FINDING OF NO SIGNIFICANT IMPACT

Upper Elwha Snow Telemetry Project

Olympic National Park, Washington

November 2007

This finding of no significant impact (FONSI) and the environmental assessment (EA) constitutes the record of the environmental impact analysis and decision-making process for this research project. The National Park Service (NPS) will implement alternative B, the management preferred alternative as described in the Olympic National Park EA, the installation of a full snowpack telemetry site (SNOTEL) in the upper Elwha drainage on Buckinghorse Ridge.

PURPOSE AND NEED FOR FEDERAL ACTION

The Natural Resources Conservation Service (NRCS), in conjunction with the NPS, will install a SNOTEL site in the upper Elwha watershed of Olympic National Park to meet the following objectives:

1. Provide accurate snow and precipitation measurements from the upper Elwha watershed.
2. Improve daily runoff forecasts for the Elwha and Dungeness Rivers.
3. Provide emergency managers, meteorologists and avalanche forecasters with real-time climate data from the upper Elwha to better predict timing and extent of flood, winter storm and avalanche events.
4. Provide long-term climate data from a high elevation site in the park interior for the purpose of interpreting NPS long-term monitoring efforts, understanding the impacts of global warming on park resources, and improving knowledge for the purpose of understanding the health and improving the management of park wilderness.

The placement of a SNOTEL in the upper Elwha is necessary because it will provide measured precipitation and snow water content in an area where estimating values using models is difficult (Christopher Daly, Oregon State University, Spatial Climate Analysis Group, pers. comm.). Measured snow and rainfall values are needed to verify the accuracy of the proposed hybrid model. The real-time climate and snow data will enhance the ability of model developers to “tune” model variables and interpret remote sensing data to better estimate precipitation and snow water content throughout high areas of the upper western slopes of the Olympics.

To meet minimum requirement standards for park wilderness, park staff developed a comprehensive list of site requirements and carefully evaluated all possible locations for this installation. Some of the key requirements were a location within the Elwha drainage, an elevation above 4,000 ft. where snow dominates winter precipitation, and a site within the unrepresented “wet” zone of the drainage (precipitation >100 inches/year). After careful examination, no areas meeting these requirements were found to exist

outside of park wilderness. Due to the limited scope of wilderness impact and the overwhelming public utility of this project, a SNOTEL installation within wilderness was considered a minimum requirement by Olympic National Park.

RANGE OF ALTERNATIVES CONSIDERED

The environmental assessment analyzed three alternatives: installation of a full SNOTEL station (management preferred alternative), installation of a modified SNOTEL station (alternative C), and the no action alternative (alternative A). The FONSI does not incorporate changes based on what was analyzed in the EA as the preferred alternative. There are no changes based on public comments or other agency consultations.

SELECTED ALTERNATIVE

The preferred alternative, Alternative B- Install a full SNOTEL on Buckinghorse Ridge in the Upper Elwha Drainage, is the selected alternative.

The selected alternative will require the following infrastructure: 1) a pressure sensing snow pillow, 2) a storage precipitation gauge, 3) an instrument tower, 4) soil moisture and soil temperature sensors and 5) a communication shed.

The pressure sensing snow pillow will consist of a 10-foot diameter “Hypelon” pillow that will be placed on a level or leveled area of ground. The pillow will be covered with a flexible mesh blanket to protect it from wildlife. The total area, including the cleared surface around this pillow, will be approximately 16 feet in diameter. This area is required to be perfectly level. The area of installation is slightly sloped so some bank cutting will occur with subsequent material moved downhill as fill. The pillow will be filled with a non-toxic glycol (anti-freeze) solution. A set of tubes will connect the pillow to instruments in the communications shed. As snowpack accumulates on top of the pillow, pressure forces glycol through the tubes where the change in head will be measured by pressure transducers. This change in height will be translated to a snow water equivalent measurement.

The storage precipitation gauge will include a 24-foot tall, 1-foot diameter aluminum pipe painted brown (non-reflective) and mounted to a concrete foundation. The footprint of the foundation will be a 3' x 3' square with a foundation comprised of two 3' long x 1' wide x 1.5' deep concrete blocks on to which the gauge will be mounted with steel bolts. The gauge will be filled annually with a non-toxic glycol (anti-freeze) solution to prevent the precipitation from freezing. As snow or rainfall drops into the gauge, it mixes with the glycol and the pipe slowly fills. A set of tubes runs from the gauge to the communications shed, where pressure transducers measure the change in height. This change in height is translated to a total precipitation (rain and snow) measurement.

The instrument tower will be a standard 1' x 1' steel instrument or radio tower mounted to a small concrete foundation. The tower will be erected adjacent to the snow pillow so that a snow depth sensor can be hung to measure the depth of snow over the pillow.

Air temperature, relative humidity, wind speed and direction, and solar radiation sensors will also be mounted on this tower. The tower must be high enough that the snow depth sensor will never be buried within the snowpack. A 30-foot-high tower will be installed and will be powder coat painted in a non-reflective brown or olive color to minimize visual impact. The foundation will be 18 inches in diameter and 2.5 feet deep.

Soil Moisture/Soil Temperature sensors will be buried in the ground to a maximum depth of 40 inches. Approximately five sensors will be placed throughout the profile in a hand dug hole 12 inches in diameter and 40 inches deep. The hole will be back filled with the same soil material removed for sensor installation.

The communications shed will be a prefabricated structure, much like an extra tall backcountry privy. Built of pressure treated lumber with plywood siding, the shelter will house the power system (2-12V batteries, solar charging regulators), datalogger, transmission radio, and the pressure transducers and tubing. A radio antennae and solar panels will be mounted on a 30-foot-high communication tower with a foundation that will be 18 inches in diameter and 2.5 feet deep and attached to the side of the shed. The shed will be 4' x 4' square and built to the height of the expected snowpack (maximum 20 ft.). The shed will have ladders inside and outside and doors for bottom access as well as top access, in the event that repairs need to be made mid-winter when a full snowpack blocks access. The shed will be painted dark brown. The foundation will be composed of two concrete slabs, 4 feet long, 1 foot wide and 1.5 feet deep. Shallow trenches (2" wide x 6" deep) totaling approximately 66' in length will be extended from the shelter to the instrument tower, snow pillow, precipitation gauge and soil moisture sensors for tubing and instrument wires.

Installation of the site will occur in the mid- to late-fall of 2007 and will require 2 to 3 days. The site is not accessible by foot or packstock, so all supplies and personnel will be flown by helicopter to the site. Up to six individuals will be transported and camp on site, including NRCS field technicians, NPS archeologists, and NPS restoration specialists. A total of 8 to 10 flights will be conducted to transport all personnel, instruments and construction materials to and from the site. Flights will originate at Obstruction Point, and fly over the Elwha Valley and up to the project location. The site will be accessed by a small (Type III) helicopter. No clearing or other manipulation will be required for helicopter landings.

Annual Site Maintenance

The primary maintenance need of a SNOTEL involves the storage precipitation gauge. The instrument will be expected to capture 100 to 150 inches of water equivalent of snow and rainfall each year. This dilutes the glycol and could overfill the gauge if glycol is not changed out annually. For this reason, the NRCS staff will maintain the SNOTEL site annually. Routine maintenance activities will involve checking and calibrating instruments and replacing the glycol in the precipitation gauges. The glycol will be hauled off-site and disposed of in an approved location outside the park. Staff will travel by helicopter directly from the Mt. Crag SNOTEL (east of the park in Olympic National Forest) or from

Obstruction Point to the Buckinghorse Ridge site. Maintenance will typically occur over a period of several hours. Annual maintenance flights will occur before winter but after Labor Day weekend to avoid busy summer months when the largest number of park visitors are using the park.

Additional long-term maintenance may require trimming, pruning or removing invading trees in order to keep the proposed installation site open. This will prevent any unusual snow loading and thus provide more accurate and consistent data collection. All work will be conducted as advised by the park's vegetation specialist.

Emergency Site Maintenance
The SNOTEL network uses standardized instrumentation and communication systems which have an excellent track record of performance. In the unlikely event of instrument failure during the winter operational period, the NRCS may request access to the site by helicopter for equipment repairs.

Site Calibration
During the first few years of a SNOTEL installation, manual measurements of snow depth and snow water equivalent might be taken to ensure that all instruments are calibrated and recording accurate data. In the case of a remote wilderness installation such as this, calibration trips will be minimized to one year or possibly eliminated altogether.

OTHER ALTERNATIVES CONSIDERED AND ANALYZED

In addition to the selected alternative, the EA considered a no action alternative and a modified SNOTEL installation.

Under the no-action alternative, no SNOTEL instruments would be placed within the Upper Elwha Valley or elsewhere in the park. Seasonal runoff on the Elwha and Dungeness rivers would continue to rely on existing data from outside of park wilderness. Annual climate summaries and changes in climate due to global warming would continue to be inferred from existing models or indirect methods such as downstream gauges and glacier mass balance despite the errors associated with these models and methods. Forecasting of floods, avalanches and winter storm events would rely on existing climate stations on the park periphery and use assumptions based on current models.

Under the modified SNOTEL installation alternative (alternative C), an experimental modified SNOTEL would be placed on Buckinghorse Ridge in the upper Elwha drainage. A modified SNOTEL would require installation of similar infrastructure as a full SNOTEL installation; however it replaces the communication shed with mounted boxes on the communications tower.
A single 1' x 1' steel communication tower, 30 ft. tall, would be erected. The tower would have a foundation, which would be 2 ft. in diameter and 3.5 ft. deep. This foundation is larger than the full SNOTEL due to the extra equipment being placed on the tower in this alternative. The SNOTEL network uses standardized instrumentation and communication

systems that have an excellent track record of performance. However, experimental installations such as the modified SNOTEL under this alternative remain untested. The ability of the modified tower and enclosures to withstand deep snowpacks as well as unknown forces of wind and rime may require the NRCS to access the site more frequently for emergency equipment repairs.

ALTERNATIVES CONSIDERED AND REJECTED

The park and the NRCS considered several alternatives for this project and conducted a detailed evaluation to determine the most feasible alternatives. In addition, several alternative locations were considered during the planning phase of this project; alternative locations were rejected because they did not meet the project purpose and objectives.

Provide actual snow measurements by conducting routine snow surveys by foot travel. Snowpack data has been collected by federal scientists since 1935 and in Olympic National Park since 1949. Snow survey data is collected using a hand held instrument known as a “federal sampler” to take manual measurements of snow depth and snow water equivalent at the beginning of each month during snow season.

Conducting routine snow surveys by foot was dismissed for several reasons: (1) Reaching areas of the upper Elwha would require extensive backpacking and snowshoe trips. This would require travel across dangerous, avalanche prone slopes and fording of streams and rivers during high flows, making safe access impossible under certain conditions. (2) Extensive training and extreme endurance would be required to safely execute snow surveys, even in good conditions. (3) The park and/or NRCS does not currently have the staff or funding for staff work and training that would be required to collect this data. (4) If snow courses were completed monthly, these measurements of snowpack would provide some meaningful data for summer streamflow forecasting and ecological studies. However, this data would not help with flood forecasting or provide daily measurements needed for park management and natural resources studies.

Conduct routine snow surveys using helicopters to access upper Elwha locations. As previously discussed, snowpack data can be collected using snow surveys. Olympic National Park or NRCS staff would rely on helicopter transport to access sampling areas. This method is used routinely in rugged, inaccessible locations such as North Cascades National Park, where snow surveys are conducted to supplement their four existing SNOTEL stations. This alternative minimizes the concern for avalanche safety and cost in staff time and provides relatively safe access to the snow survey courses. However, this alternative was dismissed for the following reasons: (1) helicopter transport and snow landings are inherently risky, (2) the cost of conducting monthly or bi-weekly helicopter flights would be high, (3) the impacts to winter soundscapes from repeated helicopter flights would be unacceptable, and (4) monthly or bi-weekly snow surveys, while providing periodic measurements of snowpack and some meaningful data for summer streamflow forecasting and ecological studies, would not help with flood

forecasting or to interpret finer details (i.e., daily measurements) relevant to many management needs.

Place a reduced footprint, alternative instrument snow site in a high elevation basin.
A reduced footprint "minimum requirement" SNOTEL was designed and installed in a wilderness area in Rocky Mountain National Park in 2002. Using this design, the SNOTEL footprint and visual impact of the site is greatly reduced. In place of a snow pillow, a "Gamma Sensor" (a small instrument hung on the instrument tower) is used. This sensor is comprised of two electronic devices that measure gamma rays, one on the ground and one at the top of a pole well above the maximum snowpack. The difference between the two gamma readings allows interpretation of snow density. In place of the traditional precipitation can, optical rain gauges are used. These devices use a beam of light traveling through falling precipitation to calculate rate of rainfall. Datalogger, air temperature sensors and telemetry equipment are placed in plastic enclosures and hung on a second tower. This instrument does not require tubing and transducers, and therefore no instrument/communication shed is required.

This alternative was dismissed for two reasons. First, alternative sensors have been unreliable in remote sites. In Rocky Mountain National Park, the gamma sensors proved to be both unreliable and problematic. The optical rain gauge, while not inherently problematic, required more energy than standard solar panels could provide, even in the sunny mountain environment of the Colorado Rockies. More extensive solar panels would have a greater visual impact than a traditional storage precipitation gauge, so both the optical rain gauge and gamma sensors were eventually replaced at Rocky Mountain with traditional SNOTEL instruments. Second, with the heavy snowpacks, high rainfall, winter conditions conducive to rime (ice) build up, low sun angles and few sunny days, the Olympics are not likely to produce adequate power for an optical rain gauge. Failure of instruments would likely create the same results as the no-action alternative.

Place a SNOTEL installation outside of wilderness.
Project locations outside of the wilderness were explored; however no high elevation areas within the "wet zone" (>100 in./year) exist in the area of concern. Because the placement of a SNOTEL outside of wilderness did not meet the primary project objectives, this alternative was dismissed from further evaluation.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The "environmentally preferred" alternative is determined by applying the criteria cited in the National Environmental Policy Act of 1969 (NEPA), and applied in accord with the Council on Environmental Quality (CEQ) regulations. The CEQ provides direction that "[t]he environmentally preferred alternative is the alternative that would promote the national environmental policy as expressed in section 101 of NEPA, which considers:

1. Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations.

2. Assuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings.
3. Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
4. Preserving important historic, cultural, and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice.
5. Achieving a balance between population and resource use that would permit high standards of living and a wide sharing of life's amenities.
6. Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources" (NEPA, section 101).

The NPS is required to identify the environmentally preferred alternative(s) for any of its proposed projects. In essence, the environmentally preferred alternative would be the one(s) that "causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources."

The no action alternative (alternative A) would have no effect on the natural processes and would cause the least amount of damage to the biological and physical environment; therefore it is identified as the environmentally preferred alternative. Alternatives B and C would both establish a research facility in the wilderness which would allow for better understanding of the natural environment and processes, however those alternatives would result in an adverse effect on the wilderness resource by the placement of a human made structure. Alternative C, has a slightly smaller footprint than alternative B, however the greater likelihood of instrument failure, combined with the inability of technicians to conduct emergency repairs means that this alternative is less likely to meet project objectives and could require a greater number of emergency maintenance flights than alternative B. Therefore, alternative B has fewer environmental effects than alternative C. Even though alternative A is the environmentally preferred alternative, it does not meet project objectives and therefore is not the management preferred alternative.

WHY THE SELECTED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

The following summary reviews impact considerations and highlights key safeguards of implementing the selected alternative. Mitigation measures will be employed to minimize these impacts during and after completion of the proposed project. The EA provides for detailed consideration of the factors supporting the determination of non-significance.

Soils: The selected alternative will involve excavation and manipulation of small areas of soil for the installation of the instruments. The total area of soil disturbance will be 235 sq. ft. There will be little potential for soil erosion associated with the disturbance because the site is flat and the majority of the disturbed area will be replaced with concrete or covered by instrumentation (such as the snow pillow). Although the impacts

to soils are minor, site peripheries will be revegetated using salvaged vegetation from disturbed sites.

Vegetation: The proposed action will involve removal of small areas of vegetation for the installation of the SNOTEL instruments. The total area of vegetation disturbance will be 243 sq. ft., including the removal of 5 conifer saplings and 24 conifer seedlings.. Approximately 80 sq. ft. of the disturbed area will be revegetated with salvaged plants. Approximately 155 sq. ft. will remain free of vegetation and replaced with instrument installations. In the event that young trees continued to invade the proposed installation site during the lifetime of the monitoring station, trimming, pruning or removing saplings might be necessary to keep the proposed installation site open.

Wildlife: The installation of SNOTEL instruments will disturb small areas of soil and vegetation which may provide food or cover for birds, amphibians and small mammals. This loss of habitat will be minimal, as total affected area will be very small when compared with the amount of similar habitat in the immediate project area. SNOTEL equipment will be located adjacent to elk trails, but will not block or deter travel of large mammals such as elk, deer or bear.

Helicopter flights and camping associated with the initial installation, as well as annual or emergency maintenance flights, will have minor impacts on some wildlife species. Noise and turbulence from helicopter engines and rotors is extensive and non-natural. Birds as well as small and large mammals will likely flee the immediate area in response to this disturbance. Installation of a SNOTEL under this alternative will involve 7 to 9 flights over 2 days. The actual time a helicopter will be on or above the area per flight is approximately 2 minutes per flight, for a maximum of 15 minutes of intense (high decibel) disturbance. Assuming repeated flights every 0.5 hour, total time including intense disturbance and time between disturbances will be 4 hours for 2 days, or 8 hours total.

Annual maintenance flights will entail a single flight each fall. Maintenance will take 2 to 3 hours. Total impact will be 4 minutes of intense, helicopter impact, and 2 to 3 hours of influence from human presence.

Emergency maintenance flights will entail a single flight during winter months, a period of time when most wildlife species are absent or dormant. No impacts to wildlife will be associated with this activity.

Wilderness Values: The project site has no evidence of recent human occupation and is miles from the nearest area with evidence of visitor use. It is a prime example of an undisturbed, pristine wilderness where natural and primitive conditions dominate.

Placement of modern instruments into this setting will effectively alter the character of this site with direct evidence of human presence. In addition, helicopter flights over park wilderness and landings within park wilderness create direct impacts to wilderness values. Installation of a full SNOTEL under this alternative will involve 7 to 9 flights

over 2 days. During these days, a helicopter will fly above park wilderness for approximately 4 hours, for a total of 8 hours for the total project. The noise associated with helicopter use travels long distances. Helicopter noise will likely intrude upon large portions of the Elwha Valley during the short period of installation flights. Annual and emergency maintenance flights will entail a single flight each fall, after the busy summer visitor season. On site maintenance will take 2 to 3 hours with a total flight time of 0.5 hour over the Elwha drainage.

Existing facilities, trails, park operations and periodic flights result in adverse, moderate cumulative effects to the wilderness resource. The cumulative adverse impact of the placement of this facility and the annual maintenance flight will contribute slightly to the overall cumulative effects.

A thorough minimum requirement document was included in the EA and careful consideration was given to the potential trade-offs of a SNOTEL installation. In this document, the NPS determined that the permanent benefits of the information gained would outweigh the short-term transitory effects of installation and the long-term occupancy of instruments in a remote and inaccessible location within the park wilderness.

***Cultural Resources*:** The proposed action will involve excavation and manipulation of small areas for the installation of the instruments. Archeological surveys within the project area revealed a low density of precontact artifacts in the area proposed for construction of the communication shed. Additional archeological testing and evaluation will be performed prior to installation of the facility. This work will occur within the exact footprint of the proposed instrument shed, where cultural material was identified. Ground disturbance associated with the snow pillow, cable trenches and precipitation gage will be carefully monitored. Following completion of the testing and evaluation, the facility will be installed without additional impact to the site area.

Visual Resources: Scenic values of the upper Elwha Valley where the proposed installation is visible could be impacted in this alternative, however the likelihood of visitation to these areas is extremely small due to the small area of the viewshed and the inaccessible nature of this area.

Soundscapes: Instruments that will be installed under this alternative will not create unnatural sounds and will have a negligible impact on soundscapes. Helicopter flights associated with the installation and annual maintenance will have a direct, short-term adverse, minor impact on soundscapes. Occasional flights in the Elwha drainage result in short-term, adverse, moderate impacts to the natural soundscapes in the park. This alternative will contribute slightly to those cumulative effects.

Visitor Experience: Placing a SNOTEL in the upper Elwha could have minor beneficial or adverse impacts to visitor experience at Olympic National Park. Park managers assume that reasonable and safe access (roads, trailheads, cleared trails and bridges), some facilities (campsites, bear wires and privies), personal freedoms (the ability to travel off trail, camp wherever one wants and seek hazardous or unknown areas), solitude

(natural sounds and the absence of visitors), scenery and wildlife encounters are some but not all of the possible items that could comprise a positive park wilderness visitor experience. However, the nature of a visitor experience can be difficult to quantify. What one set of visitors perceives as a positive experience, another set might find detracts greatly from the overall experience.

Climate information, current snow conditions, weather and avalanche forecasts are of high importance to many park wilderness visitors.

In contrast, some visitors seeking a pristine wilderness experience might happen upon or view the proposed SNOTEL site. Climate instruments, reflecting modern society and its trappings, could have a direct, long-term, minor negative impact on these visitors' experiences. However, views of or visits to the proposed SNOTEL site are highly unlikely as the project site is surrounded by tall, dense trees and is visible from few other areas of the drainage and access to the site is extremely difficult, requiring over 5 miles of rugged and impassable cross-country terrain. Likewise, some visitors might be negatively affected by the noise of a helicopter flying to maintain the SNOTEL instruments.

Park and Safety Operations: Safety and natural resource management are vital missions of the NPS. This alternative will increase the accuracy of seasonal river flows forecasts, provide better data for predicting timing and extent of flood and avalanche events, and provide baseline data for better understanding impacts to park ecosystems from global climate change.

BASIS FOR DECISION

The preferred alternative is the selected course of action. The project could be implemented without any major adverse impacts to vegetation, wildlife, soils, wilderness values, cultural resources, visual resources, visitor experience, and park and safety operations.

There were no highly controversial effects identified during either the preparation of the environmental assessment or the public review period, and the impact analysis has not been highly debated. The nature of this project is such that it does not involve highly uncertain, unique, or unknown risks. The available information on which to base this decision is adequate.

The selected actions are not directly related to any larger proposal. The project does not establish a precedent or constrain any future considerations of use in the area. The NPS followed required compliance processes to ensure that this project does not violate any federal, state, or local environmental protection laws or requirements.

MITIGATION MEASURES

Mitigation measures have been incorporated into the selected alternative to avoid or reduce impacts as part of the proposed project. All mitigation measures are summarized in Table 1 below.

Table 1. Mitigation Matrix

Resource Area	Mitigation	Responsible Party
Soils and Vegetation	Careful site selection was used to find a level area for the proposed snow pillow installation to minimize the amount of soil disturbance for cut and fill purposes. To minimize impacts to vegetation and decrease the overall footprint of the installation, all instruments will be installed in as tight an arrangement as possible, while allowing adequate spacing so that installations do not intercept or interfere with snow deposition. Native vegetation will be carefully salvaged by revegetation experts and placed in holding areas during installation. Excavated soils will be placed onto clean tarps and stored until backfilled into trenches. Salvaged vegetation will be restored to all areas unless it interferes with the operation of instruments. All equipment (including helicopter skids), tools, boots, clothes and packs will be cleaned to ensure that no exotic species are transported to the site. Any fill used will be from the local area and free of exotic seed sources.	NPS Resource Management Specialist, NRCS Project Lead
Wilderness and Visitor Experience, Visual Resources	Potential impacts to wilderness visitor experience and visual resources were mitigated with careful selection of the proposed installation site. The chosen site is surrounded by trees at least 10 to 20 ft. higher than proposed equipment height. The project site is situated out of sight and well away from any wilderness trails, campsites or cross-country routes frequented by visitors. All equipment will be painted in green or brown tones to provide additional camouflage. During installation and maintenance of the facility, “leave no trace” practices will be used.	NPS Resource Management Specialist, NRCS Project Lead
Wilderness and Visitor Experience, Soundscapes	Impacts to the Elwha soundscape will be mitigated by using the minimum size helicopter (Type III) for all installation and maintenance flights. Direct soundscape impacts to park visitors will be mitigated by conducting maintenance and installation flights during late fall or winter months when fewer park visitors are in the project area and after critical periods for wildlife.	NPS Resource Management Specialist, NRCS Project Lead
Safety	Impacts to safety from the use of helicopters can be mitigated through strict adherence to agency aircraft use policies. All	NPS Resource Management

Resource Area	Mitigation	Responsible Party
	flights associated with this project will be overseen by trained staff. Aircraft will follow standard aviation safety practices, such as flight following, air to ground communication and identification of operational hazards.	Specialist, NRCS Project Lead
Cultural Resources	Archeological resources in the project area will be further tested and evaluated through archeological surveys prior to construction, and archeological monitoring during construction. If significant archeological materials are found, then instrument locations will be moved or data recovery (archeological excavation and documentation) will occur. Park archeologists will be on site before and during the installation.	NPS Archeologist, NPS Resource Management Specialist, NRCS Project Lead

NON-IMPAIRMENT OF PARK RESOURCES

Impairment is an impact that, in the professional judgment of the responsible manager, will cause permanent and/or major harm to the integrity of park resources or values, including opportunities that otherwise will be present for the enjoyment of those resources or values.

The implementation of the preferred alternative will result in no more than minor adverse impacts to soil resources, wildlife, wilderness resources, archeological resources, visual resources, and soundscapes in and around the project area. Mitigation implemented during and after project implementation will reduce impacts to vegetation, wildlife, soils, wilderness values, cultural resources, visual resources, visitor experience, and park and safety operations.

The NPS has determined that implementation of the proposed action will not constitute an impairment to ONP resources and values. This conclusion is based on a thorough analysis of the environmental impacts described in the EA, public comments received, relevant studies, and professional judgment of the decision-makers guided by direction in NPS *Management Policies 2006*.

PUBLIC ENGAGEMENT AND AGENCY COORDINATION

Public Scoping

A scoping letter and news release initiating public scoping and describing the project was issued on February 7, 2007. The press release was sent to approximately 50 media outlets, interested groups, public officials, agencies, and other individuals on the park's mailing list. Comments were solicited during a public scoping period that ended March 9, 2007. Six responses were received. Comments received were generally in support of the project, although one organization expressed opposition due to concerns over conflicts with the Wilderness Act. There was interest in the park carefully choosing an appropriate site which would minimize the footprint on the land and would be hidden from public view. Individuals also desired direct benefits such as real-time access to data.

Media notices for public scoping were published by the *Peninsula Daily News* on February 9-10, 2007, NW hikers.net on February 7, 2007, and KONP website and radio news program on February 8, 2007.

Public Review of the EA

The EA was released for public review on September 10, 2007. A press release was sent to approximately 50 media outlets. Approximately 50 printed versions of the EA were sent to individuals, park neighbors, organizations, area tribes, local news media, area libraries, and agencies on the park's mailing list. Notification of the EA was sent to an additional 30 individuals on the park's mailing list, and emailed to 136 interested parties. An electronic version of the EA was broadly available to the public through a posting on the NPS Planning, Environment and Public Comment (PEPC) website and linked to the park's public website.

A media notice for the review of the EA was published on the Internet by mystateusa.com. When the EA notice and public review period was not published in the area newspaper, an additional news release was submitted to area media outlets on September 13 with a request to publish. However, area news media did not publish the notice. Even though there was no publication in the local newspaper, because of the extensive mailing list, available information related to the project on the park and NPS websites, mention of the project during a local radio interview conducted by the park's Public Information Officer on September 18, and publication on a local Internet media outlet, notice of the EA was made broadly known to the public.

The public review and comment period for the EA was open until October 11, 2007. The park received ten comments during the public review period of the EA; four from individuals, five from interest groups, and one from a local university. Each comment was considered and reviewed by park staff.

Nine of the ten comments were in support of the project. One of the interest groups included eleven signatures with their letter of support.

In general, commenters only expressed support or opposition to the project. Most comments expressed strong support for the preferred alternative B.

One commenter was opposed to any automated telemetry installations within Olympic National Park. This commenter also expressed concern that there are already too many overflights occurring in the park and that SNOTEL stations in the Pacific Northwest are unreliable measuring devices. The park considered several alternatives for this project and conducted a detailed evaluation of a range of reasonable alternatives. Several alternative locations were considered, but rejected because they did not meet the project purpose and objectives. As addressed in the EA, helicopter flights for the preferred alternative B will be required for installation, annual site maintenance, and may be required for emergency site maintenance. Flights associated with the project will have a direct, short-term moderate adverse impact to park visitors. All flights related to this project will occur after peak visitor season. The park considered alternative instrumentation and concluded that a full SNOTEL will provide the most accurate and reliable winter storm, flood, and avalanche data, which will increase public safety.

Another commenter suggested that the park should provide a plan for decommissioning the SNOTEL if remote sensing and models prove adequate for estimating snowpack and providing stream forecasting in the future. They also suggested that the park should consider removal of the current Hayes River climate station if this data proves to be redundant. Although it is not within the scope of the EA, if climate scientists determine that the data is redundant, the park will consider removing the Hayes River climate station.

The commenters did not provide any additional, new, or substantive information that would require revising the EA for additional public review or that would change the determination of effects.

Consultation and Coordination

A letter was sent to the Lower Elwha Klallam Tribal Chair on August 28, 2007, formally inviting the tribe to comment on the proposed actions and providing them with an opportunity to express specific concerns. The Tribe did not respond. A letter was sent to the Tribal Chair of the Lower Elwha Klallam Tribe on September 10, 2007 notifying the tribe that the park was willing to meet and conduct government-to-government consultation to discuss any questions or concerns about the proposed project. The Tribe did not respond to the letter. However, during the planning of this project, park scientists regularly interacted with Lower Elwha Klallam tribal biologists and natural resource staff during watershed meetings. The project's potential benefits to river restoration, future water management, and potential public safety was verbally affirmed by staff on several occasions.
A letter was sent to the State Archeologist/Department of Archaeology and Historic Preservation (SHPO) on August 28, 2007. The SHPO had no concerns with the project

but requested in their response letter (dated September 11, 2007) that survey results be forwarded once completed.

No other permits or consultations were required for this project.

CONCLUSION

Based on the conservation planning and environmental impact analysis documented in the EA, with due consideration of the nature of the public comments and consultations with other agencies, and given the capability of the mitigation measures to avoid, reduce, or eliminate impacts, the NPS has determined that selected actions do not constitute a federal action that normally requires preparation of an environmental impact statement (EIS). The selected actions will not have a significant effect on the quality of the human environment or the park's cultural resources, or natural resources, and are not likely to adversely affect threatened or endangered species.

There are no unmitigated adverse impacts on public safety, sites, or districts listed in, or eligible for listing in, the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, cumulative effects or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law. Based on the foregoing, it has been determined that an EIS will not be prepared and the selected actions may be implemented as soon as practicable.

Recommended: