NPS 2010). The Interim Guidance states that a written impairment determination must be completed for the NPS selected alternative. Impairment findings are not required for visitor experience, socioeconomics, public health and safety, environmental justice, land use, or park operations, because impairment findings relate back to park resources and values identified in the *NPS Organic Act*.

In evaluating whether or not the NPS selected alternative would result in impairment, the responsible NPS manager must provide: a brief description of the condition of the resource; whether the resource is necessary to fulfill the purposes for which the park was established; whether the resource is key to the natural or cultural integrity of the park or to the opportunity for enjoyment of the park; whether the resource is identified as a significant resource in the park's planning documents; and a discussion of why the action will or will not result in impairment of the resource including a discussion of the context, severity, duration and timing of any impacts, and any mitigation measures, if applicable.

The resource impact topics carried forward and analyzed for the Spruce Railroad Trail environmental assessment (SRRT EA) selected alternative are: geologic features and soil, water resources, air quality, vegetation, wetlands, wildlife and wildlife habitat, unique or important fish and fish habitat, threatened and endangered species, cultural resources, soundscapes, and scenic values.

Geologic features and soil

The topography of the watershed is one of extremes. Lake Crescent is enclosed by steep ridges on all sides. Elevations range from approximately 575 feet at lake level to roughly 1,500 feet on the northern ridge, and 4,500 feet on southerly ridges. In general, soils tend to be thin and poorly developed due to glacial scouring of the bedrock of the northern foothills belt (Brown and Grower 1960). Sensitive soils are associated with steep slopes, incised stream channels, unstable bedrock, and water seepage areas. There is evidence of mass slope failure within the watershed; four areas of landslide deposits have been mapped by the U.S. Geological Survey. There are several areas along the existing Spruce Railroad Trail and Phase 1 of the ODT where rock slide and debris flow activity is ongoing.

Geologic features and soil are not specifically identified in the enabling legislation for Olympic National Park, although the legislation does make reference to the "outstanding mountainous country." The Olympic National Park General Management Plan (GMP, 2008) included eight "significance statements." Significance statements capture the essence of the national park's importance to our country's natural and cultural heritage and help managers make decisions that preserve the resources and values necessary to accomplish Olympic National Park's purpose.

The significance statement that best captures the geological values of the park is, "The ecosystems protected within Olympic National Park contain a unique array of habitats and life forms, resulting from thousands of years of geographic isolation, along with extreme gradients of elevation, temperature, and precipitation. At least 16 kinds of animals and 8 kinds of plants on the Olympic Peninsula exist nowhere else in the world."

Although geologic features and soils are not identified as key resources for the natural or cultural integrity of the park, they do provide the foundation for the outstanding biological and cultural resources the park is well known for.

Under the selected alternative, the geologic resources and soils within the project area would be adversely affected due to the widening of the Spruce Railroad Trail and development of new trail in Segment D to provide an accessible trail grade. Best management practices would be

implemented to avoid or minimize the potential for construction related impacts during project implementation, but due to the extent of development proposed there would be local, long-term to permanent, moderate to major impacts associated with the excavation, grading, placement of fill, and compaction of soils in the project area. However, these impacts would not result in a loss in the integrity of the park's geologic resources or soils, nor would they result in wide-spread impacts that would impair the ability of the NPS to achieve the mandate and purpose for the park as established by the 1938 enabling legislation (Act of June 29, 1938, 35 Stat. 2247) and associated House Report (House Report 2247, April 28, 1938).

Because the extent and intensity of disturbance is limited to the project area, and best management practices would be implemented to avoid or reduce most impacts, geologic resources and soils would not be impaired.

Water Resources

Lake Crescent is a pristine deep-water lake of glacial origin located 15 miles west of Port Angeles in the northern portion of Olympic National Park. The watershed is 39 square miles, excluding the lake area, with 32 streams feeding the lake. Of these, 22 are intermittent. Only one stream, the Lyre River, drains the lake. The Lyre River exits the lake at its northeast corner. The Lyre River flows north 5¼ miles to the Strait of Juan de Fuca. A major roadway, Highway 101 is located along the south shore and the historic Spruce Railroad grade runs along the north shore of the lake. Both of these transportation corridors cut through riparian areas.

Water resources are not specifically identified in the enabling legislation for Olympic National Park. The GMP included eight "significance statements." The significance statement that best captures the water resource values of the park is, "Olympic National Park contains some of the last remaining undisturbed, contiguous aquatic habitat throughout the range of several west coast fish species. The park protects 12 major river basins, more than 3,500 miles of rivers and streams within 13 watersheds, more than 300 high mountain lakes, and two large lowland lakes. The park also supports more than 70 unique stocks of Pacific salmonids, 29 freshwater fish species, and two endemic fish species."

Lake Crescent is one of the two lowland lakes referenced in the significance statement above. The two endemic fish species described both reside in Lake Crescent. As such, Lake Crescent is a key resource that supports the natural integrity of the park, including significant biological resources.

Under Alternative 5, water resources within the project area would be adversely affected due to the widening of the Spruce Railroad Trail. This includes the installation of bank armoring in multiple locations along the north shore of Lake Crescent. Best management practices would be implemented to avoid or minimize the potential for construction related impacts during project implementation, but due to the extent of development proposed there would be site-specific and local, short-term, negligible to moderate impacts to surface hydrology and water quality associated with excavation and grading during construction. After construction, Alternative 5 would result in site-specific and local, permanent, negligible to moderate impacts to surface hydrology and water quality associated with the increase in developed area and hardened surfaces, including the areas of bank armoring described above.

Because these impacts would not result in a loss in the integrity of the park's water resources, including hydrologic processes and water quality, implementation of the NPS selected alternative, as described in the SRRT EA, would not impair water resources.

Air Quality

Olympic National Park is designated as a Class I area as defined by the Clean Air Act, as amended. Class I areas are afforded the highest degree of protection under the Clean Air Act. This designation allows very little additional deterioration of air quality. Protecting the overall park visibility and impacts on the views that are most important to park visitors is a management concern. Pristine air quality is important to the visitor experience because it allows the long-range scenic views of the Olympic Mountains. Air quality is also important for human health and the preservation of natural and cultural resources.

Air quality is not identified in either the Olympic National Park enabling legislation or the park's significance statements. However, air quality is key to the integrity of natural and cultural resources, and also to the ability for park visitors to enjoy park resources and values.

Implementation of the park's selected alternative would result in adverse, site-specific and local, short-term, negligible to minor impacts associated with the use of motorized vehicles and equipment to construct and maintain the trail system. Because the degree of impact is minor, air quality would not be impaired.

Vegetation

The entire project area is located within the western hemlock zone. This is the most widespread zone in the park. Dominant tree species are western hemlock, Douglas fir, and western red cedar. Common shrubs include salal, vine maple, Oregon grape, red huckleberry, Alaska huckleberry, salmonberry, and rhododendron. Several disjunct populations of plants are found within the watershed, including poison oak, yerba de selva, and seaside juniper. Disjunct populations are relatively small populations of plants that are separated, often by hundreds of miles, from the main population.

Water lobelia, a state listed sensitive plant, is found in shallow water on the edges of lakes and ponds, including Lake Crescent. The species occurs in nutrient-poor water bodies with exceptionally clear water. Water lobelia is harmed by sediment and susceptible to damage from application of herbicides to control aquatic weeds, shoreline development, water pollution from recreational equipment, and trampling.

Most of the project area has been previously logged. Because the area has experienced a good deal of disturbance, mainly prior to inclusion within Olympic National Park, there is considerable diversity of forest stand structure. The majority of the watershed is in old-growth forest (52%), followed by mature stands (39%). The remaining nine percent is in young forest, shrubs, meadows, and rocks. The area proposed for development in this EA includes both mature stands and young forest. No old-growth trees are proposed for removal.

The preservation of primeval forests of Sitka spruce, western hemlock, Douglas fir, and western red cedar is one of the primary reasons Olympic National Park was established in 1938. Likewise, the “old growth temperate forests of ancient and immense trees” are listed among the park’s significance statements. The integrity of the forests is key to the natural and cultural integrity of the park, and for its enjoyment.

Alternative 5 would result in the clearing of vegetation to widen the existing Spruce Railroad Trail and develop an accessible trail grade in Segment D. This would require the removal of up to 146 trees between 11” and 30” in diameter. Tree species that would be affected include Douglas fir, western hemlock, spruce and western red cedar. Alder and maple trees would also be affected. None of the trees are within “primeval” or old-growth forest stands. This would result in adverse, site-specific and local, long-term to permanent, moderate to major impacts to vegetation due to trail development.

Because the trees proposed for removal are not old-growth, and because they would not result in a loss of biological integrity to the surrounding 900,000 acres of forest remaining within the park, including approximately 4,000 acres of forest on the north shore of Lake Crescent, this impact would not constitute an impairment.

Wetlands

The Lake Crescent watershed contains 22 wetlands identified on National Wetlands Inventory maps (Fish and Wildlife Service National Wetlands Inventory maps, 1987). Most of these wetlands are located in the upper reaches of the watershed and are classified as palustrine or riverine wetlands. An initial assessment of the Spruce Railroad Trail (SRRT) project area found several areas with wetland characteristics. These areas include lands adjacent to the SRRT parking lot, several small areas along the existing SRRT that are currently spanned by small trail bridges, and the shoreline at the outlet to the lake.

Wetlands are not specifically identified in either the park’s enabling legislation or in the park significance statements, although they are among the many “ecosystems protected within Olympic National Park containing a unique array of habitats and life forms...” Wetlands are key to the natural integrity, particularly where they are located upslope of Lake Crescent near the outlet to the Lyre River.

Formal wetland delineation would be conducted prior to finalizing the construction plans for the selected alternative. Trail improvement in the project area would be modified to avoid impacts to wetlands. In general wetland areas would be avoided. Small wetlands may be spanned by boardwalk or trail bridges to avoid impacts as well. Any remaining impacts to wetlands would be site-specific, long-term to permanent, and negligible to minor. Due to these best management practices, no major impacts would occur, the integrity of wetlands would be maintained or restored, and no impairment would occur.

Wildlife

Large native mammals found within the project area include Roosevelt elk, Columbia black-tailed deer, black bear, and cougar. River otters inhabit the lake and can sometimes be seen swimming and playing along the shore. Fishers were recently reintroduced in the park, and

several have established home ranges around Lake Crescent. Many small mammals and several species of amphibians and reptiles occur in the area, including the rarely seen rubber boa and alligator lizard.

A wide range of resident and migratory birds are found within the project area, including bald eagles and marbled murrelet.

Protection of wildlife and wildlife habitat is included in both the park's enabling legislation and in the park significance statements. Native wildlife and wildlife habitat is key to the natural integrity of Olympic National Park.

Implementation of Alternative 5 would remove some forest habitat to support trail development, and noise from construction and maintenance of the trail would result in some ongoing disturbance to wildlife. Best management practices would be implemented to minimize disturbance, including scheduling vegetation removal to not occur during the primary summer breeding season. Trail development would result in adverse, site-specific to local, long-term to permanent, minor to moderate impacts.

Because the surrounding park lands provide alternate habitat area, and because conservation measures would be implemented to avoid or reduce many construction related impacts, these disturbances would not affect the biological integrity of wildlife or wildlife habitat within Olympic National Park. No wildlife fatality is expected to result from the implementation of the selected alternative. Because of these reasons, wildlife resources would not be impaired.

Unique or Important Fish or Fish Habitat

Lake Crescent is home to two endemic trout species - the Beardslee trout (*Oncorhynchus mykiss*) and the Crescenti trout (*O. clarkii*). Other fish species present in the lake are kokanee salmon (*O. nerka*), prickly sculpin (*Cottus asper*), pygmy whitefish (*Prosopium coulteri*), and perhaps Pacific lamprey (*Lampetra tridentata*) (Meyer and Fradkin, 2002).

Resource management actions taken to date in an effort to preserve the lake's unique fish populations have focused on harvest regulations intended to minimize direct fishing mortality, stock assessment surveys targeting the Beardslee and Crescenti trout, and land and water use practices intended to ensure critical habitat for the Beardslee and Crescenti trout remains intact. Since 2001 catch-and-release fishing regulations have been implemented on the lake. The abundance of both Beardslee and Crescenti trout has slowly grown, though annual spawning escapement estimates for both species remain well under 500 fish.

Although fish and fish habitat are not specifically identified within the park's enabling legislation, they may be considered to be within the scope of "other wildlife indigenous to the area." Both species of endemic fish are referenced in the park's significance statements, and both are key to the natural integrity of Lake Crescent.

Development associated with the selected alternative has the potential to disturb fish and fish habitat, however best management practices would be implemented to avoid or minimize disturbance to the greatest extent possible. Construction would result in adverse, site-specific and

local, short-term, negligible to moderate impacts from water quality impacts associated with excavation and grading. After construction there would be negligible to minor impacts from new bank armoring and increased sediment transport into Lake Crescent from developed areas, although this would be minimized by paving the parking lots and dirt road near the Lyre River to reduce erosion.

Because conservation measures would be implemented, and the anticipated impacts would be negligible to minor in the long-term, the proposed action would not harm the biological integrity of fisheries or fish habitat in Lake Crescent. These resources would remain unimpaired.

Threatened and Endangered Species

The U.S. Fish and Wildlife Service has identified two listed T and E (threatened or endangered) avian species that are known to occur in the Lake Crescent watershed and likely nest here; the marbled murrelet and northern spotted owl, both classified as threatened. Habitat considered suitable for murrelet occupation includes forested areas to 3,500 feet on the east side of the park, and to 3,000 feet on the west side of the park, including the Lake Crescent watershed.

Approximately 327,000 acres of forested area within the park is considered suitable marbled murrelet habitat. For purposes of analysis, the murrelet breeding season in Washington is broken into two periods: early breeding season is April 1 through August 5, and late breeding season is August 6 to September 15.

Northern spotted owls formerly occurred along the north shore of Lake Crescent in the project area but none have been detected since 2002, despite regular monitoring of both known territories. The lakeshore area is heavily used by barred owls and as a result it is unlikely that spotted owls will use this area for nesting or roosting.

For purposes of analysis, spotted owl breeding season in Washington is broken into two periods: early breeding season is March 1 through July 15, and late breeding season is July 16 to September 30.

One candidate species for listing under the Endangered Species Act that occurs at Lake Crescent is the Pacific fisher, which is found in forested habitats along the lake, including in the project area.

As a subset of indigenous wildlife, threatened and endangered species are considered to be included within the scope of the park's enabling legislation. They are identified in the park's significance statement as being residents of the park's old-growth temperate rainforests. These species are key to natural integrity of the park.

Implementation of Alternative 5 would occur in a manner that avoid or minimizes impacts to listed species to the greatest extent possible. This includes scheduling vegetation removal to occur outside of the breeding season, scheduling construction adjacent to suitable habitat outside of the early breeding season, and scheduling work during the time of day it is least likely to disturb marbled murrelets while feeding young. Any additional conservation measures identified through consultation with the U.S. Fish and Wildlife Service would also be implemented.

Construction would result in adverse, site-specific and local, long-term to permanent, minor to moderate impacts due to clearing of vegetation and noise disturbance. However, due to the mitigation measures described above, the project would not harm individual birds or the integrity of suitable habitat. As such, it would not result in impairment to threatened and endangered species or habitat.

Cultural Resources (National Register eligible properties)

The adaptive re-use of the historic Spruce Railroad is a key element of the park's selected alternative. The Spruce Railroad is a historic property eligible for listing on the National Register of Historic Places. It was determined nationally significant due to its association with World War I and the Spruce Division. The existing Spruce Railroad Trail (SRRT) follows three miles of the railroad grade along the north shore of Lake Crescent. This trail segment is proposed to be widened under the selected alternative.

Although cultural resources and the Spruce Railroad are not identified in the park's enabling legislation, they are referenced in the park's significance statements. The integrity of the Spruce Railroad is essential to the cultural integrity of the Lake Crescent area and the park. This historic property, including the two historic railroad tunnels, is also key to visitor enjoyment in the project area.

The selected alternative has the potential to result in an adverse effect to this historic property during construction; however, the park would develop and implement a treatment plan to guide the rehabilitation and adaptive reuse of the historic Spruce Railroad to avoid adverse effects to the greatest extent possible. Implementation of the selected alternative would not alter the Spruce Railroad to the extent that it is no longer eligible for listing on the National Register of Historic Places, and as such, this resource would not be impaired.

Soundscapes

Although many natural sounds occur within the project area, maintenance of the existing SRRT and associated parking lots and access roads requires the use of motorized vehicles and equipment that alter the natural soundscape. Chainsaws are used to clear downed trees from the trail; construction equipment is used to maintain the grade of the existing gravel roads and parking lot. Vehicles are used to access the trailheads to service the existing vault toilets and remove trash. Highway 101 can be heard from the project area near Lake Crescent. Implementation of the selected alternative would result in increased noise during construction, and also from the ongoing maintenance and use of the expanded trail system.

Soundscapes are not identified in the enabling legislation or the park's significance statements, although natural quiet and sounds are a key factor that contributes to the natural integrity of the park and visitor enjoyment.

Implementation of the project would result in adverse, site-specific and local, short-term, minor to major impacts during construction and adverse, site-specific and local, negligible to moderate impacts associated with ongoing use and maintenance. The project area is located in a developed area with relatively high ambient noise levels from nearby roads and development. As such, the

additional impacts proposed would not affect the integrity of soundscapes in the long-term, and would not result in impairment.

Scenic Values

The Lake Crescent watershed offers abundant scenic resources; from the lake itself to the surrounding mountains, forests, rocky outcrops and clear-flowing streams. Nestled in the deep glacial valley beneath steep forested hillsides, Lake Crescent is a spectacular sight with dramatic views of Mount Storm King, Pyramid Mountain, and forested ridgelines. From high on Mount Storm King and Pyramid Mountain visitors can find sweeping views of the watershed and Olympic Mountains. Perhaps the most significant scenic resource is the lake itself, with steep drop-offs, its turquoise hue and clarity is exceptional.

Although the quality of the scenery in the Lake Crescent area is outstanding, it is not specifically referenced in either the park's enabling legislation or significance statements, it is absolutely key to the integrity of Olympic National Park, particularly related to visitor enjoyment.

Construction proposed in alternative 5 would result in impacts to visual resources, particularly during construction at Lake Crescent, but due to the retained forest in most areas downslope of the proposed trail, these impacts would be minimal in the long-term. There would be some additional impact from the installation of bank stabilization that would be visible from the lake and from Highway 101 that would be ongoing. Construction of the selected alternative would result in site-specific and local, short-term to permanent, minor to moderate, adverse impacts.

Implementation of the selected alternative would not harm the integrity of visual resources in the long-term, and would provide increased access from the trail to other scenic vistas in the area. In the absence of ongoing, major impacts to visual resources, scenic values would remain unimpaired.

In conclusion, Alternative 5 would not result in any direct, indirect, or cumulative impacts to park resources or values that would constitute "Impairment," a violation of the NPS Organic Act.