



**Avalanche Hazard Reduction
By Burlington Northern Santa Fe Railway
In Glacier National Park and Flathead National Forest, Montana
Final Environmental Impact Statement**

Waterton-Glacier International Peace Park, National Park Service
U.S. Department of the Interior

Flathead National Forest, US Forest Service
U.S. Department of Agriculture

Montana State Department of Transportation



June 2008

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1979 Avalanche Cycle

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Peace Park
United States Forest Service-Flathead National Forest
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Flathead and Glacier Counties, Montana
June 2008

ABSTRACT

The purpose of this abbreviated *Final Environmental Impact Statement (FEIS)* is to analyze a proposal by Burlington Northern Santa Fe Railway (BNSF) to use explosives in Glacier National Park to conduct avalanche hazard reduction for the protection of BNSF property, personnel, freight, and Amtrak passengers. The detailed analysis is contained in the Draft EIS. According to DO-12, an abbreviated FEIS can be prepared if a Draft EIS requires only minor changes in response to public comment. This document also contains responses to substantive comments raised during the 98 day Draft EIS public comment period. After public review of the Draft EIS, BNSF withdrew their proposal (described as Alternative D) on January 29, 2007 and asked that the EIS process be suspended. The NPS decided to complete the EIS process because the possibility exists for BNSF to request a future special use permit for explosive avalanche mitigation within the park. Additionally, BNSF did not indicate that they had resolved the issue in a manner that did not involve Glacier National Park lands. Alternative D is still included because, combined with the other alternatives, it represents the full range of alternatives required for analysis under the National Environmental Policy Act. Flathead National Forest and Montana Department of Transportation are cooperating agencies on this FEIS. This document presents a summary of the four alternatives that are described in detail in the Draft Environmental Impact Statement. The alternatives address explosive and non-explosive avalanche hazard reduction actions on Glacier National Park lands, Flathead National Forest lands, and within the adjacent BNSF and US Highway 2 transportation corridor. Alternative A: No Action is the *status quo* alternative addressing the consequences of continuation of the current conditions. Alternative B is the Preferred Alternative and the Environmentally Preferred Alternative and recommends that BNSF construct less than one mile of snowsheds in this area. No explosive use would be permitted except during emergencies. Alternative C permits the limited use of explosives (no artillery use) to reduce avalanche hazard for up to 10 years with a commitment from BNSF to construct recommended snowsheds. Alternative D permits annual explosive use (including military artillery) indefinitely in the park for avalanche hazard reduction and recommends the extension of two snowsheds. NPS staff, BNSF staff, and BNSF consultants developed Alternative D as the BNSF proposal at the beginning of the EIS process. This document summarizes the impacts of the alternatives on natural avalanche processes, water resources, aquatic resources, geology/soils, vegetation, wildlife, federally threatened and endangered species, air quality, natural sound, historic buildings, cultural landscapes, socioeconomic resources, health and safety, wilderness, visual resources and public use and experience.

This document has been prepared in accordance with the National Environmental Policy Act. For more information about this project, contact Mary Riddle (PO Box 128, West Glacier, Montana 59936/ phone 406-888-7898).

EXECUTIVE SUMMARY

INTRODUCTION

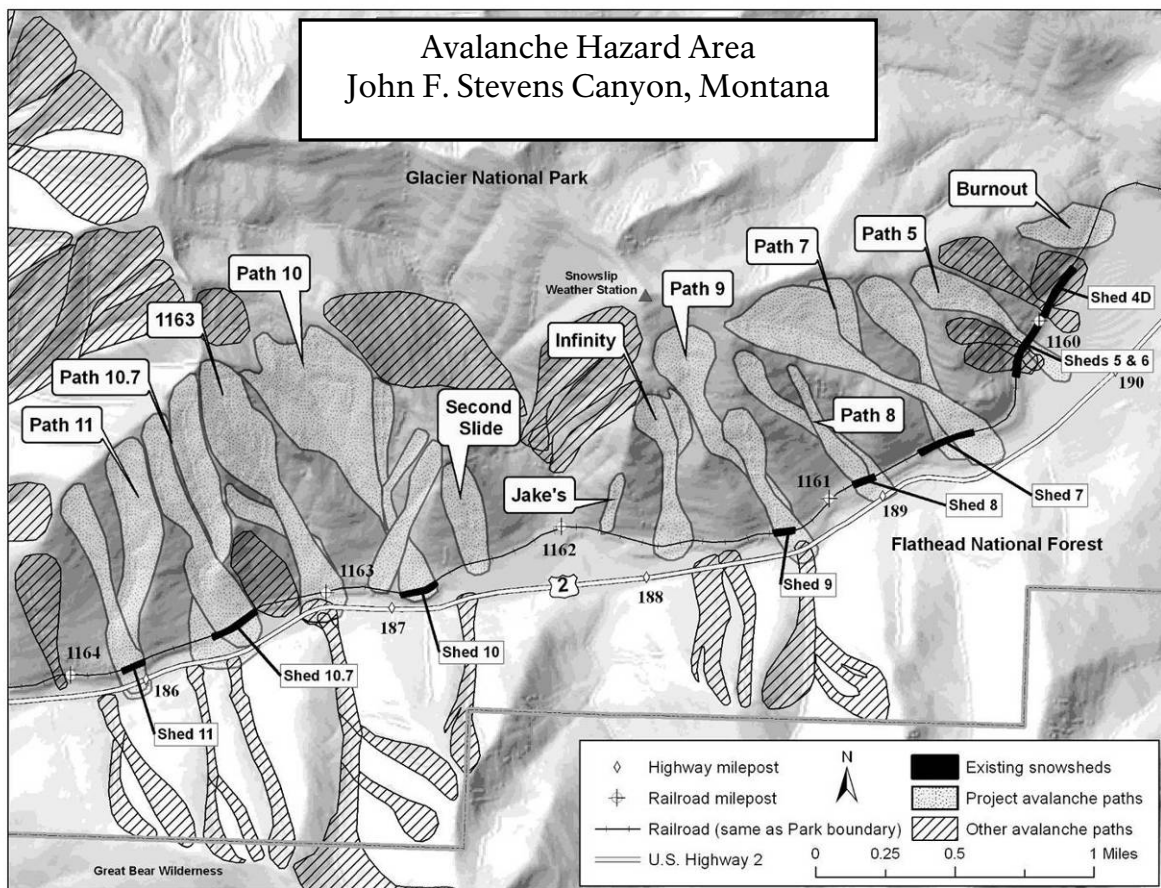
In 2005, Burlington Northern Santa Fe Railway (BNSF) requested a special use permit from Glacier National Park (GNP) for a permanent explosive avalanche hazard reduction program including the use of military artillery. According to BNSF, this proposal was necessary to protect increasing train numbers and intercontinental freight lines. The National Park Service (NPS) informed BNSF that an Environmental Impact Statement would be required. The EIS was begun in May 2005. BNSF's request was developed and identified as Alternative D in the DEIS. BNSF officials reviewed Alternative D before it was analyzed and released to the public to ensure that their request was accurately reflected. During the public review and comment period, BNSF withdrew their proposal (D) and indicated they would like to submit another proposal for consideration. To date a new proposal has not been received. However, we (the NPS) decided to complete our evaluation of what we believe is an acceptable avalanche hazard reduction program, in this area, for the railroad. Alternative D remains as part of the full range of alternatives required by NEPA, although it is no longer identified as BNSF's proposal.

The purpose and need of the EIS was to analyze BNSF's request for a special use permit to use explosive avalanche hazard reduction in the park for the protection of BNSF employees, Amtrak train passengers, freight, and equipment along the southern boundary of GNP through John F. Stevens Canyon, and to reduce avalanche caused interstate commerce delays along the route. BNSF requested special use permits for explosive avalanche hazard reduction in 2004, 2006, and 2007. Historically the railroad constructed snowsheds in this area to protect trains. Eight of the original nine snowsheds remain, but no longer provide adequate protection.

Explosive use for avalanche hazard reduction would be an unprecedented action in GNP, and the park has many serious concerns about impacts to park values, including winter wildlife habitat, threatened and endangered species, natural sound, and recommended wilderness. However, the park concurs that there are avalanche hazard safety issues in this area and agreed to consider and analyze BNSF's original proposal as well as a range of alternatives. This Environmental Impact Statement (EIS) was prepared to analyze the impacts of avalanche hazard reduction alternatives. The Flathead National Forest (FNF) and Montana Department of Transportation (MDT) are cooperating agencies on this EIS.

On January 28, 2004, during an avalanche cycle, the railroad through John F. Stevens Canyon was blocked by several avalanches for 29 hours. The avalanches originated in starting zones within GNP. During this storm an empty, 119-car freight train was hit by an avalanche and derailed. While it was stopped, it was hit by another avalanche from an adjacent path that derailed more cars. A third avalanche just missed cleanup crews and a fourth slide hit a truck traveling along US Highway 2 below the railroad. BNSF requested an emergency special use permit to perform immediate explosive avalanche control within the canyon. The park, after much consideration, issued a 3-day emergency permit for this activity. The snow stabilized and explosive use was not necessary. BNSF was informed that future explosive avalanche hazard reduction would require the preparation of an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA). BNSF requested another special use permit for emergency explosive use in February 2006 during the EIS preparation

period. The park issued a 3-day emergency permit and a helicopter was used to deliver 10 explosive charges. Very little avalanche activity occurred and the operation was cancelled once the Avalanche Safety Director determined that the snowpack had stabilized naturally.



After the January 2004 incident, BNSF contracted Chugach Adventure Guides to analyze the avalanche hazard in the canyon. Their report *Avalanche Risk Analysis John Stevens Canyon, Essex, Montana* (Hamre and Overcast 2004; DEIS Appendix A) identifies the avalanche potential for 14 avalanche paths along the railroad corridor. Avalanche paths are dynamic in nature, widening and narrowing with vegetation removal or growth. Seven avalanche paths are partially protected by existing snowsheds because the avalanche paths have widened and the snowsheds are too short. These seven snowsheds could be extended to provide adequate coverage through avalanche zones. Five of the avalanche paths in the analysis do not have snowsheds and two of the paths were not determined to be a hazard to railroad traffic due to the low frequency of avalanche occurrence. The report defines avalanche hazard reduction alternatives including explosive avalanche hazard reduction and snowshed construction. The report states that the snowshed construction alternative would decrease avalanche risk most effectively providing 24-hour protection of the tracks.

In addition to snowshed construction in the previous century, BNSF has recently been proactive in implementing avalanche reduction measures that have not required federal, state or local permits. BNSF has instituted an avalanche awareness program including forecasting, non-explosive stability testing, weather data collection, employee avalanche awareness and rescue training. However, BNSF has indicated that these safety measures are insufficient and

the costs of delayed railroad traffic during periods of high snow instability would be too great to incur.

Issues and Concerns

Public involvement began with a scoping letter sent to a mailing list compiled by GNP and FNF staff on May 17, 2005. Public open houses were held in Essex, Montana on May 25, 2005 and in Kalispell, Montana on May 26, 2005. The public scoping process ended on July 22, 2005 and GNP received 954 written comments concerning the BNSF request for explosive use. Concerns and issues raised during scoping are listed below.

Wilderness

Weather station installation under Alternatives B, C, and D would be on recommended wilderness lands in GNP. The explosive use in Alternatives C and D would occur in starting zones within GNP recommended wilderness resulting in recreational closures, impacts on natural soundscape, and possible removal of the area from wilderness area recommendation if a continuous explosive program were permitted. Placing fixed structures in recommended wilderness would be against National Park Service (NPS) policy.

Threatened and Endangered Species and other Wildlife

Winter wildlife observations in the project area were conducted during 2005 and 2006. Federally listed threatened and endangered species (grizzly bears, bull trout, and Canada Lynx) were observed and have been known to occur in the project area. A number of state listed species also occur in the project area. In addition, this area serves as winter range for ungulate species.

Avalanche Risk to Human Safety and Trains

Avalanche caused fatalities, train derailments, and equipment damage have contributed to BNSF's request for explosive use. The railroad has implemented non-explosive measures to protect their equipment, employees and freight. Hamre and Overcast (2004) recommend several alternatives including snowshed construction and explosive use to reduce the risk of avalanche caused incidents by 80-90%. These alternatives form the basis for some of the alternatives discussed in this document.

US Highway 2

MDT raised concerns about BNSF shooting explosives from the US Highway 2 corridor and impacts on highway traffic from avalanche hazard reduction activities and snowshed construction.

Use of Explosives in Glacier National Park

Most of the public scoping comments expressed concern about the appropriateness of explosive use, especially military artillery, in GNP. Concerns about the compatibility of explosive use with park values, wilderness, and federal law were raised. Impacts on wildlife, threatened and endangered species, vegetation, water quality, air quality, natural sound, visitor experience, and recreation were also raised.

Wildlife Crossings

Public comments raised the issue of incorporating wildlife crossings into BNSF snowshed designs.

Public Use and Experience

The public raised concerns about explosive noise, visitor safety, unexploded ordnance and restrictions on public use of the area. The public lands between Marias Pass and Essex,

Montana are popular for backcountry skiing, snowshoeing, and snowmobiling. Commercial and private recreational trips may be affected by road and trail closures in some alternatives.

Scenic Resources

Both sides of US Highway 2 are surrounded by steep mountainous terrain that contributes significantly to the beauty of the area. Explosive use could affect rock outcrops or vegetation along the corridor. Fixed explosive equipment such as blaster boxes or Avalhex systems may be visible from the roadway. New snowsheds and snowshed extensions may change views from the highway and the railroad as people travel through the area. The US Highway 2 corridor is part of the Northern Continental Divide Scenic Loop.

Socioeconomics

BNSF Railroad has expressed concern about the economic ramifications of delaying train traffic for long periods during periods of high avalanche danger as well as the high costs of snowsheds. Other economic concerns of the railroad are the cost of equipment loss, derailments, spill cleanup, and time sensitive commodities transported on the railroad.

Issues and Concerns Dismissed from Further Analysis

The following issues and concerns were raised during the scoping and EIS preparation process, but were determined to be beyond the scope of the EIS.

- Naturally occurring avalanche threat to US Highway 2
- Explosive avalanche hazard mitigation in national forests and other national parks
- Fire suppression in John F. Stevens Canyon
- Avalanche hazard mitigation on other railroads
- Global and regional climate change

ALTERNATIVES

Avalanche hazard reduction methods considered in this document include explosive technology, snowshed construction, weather data collection, avalanche forecasting, stability testing, avalanche detection technology, railroad delays and restrictions.

Alternative A: No Action

There would be no BNSF action permitted by the NPS. No explosive use would be permitted in Glacier National Park. BNSF would maintain eight existing snowsheds. No new avalanche hazard reduction structures would be built on park or forest lands. Avalanche signal wire would continue to be maintained for avalanche detection on the railroad. The Avalanche Safety Director (ASD) would use avalanche forecasting and weather data collection to make recommendations to BNSF concerning delays or restrictions on the railroad.

Alternative B: Glacier National Park, Flathead National Forest, and Montana Department of Transportation would recommend that BNSF construct or modify snowsheds (*Preferred Alternative*)

Under Alternative B, GNP, FNF, and MDT would recommend that BNSF build snowsheds in paths without adequate protection. The recommendation for snowshed construction is based on the report *Avalanche Risk Analysis John Stevens Canyon, Essex, Montana* (Hamre and Overcast 2004). Avalanche forecasting, non-explosive stability testing, and railroad

restrictions would reduce avalanche hazard during snowshed construction. No explosive use would be permitted in Alternative B except under emergency extenuating circumstances. Glacier National Park would grant a permit for emergency explosive use in the event that human lives and or resources are at risk and all other options have been exercised by BNSF.

Alternative C: Glacier National Park, Flathead National Forest, and Montana Department of Transportation would recommend that BNSF construct or modify snowsheds. Glacier National Park would issue BNSF a 10-year special use permit for explosive avalanche hazard reduction during snowshed construction.

Under Alternative C, GNP, FNF, and MDT would recommend that BNSF build snowsheds in paths without avalanche protection. Five new snowsheds, approximately 3,540 feet, would be constructed. Seven existing snowsheds would be extended approximately 1,500 feet. A total of 5,040 feet of snowsheds would be constructed if the recommendations were followed from the report *Avalanche Risk Analysis John Stevens Canyon, Essex, Montana* (Hamre and Overcast 2004). Upon receipt of a BNSF commitment to construct snowsheds, GNP would issue a special use permit for up to ten years permitting explosive use in the park and along the US Highway 2 corridor while snowsheds are being constructed. The permit period would be decreased depending on the number of snowsheds to which BNSF commits. The permitted explosive delivery methods would be handcharges, Avalauncher, helicopter delivery, Avalhex type systems, and/or blaster boxes. RECCO tracking devices would be required on all explosive charges so that unexploded charges could be found quickly. Military artillery would not be permitted due to incompatibility with park values, shrapnel left in start zones, large noise footprint from the propellant explosion at the gun and ammunition detonation in the start zone, and the possibility for unexploded ordnance. The Avalhex type systems and/or blaster boxes would be temporarily installed in high elevation start zones. Infrasonic avalanche detection systems or geophone systems would be permitted within GNP or FNF lands.

Explosive use would depend on defined avalanche hazard conditions (DEIS Table 2-1). Past weather data from the past 29 years, shows that avalanche cycle conditions occur on average one to two times per year. Five cycles is the highest number of cycles recorded in one year and this has only occurred once in the 29-year record. Appendix C describes targeted start zones and estimated use of explosives.

BNSF would fund an extensive resource-monitoring program for up to 15 years to determine the impact of explosive use on wildlife, water, soils, vegetation, natural avalanche processes, and natural sound. An interagency technical team would develop monitoring thresholds, which would guide annual permitting and explosive use conditions. The annual permitting and explosive use amounts would be subject to change if impact threshold conditions were exceeded.

Alternative D: Glacier National Park would issue BNSF a special use permit for a permanent explosive avalanche hazard reduction program.

This alternative is the original proposal developed and submitted by BNSF with some additions by GNP. The additions to the proposal were reviewed and agreed to by BNSF prior to analysis in the DEIS. A permanent program of explosive avalanche hazard reduction would be permitted in GNP and involve the use of FNF lands and the US Highway 2 right-of-way. Explosive delivery methods would include military artillery, blaster boxes, Avalhex type systems, helicopter delivery, Avalauncher, and handcharges. BNSF would limit explosive use

to three events per year with NPS approval required if storm events exceed this. Up to four asphalt pads and up to 700 feet of access road would be constructed off the US Highway 2 ROW. The asphalt pads would be used for artillery placement and firing.

BNSF would build extensions on Shed 7 (100 feet) and Shed 9 (150 feet). Shed 7 has the most avalanche hazard and Shed 9 starting zones are difficult to see or reach even with military artillery

As noted earlier, in the course of the EIS process, BNSF Railway withdrew their proposal during the public comment period on the DEIS. However alternative D is part of a full range of alternatives analyzed in the DEIS and therefore was retained as an alternative. It is no longer identified as BNSF's proposal.

Actions Common to All Action Alternatives

Avalanche forecasting, non-explosive stability testing, and weather data collection are currently being conducted by the BNSF Avalanche Safety Director and are expected to continue in the future. Avalanche forecasting and hazard analysis would continue under all alternatives. A snow depth gage would be installed in the Park at elevation 5,600 feet on the ridge between Shed 7 and Shed 9. A weather station would be installed at milepost 189.8 in the Highway ROW off US Highway 2. The snow depth gage and weather station would provide data for avalanche forecasting. BNSF would delay train travel through the canyon when avalanche danger is high, when avalanche debris crosses the tracks, or explosives are used. Amtrak passengers would be delayed or rerouted around the canyon during periods of avalanche danger. Traffic on US Highway 2 would be delayed during explosive use. Avalanche detection technology such as infrasonic or geophone systems may be installed on FNF or GNP lands.

Environmental Consequences of Alternatives

Impact Topics

The affected environment for each impact topic is described in Chapter 3. The environmental consequences of each alternative are discussed in Chapter 4. The impact topics are avalanche processes, water quality, aquatic species, geology and soils, vegetation, wildlife, threatened and endangered species and species of concern, natural sound, air quality, historic structures, buildings, and landscapes, socioeconomics, human health and safety, wilderness, visual resources, visitor use and experience.

Environmental Consequences of Actions Common to All Alternatives

There is potential for an avalanche caused derailment and hazardous material spill under each alternative. Alternatives A and B (during snowshed construction) would have the greatest potential for avalanche caused derailment of freight or hazardous materials if train delays were not implemented in a timely manner according to elevated avalanche hazard. Snowshed construction under Alternatives B and C would protect avalanche paths and the potential for avalanche caused derailments or hazardous material spills would be nearly nonexistent once snowsheds are completed. The environmental impact of a derailment or hazardous material spill would run a range of effect depending on the substance. The range of adverse impact would be negligible to major, short-term to long-term, site-specific to regional on water resources, aquatic resources, soils, vegetation, wildlife, threatened and endangered species, air quality, socioeconomics, health and safety, wilderness, visual resources, and public use and experience. BNSF would bear all costs associated with a hazardous material spill and cleanup operations.

BNSF avalanche forecasting, non-explosive stability testing, and weather data collection would not have any impact on park or forest resources. Snow depth sensor, avalanche detection system, and weather station installation would include a negligible amount of vegetation and soil disturbance. Camouflage paint would decrease the visibility of the instrumentation and there would be negligible impacts on visual resources. Installation of fixed structures in recommended wilderness for purposes unrelated to wilderness preservation is against the Wilderness Act and NPS policy, would be a nonconforming use requiring approval.

Environmental Consequences of Alternative A

Alternative A would have no effect on avalanche processes, water resources, aquatic resources, wildlife, threatened and endangered species, natural sound, historic resources, wilderness, visual resources, and public use and experience. Averaged over time, impacts on BNSF socioeconomics would be minor, adverse, and long-term. Most economic impacts from Alternative A result from an average of 7.1 hours of delay time per year from avalanche caused incidents over the past 28 years. Seven avalanche cycles have disrupted train traffic in the past 28 years and each incident has delayed rail traffic an average of 39.6 hours. Delays, rerouting Amtrak traffic, and equipment damage have resulted in minor, adverse, long-term and BNSF-specific economic impacts. If an avalanche caused derailment and consequent cleanup were to occur, costs could greatly increase depending on the substance and difficulty of removal. There would be no impact on US Highway 2 with Alternative A as there would be no explosive use closures delaying or rerouting motorists or freight vehicles. Only natural avalanche hazard would affect the highway with hazard closure procedures.

The greatest impact from Alternative A would be on public health and safety if timely delays or restrictions were not implemented during periods of high avalanche danger and injury or death occurred from an avalanche. The impact on health and safety could be major, adverse, long-term, and site-specific in the event of fatalities. Avalanche forecasting, avalanche safety awareness, and recommended delays or restrictions could eliminate most avalanche risk if continued. In the event of a hazardous material spill, the range of impacts on avalanche processes, water resources, aquatic species, soils, vegetation, air quality, natural sound, socioeconomics, and public use and experience would run the range of negligible to major, adverse, site-specific to regional, and short-term to long-term depending on the substance spilled. The estimated annual cost to BNSF would be \$1, 039,000-\$1,978,000. BNSF would be responsible for all costs associated with this alternative.

Environmental Consequences of Alternative B (*Preferred Alternative*)

Snowshed construction would disturb soil in already disturbed areas around the railroad. Natural avalanche processes would continue to occur without artificial triggering. Avalanche hazard would continue to occur, causing BNSF to use avalanche forecasting and hazard analysis to impose delays and restrictions while snowsheds are built. Once snowsheds are completed, the railroad would be fully protected and restrictions or delays are not expected to be necessary.

Snowshed construction in Alternative B would have a negligible, beneficial, site-specific, long-term impact on natural avalanche processes, as the natural slope over the railroad would be restored by the snowshed. Water resources would have minor, adverse, site-specific impacts from naturally occurring avalanche debris periodically damming Bear Creek and snowshed construction introducing sediment into the watershed. The decrease in derailment potential from snowshed construction would be a minor, beneficial, long-term,

localized impact on aquatic resources. Construction activities are expected to have a minor to moderate, adverse, long-term, site-specific impact on geology, vegetation, wildlife, threatened and endangered species, air quality, natural sound, wilderness, and public use and experience.

Snowsheds cost from \$20,000 to \$25,000 a linear foot, according to BNSF, and would have a moderate, adverse, long-term impact on BNSF economics. BNSF would be responsible for all costs associated with snowshed construction under this alternative. While it seems that this impact would be great financially, the benefits of removing the avalanche caused spill potential and eliminating railroad delays would have moderate, long-term, beneficial impacts on BNSF economics. The annual cost of this alternative would be approximately \$5,409,000 amortized over a 50-year period. If a local company were to do the work, a minor, beneficial impact to the local economy could occur. There would be an interim period during snowshed construction where public health and safety would rely on avalanche risk being reduced by avalanche forecasting, avalanche safety awareness, and timely delay or restriction implementation. The greatest impact from Alternative B would be on public health and safety if timely delays or restrictions were not implemented during periods of high avalanche danger and injury or death occurred from an avalanche. The impact on health and safety could be as great as major, adverse, long-term, and site-specific with a fatality during snowshed construction. Avalanche forecasting, avalanche safety awareness, and recommended delays or restrictions could eliminate most avalanche risk if continued. Once snowsheds are constructed, the residual risk of avalanche caused incidents would be the lowest when compared with Alternative A and D. Alternative C has the same residual avalanche risk once snowsheds are constructed. There would be no impact on US Highway 2 with Alternative B as there would be no explosive use closures delaying or rerouting motorists or freight vehicles. Only natural avalanche hazard would affect the highway with hazard closure procedures.

The extension of existing snowsheds by 1,500 feet would have a moderate, adverse, long-term, site-specific impact on historic snowsheds and the historic railroad through the canyon. This area is the only known place in the United States where a series of historic, wooden snowsheds still protect a railroad from avalanches. The snowsheds as well as the railroad are eligible for the National Register of Historic Places. A total of 5,040 feet of new snowshed in the canyon would have a moderate, adverse, long-term, site-specific impact on visual resources, as the snowsheds would be readily visible from the wilderness areas as well as in the transportation corridor. This increase in snowsheds coverage would have a minor, beneficial, long-term, site-specific impact on natural sound and wilderness values as train noise would be decreased as trains pass through the snowshed. Impacts on wildlife would be minor to moderate, adverse, site-specific, and long-term if snowsheds impede wildlife movements within avalanche paths or fragment habitat. Wildlife crossings, if incorporated in the snowshed design, could reduce this impact.

Alternative B would have the same potential as Alternative A for an avalanche caused hazardous material spill during the time that snowsheds are constructed. If train delays or restrictions were not implemented in a timely manner, these two alternatives have the greatest potential for an avalanche caused, hazardous material spill. In the event of a hazardous material spill, the range of impacts on avalanche processes, water resources, aquatic species, soils, vegetation, air quality, natural sound, socioeconomics, and public use and experience would run the range of negligible to major, adverse, site-specific to regional, and short-term to long-term depending on the substance spilled. Once snowsheds are built, the potential for an avalanche caused hazardous material spill would be less than Alternative

A and D. The estimated annual cost to BNSF would be \$1,019,000-\$5,739,000. While it seems the cost of snowshed construction would be an adverse impact, there are future economic benefits of no avalanche caused delays or hazardous material spill cleanup. These benefits would reduce the adverse economic impacts to BNSF of snowshed construction.

Environmental Consequences of Alternative C

Alternative C includes the same snowshed construction recommendation as Alternative B; however, there is a provision for GNP to permit temporary explosive avalanche control during the construction period. The permit would last up to 10 years to allow BNSF to reduce avalanche risk by means other than delays or restrictions. The explosive use methods allowed would be hand charges, Avalauncher, helicopter delivery, or Avalhex or blaster box systems. RECCO technology would reduce the potential for impacts from unexploded charges. BNSF would have a choice of explosive use methods to choose from, so the impacts may change depending on their choice of a combination of explosive methods or single explosive method. The impacts from snowshed construction would be the same as those listed above in Alternative B.

The nature of explosive avalanche hazard reduction involves changing natural avalanche processes by increasing the frequency and decreasing the magnitude of natural avalanche events. Explosive avalanche hazard reduction would have a major, adverse, site-specific, long-term impact on natural avalanche processes. Explosive charges would leave residue in start zones that would have a minor, adverse, site-specific, long-term impact on water quality and aquatic species. Changes in natural avalanche processes would have an impact on soil erosion or vegetation caused by changes in natural avalanche disturbance levels.

Sporadic disturbance from explosive use would have a range of impacts on wildlife and threatened or endangered species. Direct impacts include mortality or injury from an explosion or triggered avalanche, physiological changes, flight response, deafness, seismic disturbance, and/or behavioral changes. Indirect impacts include vegetation changes, food or prey availability changes, decrease in reproductive success, habitat fragmentation, loss of habitat connectivity, and changes to critical habitat for threatened or endangered species. The impacts on wildlife are expected to have a range of impacts depending on species and amount of explosive use. There are significant impacts on wildlife associated with explosive use. Resource impacts are expected to return to pre-explosive use conditions over time after an up to 10-year explosive use program. A 15-year resource-monitoring program would be instituted. The monitored resources would be wildlife, water quality, vegetation, avalanche processes, and natural sound. A five-year post-explosive monitoring would examine the lasting impacts of explosive use and any deviation from pre-program conditions.

Explosive use would introduce a major, adverse, short-term, site-specific impact on natural sound. The natural quiet of wilderness would be interrupted by short bursts of loud explosions. There would be fixed structures for 10 years in wilderness resulting in a moderate, localized, adverse, long-term impact on wilderness values. There would be a safety closure of the immediate project area as well as a closure of US Highway 2 affecting recreational access during periods of high avalanche hazard and explosive use. Both US Highway 2 and the project area closures would have a minor to moderate impact on public use and experience for people using the area. There would be an impact on US Highway 2 with Alternative C as there would be delays or closures, during explosive use times, delaying or rerouting motorists or freight vehicles. This impact would cause irregular delays for up to 10 years. After snowshed construction, there would be no impact on US Highway 2 except during times when natural avalanche hazards threaten the road.

Avalanche forecasting, avalanche safety awareness, and recommended delays or restrictions along with explosive use could eliminate most avalanche risk if continued. Once snowsheds are constructed, the residual risk of avalanche caused incidents would be the lowest when compared with Alternative A and D. Alternatives B and C have the same residual avalanche risk once snowsheds are constructed. Human health and safety impacts during snowshed construction would be dependent on the Avalanche Safety Director and human fallibility during forecasting and avalanche hazard assessment. There is always a residual risk due to uncertainty of explosive mitigation effectiveness, especially considering wet snow avalanche events, which historically predominate in the analysis area. Impacts on human health and safety run the range of impact intensity, duration, and magnitude depending on timely delays, explosive mitigation, and exposure reduction.

Timely delays for avalanche hazard, explosive mitigation, and exposure reduction would prevent a hazardous material spill. In the event of a hazardous material spill, the range of impacts on avalanche processes, water resources, aquatic species, soils, vegetation, air quality, natural sound, socioeconomics, and public use and experience would run the range of negligible to major, adverse, site-specific to regional, and short-term to long-term depending on the substance spilled. Once snowsheds are built, the potential for an avalanche caused hazardous material spill would be less than Alternative A and D.

This alternative would be the most expensive alternative as the snowshed cost is \$20,000 to \$25,000 a linear foot and the explosive program (including the resource monitoring program) would cost an additional \$2,543,500. The estimated annual cost of this alternative would be \$8,139,200 with snowshed amortization over 50 years and a 10-year explosive period. BNSF would be responsible for all costs associated with snowshed construction, resource monitoring, and agency operational administration. While it seems that this impact would be great financially, the benefits of removing the avalanche caused spill potential and eliminating railroad delays would have moderate, long-term, beneficial impacts on BNSF economics. Train delay costs under this alternative would be less than in Alternative A or B, where natural snow stabilization processes would take longer. The socioeconomic impacts of this alternative would be minor to moderate, adverse, BNSF-specific, and long-term. The estimated annual cost to BNSF would be \$2,034,000- \$8,139,200.

Environmental Consequences of Alternative D

Compared to the other alternatives (after snowshed completion under Alternative B and C), Alternative D would have a relatively high residual risk that would continue indefinitely with a continuous program of explosive use. There is always a residual risk due to uncertainty of explosive mitigation effectiveness, especially considering wet snow avalanche events, which historically predominate in the analysis area. The impact on human health and safety would range from negligible to major, adverse or beneficial, site-specific, and short-term or long-term depending on accidental death or injury due to avalanche caused incidents that were not accurately predicted. Another cause of injury or death could be unexploded ordnance. Area closures would be used to mitigate this safety issue.

A continuous program of explosive use would have a major adverse impact on natural avalanche processes, changing frequency and magnitude of natural slides. Vegetation and soils would have minor to moderate, adverse, long-term, site-specific impacts from altered avalanche processes. Water resources would have a minor, adverse, site-specific impact from explosive use residue from long-term explosive use. Continuous explosive use would introduce a major, adverse, long-term, site-specific impact on natural sound. Artillery use

would increase the sound footprint as two explosions occur, the propellant detonation near the gun in the valley bottom and the detonation explosion in the starting zone.

The natural quiet of wilderness would be interrupted by short bursts of loud explosive sound. Fixed structures in the starting zones would have a major adverse impact on wilderness and the continuous program of explosive use would impact the recommended wilderness status for designation. Shrapnel from military ordnance would be present in recommended wilderness starting zones and would be very difficult to remove. There would be a safety closure of the immediate project area as well as a closure of US Highway 2 affecting recreational access during periods of high avalanche hazard and explosive use. Both US Highway 2 and the project area closures would have a minor to moderate impact on public use and experience for people using the area. The possibility of unexploded ordnance in the project area would necessitate a year-round closure of the area. There would be an impact on US Highway 2 with Alternative D as there would be annual explosive use closures delaying or rerouting motorists or freight vehicles.

The sporadic disturbance from explosive use would have a range of impacts on wildlife and threatened or endangered species. Direct impacts include mortality or injury from an explosion or triggered avalanche, physiological changes, flight response, deafness, seismic disturbance, and/or behavioral changes. Indirect impacts include vegetation changes, food or prey availability changes, decrease in reproductive success, habitat fragmentation, loss of habitat connectivity, and changes to critical habitat for threatened or endangered species. The continuous use of explosives could drive populations of animals from the winter range, effectively changing the ecosystem. There is a slight chance that unexploded ordnance could spontaneously detonate possibly injuring or killing wildlife close to the blast. The impacts on wildlife are expected to have a range of impacts depending on species and amount of explosive use. There are significant impacts on wildlife associated with explosive use. Wildlife impacts are expected to continue indefinitely under a continuous explosive use program.

Extension of Sheds 7 and 9 would add 250 feet of new snowshed to the area and these would be difficult to distinguish from the existing snowsheds. Extensions on Sheds 7 and 9 would have a moderate impact on historic snowsheds and the railroad landscape. Mitigation would be required to reduce the adverse, long-term impacts affecting National Register eligibility. There would be substantially less visibility of new snowsheds under Alternative D than there would be under Alternative B and C. The impacts of Alternative D on visual resources would be negligible.

Although Alternative D is substantially less expensive than Alternatives B and C, which include snowshed construction, the adverse impacts to natural resources in the project area are greater, significant and would be permanent. BNSF would be responsible for all costs of an indefinite explosive use program and agency operational administration. The economic impacts to BNSF of Alternative D are minor, adverse, and long-term.

Alternative D would have potential for an avalanche caused hazardous material spill if human error occurs in avalanche hazard assessment. Timely delays for avalanche hazard, explosive mitigation, and exposure reduction would prevent a hazardous material spill. This alternative is the least expensive method of reducing the potential of avalanche caused derailments or spills. In the event of a hazardous material spill, the range of impacts on avalanche processes, water resources, aquatic species, soils, vegetation, air quality, natural sound, socioeconomics, and public use and experience would run the range of negligible to major, adverse, site-specific to regional, and short-term to long-term depending on the substance spilled. The

estimated annual costs to BNSF would be \$1,304,000- \$2,287,400. These costs would be incurred yearly as long as the program is active.

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PUBLIC INVOLVEMENT

The formal scoping period for the Final EIS began with a scoping letter sent to the GNP and FNF mailing lists and with a publication of a “Notice of Intent” in the Federal Register on June 21, 2005 (Volume 70, #118). Public open houses were held May 25, 2005 in Essex, Montana and May 26, 2005 in Kalispell, Montana. Eleven people attended these public open houses and 954 written comments were received in addition to comments received at the open houses.

Agency consultation is essential for the identification of potential environmental impacts of a project and its alternatives. It also provides information regarding other agency planning efforts and proposed plans for an analysis area that contributes to the analysis of cumulative impacts. Agency consultation was accomplished through correspondence, telephone communication, and review of project-related materials. Formal letters of invitation were sent to the US Fish and Wildlife Service, US Environmental Protection Agency, US Army Corps of Engineers, US Geological Survey, Flathead National Forest, Lewis and Clark National Forest, Montana State Historic Preservation Office, Montana Department of Environmental Quality, Montana Department of Natural Resources, Montana Department of Fish and Wildlife, Salish Kootenai Tribe, the Blackfoot Tribe, and Waterton National Park in Canada. A full list of recipients is listed below.

The *Avalanche Hazard Reduction by Burlington Northern Santa Fe Railway in Glacier National Park and Flathead National Forest, Montana Draft Environmental Impact Statement* was released October 23, 2006 for a 60-day public comment period. In December 2006, BNSF requested a 120-day extension of the public comment period. The NPS agreed to extend the comment period for an additional 30 days. The public comment period on the Draft EIS ended January 29, 2007. Two public hearings were held December 5, 2006 at Kalispell, Montana and December 6, 2006 at West Glacier, Montana. Approximately 20 people attended the public meetings. The NPS received 13,396 comment letters, including the hearing testimonies.

COMMENT SUMMARY AND RESPONSES

Of the 13,396 comment letters, six different form letters accounted for 11,154 comments. Original letters made up 2,242 submitted comments. Every letter, email, testimony, and fax was numbered, reviewed, and park staff responded to substantive comments.

Letters received from 23 countries showed the broad global interest raised by this document. The number of letters from each state and country are displayed in Table 1. This table does not count the letters from individuals who did not provide an address.

An overwhelming majority of the comments were in support of the preferred alternative, Alternative B. Most of the letters had comments against explosive use. A few letters supported Alternatives A, C, and D. This summary only includes letters that specifically state that the respondent is in favor of a specific alternative and does not include letters that may have implied support for an alternative. Several letters did not fall into any category.

Table 1. Correspondence Distribution by State and Country (Unknown addresses not counted)

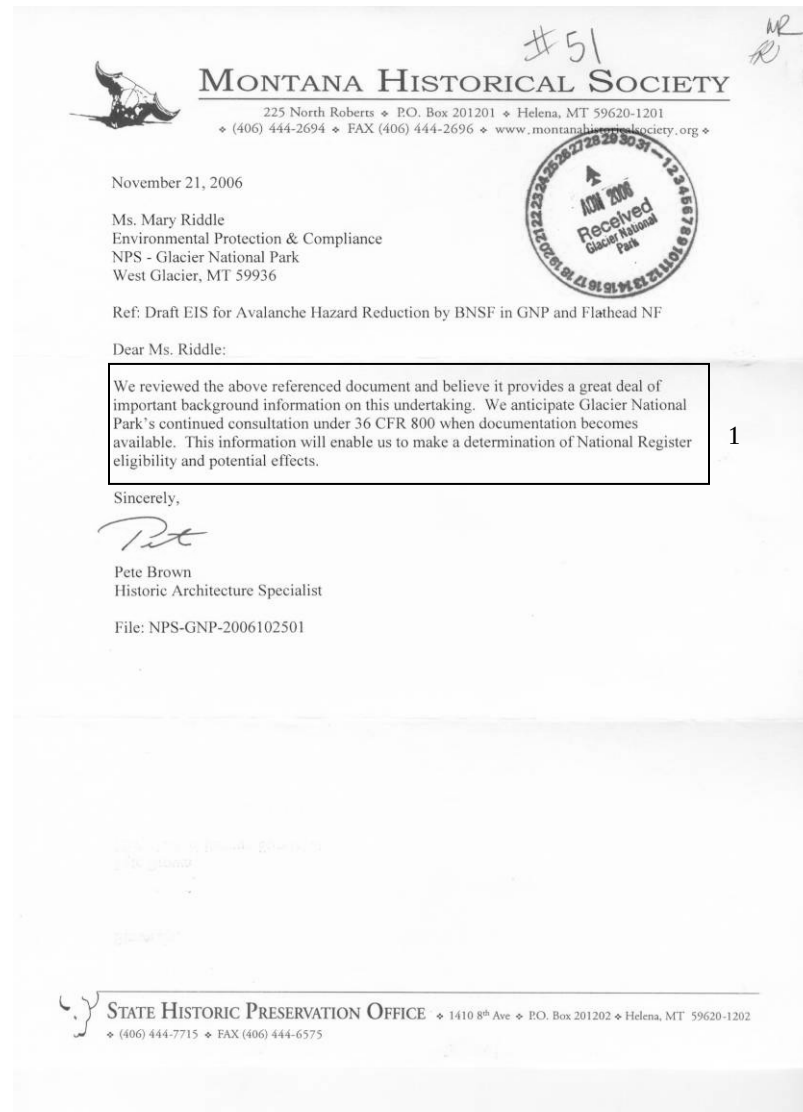
State	Number of Correspondences	State	Number of Correspondences
AE (Armed Forces Abroad)	2	MT	301
AK	22	NC	257
AL	62	ND	16
AR	47	NE	39
AZ	273	NH	57
CA	1,549	NJ	230
CO	300	NM	111
CT	128	NV	60
DC	13	NY	726
DE	23	OH	311
FL	599	OK	48
GA	170	OR	260
HI	40	PA	356
IA	69	RI	26
ID	49	SC	63
IL	395	SD	12
IN	159	TN	161
KS	108	TX	524
KY	93	USA	3
LA	44	UT	71
MA	277	VA	238
MD	182	Virgin Islands	1
ME	62	VT	43
MI	280	WA	367
MN	185	WI	192
MO	134	WV	26
MS	16	WY	21
Country	Number of Correspondences	Country	Number of Correspondences
Argentina	1	Italy	1
Australia	3	Mexico	2
Belgium	1	Netherlands	1
Brazil	2	New Zealand	2
Canada	23	Portugal	2
China	1	Puerto Rico	1
Costa Rica	1	Slovakia	1
Cyprus	1	South Africa	1
Denmark	1	Sweden	3
France	2	Switzerland	1
Iran	1	United Kingdom	17
Ireland	2	USA	13,307

The National Environmental Policy Act, §1503.4 and National Park Service policy as defined in §4.6A of Director's Order-12, Conservation Planning, Environmental Impact Analysis and Decision Making, requires that the NPS respond to substantive comments. Comments are considered substantive if they: question, with reasonable basis, the accuracy of the information in the EIS; question, with reasonable basis, the adequacy of the environmental analysis; present reasonable alternatives, other than those presented in the EIS; or cause change or revision of the proposal.

Most of the individual comments stated that explosive use and BNSF's proposal should not occur in a National Park and referred to the BNSF proposal as "against NPS policy and the Interagency Grizzly Bear Commission guidelines". Most individual comments asked why Glacier National Park would sacrifice park resources and funding for the BNSF proposal while the private company financially benefitted from avalanche hazard reduction on federal lands. Of the letters that supported the preferred alternative, 7,421 stated that wildlife crossings should be incorporated into the snowshed structures to protect wildlife crossing the railroad tracks. Most comments stated that BNSF has enough revenue as a private company to build snowsheds, the most expensive avalanche hazard reduction solution. BNSF clients, grain growers, and port businesses on the Northwest coast commented on the impacts to their businesses and international trade from avalanche caused delays.

INDIVIDUAL RESPONSES TO LETTERS FROM AGENCIES, ELECTED OFFICIALS, TRIBAL GOVERNMENTS, AND SPECIAL INTEREST GROUPS

Printed in their entirety below are letters from federal agencies, elected officials, Indian Tribes, State Agencies, local governments, and special interest groups. Conservation of resources and expense prevent us from printing the full text of all public letters with substantive comments and public hearing testimony. Therefore, comments from the public have been summarized and responded to in the section below "Grouped Responses to Public Comments" in this FEIS. All letters are available for inspection at park headquarters. Please note that although some of the comments reproduced in this document are critical of the preferred alternative the majority of the comments received were in support of the preferred alternative.

**Montana Historical Society**

1. GNP and FNF will continue to consult as appropriate in accordance with 36 CFR 800. However, the issue of who is responsible for actions that may be taken by BNSF on their legal right-of-way will require further discussion with your office.



#189

MR
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 10 West 15th St, Suite 3200
HELENA, MONTANA 59626

Ref: 8MO

December 14, 2006

Superintendent
Glacier National Park
Attn: Avalanche Hazard Reduction DEIS
P.O. Box 128
West Glacier, Montana 59936

Re: CEQ 20060445; Avalanche Hazard Reduction
Project Draft Environmental Impact Statement

Dear Superintendent:

The Environmental Protection Agency (EPA) Region VIII Montana Office has reviewed the Draft Environmental Impact Statement (DEIS) for the Avalanche Hazard Reduction Project. The EPA reviews EISs in accordance with its responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts of any major Federal agency action. The EPA's comments include a rating of the environmental impact of the proposed action and the adequacy of the NEPA document.

The EPA supports GNP's selection of Alternative B as the preferred alternative, since Alternative B would have the least adverse impact on the environment, and would provide the safest and most effective means of avalanche protection over the long term. There is some concern, however, about the potential for the proposed 5,040 feet of new and/or extended snowsheds with Alternative B to create barriers to wildlife movements in avalanche paths. The DEIS indicates that Alternative B impacts on terrestrial wildlife would be adverse at a minor to moderate level depending on the species. Larger animals would be inconvenienced by the snowsheds though not blocked from moving around them, but smaller animals may be prevented from moving through the avalanche path. The DEIS states that impediments to wildlife travel could be mitigated by incorporating animal crossing features into snowshed design and construction. We recommend that snowshed design and construction measures and features be incorporated into Alternative B to provide some means of wildlife passage over, under or around snowsheds to reduce the more significant impedances to wildlife travel.

We are pleased that the preferred alternative would avoid use of explosives, since use of explosives has potential to result in adverse impacts to wildlife due to noise and changes in natural avalanche processes that could affect vegetation and wildlife habitat and behavior (e.g., to elk, mountain goat, mule deer, wolverine, gray wolf, lynx, and grizzly bear). We have environmental concerns regarding selection of Alternative C or Alternative D, both of which

United States Environmental Protection Agency

- Page 2-20 of the DEIS states that BNSF would be encouraged to include wildlife crossing structures into snowshed design where possible and appropriate. It is important to note that wildlife crossings incorporated into snowsheds may not be suitable or feasible for specific locations along the tracks. The topography of the avalanche paths is extremely steep in some places, creating a slope that may not lend itself to the construction and maintenance of wildlife crossing structures. The wildlife crossing structure would have to withstand destructive avalanche forces, debris buildup, and erosion. Vegetated structures would be difficult to maintain, as natural disturbance is inherently present in avalanche paths. Furthermore, it is unknown if wildlife would use the wildlife crossing structures if they were incorporated into the snowshed design. Most wildlife crossing structures along highways are based on research of natural wildlife crossing zones, road kills in these areas, and known wildlife movement patterns. Wildlife crossings are then built in areas that have a high concentration of animals crossing. The snowsheds would be built only in the avalanche paths to serve their intended purpose. Some existing snowsheds have game trails around their openings, suggesting that large wildlife moves around the snowsheds. Steep slopes, avalanche activity, and natural erosion may prove to be insurmountable in the design of wildlife crossings over or under snowsheds. As stated in the EIS (pg 1-12), it is outside of the jurisdiction of the NPS, the USFS, and MDT to require or design railroad infrastructure on the right-of-way.

involve use of explosives, but particularly Alternative D, which involves long-term use of explosives and a larger noise footprint. Use of explosives in winter when wildlife are already stressed due to cold, moisture and deep snow would exacerbate winter wildlife stresses. Explosive by-products and chemical residue from explosives also has some potential to degrade water quality in snow avalanche pathways and downstream receiving streams.

Our more detailed comments, questions, and concerns regarding the analysis, documentation, and/or potential environmental impacts of the Avalanche Hazard Reduction Project DEIS are enclosed for your review and consideration as you complete the Final Environmental Impact Statement. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information). A copy of EPA's rating criteria is attached.

The EPA appreciates the opportunity to review and comment on the DEIS. If we may provide further explanation of our concerns please contact Mr. Steve Potts of my staff in Helena at (406) 457-5022 or in Missoula at 406-329-3313.

Sincerely,


acting John F. Wardell
Director
Montana Office

Enclosures

cc: Larry Svoboda/Julia Johnson, EPA, SEPR-N, Denver

**U.S. Environmental Protection Agency Rating System for Draft Environmental
Impact Statements
Definitions and Follow-Up Action***

Environmental Impact of the Action

LO -- Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC -- Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO -- Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU -- Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 -- Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 -- Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 -- Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment, February, 1987.

**EPA Comments on Avalanche Hazard Reduction by Burlington Northern
Santa Fe Railway in Glacier National Park and Flathead National Forest
Draft Environmental Impact Statement**

BRIEF PROJECT OVERVIEW:

Glacier National Park prepared this EIS to evaluate a proposal by the Burlington Northern Santa Fe Railway (BNSF) to use explosives for avalanche hazard reduction in Glacier National Park (GNP) for protection of BNSF and Amtrak trains that run along the southern boundary of GNP through John F. Stevens Canyon. The railroad lies within a right-of-way on Flathead National Forest (FNF) lands and is adjacent to the park's southern boundary. US Highway 2 shares the same traffic corridor adjacent to the railroad on a separate right-of-way across FNF lands. The FNF and Montana Dept. of Transportation (MDOT) are cooperating agencies due to potential effects to FNF lands and the U.S. Highway 2 corridor. There are 12 avalanche paths in GNP that pose a threat to the railroad in the project area. There are 9 existing snowsheds (5,920 feet) in the canyon to protect the railroad from avalanches. Four alternatives were evaluated that include use of explosives as well as non-explosive use for avalanche hazard reduction.

Alternative A is the no action alternative that involves continuation of existing avalanche safety programs, detection systems, forecasting, and non-explosive snowpack stability testing, with no explosive use within GNP, and BNSF maintenance of existing railroad snowsheds.

Alternative B involves construction of 5 new snowsheds for a total of 3,540 feet (i.e., 900 feet Burn Out snowshed, 400 feet Infinity snowshed, 600 feet Jakes snowshed, 440 feet Second Slide snowshed, 1200 feet 1163 snowshed), and lengthening of 7 existing snowsheds (1500 feet) along active avalanche paths along the railroad right-of-way by BNSF, while continuing avalanche monitoring, weather forecasting, detection systems, and non-explosive snowpack stability testing. This alternative also requires a special use permit for installation of a weather station on FNF land and snow depth sensor on GNP land. Use of explosives would not be allowed except if human lives or resources are threatened and all other options have been exercised. Alternative B is the preferred alternative.

Alternative C involves limited explosive use to reduce avalanche hazards for up to 10 years upon a commitment for BNSF to construct the recommended 5 new snowsheds (3,540 feet) and lengthening of 7 existing snowsheds (1500 feet). This alternative also requires a special use permit for installation of a weather station on FNF land and snow depth sensor on GNP land. Use of explosives would be limited to daytime use and to hand charges, Avalauncher (pneumatic cannon), Avalhex systems, blaster boxes, and helicopter drops. An amount of 0 to 275 explosions are estimated. A natural resource monitoring program to monitor wildlife, noise, water, vegetation, and avalanche processes in GNP and FNF would also be required.

Alternative D is BNSF's proposal to use explosives, including military artillery, indefinitely in the Park for avalanche hazard reduction, and includes the extension of two

snowsheds (250 feet). Use of explosives would include hand charges, Avalauncher, blaster boxes, and helicopter drops, and military artillery. Four asphalt artillery pads and access roads would be constructed. Use of explosives are estimated three times per year. This alternative also requires a special use permit for installation of a weather station on FNF land and snow depth sensor on GNP land. A natural resource monitoring program to monitor wildlife, noise, water, vegetation, and avalanche processes in GNP and FNF would be required.

COMMENTS:

1. Thank you for providing Table 2-3 (pages 2-30 to 2-44) with an in-depth comparison of alternatives; Table 2-7 summarizing impacts of the alternatives (pages 2-51 to 2-53); the Figures showing existing and recommended snowshed construction for the alternatives; the Appendix A photographs of the avalanche chutes; as well as the discussion providing the rationale for selecting Alternative B as the preferred alternative (page 2-13). This information helps to promote clearer understanding of the alternatives, and define issues and provide a clearer basis of choice among alternatives for the decision maker and the public in accordance with the CEQ's rules for implementing NEPA (40 CFR 1502.14).
2. It is helpful to have Table 3-14 (page 3-57) identifying the existing snowsheds in the canyon, but we also suggest that additional photographs or illustrations of snowsheds be included to assure that the public fully understand what snowsheds are and how they protect railroad tracks and trains from avalanches, especially since improvements to and additions of snowsheds are a primary feature of the preferred alternative. It would also be of interest to include descriptions of measures that would allow improved wildlife passage around, over, or under snowsheds.
3. The EPA supports GNP's selection of Alternative B as the preferred alternative. We agree that Alternative B would have the least adverse impact on the environment, and would provide the safest and most effective means of avalanche protection over the long term (page 2-13, and Table 2-7). There is some concern, however, about the potential for the proposed 5,040 feet of new and extended snowsheds with Alternative B to create barriers to wildlife movements in avalanche paths (page 4-53). The DEIS indicates that Alternative B impacts on terrestrial wildlife would be adverse at a minor to moderate level depending on the species (page 4-62). Larger animals would be inconvenienced by the snowsheds though not blocked from moving around them, but smaller animals may be prevented from moving through the avalanche path.

The DEIS states that impediments to wildlife travel could be mitigated by incorporating animal crossing features into snowshed design and construction (page 4-71). Is it known which wildlife species may be most affected by snowshed obstructions to natural wildlife travel? It would be helpful to include additional information regarding the specific wildlife species whose travel would be most impeded by snowsheds, and the significance of the travel restrictions in regard to wildlife effects. We recommend that Alternative B include measures and features during snowshed design and construction to provide some means of wildlife

2. Three photos of snowsheds were added to the FEIS as described on the Errata Sheet under Chapter 3. Wildlife crossing structures are described in the DEIS on page 1-12.
3. We do not have specific data for species that would be impacted by snowshed construction. We do have information as to which wildlife species use John F. Stevens Canyon (Table 3-13), but it is unknown which species would be impeded by snowsheds. To our knowledge, no research on wildlife movements across avalanche paths and snowsheds has been published. This would require a significant research study of which funds are not available and while the information would be useful, it is not critical to developing and analyzing a range of alternatives and selecting a preferred alternative. In the event that BNSF chooses to construct snowsheds, the NPS, FNF and USFWS would work with them to address wildlife crossings. See DEIS page 4-62 for a discussion on the impacts of snowsheds.

passage over or under to reduce the extent of significant impedances by snowsheds to wildlife travel.

4. Although we have some concerns about the potential for proposed Alternative B snowsheds to impede wildlife travel, we have a greater level of concern about Alternatives C and D that propose use of explosives for avalanche hazard reduction. Use of explosives has potential to result in adverse impacts to wildlife due to noise and changes in natural avalanche processes that could affect vegetation and wildlife habitat and behavior (e.g., elk, mountain goat, mule deer, wolverine, gray wolf, lynx, and grizzly bear, page 4-55).

The DEIS states (page 4-76) that use of explosives for avalanche hazard reduction would: 1) introduce a new and different type of noise that would be irregular in its occurrence; and 2) introduce explosives impacts/noise into habitats not currently being impacted (primarily higher elevation avalanche paths), it should be expected that wildlife within hearing distance of blasting noise would not habituate to the sound. Explosives would be a new type of noise during the winter that would likely add an increased level of stress and cause an increase in the utilization of energy otherwise needed by wildlife to help them survive winter. Use of explosives in winter when wildlife are most stressed due to cold, moisture and deep snow would exacerbate winter stresses (page 4-57).

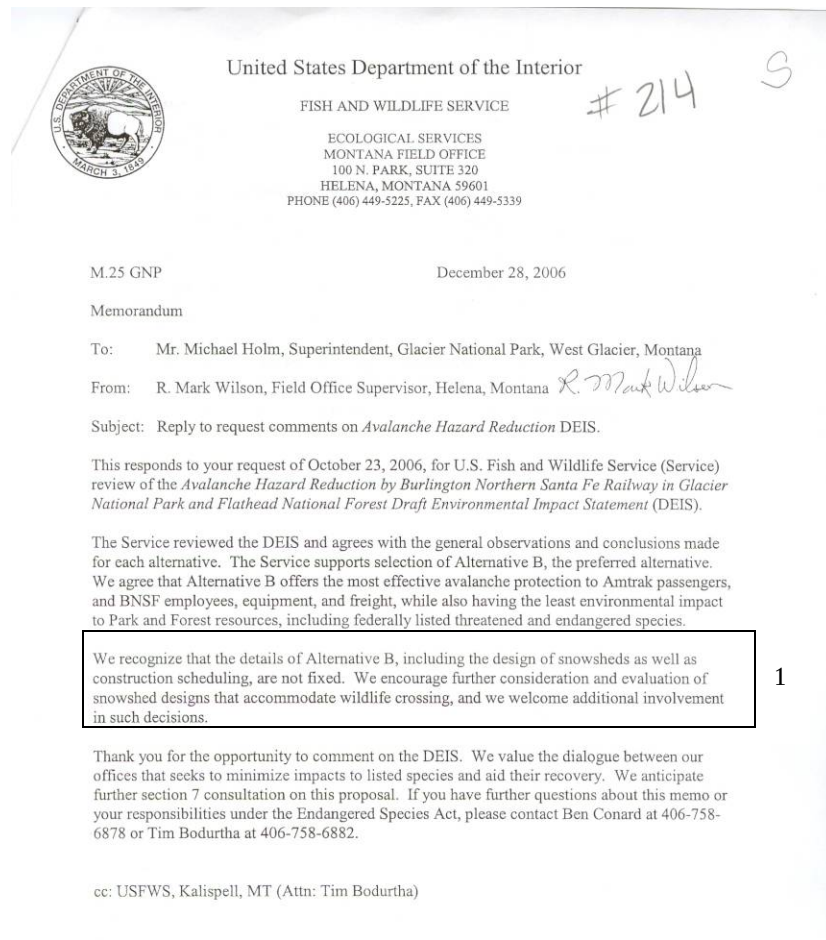
Alternative C in combination with existing conditions and future actions would **cumulatively result in adverse, localized to widespread, long-term effects that could be moderate to major on wildlife** occupying the analysis area depending on individual species' responses (page 4-77). Alternative D the cumulative effects to wildlife would be the same as under Alternative C, only more pronounced and permanent. Resulting stress levels and energy expenditures would be higher because of the permanence of the program and the larger noise footprint. In combination with other actions in the area, including railroad operations and highway traffic, **this impact would be major, regional, long-term, and adverse** (page 4-78).

Also, the DEIS states that implementation of a continuous, extensive explosives triggering alternative would have major, adverse, long-term, site-specific effects upon natural avalanche processes in the 12 paths where explosives mitigation is undertaken. Regular artificial triggering of avalanches would substantially increase the frequency and generally reduce the magnitude of avalanches in John F. Stevens Canyon resulting in a significant impact on natural avalanche processes. Over many years this is likely to have an impact upon avalanche path structure. Disturbance of snow in the start zones would be artificially increased, while less frequent disturbance would likely occur at the toe of the runout zones. Encroachment of vegetation in the runout zones would likely increase with the one-, two-, five-, even ten-year return interval avalanches. Large magnitude, long-return interval avalanches would occur less frequently, but would still be possible. Historic avalanche path runout zones would change with explosive use causing smaller magnitude slides; however, infrequent large magnitude avalanches would likely heavily impact encroaching vegetation as the runout zone disturbance returns to or near historic limits.

5. It is important that water quality/aquatic impacts associated with proposed avalanche hazard reduction methods be mitigated to the maximum extent possible, especially since the project area is within the drainage of the Wild and Scenic Middle Fork Flathead River and Flathead Lake both of which include aquatic habitat for the threatened bull trout. A Total Maximum Daily Load (TMDL) and Nutrient Management Plan have also been prepared for Flathead Lake to restore and protect lake water quality. We are pleased that the preferred alternative would avoid use of explosives, since explosive by-products and chemical residue from explosives has some potential to degrade water quality in snow avalanche pathways and downstream receiving streams (page 4-23). We would be concerned about the potential adverse water quality impacts of explosives use, although those impacts are estimated to be localized, short-term and negligible to minor (page 4-33). We are pleased that BMPs will be used to reduce soil erosion potential in association with snowshed construction (e.g., sediment fences, erosion matting, page 4-25).
6. Thank you for evaluating the potential for impacts to wetlands, and disclosing that there are no known wetlands in the project area that would be impacted by the proposed actions (page 4-4).
7. It is noted (page 3-53) that GNP is classified as a Class I air quality area under Section 162(a) of the Clean Air Act. It may be appropriate to also note that the Great Bear and Bob Marshall Wilderness Complex near the project area is classified as a Class I air quality area.

4


4. This information has been added to the Errata Sheet for page 3-53, Air Quality Affected Environment.



United States Fish and Wildlife Service

1. In the event that BNSF chooses to construct snowsheds, we anticipate there would be a consultation with your office and FNF. See response to EPA letter, numbers 1 and 3.


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United States Department of the Interior

NATIONAL PARK SERVICE
PO Box 168
Yellowstone National Park
Wyoming 82190

#190



IN REPLY REFER TO:

D18(YELL)
DEC 21 2008

Memorandum

To: Superintendent, Glacier National Park

From: Superintendent, Yellowstone National Park

Subject: Comments on *Avalanche Hazard Reduction by Burlington Northern Santa Fe Railway in Glacier National Park and Flathead National Forest Draft Environmental Impact Statement*

I appreciate the chance to review and comment on the *Avalanche Hazard Reduction by Burlington Northern Santa Fe Railway in Glacier National Park and Flathead National Forest Draft Environmental Impact Statement*.

I believe the document does not accurately describe the avalanche management program in Yellowstone National Park. Page 15 of the DEIS states (referring to the program at Sylvan Pass in particular), "According to park personnel, there is currently no Record of Decision or Finding of No Significant Impact document for this federal action." This is not a correct characterization.

Several recent Yellowstone planning documents have addressed avalanche control at Sylvan Pass (and elsewhere in the park). The current program is described in the Temporary Winter Use Plans Environmental Assessment, completed in 2004, which fully considered avalanche control operations on employee and public health and safety (the chapter 3 discussion is on page 60 and the chapter 4 analysis starts on page 96 of the EA). This analysis was specifically included in the FONSI on page 13 for this document, issued in November 2004. Further, avalanche control operations at Sylvan Pass were also addressed in the response to comments section of the FONSI (for example, pp. 43-44). Previously, the Winter Use Plan EIS (completed in 2000) and Supplemental EIS (completed in 2003) also generally analyzed operations at Sylvan Pass and other locations in the park. These documents are available at <http://www.nps.gov/yell/plan/yourvisit/winteruse.htm>.

Avalanche control operations are also being specifically analyzed as a component of "Public and Employee Health and Safety" in the ongoing Winter Use Plans Draft Environmental Impact Statement. We anticipate that this document will be available for formal public review and comment later this winter. It is currently available as a Cooperating Agency Review draft at the

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National Park Service- Yellowstone National Park

1. Thank you for the updated information on the *Yellowstone Winter Use Plan*. The description of explosive avalanche hazard mitigation on Sylvan Pass in Yellowstone National Park on page 15 of the DEIS has been changed to reflect the information provided in this letter and in the planning documents referenced (see Errata Sheet- Chapter 1). Note this information was updated in April 2008 with text provided by Yellowstone National Park staff.

Comment

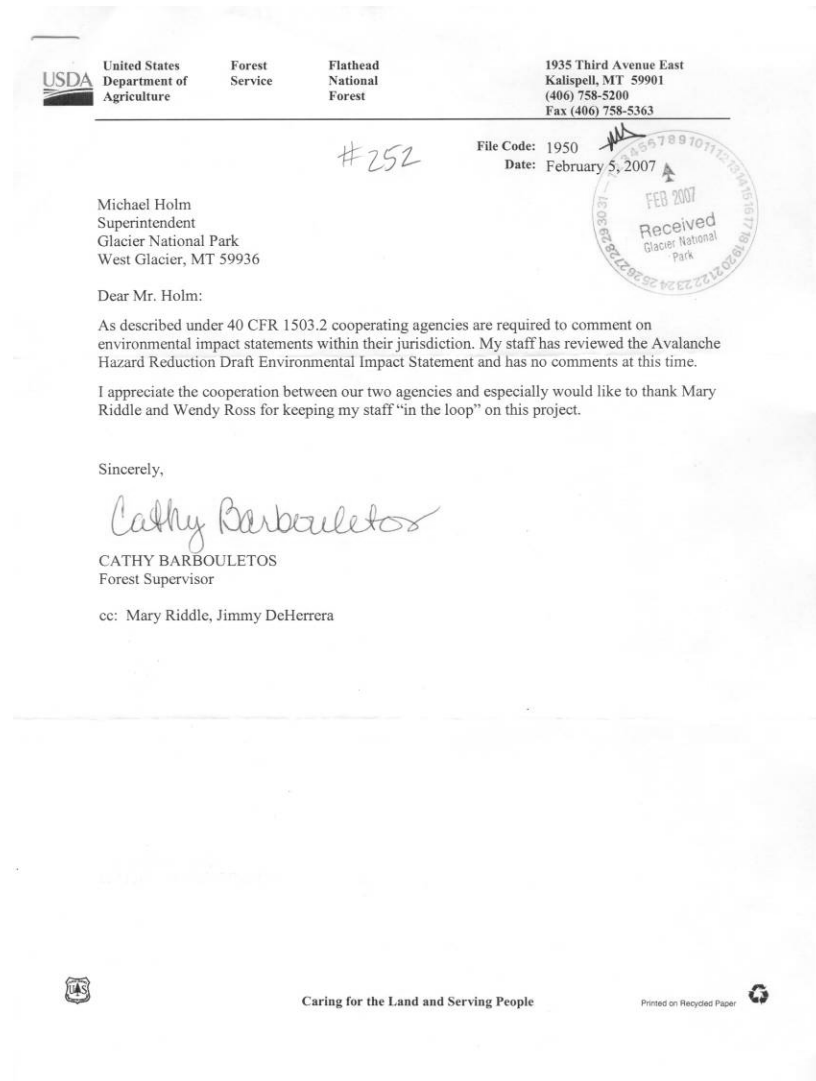
Response

website provided above. The avalanche discussions are on pages 89-91 and 195-204 of this review draft.

I request that the information on page 15 of Glacier's DEIS be revised with the foregoing information.

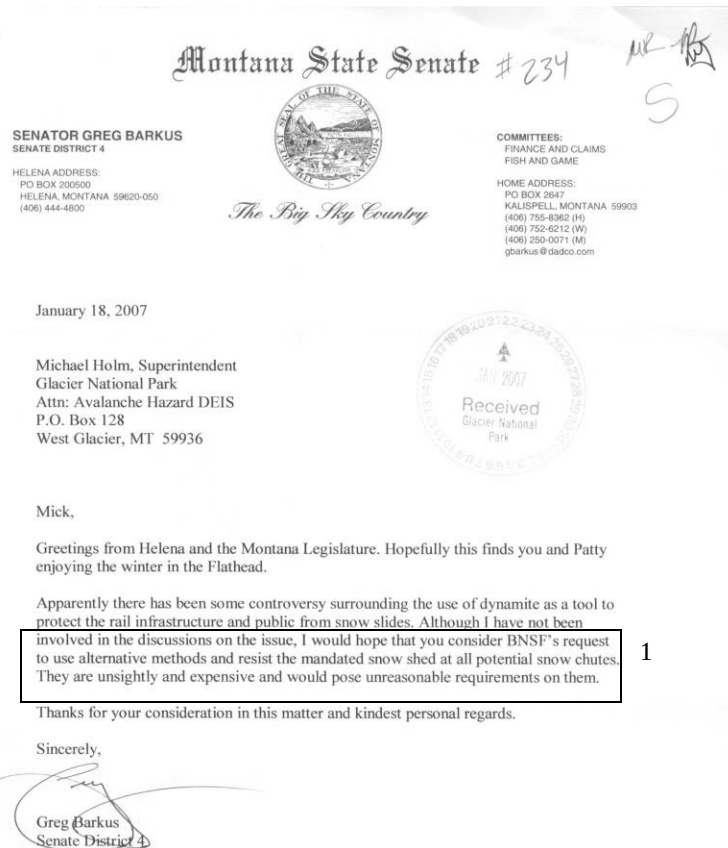
Please contact John Sacklin, Management Assistant, at (307) 344-2020 if you have any questions about Yellowstone's winter use planning. Thank you for this opportunity to comment on the DEIS.

Joanne Timmins
for Suzanne Lewis



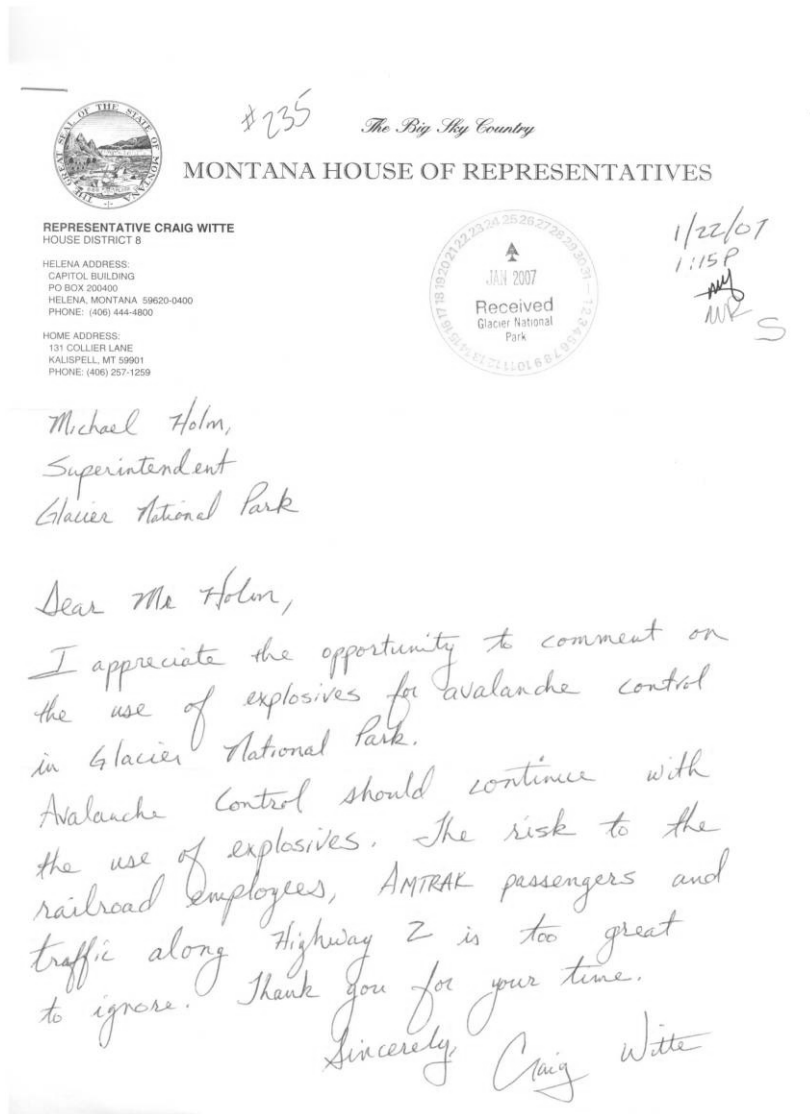
United States Forest Service

Thank you. We would like to thank Jimmy DeHerrera and Michele Draggoo, and the other EIS team members on your staff for their time and support of this process.

**Montana State Senator Greg Barkus**

Thank you for your comments.

1. BNSF's request has been fully analyzed in the EIS.



Montana State Representative Craig Witte

Thank you for your comments.



REPRESENTATIVE BILL BECK
HOUSE DISTRICT 6

HELENA ADDRESS:
CAPITOL BUILDING
PO BOX 200400
HELENA, MONTANA 59620-0400
PHONE: (406) 444-4800
EMAIL: repbeck@amerion.com

HOME ADDRESS:
PO BOX 2049
WHITEFISH, MONTANA 59937
(406) 862-2022
EMAIL: mibeck@amerion.com

Michael Holm, Superintendent
Glacier National Park
Attn: Avalanche Hazard DEIS
P.O. Box 128
West Glacier, Montana 59936

Dear Mr. Holm:

I appreciate the opportunity to comment on the draft environmental impact statement regarding avalanche hazard mitigation along BNSF Railway's line at the southern boundary of Glacier National Park.

As a legislator representing House District 6, I have a deep regard for the importance that both Glacier National Park and BNSF Railway play in our local and regional economy. I have been disappointed at the tone of the public debate regarding BNSF's request to use state of the art tools, which include the occasional use of explosives, for pro-active avalanche mitigation. Putting rail employees, Amtrak passengers and traffic along Highway 2 at risk during avalanche season isn't acceptable. Neither is it acceptable to unnecessarily disrupt freight rail service that is essential to Montana's economy to move our grain, coal, timber, and other commodities to national and international markets.

In addition, I fail to understand why the Park has chosen to exclude from the scope of its study the use of explosives for avalanche mitigation in other National Parks and in numerous National Forests; the use of explosives elsewhere in Glacier National Park; and the use of explosives to for avalanche mitigation in other vital transportation corridors; These would seem to be the most relevant data points in any study of avalanche mitigation in John F. Stevens Canyon. Indeed, I do not think it is appropriate for the Park to make a decision on BNSF's permit application without undertaking a supplemental study that fully accounts for the relevance of these other uses of explosives.

Your decision is one of great importance to the citizens I represent and to me personally. As things stand now, it appears that the park has rushed to judgment without studying all available information. I urge you to consider all options and find a balance between preserving Glacier National Park while providing all viable and currently available alternatives to both monitor and mitigate avalanche risk along the rail line that runs through John F. Stevens Canyon.

Representative Bill Beck

House District 6
Whitefish, Montana



January 19, 2007

COMMITTEE:
APPROPRIATIONS

Montana State Representative Bill Beck

Thank you for your comments.

1. The DEIS describes the use of explosives in other National Parks, National Forests, and railroads. This information is on page 1-(14-16). These programs did not analyze the resource impacts prior to implementation of explosive use. It is located under *Considered but Dismissed* because while we looked at other operations to determine if they had analyzed the impacts of their operation on resources, it was beyond the scope of this EIS to analyze the impacts of avalanche control operations in other areas. Regarding the use of explosives in GNP, as stated on page 1-11, this type of explosive use is very different from what BNSF has proposed. Explosives are used sparingly in such a manner that noise is reduced. The NPS uses explosives in the park for management of park resources and visitors. The information in the EIS has been changed to clarify this information in the Errata Sheet- Chapter 1.
2. The DEIS is an exhaustive and complete analysis of all known methods of avalanche hazard mitigation. This EIS is the first document of its kind in the United States as the older avalanche hazard control NEPA documents have only addressed health and safety issues. These documents do not address the *resource* impacts from such programs. The NPS analyzed all of the direct and indirect impacts on resources in its analysis. Page 2-13 of the DEIS outlines our reasons for selecting Alternative B as our preferred alternative. We continue to believe that this alternative provides the best protection of BNSF employees, equipment, and Amtrak passengers while having the least impact on park resources.



REPRESENTATIVE GEORGE EVERETT
HOUSE DISTRICT 5

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#237 The Big Sky Country
MONTANA HOUSE OF REPRESENTATIVES

COMMITTEES:
JUDICIARY
NATURAL RESOURCES

January 17, 2007

Michael Holm, Superintendent
Glacier National Park
Attn: Avalanche Hazard DEIS
P.O. Box 128
West Glacier, Montana 59936

Dear Mr. Holm:

I appreciate the opportunity to comment on the draft environmental impact statement regarding avalanche hazard mitigation along BNSF Railway's line at the southern boundary of Glacier National Park.

As a legislator representing House District 5, I have a deep regard for the importance that both Glacier National Park and BNSF Railway play in our local and regional economy. I have been disappointed at the tone of the public debate regarding BNSF's request to use state of the art tools, which include the occasional use of explosives, for pro-active avalanche mitigation. Putting rail employees, Amtrak passengers and traffic along Highway 2 at risk during avalanche season isn't acceptable. Neither is it acceptable to unnecessarily disrupt freight rail service that is essential to Montana's economy to move our grain, coal, timber and other commodities to national and international markets.

In addition, I fail to understand why the Park has chosen to exclude from the scope of its study the use of explosives for avalanche mitigation in other National Parks and in numerous National Forests; the use of explosives elsewhere in Glacier National Park; and the use of explosives to for avalanche mitigation in other vital transportation corridors. These would seem to be the most relevant data points in any study of avalanche mitigation in John F. Stevens Canyon. Indeed, I do not think it is appropriate for the Park to make a decision on BNSF's permit application without undertaking a supplemental study that fully accounts for the relevance of these other uses of explosives.

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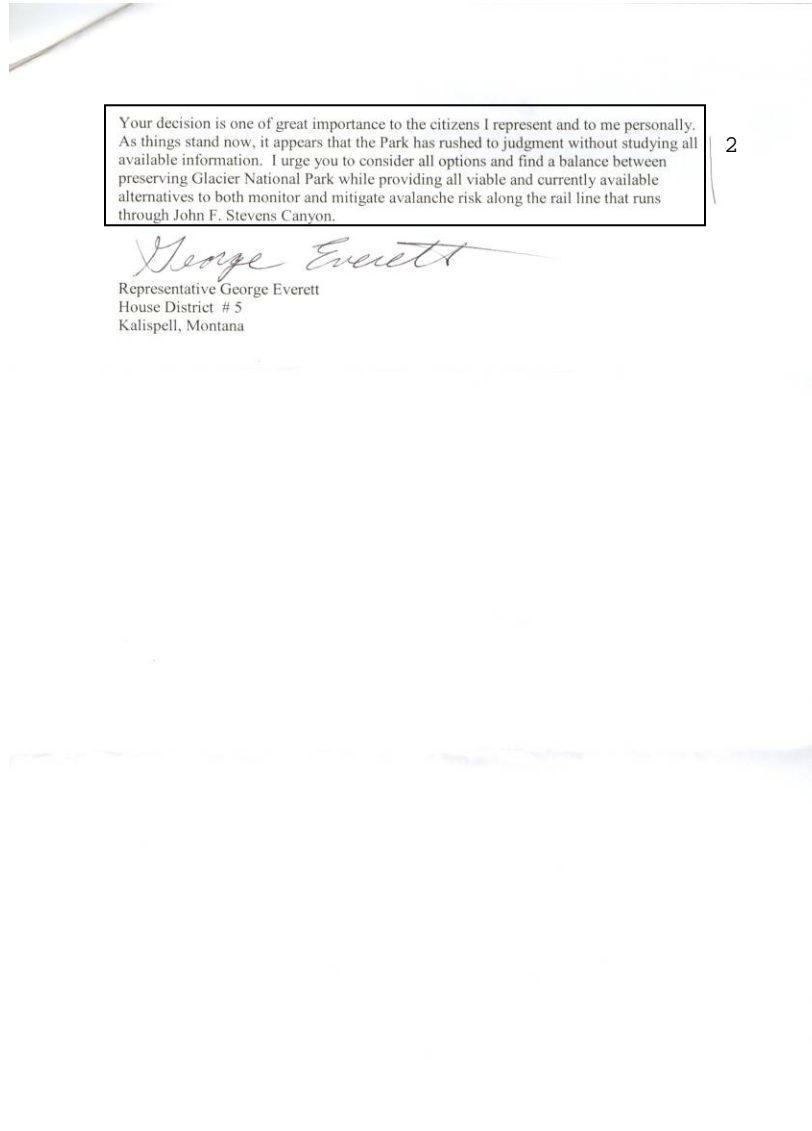
Montana State Representative George Everett

Thank you for your comments.

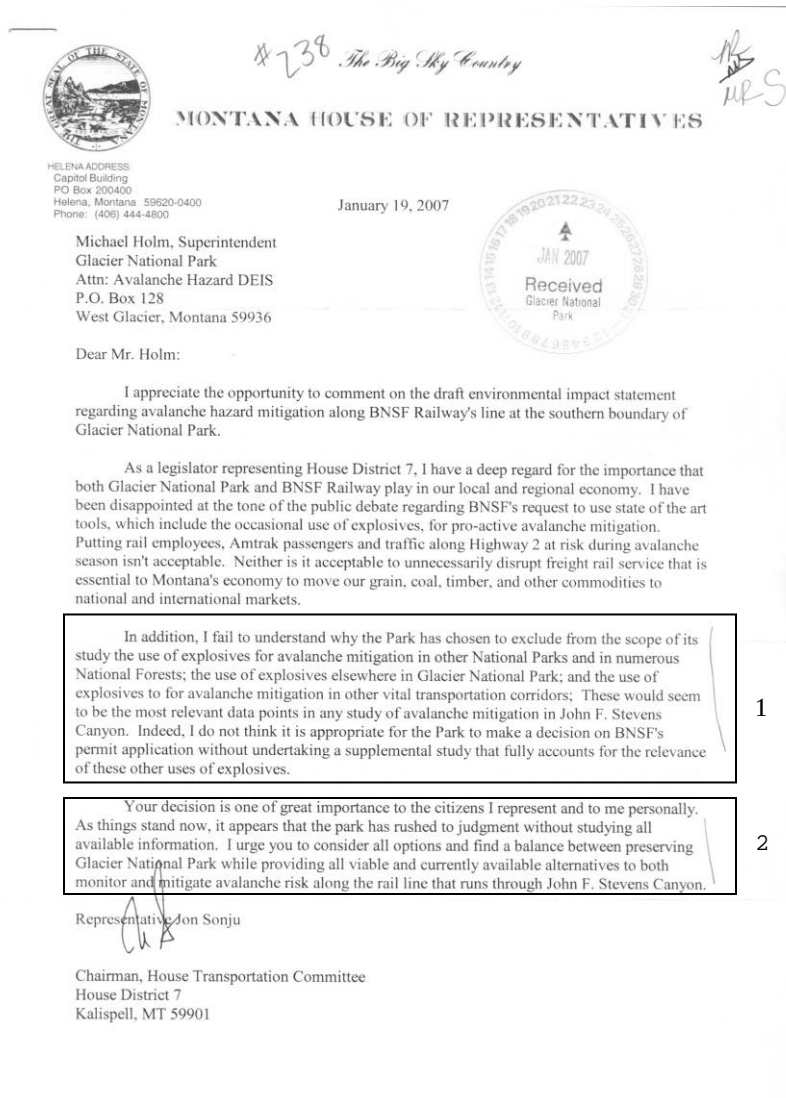
1. See response to Montana State Representative Bill Beck.

Comment

Response



2. See response to Montana State Representative Bill Beck.



Montana State Representative Jon Sonju

Thank you for your comments.

1. See response to Montana State Representative Bill Beck.
2. See response to Montana State Representative Bill Beck.

12/04/2006 (Submitted to the park comment website)

Robin Hamilton
Montana State Representative
House District 92
Helena Capital Building
P.O. Box 200400
Helena, Montana 59620-0400


Dear Park Officials,

Alternative B is the only reasonable solution to protecting railroads. I've lived and hiked Glacier all my life and know snowsheds work if they're maintained. There is absolutely no need for explosives in the park!

Robin Hamilton

Montana State Representative Robin Hamilton

Thank you for your comments.



MONTANA WILDERNESS ASSOCIATION

Northwest Montana Field Office
307 First Avenue East, Suite 20
Kalispell, MT 59901

406-755-6304 fax: 406-755-6334
mwaw@wildmontana.org
www.wildmontana.org

November 9, 2006

Dear Superintendent Holm:

I write today on behalf of the Montana Wilderness Association and our 600+ Flathead Kootenai Chapter members and 6000+ state-wide members concerning *Avalanche Hazard Reduction By Burlington Northern Santa Fe Railway In Glacier National Park and Flathead National Forest, Montana Draft Environmental Impact Statement*. Please include this letter in the comment record.

The Montana Wilderness Association exists to protect Montana's wilderness heritage, quiet beauty, and outdoor traditions, now and for future generations. The Montana Wilderness Association was established in 1958 by Montana conservationists concerned about the relentless disappearance of the State's wilderness lands and heritage. Today our members remain concerned with the continued loss of this heritage. Our statewide members and especially our local Chapter members have participated in Glacier National Park's management issues since the organization's birth. Glacier Park provides outstanding wilderness attributes and our members count themselves as avid supporters and active users of the Park's wilderness resource.

The proposal by BNSF Railroad to control avalanches within Glacier Park along sections of Highway 2 would certainly affect the wilderness resource, including wildlife, vegetation, water quality and solitude. We submit the following comments in order to help protect the existing wilderness values of Montana's Crown Jewel.

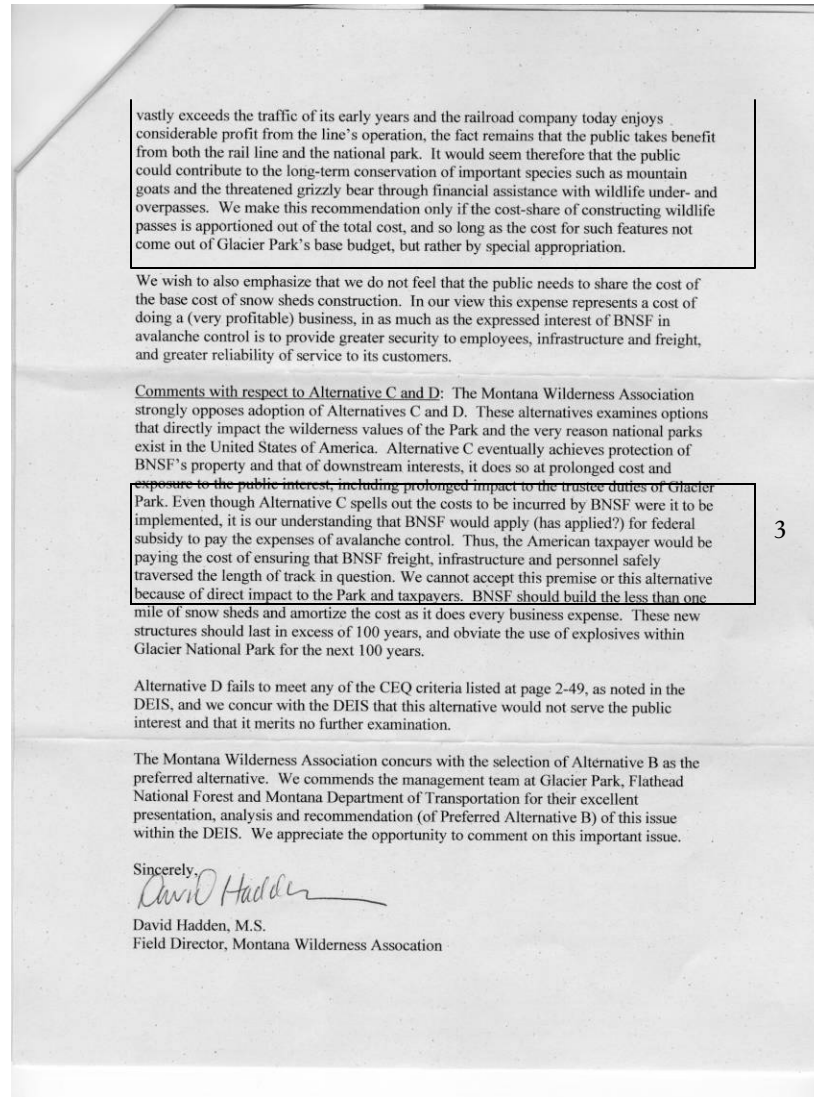
We concur with the Draft EIS choice of Alternative B as the preferred alternative, with one exception. We note that "[t]his alternative includes actions that neither the National Park Service (NPS), the US Forest Service (USFS) or the Montana Department of Transportation (MDT) have jurisdiction or authority to require BNSF to follow" because the majority of the decisions – to construct the recommended snowsheds and follow the advised avalanche hazard reduction protocol – falls squarely on the shoulders of the applicant, BNSF. Alternative B appears to impose the least cost to U.S. taxpayers, the least impact to National Park resources – especially the wilderness resource – and provides the most efficacious results in terms of addressing the avalanche hazard over the long term. However, we would also suggest that BNSF build overpasses and underpasses along this section of rail line to help reduce train collisions with wildlife where data indicate such structures would benefit wildlife. Because all details of actual construction of snow sheds to protect trains, employees and property, and overpasses and underpasses to protect wildlife fall within the railroad's right of way, we accept that BNSF holds complete discretion with respect to adopting such additional measures.

Nevertheless, if BNSF wishes to engage the American public in cost sharing the expense of part of this project – specifically the wildlife over- and underpasses – it may be appropriate for GNP, FNF, and MDOT to propose and analyze such actions within the Final EIS. We believe such a cost sharing could be justified because the rail line preceded the establishment of Glacier Park. Even though BNSF's current rail traffic

Keep it wild. The Montana Wilderness Association educates the public and works at the local, state, and national levels to protect Montana's wilderness and traditional recreation opportunities for everyone.

Montana Wilderness Association

1. See response #1 to EPA letter.
2. The use of federal funds would depend on the introduction of legislation. Spending federal dollars would not alter the environmental impact analysis. The socioeconomic impacts would change in that BNSF would not be responsible for the costs of building snowsheds if federal funding were used.



3. We are not aware of any current federal subsidy available for explosive avalanche control. Legislation was introduced (HR 2039 and S225) to both the House of Representatives and the Senate for the development of an avalanche advisory committee and a formal military hardware depository program for use in avalanche control programs, avalanche training, and control programs for federal lands. These bills have not passed at the time of this writing.



National Parks Conservation Association

Protecting Parks for Future Generations®

December 5, 2006

Superintendent Mick Holm
Glacier National Park
Attn: Avalanche Hazard DEIS
PO Box 128
West Glacier, MT 59936

Dear Superintendent Holm,

Thank you for the opportunity to provide public comment on the Avalanche Hazard Reduction Draft EIS. The National Parks Conservation Association is pleased to support Alternative B, the park's preferred option.

We would like to commend Glacier National Park, Burlington Northern Santa Fe Railroad, the Flathead National Forest, GNEA, and the Montana Department of Transportation for taking up this issue. The risk posed by avalanches to the railway corridor, freight traffic, BNSF personnel and Amtrak passengers has been too long neglected. Although BNSF developed the current system of snow sheds nearly 100 years ago, they have not been adequately maintained and expanded over the years to meet protection needs. We are all fortunate that no major disaster has happened in recent years.

Important measures have been taken over the past couple years to improve inter-agency cooperation and communication, strengthen avalanche forecasting efforts, monitor weather events, and expand stability testing. It is important to continue and expand upon these efforts.

Alternative B is the most effective option for reducing the risk of avalanches to people and property. It is also the best option for visitor safety and public access to the park. This is the case even if the use of explosives for avalanche control was a 100 percent effective technology. However, the use of explosives is not always a reliable technology, as the potential for errant delivery systems or duds is significant, especially given the extreme weather conditions that would often create the need for an active explosives-use program.

Alternative B is also the environmentally preferred alternative. It would have fewer impacts on Glacier's wildlife, such as grizzly bears, wolverines, lynx, mountain goats and elk. It is the preferred approach for maintaining Glacier's winter tranquility and the wilderness values on lands recommended for wilderness designation. Alternative B is clearly most consistent with the newly approved National Park Service 2006 Management Policies, especially Policy 1.5 and Policy 1.4.7.1.

Glacier Field Office - Northern Rockies Regional Office
Steve Thompson, Program Manager ~ Erin Sexton, Transboundary Science Analyst
P.O. Box 4485, Whitefish, Montana 59937 ♦ (406) 862-6722
stthompson@npsca.org ♦ esexton@npsca.org ♦ www.npsca.org

National Parks and Conservation Association

We agree that BNSF needs to develop a long-term maintenance and replacement strategy for its system of snowsheds, including the existing sheds and the ones to be built. Based upon a 50-year replacement schedule, the \$5.5 million annualized cost of construction seems a reasonable cost of doing business for BNSF's lucrative freight transportation system across the Continental Divide. We would not be surprised if the actual construction cost is significantly less than the \$20,000 per linear foot estimate that BNSF provided to the park. While we have no independent means of evaluating this cost estimate, we note in Appendix A that BNSF officials pegged the cost at only \$7,000 per linear foot just two years ago.

1

BNSF also has dramatically modified its estimated maintenance costs. BNSF consultant Dave Hamre's 2004 report states that BNSF personnel told him that annual maintenance of the existing sheds costs around \$40,000 per year. Now, BNSF is telling the media that annual maintenance costs run into the millions of dollars. The dramatic discrepancy is most likely due to a situation of deferred maintenance and neglect by BNSF. Once BNSF has erased this maintenance backlog and is truly on an annual maintenance program, we suspect the yearly cost will be closer to the \$40,000 – 80,000 cost documented in the Draft EIS. This is significantly less than the annual cost estimate for an explosive control program, estimated in the Draft EIS between \$132,000 and \$562,000.

2

We agree with the EIS finding that the park lacks comprehensive scientific baseline data on wildlife use in the project area. Yet the EIS does provide abundant information documenting the importance of the habitat for various species at various times of the year as well as evidence of specific habitat use by individual animals. The discussion of direct and indirect impacts on wildlife from an explosives-use program is useful.

3

We note BNSF's November 29, 2006 request for more studies, a Supplemental EIS and a delayed decision of potentially many years. While we'd love to see BNSF provide much-needed funding to initiate, expand or continue wolverine, lynx or grizzly bear studies, for example, we strongly oppose the company's proposal to delay action. Frankly, BNSF has failed to adequately deal with this issue for decades, at considerable risk to life and property, and further delay would be irresponsible. Now is the time to act. BNSF needs to begin the expansion of its system of snow sheds immediately. Fortunately, given that BNSF has recently announced record-high levels of profit, the timing is good for this essential investment as part of BNSF's cost of doing business.

The EIS appropriately includes the recommendation that BNSF incorporate wildlife crossing structures and wildlife escape openings in their shed construction design. While this apparently is outside the scope of park jurisdiction, it is within the jurisdiction of the Fish and Wildlife Service as it continues to negotiate a Habitat Conservation Plan as part of an Incidental Take Permit for Burlington Northern. Please share this recommendation, and our support for this recommendation, with USFWS.

4

At least 42 grizzly bears have been killed by trains along the Glacier corridor over the past 30 years. As noted in the EIS, avalanche chutes provide excellent and well-used habitat for bears during the spring and summer. The map on page 3-43 documents grizzly bear sightings adjacent to avalanche chutes. However, the EIS does not appear to show the location of the 42 known grizzly deaths in relation to avalanche chutes and the proposed snow sheds in the corridor. This information could be helpful to BNSF and USFWS as they complete the Habitat Conservation Plan. Additional evaluations will be needed to determine the technical feasibility and priority locations for co-located sheds and wildlife crossing structures. These evaluations are most appropriately conducted by BNSF and USFWS as they continue to look for mitigations measures as part of BNSF's Incidental Take Permit.

5

1. This discrepancy in estimated snowshed costs was examined by independent socioeconomic analysts. The analysis in Appendix A was not an accurate estimate according to BNSF engineer, Byron Burns. The \$20,000-\$25,000/linear foot estimate that was given for the EIS socioeconomic analysis have been compared to other snowshed projects in Alaska, Utah, and Canada and have not been found to be inflated.
2. The comment appears to be a misunderstanding of the costs of snowshed maintenance and snowshed construction. The EIS cost estimates for snowshed maintenance are \$40,000/year. The new snowshed construction costs are \$5.5 million/year. All of these costs were provided by BNSF for the socioeconomic analysis. There is no evidence, we are aware of, that BNSF has neglected their snowsheds and we are also not aware of a backlog of snowshed maintenance.
3. The DEIS states that we lack sufficient scientific baseline data to measure *impairment*. Determining impairment to resources is different from determining the level of impact as required by the National Environmental Policy Act. We do not lack sufficient information to determine the impacts and to select a preferred alternative. We have determined that there would be major, adverse, impacts from using explosives as described in Alternative C and D in the DEIS to avalanche processes, vegetation, wildlife, threatened and endangered species (grizzly bears, Canada lynx), air quality, natural sound, and wilderness. This determination was made after reviewing existing data, wildlife surveys, conducted during the winters of 2005 and 2006, and consulted with professional wildlife biologists. Once NPS makes a major adverse effect determination, our Management Policies require us to determine if those major adverse effects are considered impairment of park resources and values. Should

should be authorized only after BNSF has committed to extend its system of snow sheds in compliance with Alternative B, and authorization should only be provided as an emergency, interim option while shed construction continues.

Thank you for the opportunity to support the National Park Service's preferred alternative for reducing avalanche hazards along Glacier's southern border.

Sincerely,



Steve Thompson
Senior Program Manager
Glacier Field Office

- 3 -

that be the case, NPS is not permitted to take the action. We were unable to determine if this proposal would result in impairment to park resources and values, but we are confident that our determination of major adverse impact is accurate. We believe that a major adverse impact on these resources would be an unacceptable impact and NPS Management Policies require that we avoid impacts that are unacceptable.

4. We will forward a copy of your letter to the USFWS.
5. Ten of the known 39 grizzly bear mortalities caused by trains from 1980-2006 occurred within the EIS Wildlife Analysis Area. Five of these occurred near snowsheds. However, the geographic data is not precise enough to determine their exact locations in relationship to the snowsheds. The map coordinates are not precise and may be several hundred feet off from the actual mortality locations. Although these data may be one source of information used to determine where wildlife crossings may be appropriate, it is too limited of a sample size to place wildlife crossing structures. Some bear deaths may go unnoticed and unreported. While the addition of precise data may give an indication of where wildlife crosses the tracks, it is also an indication of where attractants may be present on the tracks. Crossing locations of other wildlife species should also be determined. The mortality information was provided by USFWS and they may work in coordination with BNSF to incorporate wildlife crossings as a part of the *Habitat Conservation Plan*. Furthermore, GNESEA has begun a study to determine locations where wildlife is crossing the tracks. This data may be used by BNSF train engineers and in the *Habitat Conservation Plan* if snowsheds are constructed, and if wildlife crossing structures are included.

National Parks and Conservation Association- Public Testimony**Steve Thompson December 5, 2006**

MR. THOMPSON: My name's Steve Thompson. I live in Whitefish, and I'm with the National Parks Conservation Association. I have a three-page letter here, which I will not read. You know, if I did read it, I could just give you a copy of the letter. That might save you a little effort there. Bambi does a good job at this.

Thank you for holding this hearing. And I'd like to express appreciation to Burlington Northern and to the Park, the Flathead National Forest, and to the Department of Transportation for taking on this issue.

One of the silver linings from the incident from a couple years ago is that we're finally systematically dealing with an issue that's really been neglected for a long time. We've sort of dodged some bullets over the years, and we're really lucky that there hasn't been a major catastrophe along the line there. And now we're on top of it, and we're trying to come up with a solution. And all of those parties deserve appreciation and congratulations for doing that.

The system of snowsheds were developed nearly a hundred years ago, and that has worked very well over the years. But as you know, avalanche paths shift over the years, and essentially the system is not adequate, and it's been pretty much a neglected system. And so now we're sort of dealing with it, and that's a positive thing.

NPCA supports alternative B, the preferred alternative from the Park. I think one of the things that has happened over the last couple years that's part of alternative B, as well as some of the other alternatives that need to be mentioned, great progress has happened before the EIS even came out. There's definitely been a much

National Parks and Conservation Association- Public Testimony**Steve Thompson December 5, 2006**

improved forecast. The avalanche atlas that's been prepared is a very valuable document. The training that's gone on with BNSF employees, the improved communication and coordination between the agencies and the railroad, all of these are very positive things that are a big, somewhat unseen, part of the mitigation that's already happening. And that's a positive thing.

Alternative B is the most effective option for reducing the risk of avalanches to people and property. Dave Hamre's report to Burlington Northern, that's appendix A, makes that clear. Even if an explosive program was a hundred percent effective, the snowsheds are the safest and best and most effective alternative to achieve the purposes of the EIS. And that's the case, even if the explosives program, which however it was designed, was a hundred percent effective.

In reality, the use of explosives is not a perfect science. There's duds that would probably be left up there. There could be air and delivery systems. And especially in conditions when some of the worst weather events happen when the danger is greatest, the technology and just basic sometimes human error, cannot lead to a hundred percent effective use of the technology.

Alternative B is also the environmentally preferred alternative. It would have fewer impacts on Glacier's wildlife such as grizzly bears, wolverines, lynx, mountain goats, and elk. It is the preferred approach for maintaining Glacier's wilderness tranquility and the wilderness value on lands recommended for wilderness designation.

Alternative B is clearly the most consistent with the newly-approved

management policies of the National Park Service. We agree with the EIS and Burlington Northern's letter where they note that the Park lacks comprehensive scientific baseline data for wildlife use in the project area. It should be noted, however, that the DEIS does provide, really, a lot of information, abundant information,

1

1. See Response to NPCA letter response #3.

documenting the importance of the habitat for various species at various times of the year as well as evidence of specific use by individual animals. The discussion of direct and indirect impacts on wildlife from an explosives use program is useful.

We note Burlington Northern's November 29th letter calling for more studies and a supplemental EIS and basically delaying this decision further. And on one hand we are sort of intrigued by the idea of Burlington Northern helping cover this big gap in Park Service funding. There's a lot of -- we'd love to see some more wildlife research go on. We'd like to see the wolverine study continue, and perhaps this would be a way of doing that. If Burlington Northern would be willing to pay a few hundred thousand dollars for those studies. But ultimately, we think that's a bad idea, because it's time to get on this problem. This has been an issue that's been neglected and has not been addressed for decades. And it's time to get on it. And clearly, alternative B is the best way to go about it.

And we should just get on with the business of building the snowsheds as soon as possible. We should start next summer and just make that a priority and get on it. And fortunately, this is coming at a good time in the business cycle for Burlington Northern. Part of what's driving the interests of Fort Worth in this is that there's a lot of trains going over the Continental Divide. And that translates into the highest levels of profits that the company's ever made. And so the company is in good economic health. They've got a lot of money right now, and part of it is because they're running a lot of trains over the Continental Divide. They're in a good position to hire Montana workers to go out and do a good day's work and build these snowsheds, and we think it should be done sooner than later.

And so we would strongly disagree with the request for a Supplemental EIS and more delays in finally getting on this problem. Finally, I'd like to note our support for the discussion in the EIS and

2. See response to EPA letter # 1 and #3.

Comment

Response

the strong recommendation that Burlington Northern, as they designed the snowshed system, that they look at opportunities for incorporating wildlife crossing structures into the design of the snowsheds. In some places that may not be feasible. In some places, it may not be necessary. And we would like to see the Fish and Wildlife Service work with Burlington Northern on this as part of the habitat conservation plan that's being developed right now.

3

And one of the things that's not discussed in the EIS -- and I don't know if we have the data. And if it's not it might be useful to include this in the final documents that come out from the Park, and John may know if this is even available -- but there's been 42 grizzly bear deaths over the last thirty years on these tracks. Supposedly, we know where those happened. Some of them were definitely a result of the grain spills. Some of them were not related to the grain spills. How many of those mortalities of bears, as well as other wildlife, happened to be near the bottom of some of these avalanche chutes? I don't know the answer to that. That's the sort of information we'd want to know if we were to say Okay, it is a priority here if we're going to build a snowshed, let's go ahead and put in a wildlife crossing structure as well. But let's just do it where there's sort of known wildlife use going across that area. No need to expend the money to build that type of structure into a snowshed design if it's not an area that is known to have much wildlife use one way or the other. But we think that that should be incorporated into the habitat conservation plan. And we'd ask the Park Service to share our comments to that effect with the Fish and Wildlife Service. With that,

4

I'll give Mary my formal comments, and thank you very much.

3. We will forward a copy of your letter to the USFWS.
4. See response to NPCA letter #5.

#131

**Friends of the Wild Swan
P.O. Box 5103
Swan Lake, MT 59911**



December 12, 2006

Glacier National Park
Attn: Avalanche Hazard DEIS
P.O. Box 128
West Glacier, MT 59936

Dear Mr. Holm:

Please accept the following comments on the Avalanche Hazard Reduction by Burlington Northern Santa Fe Railway In Glacier National Park and Flathead National Forest, Montana Draft Environmental Impact Statement on behalf of Friends of the Wild Swan.

We oppose using explosives to trigger timed avalanches in Glacier National Park or on the Flathead National Forest. A continuous explosive program would remove this area from wilderness recommendation. If any place deserves to maintain its wilderness characteristics it is Glacier National Park. The Park is refugia for many indigenous wildlife that are rare, threatened and endangered. The DEIS discloses the long-term, adverse affects that an explosives program would have on elk, mountain goats, grizzly bears, lynx, wolves, wolverine and other species. Such a program is unacceptable in a National Park.

Glacier National Park also provides quiet recreational opportunities. A continuous explosive program would disrupt those pursuits and endanger the public. The best alternative for protecting wildlife is Alternative B. Snowsheds have been reducing avalanche risk to trains along the Middle Fork of the Flathead River for nearly 100 years. They are a safer, more effective and environmentally preferred alternative to using explosives within the Park. They will preserve the integrity and habitat in the Park. They will protect the public's safety.

Alternative B has fewer impacts on wildlife, visitor access and safety, and wilderness values. Incorporating wildlife crossings into snowshed structures will allow safer passage for grizzly bears and other wildlife. Alternatives C and D have far too many impacts and risks. Please select Alternative B with wildlife crossings.

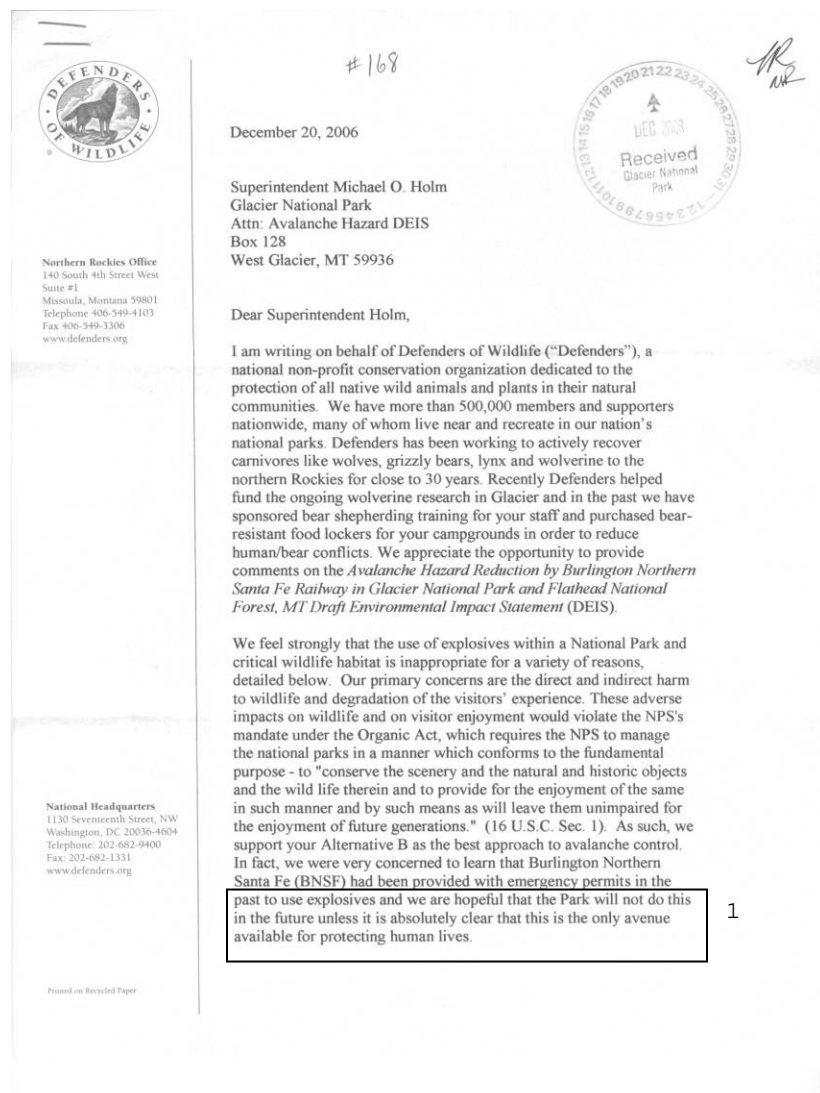
1

Sincerely,

Arlene Montgomery
Arlene Montgomery
Program Director

Friends of the Wild Swan

1. Wildlife Crossings are discussed on page 1-12 and 2-10 of the DEIS. See response to #1 of the EPA letter above.



Defenders of Wildlife

1. The preferred alternative only permits explosive use in the event that human lives or resources are endangered once all other options have been exercised by BNSF, including railroad closures and delays.

Snowsheds are the most effective way to protect the rail lines from avalanches

The Avalanche Risk Analysis John F. Stevens Canyon Essex, Montana completed by Hamre and Overcast in 2004 indicated that the construction of snowsheds was the method which reduced the avalanche hazard index the most, next to total railroad closure in the canyon – which is not an option. Snowsheds have been shown to reduce the risk of derailment significantly. For years BNSF has neglected their responsibility to ensure the safety of the public and their employees by letting their existing snowsheds fall into disrepair, despite the company showing record profits. Instead of trying to save a buck by using explosives as a quick fix, BNSF needs to demonstrate their commitment to the safety of people and the health of wildlife by investing in the future – by improving existing snowsheds and building new ones where needed.

Explosives would seriously compromise the visitor experience

Particularly in winter, people go to Glacier National Park for peace and solitude, the opportunity to get out in nature and observe wildlife. The noise from shelling to cause avalanches would completely undermine this experience. In addition, Park visitors' safety could be at risk as a result of the presence of unexploded ordinance. Wildlife viewing opportunities could decrease as the animals shift their movements away from the disturbance. And areas would have to be closed in order to keep people safe, thus limiting recreational opportunities.

Placing fixed structures in recommended Wilderness is against Park Service policy

If BNSF moves forward with their proposal, the structures required, the explosions and noise and the shrapnel left behind would be totally contrary to the definition of Wilderness -

"A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this chapter an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value".

The Park should not allow such a violation of federal policy.

The use of explosives could have a major negative impact on federally listed and rare wildlife

Glacier National Park is a very special place for wildlife. It contains 46% of the grizzly bears in the Northern Continental Divide Ecosystem and provides crucial linkage to other bear populations to the north. It is one of the last strongholds for wolverines in the lower 48 states and ground-breaking research is currently being conducted in Glacier on the ecology of this poorly understood creature. Lynx, absent throughout much of west, are

still found here, as are wolves. And the prey that all these creatures depend on, such as elk, are also found in abundance.

As noted in the DEIS, 56 different species have been reported in the southern part of the park, the area affected by this proposal. Wildlife Surveys conducted in 2005 and 2006, observation reports, and hunter harvest records have all documented the presence of listed and rare carnivore species within the last six years.

- Eight wolves have been observed in the southern end of the park, four between December and April.
- Eight lynx observations have taken place within the Wildlife Impact Analysis Area (WAA) and four more were very close by.
- Track surveys in 2002 and 2003 twice detected wolverine and an individual was observed in the WAA in 2006.
- Four known grizzly bear den sites are confirmed within the WAA. 36 grizzly bear observations were recorded between 1968 and 2004 including two in February, one in April and 18 in May. Ten grizzly bears sightings have been recorded between 1990 and 2005.

As the DEIS clearly points out, the use of explosives could have numerous detrimental effects on wildlife in the area, ranging from direct mortality or injury from the explosions or triggered avalanches to physiological and behavioral alteration as a result of the noise and disturbance. Helicopters would be used to deliver the explosives and elk and mountain goats have both shown adverse responses to helicopter overflights. Shifts in ungulate behavior and distribution would affect the predators and scavengers that depend on them, such as wolves, lynx and wolverine. In addition, Kendall's research in 1986 showed that 81% of grizzly bears displayed a strong reaction to helicopter overflights. This is a time of year when wildlife is already stressed by limited food resources. Adding the disturbance related to explosives use could seriously compromise their survival and reproduction.

Alteration of natural avalanche processes could impact wildlife

It is highly likely that the proposal by BNSF would dramatically alter the nature of avalanche chutes. The carrion in these chutes is an important food source for both grizzly bears and wolverine. In addition, a number of important grizzly bear foods, such as cow parsnip and glacier lily, commonly occur in these areas. A number of researchers have documented that grizzly bears prefer avalanche chutes among habitat types. The debris associated with avalanches also provides important denning sites for wolverine. Both of these species are restricted to small parcels of remaining habitat in the lower 48. We should not undermine that vital habitat by the use of explosives for avalanche control.

Conclusion

The area being considered for shelling is within Management Situation 1 in the *Interagency Grizzly Bear Guidelines*. In this zone, the Park is responsible for maintaining grizzly bear habitat and if there is a conflict it will be resolved in favor of grizzly bears. There is no question that the BNSF proposal would negatively impact grizzly bears and their habitat, so the Park could deny their request on the basis on grizzly bears alone. But

when combined with the potential negative impacts to the entire array of wildlife which lives in the southern portion of the park, the serious degradation of the visitor experience, the compromising of wilderness values and the ongoing threat to human safety, there is no doubt in our mind that the Park has selected the best approach in recommending that the avalanche issue be addressed by the use of snow sheds and *not* allowing the use of explosives.

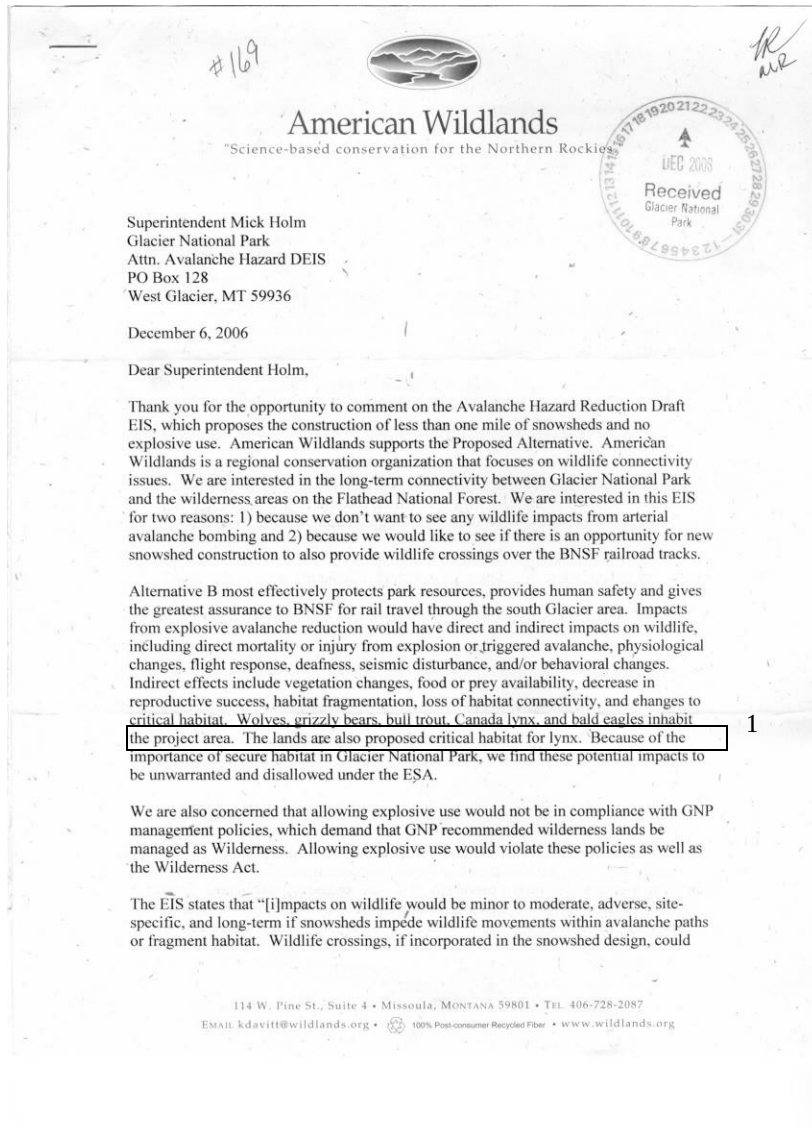
We sincerely appreciate your commitment to preserving the wildlife, wilderness and recreational opportunities that are so precious to Glacier National Park. We look forward to working with you to make sure that Glacier is a special place for visitors and wildlife well into the future. Thank you for the opportunity to comment on this important issue.

Sincerely,


Minette Johnson
Northern Rockies Representative

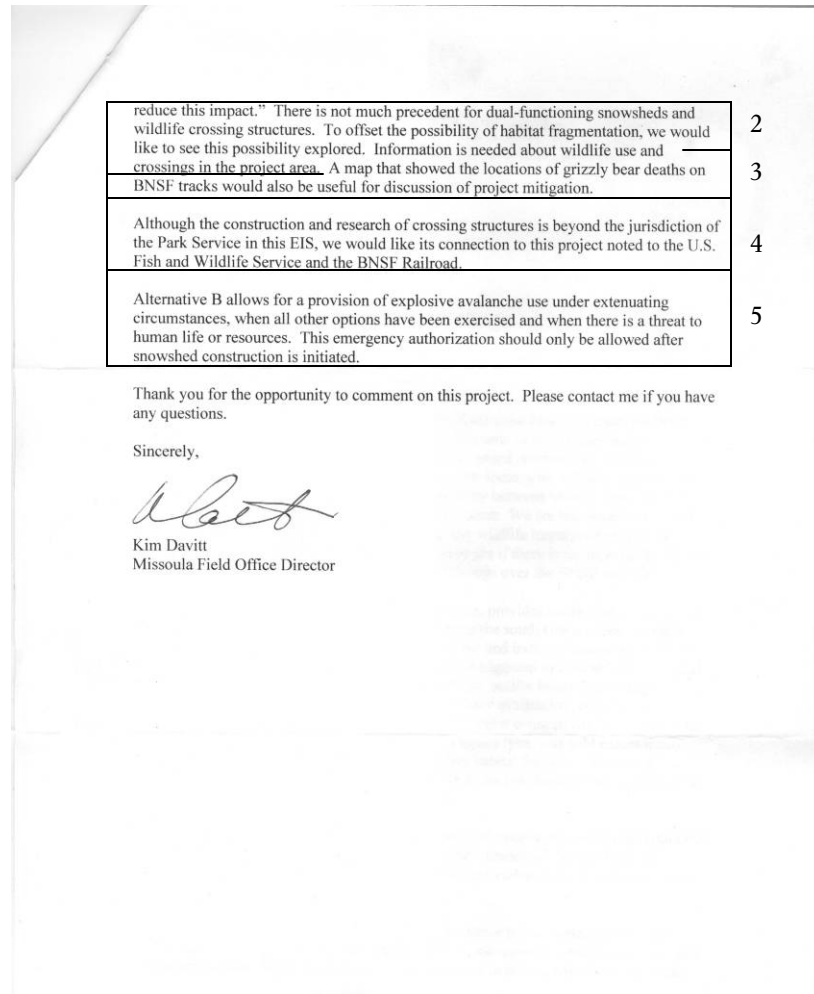
CC:

Senator Max Baucus
Senator John Tester
Congressman Dennis Rehburg



American Wildlands

1. Thank you for this comment. Glacier National Park lands were designated critical Canada lynx habitat in November 2006. This information was added to the Final EIS. See Errata Sheet-Chapter 3.




2. Wildlife Crossings are discussed on page 1-12 and 2-10 of the DEIS. GNESA has begun a study to determine locations where wildlife is crossing the tracks. This data may be used by BNSF train engineers, in the Habitat Conservation Plan, if snowsheds are constructed, and if wildlife crossing structures are included. See response to #1 of the EPA letter.
3. See response to #5 National Parks and Conservation Association letter above.
4. We have forwarded a copy of your letter to the USFWS.
5. Your suggestion has been considered, but the NPS respectfully disagrees. We believe that there may be times when explosive use is the only safe response to a life or death situation regardless of BNSF's decision to build snowsheds.

#181

S

AR



**MONTANA
FARM BUREAU
FEDERATION**
502 S. 19th Ave. Ste 104
Bozeman, MT 59718

December 20, 2006

Mary Riddle
Glacier National Park
P.O. Box 128
West Glacier, MT 59936

Re: Avalanche Hazard Reduction by Burlington Northern Santa Fe Railway in Glacier National Park and Flathead National Forest, Montana-Draft Environmental Impact Statement.

Ms. Riddle,
The Montana Farm Bureau Federation thanks you for the opportunity to submit comments on the DEIS for avalanche hazard mitigation along the rail line near the southern boundary of Glacier National Park.

Montana Farm Bureau represents nearly 5000 agricultural producers across Montana. Many of these producers raise wheat and barley with statewide total receipts at \$860 million. Nearly all (90+ %) of these crops are exported from the state with the majority leaving the state by rail, bound for west coast shipping facilities. Most of this grain is shipped during the winter months due to later harvest dates in the north. International grain markets are highly competitive and prompt, predictable delivery to milling facilities is imperative in order to maintain these vitally important markets.

BNSF ships the majority of the grain that leaves Montana on their rail line that crosses northern Montana and the southern boundary of Glacier National Park. Any disruption to this rail line, such as from avalanche or stoppage of shipping due to avalanche risk will have a significant impact on our ability to market grain.

1

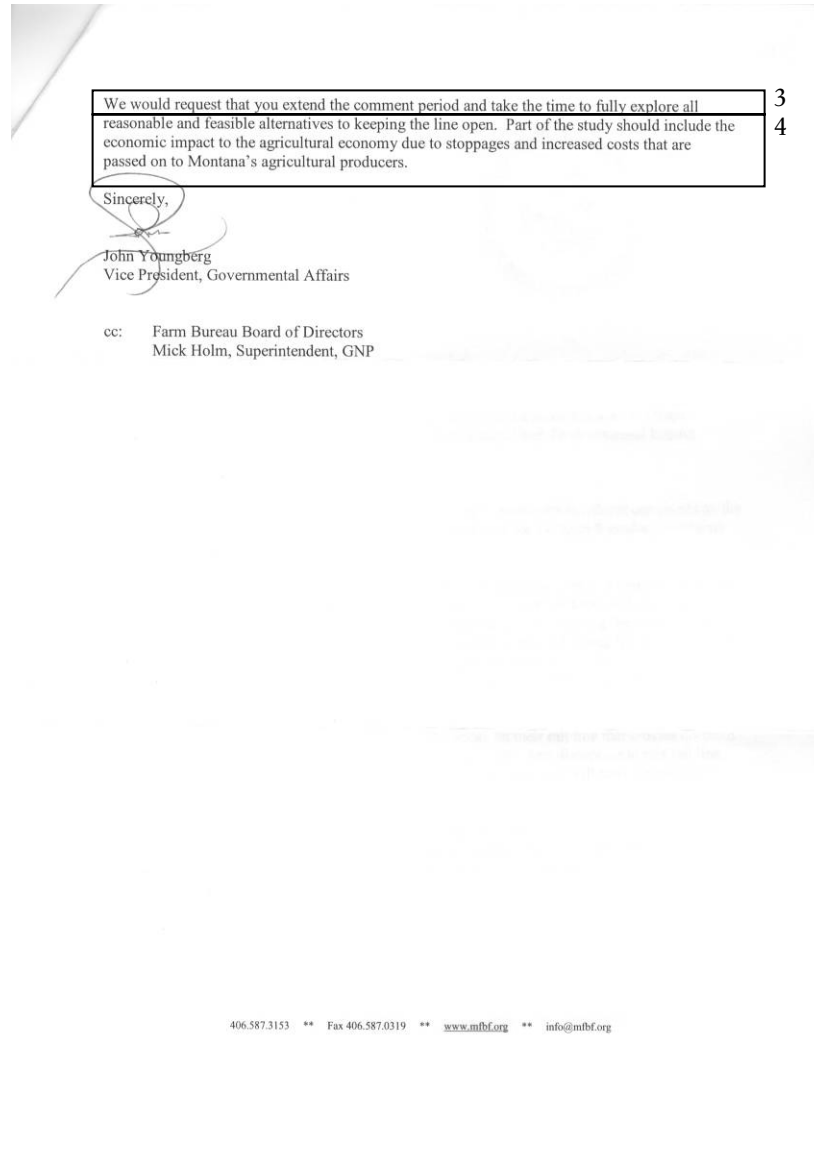
It is very important that all possible methods of avalanche mitigation on this rail line are explored before a final ruling is imposed. Consideration all tools that are environmentally responsible should be given due consideration and used when necessary.

2

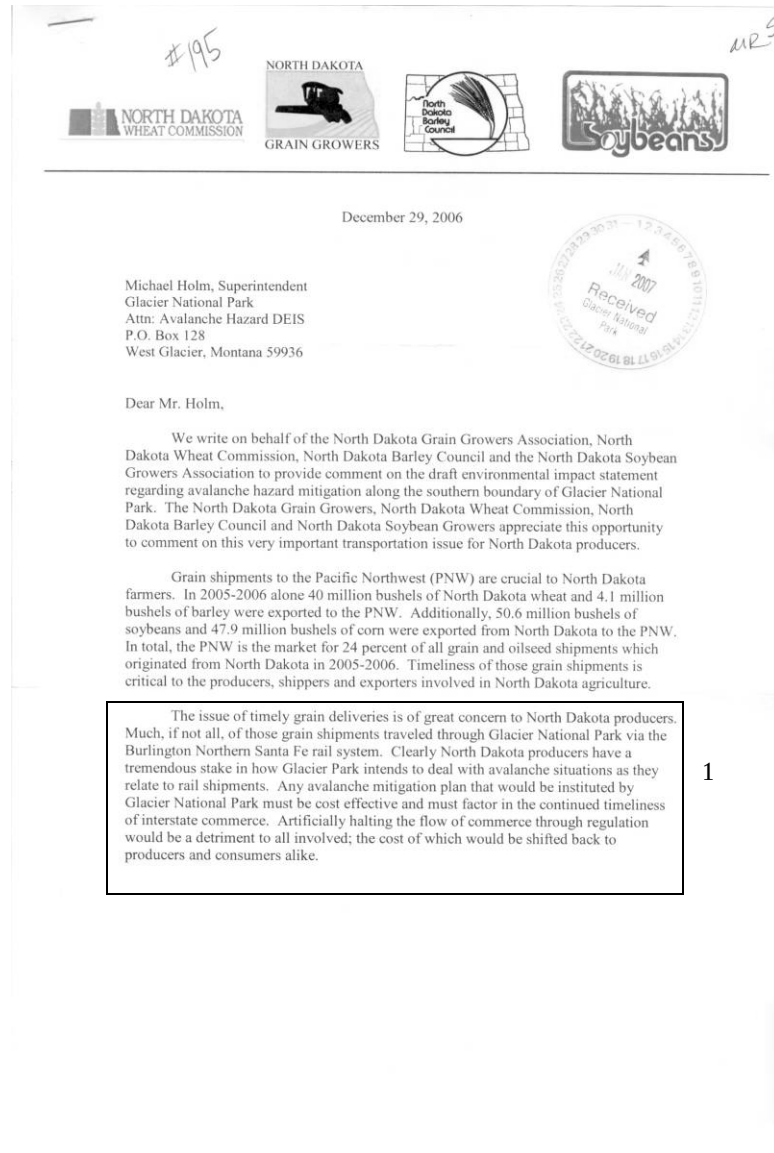
406.587.3153 ** Fax 406.587.0319 ** www.mtbf.org ** info@mtbf.org

Montana Farm Bureau Federation

1. Delays and disruptions to rail traffic are discussed on page 4-100 of the EIS. There are disruptions to rail traffic with all of the alternatives; however, the construction of snowsheds under Alternatives B and C would eliminate most if not all of the avalanche caused disruptions. While the delays under the no-action alternative would be irregular, the average annual avalanche hazard delay over the past 29 years was 7.1 hours per year. We do not believe this is significant, since the railroad has many non-avalanche caused delays over the course of a year.
2. The NPS, USFS, and MDT have conducted an exhaustive analysis of the alternatives, and identified all known potential mitigation based on consultation with a number of internationally known avalanche specialists. The EIS even considers technology that is still under development.



3. The original 60-day comment period was extended an additional 30 days based on a request from BNSF. See response to #2 above.
4. As stated in the response to #1 above, delays and rail disruptions are discussed on page 4-100 of the EIS. While there is a chance that BNSF operational costs would be passed on to their customers, there are many factors influencing the degree this may occur. While the direct costs to BNSF of each alternative are detailed in the analysis, the potential indirect cost saving benefits associated with decreased spill potential and cleanup costs, reductions in delays, decreases in rail traffic restrictions, and changes in infrastructure maintenance costs are not quantifiable. Additionally, costs may be increased for customers in areas without competitive transportation alternatives, costs may be increased for all BNSF customers, or BNSF may absorb the operational costs in their annual budget. This information will be added to the Errata Sheet.



North Dakota Grain Growers Association, North Dakota Wheat Commission, North Dakota Barley Council, North Dakota Soybean Growers Association

1. See responses #1 and #4 to Montana Farm Bureau Federation letter above.

Our organizations are very concerned about the environment. Stewardship of our resources is the very lifeblood of agriculture. Striking a balance between environmental considerations and economic needs brings about policies that will benefit both man and nature.

We request that the current Draft Environmental Impact Statement be put on hold until more is known on the impacts and potential mitigation actions of alternative avalanche control methods that are cost effective and do not cause significant economic harm to the surrounding states.

2

Sincerely,

North Dakota Grain Growers Association
North Dakota Wheat Commission
North Dakota Barley Council
North Dakota Soybean Growers Association

2. The NPS, USFS, and MDT have conducted an exhaustive analysis of the alternatives, and identified all known potential mitigation based on consultation with a number of internationally known avalanche specialists. The EIS even considers technology that is still under development. No other information is available at this time. While new information could be considered and analyzed in the future, the NPS believes that enough information exists to reach a preferred alternative on explosive use for avalanche hazard reduction in GNP.

#199

To: Superintendent Glacier National Park
Attn: Avalanche Hazard DEIS
P.O. Box 128
West Glacier, Montana 59936.

The Montana Chapter of Sierra Club appreciates the opportunity to provide comments on your Avalanche Hazard Reduction By Burlington Northern Santa Fe Railway in Glacier National Park and Flathead National Forest, Draft Environmental Impact Statement.

Alternative A is the DEIS's required "No Action", status quo alternative. Alternative B is the Preferred Alternative and the Environmentally Preferred Alternative which recommends that BNSF construct less than one mile of snowsheds with no explosive use permitted. Alternative C permits limited explosive use to reduce avalanche hazard for up to 10 years upon a commitment from BNSF to construct recommended snowsheds. Alternative D is the BNSF's proposal to use explosives (including military artillery) indefinitely in the park for avalanche hazard reduction and includes the extension of two snowsheds.

The Montana Chapter of Sierra Club endorses and supports the DEIS's Preferred Alternative, Alternative B.

The DEIS states that snowshed construction under Alternative B would protect avalanche paths and the potential for avalanche caused derailments or hazardous material spills would be nearly nonexistent once snowsheds are completed. Snowshed construction in Alternative B would have a beneficial, site-specific, long-term impact on natural avalanche processes, as the natural slope over the railroad would be restored by the snowshed.

The DEIS discloses that currently existing wilderness attributes would be significantly and adversely impacted by the two other "action" Alternatives: The explosive use in Alternatives C and D would occur in starting zones within GNP recommended wilderness resulting in recreational closures, impacts on natural soundscape, and possible removal of the area from wilderness area recommendation if a continuous explosive program were permitted. The natural quiet of wilderness would be interrupted by bursts of loud explosive sound, and the continuous program of explosive use would impact the recommended wilderness status for designation. Shrapnel from military ordnance would be present in recommended wilderness starting zones and would be very difficult to remove. The possibility of unexploded ordnance in the project area would necessitate a year-round closure of the area.

The DEIS documents that BNSF's Alternative D would have significant impact on natural processes: Alternative D would have a high residual risk that would continue indefinitely with a continuous program of explosive use. A continuous program of explosive use would have a major adverse impact on natural avalanche processes, changing frequency and magnitude of natural slides. Vegetation and soils would have minor to moderate, adverse, long-term, site-specific impacts from altered avalanche processes. Continuous explosive use would introduce a major, adverse, long-term, site-specific impact on natural sound.

Sierra Club- Montana Chapter


Federal studies have documented that Threatened and Endangered Species are present within the DEIS analysis area. Winter wildlife observations in the project area were conducted during 2005 and 2006. Federally listed threatened and endangered species (gray wolves, grizzly bears, bull trout Canada Lynx, and bald eagles) were observed and have been known to occur in the project area. A number of state listed species also occur in the project area. In addition, this area serves as winter range for ungulate species.

The DEIS also discloses that "action" Alternatives D and C would likely have significant adverse impacts on threatened, endangered and sensitive wildlife species within the project area: The sporadic disturbance from explosive use (under Alternatives D and C) would have a range of impacts on wildlife and threatened or endangered species. Direct impacts include mortality or injury from an explosion or triggered avalanche, physiological changes, flight response, deafness, seismic disturbance, and/or behavioral changes. Indirect impacts include vegetation changes, food or prey availability changes, decrease in reproductive success, habitat fragmentation, loss of habitat connectivity, and changes to critical habitat for threatened or endangered species. The continuous use of explosives could drive populations of animals from the winter range, effectively changing the ecosystem. There is a slight chance that unexploded ordnance could spontaneously detonate possibly injuring or killing wildlife close to the blast. The impacts on wildlife are expected to have a range of impacts depending on species and amount of explosive use. There are significant impacts on wildlife associated with explosive use. Wildlife impacts are expected to continue indefinitely under a continuous explosive use program.

While the BNSF's Alternative D is less expensive than Alternatives B and C, (both of which include snowshed construction), the impacts to natural resources in the project area are greater and would be permanent. BNSF has made record profits in recent years and, (considering the documented significant and adverse impacts to highly esireable in-place resources), higher costs associated in implementing the DEIS's Preferred Alternative B should not be a determining factor.

Please send a copy your Record of Decision and Final Environmental Impact Statement (ROD/FEIS) when it becomes available to:

J. Nicholls
P.O. Box 466
Stevensville, Montana 59870

Sincerely,

(signing for)
Conservation Committee Chair
Montana Chapter, Sierra Club

1. Thank you for your comments. We have placed your organization on our mailing list for the Final EIS and Record of Decision documents.

WILDERNESS WATCH
KEEPING WILDERNESS WILD

P.O. Box 975 • Missoula, MT 59807 • p: 406.542.2048 • f: 406.542.7714 • wild@wildernesswatch.org • www.wildernesswatch.org

January 2, 2007

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Superintendent
Glacier National Park
PO Box 128
West Glacier, Montana 59936

RE: Comments on Avalanche Hazard Reduction Draft EIS

Dear Park Manager,

Wilderness Watch submits the following brief comments on the *Avalanche Hazard Reduction by Burlington Northern Santa Fe Railway in Glacier National Park and Flathead National Forest Draft Environmental Impact Statement (DEIS)*. We realize the comment period ended in late December but we hope you will nonetheless add our comments into the record because it is difficult for many people and organizations to meet comment deadlines during the busy winter holidays.

We wish to emphasize our strong support for Alternative B, the preferred Alternative. We applaud the attention given in the DEIS to the park's recommended wilderness, wildlife, other traditional park values, and feasible alternatives to the use of explosives to reduce avalanche hazards along Highway 2. We thoroughly support NPS' preference for modifying existing snowsheds and constructing new snowsheds where needed to shield the train tracks across current avalanche paths.

We believe Alternative B will have the least negative impact on wilderness character, park values, and visitor experiences while providing sufficient protection to trains travelling the Burlington Northern Santa Fe Railway (BNSF). It also should be economically feasible, given that BNSF has been in a period of record profits and should bear the costs of protecting its investments.

We are pleased that the weather station will be located within the Highway 2 right-of-way corridor instead of in the park's recommended wilderness. We are disappointed that the snow depth gauge will be placed within recommended wilderness. If at all possible we request that a non-wilderness site be selected instead. However, we are aware that the Great Bear Wilderness parallels Highway 2 on the south side of the highway so there may be few workable options. We ask that NPS prepare a written Minimum Requirement Analysis before determining that it is absolutely necessary to place the snow depth gauge within the park's recommended wilderness.

Our thanks to NPS' staff for producing a quality, informative, and very readable DEIS!

Sincerely,

TinaMarie Ekker

TinaMarie Ekker
Policy Director

1

Wilderness Watch

1. The cooperating agencies would also like to see the snow depth gage placed outside of recommended wilderness; however, there are few alternatives available at the required elevation. The snow depth gage needs to be located at an elevation of approximately 5,600 feet and needs to be located on a slope with the same aspect as the railroad so that an accurate avalanche hazard forecast can be made. A written Minimum Requirement Analysis would be prepared before the placement of any infrastructure in recommended wilderness. The Minimum Requirement Analysis is added to the EIS in the alternatives chapter per the Errata Sheet.

Great Bear Foundation Public Testimony

December 5, 2006 Brian Peck

Superintendent Mick Holm
Glacier National Park
P.O. Box 128
West Glacier, Mt 59936

Dear Superintendent Holm.

Thank you for the opportunity to comments on the
Avalanche Hazard Reduction DEIS for the Middle Fork of
the Flathead River. Please enter the following comments into
the official record, and include us in any future
communications on this project:

We fully support the selection of Alternative B as the
Preferred Alternative, and oppose Alternatives C & D which
violate the NPS Organic Act, damage sensitive resources,
imperil park wildlife, including listed species, and
compromise safety.

Table 2-4 in the DEIS notes that in reference to sheds 5, 7, 8,
9 and Burn Out. BNSF "could" extend these sheds and
employ state of the art detection devices. All such references
should be changed to "Will."

Our reasons for supporting an option like Alternative B were
clearly laid out in our Scoping Comments, and are restated
here in an abbreviated form, as follows:

ISSUES AND CONCERNS TO ADDRESS:

1. The National Park Services Organic act of 1916 lays out
the following Mission Statement:

Great Bear Foundation Public Testimony

December 5, 2006 Brian Peck

1. The Great Bear Foundation is on our mailing list and will receive
the Final EIS and Record of Decision.
2. At the beginning of the description of Alternative B (DEIS page
2-7), it states that the agencies do not have authority to dictate
activities on the railroad right-of-way. The word "could" reflects
BNSF's responsibility, if they choose, to carry out
recommendations made in Alternative B.

"To conserve the scenery and the natural and historic objects and the wildlife 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." 16 U.S.C. (1), 1916.

Nowhere does this mention, provide for, or allow the shelling of National Park property to improve the corporate bottom line of Burlington Northern Santa Fe (BNSF) Railroad. In fact, any such use of explosives for a clearly non-park purpose runs directly counter to the Organic Act in violation of federal law.

2. The railroad over Maria's Pass was completed in 1891 and trains have been running through the Middle Fork ever since. During that entire time the problem of periodic heavy snow years and avalanches was well known, and extensively documented in various archives. Yet in 104 years of operation, BNSF and its predecessors have seen fit to leave the current situation unaddressed, with the exception of several aging snow sheds.

Now, with gas prices at all time highs and railroad traffic booming, BNSF would like Glacier National Park to solve a problem which the railroad has created, and through its negligence has failed to address in more than a century. In so doing, it also expects the Park to compromise the very reason that national parks were set up.

3. BNSF will no doubt try to cloak their request in the mantle of public safety, but this is a transparent ploy. Amtrak passenger service, while popular, and a more environmentally friendly way to travel, is substantially down from previous decades, and Bush administration actions

comparative inaction, is driven by increased rail traffic and booming international trade - the corporate bottom line - not a desire for passenger or public safety. They should not expect the Park, and the American people to sacrifice the natural values of one of the park system's crown jewels to further enhance that private corporate bottom line.

4. BNSF may well bring up the issue of potential derailments, and the possibility of grain spills that attract and kill grizzlies, or hazardous wastes that might pollute the Middle Fork. The question remains the same - where has this concern been for the last 104 years?

From 1914-18 when James J. Hill and the Great Northern Railroad spent tens of millions of dollars on the great lodges of Glacier there was clearly enough money to build a complete system of snow sheds, yet little was done. Today, with rail traffic and profits increasing, BNSF has no excuse for not finally stepping up to the plate of corporate responsibility and fully funding such a system for what it has always been - a private cost of doing business - not a reason to sacrifice a treasured national park and its natural values.

5. Regardless of the option chosen, the Park, USFS, and the railroad should cooperatively develop, and BNSF should fund, a comprehensive avalanche monitoring and early warning system throughout the Middle Fork avalanche chutes. In this way, BNSF can avoid sending hazardous shipments through the canyon during peak avalanche times, and agencies can better assess when, and how, to address public safety concerns.

6. As part of its installation of avalanche sheds. BNSF should coordinate with John Waller of the Park to look for opportunities to combine the sheds with overpasses in key

3. In 2005, BNSF instituted an avalanche hazard forecasting, warning and rescue training program for the railroad in John F. Stevens Canyon. Avalanche forecasting and rescue training is coordinated by the Avalanche Safety Director. Specific details about the program are under the heading Avalanche Forecasting under each Alternative in Chapter 2 of the EIS. We believe this has been a great improvement in avalanche safety and awareness and we continue to support the railroad in this endeavor.
4. GNESEA in cooperation with GNP, FNF, and American Wildlands, is funding a mapping project to determine wildlife crossings in anticipation of using this information when the railroad decides to extend or construct more snowsheds. In a broad context, GNESEA will be considering wildlife connectivity across the transportation corridor and will continue to seek funding for this project.

3

4

linkage areas identified in his research. Where such overpass/snow shed combinations are close enough to Hwy. 2 to span it, that option should be investigated as well in coordination with the Montana Dept. of Transportation. In

areas where there's concern that a snow shed may move snow onto the highway, this option would address that problem as well, while providing increasingly critical wildlife linkages between the Park and wilderness areas to the south.

Again, thank you for the opportunity to comment. We look forward to working with you as this EIS moves forward.

Sincerely,

Brian Peck

Great Bear Foundation

Great Bear Foundation Public Meeting Transcript 12/5/06

Brian Peck, Columbia Falls, speaking on behalf of the Great Bear Foundation. I'd like to thank the Park and everyone concerned for the opportunity to comment on the avalanche hazard reduction DEIS and ask that our comments be logged in the official record.

The Great Bear Foundation wishes to express our support for preferred alternative B and our opposition to alternatives C, D, or any other option using explosives in the Middle Fork corridor. Whether one looks at the MPS Organic Act which says resource

protection comes first, always public safety, safety for BNSF's business, or protection of the Park's wildlife and natural resources, the best long-term protection is provided by the snowsheds of alternative B.

The railroad has been running trains through the Middle Fork for more than a century, has known of avalanche hazards for more than a century, and has chosen to ignore the need for a full system of snowsheds for more than a century. Now, finally awakening to the

peril that its inaction has caused, BNSF would transfer its costs of doing business to the wildlife of Glacier and the American people. This is not the first time that BNSF has sought to elevate its corporate bottom line over the good of Glacier National Park and wildlife that's the legacy of all Americans. More than fifteen years ago when its trains derailed, repeatedly dumping tons of grain, BNSF thought first of corporate profits and buried the grain, attracting dozens of grizzlies to their deaths. Only when threatened with legal action did the company suddenly get religion and clean up the spills.

Since then, the railroad's timely response to continuing spills might lead us to believe they finally learned to be a good corporate neighbor. But we would be wrong. The railroad's belated response to the avalanche program isn't -- can't read my own writing. The railroad's belated response to the avalanche program -- well, I'll just

Great Bear Foundation Public Meeting Transcript 12/5/06

Thank you for your comments.

read what I've got -- doesn't consider the long-term public safety or protecting the irreplaceable resources of a crown jewel national park like Glacier. It's to protect its record of corporate profits with short-term, do-what's-convenient, send-the-bill-to-America thinking.

Alternative B protects citizens using the Middle Fork or riding on BNSF trains. It protects the railroad's business interest. It protects Glacier's world class wildlife, including threatened and sensitive species. It costs less in the long term. And if done properly, it could provide wildlife linkage zones across the dangerous corridor. For all these reasons, we ask you to choose alternative B. Thank you.

Page 1 of 2

#220

Arlee Senior Citizens, Inc.

From: Elizabeth <evanocityusa@blackfoot.net>
To: Arlee Senior Citizens <arleeseniorsinc@blackfoot.net>
Sent: Wednesday, January 24, 2007 10:55 PM
Subject: Glacier Park Avalanche DEIS Jan 24 07

For any one interested in sending this or a similar letter re avalanche controle in Glacier NP. Comments can also be sent by going to <http://parkplanning.nps.gov> and completing the PDF form there. Bette Samsel

January 24, 2007

Superintendent
 Glacier National Park
 Attn: Avalance Hazard DEIS
 PO Box 128
 West Glacier, MT 59936

Gentlemen:

Regarding avalanche hazard reduction for the Burlington Northern Sante Fe Railway, we, the undersigned, strongly urge that Alternative B, the construction of snow sheds, be chosen by your agency, for avalanche hazard reduction for the BNSF railroad in Glacier Park.

The BNSF railroad has had excellent profits from their railroad. They should be ashamed to seek public financial support for a problem which in the past they expected to, and did, provide the funding to resolve. If they have failed to take the proper protective actions to protect their property, and failed to maintain the snow sheds, it is high time they again took up financial responsibility for protecting their own property.

The noise from howitzers is just as undesirable in and incompatible with Glacier National Park, as snow mobiles, hand guns, rifles, or all-terrain vehicles, chain saws, and logging equipment, which are expressly not allowed to be used in Glacier National Park.

Respectfully yours, *Philo 726-3841*

Gerard Younger 35232 White Coyote Rd Arlee, MT 59821

Elizabeth Younger 35232 White Coyote Rd Arlee, MT 59821 Ph 726-3841

Viola Lamm Phone 726-3483 Box 206 Arlee Mont. 59821

Margaret Holmstrom

Maie disturbs the wild life

Marianne Malone Box 344 Arlee MT

Mel Quishaak Mela Mt. A

George Christopher 1210 marts Dr. 1/26/07

Arlee Senior Citizens, Inc.

Thank you for your comments.

Comment

Response



**Swan View Coalition Public Testimony
December 5, 2006, Keith Hammer**

My name's Keith Hammer, and I represent Swan View Coalition. And I'd also like to thank the Park Service for this hearing tonight and for all the hard work that went into the DEIS. And I think what I want to start with is this brochure that I picked up, "The Great Northern Environmental Stewardship Area" that's in the back. Some of us that have been around have been around since when it was the Burlington Northern Environmental Stewardship Area. Brian touched on a little history of that. And of course, that's avalanche paths and these snowsheds that exist in the areas where more snowsheds are needed to exist in that corridor.

I'd just like to read a few of the sentences from this brochure, because we should be able to take care of this problem here without even needing an inch-and-a-half-thick EIS. "Intense human activities in the heart of a pristine environment." Inside it defines a little bit about the mission statement. "This corridor holds unparalleled national landscapes, critical wildlife habitat, a pristine free-flowing river, and vital transportation utility routes, all of which contribute to essential values to our region. We work together for an enlightened stewardship and collaborative responsibility for our human activities in these precious lands." And I want to emphasize that, because this is what I have come to expect from Burlington Northern Santa Fe and the other partners, the other agencies and private groups that are involved in this stewardship area. I think that using either artillery or explosives to blow these avalanches loose in Glacier Park totally violates the trust that I think was established in forming this environmental stewardship area. That's not creative environmental stewardship in any way, shape, or form. So I don't think we should even have to look to the EIS or the fact that the Park Service -- that that's proposed wilderness in that portion of Glacier National Park. And the Park's policy dictates that it can't be using explosives up in that area. At least that's what I read in the DEIS. But

**Swan View Coalition Public Testimony
December 5, 2006, Keith Hammer**

Thank you for your comments.

again, it should be taken care of right here. Environmental stewardship in an enlightened manner would mean that we do the right thing in this corridor.

So the Swan View Coalition supports alternative B, the building of more snowsheds and the lengthening of some of the existing snowsheds in the corridor. And we'd like to emphasize, as does the alternative in the EIS, that substantial consideration be given to – and more than just consideration -- but that the design of these be designed to also serve as wildlife crossings to get across the railroad track for bears and elk and other big game and basically any kind of critters that want to cross those tracks. If we want to do enlightened stewardship, which is what this effort is all about, that's what we should be looking at in this corridor. Let's do state of the art rather than taking shortcuts.

I know, I think the summer before last, after having been involved in this from the first grain spills back in the days when the National Press was talking about the drunken bears along Highway 2 because they were eating the fermented corn, that's what we became known for in this corridor. And now we look at it a couple summers ago I was just amazingly -- I was shocked to read in the newspaper one of the last major spills, that Burlington Northern went out there in this day and age and dozed a bunch of grain cars over the edge to get the tracks cleared up to get the freight moving, to keep the profits flowing, and spilled more grain in the process rather than having secured those cars and somehow bottled them up before they moved them off the tracks. This is the same type of a shortcut that I see happening with Burlington Northern's insistence that they go out and use explosives to deal with these avalanches rather than making a good, sound investment in longer snowsheds and more snowsheds and especially in terms of snowsheds that also can serve the function of being wildlife crossings.

I would also like you to know that way back in Abe Lincoln's day, there were considerable land grants out here given to the railroads to supply the timber necessary to construct the railroads and bring commerce and freight into the western United States. And I just find it really frustrating at this point to see a railroad trying to basically get the taxpayers to help fund doing explosives in a wilderness area in a national park after they've been granted the land and the timber, essentially, that they would need to build the snowsheds. Now, there's a long history of divesting from Burlington Northern to Plum Creek and now into real estate and all that. But my point is that I think the taxpayers, speaking for myself, are really tired of seeing large corporations like the railroad trying to get the taxpayers to pay to fix their problem on these tracks. So again, in summary, we support alternative B, with special emphasis on having these new snowsheds and the extensions to these snowsheds also serve as vital wildlife crossings across the railroad tracks. Thank you.



Burlington Northern Santa Fe Railway November 29, 2006

1. The sentence states that we lack sufficient scientific baseline data to measure *impairment*. Determining *impairment* to resources is different from determining the level of impact as required by the National Environmental Policy Act. We do not lack sufficient information to determine the impacts and to select a preferred alternative. We have determined that there would be major, adverse, impacts from using explosives as described in Alternative C and D in the EIS to avalanche processes, vegetation, wildlife, threatened and endangered species (grizzly bears, Canada lynx), air quality, natural sound, and wilderness. The EIS team conducted global literature searches, reviewed existing data, (including wildlife surveys conducted during the winters of 2005 and 2006), and consulted with professional wildlife biologists. In most cases, the NPS avoids taking actions that would result in major adverse impacts to park resources. *Impairment*, on the other hand, is an impact that in the professional judgment of the responsible NPS manager would harm the integrity of park resources or values. It is a practice determined by NPS Policy, not by NEPA. The NPS is not allowed to take actions that might result in impairment or result in unacceptable impacts to park resources. The EIS team was not able to determine if the BNSF proposal would result in impairment to park resources and values.

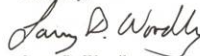
Track surveys, observational data, and park studies in the project area have provided valuable information for species' presence, absence, and habitat use in the analysis area. For example, we know that there are three documented threatened and endangered species using the area. We also know that ungulates use the analysis area as winter range. While research on the specific impacts of explosive avalanche control is not available, specialists have used information from other studies concerning disturbance impacts, habitat use, and effects of human action to

military ordnance, for the limited circumstances when necessary—is a critical aspect of an effective avalanche hazard reduction program. This understanding is evidenced by the Forest Service's own National Avalanche Center's avalanche mitigation program (a program not fully discussed or considered in the DEIS) and other circumstances where avalanche mitigation programs in public settings similar to Glacier National Park have long been used and continue to be used today. BNSF believes that the agencies' prior extensive experience with these proven methods (including the use of explosives) to reduce avalanche risk, and their present day employment of proactive avalanche reduction plans on public lands, are key to understanding and implementing an appropriate avalanche risk reduction plan at Glacier National Park.

These and other gaps in the DEIS's analysis have persuaded BNSF that sufficient time should be allowed now for consideration of additional, new information that is critical to serving NEPA's purposes. Additional time and studies would enable the inclusion in the NEPA process of a full exploration of appropriate baseline data and potential environmental impacts from avalanche mitigation techniques already used across the country. To that end, BNSF supports a renewed effort by the agencies to carefully examine how an avalanche risk reduction plan could be implemented in Glacier National Park on similar terms and conditions, including all reasonable mitigation methods, as the plans being followed on other public lands. Were the agencies so inclined, they could prepare a Supplemental Draft Environmental Impact Statement that addresses key issues excluded from the scope of the current DEIS.

In BNSF's view, the absence of sufficient scientific baseline data and exclusions from the DEIS's scope of study means that continuation of the formal public comment process is premature. Only after a fulsome record is compiled on baseline conditions in Glacier National Park, and experiences from other settings employing avalanche hazards reduction methods (including military ordnance for limited circumstances, when necessary) are assessed, will it be possible for the agencies to proceed with an alternatives and impacts analysis that fully addresses the purpose and need of BNSF's proposal—to reduce to an acceptable level the risk posed by avalanches to public safety and property while at the same time protecting one of our nation's important treasures.

Sincerely,


Larry D. Woodley

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determine the effects of an explosive avalanche hazard program. NEPA requires federal agencies to use all available information to make science-based decisions. The preferred alternative is unlikely to change due to more data collected in the analysis area. It would be contrary to the NPS mission to allow explosive use in an experimental manner to determine the impacts of explosive use solely for BNSF's benefit.

2. See response to BNSF Question and Answer Sheet #9. The use of explosives and other avalanche mitigation methods were analyzed in Alternatives C and D in the DEIS. These methods are analyzed in the EIS in Chapter 2 pages 2-7 to 2-29 and in Chapter 4 under the impacts of Alternatives C and D.

Doug Abromeit, the director of the National Avalanche Center, was consulted during the preparation of the EIS. Mr. Abromeit provided information, site-specific recommendations and references, which were incorporated into the document. The National Avalanche Center is a US Forest Service agency funded entity. The National Park Service has different mandates than the Forest Service and those mandates are discussed at length in the EIS on page 1-4 through 1-6. The National Avalanche Center provides an umbrella under which a network of state and local avalanche centers conducts avalanche mitigation, avalanche training, snow science research, avalanche forecasting, and avalanche information dissemination. The National Avalanche Center does not operate avalanche control operations in National Parks. The Forest Service public lands are not set aside for the same reasons that Glacier National Park was set aside.

The resource impacts of other avalanche programs have not been adequately analyzed prior to commencement. Most of these programs were started before NEPA was implemented. Avalanche control programs do not have associated site-specific baseline data. No data exists from these programs to determine the impact that explosive use would have on GNP resources.

3. The “specific gaps in the DEIS analysis” have not been specified except for the lacking baseline data from other explosive avalanche programs. The EIS process has been exhaustive with available information, site-specific baseline data, and research. There is not any baseline data or available research on the direct or indirect resource impacts of other explosive avalanche control programs. Baseline information cannot be collected after an explosive avalanche reduction program has been started. A supplemental EIS would only be prepared if new information becomes available or BNSF submits a new proposal that has not already been analyzed in this EIS.
4. No new information has been brought forward during this DEIS public review that requires the need for additional analysis. There is sufficient scientific baseline data for the NPS to select a preferred alternative. The NPS believes that the best solution lies outside the park in the form of snowsheds for the protection of BNSF employees, freight and Amtrak passengers.

The following is a series of questions and answers prepared by BNSF that was distributed at the public open houses and hearings on December 5th and 6th, 2007. Opposite these questions are the NPS responses where appropriate.

**Some Common Questions About Avalanche Mitigation In
John F. Stevens Canyon, Glacier National Park
BNSF Railway Company
Public Meeting on Draft Environmental Impact Statement
December 5 and 6, 2006**

1.) Question: What is BNSF's Relationship to Glacier National Park?

BNSF Answer: In the early 1890's, one of BNSF's predecessors, the Great Northern Railway, built a line over Marias Pass in what is now known as (after a Great Northern civil engineer) John F. Stevens Canyon. One of the founders of the Great Northern was among the primary advocates for the establishment of Glacier National Park, an effort that culminated in 1910 when President Taft signed the bill officially creating the Park. The Great Northern subsequently constructed a series of hotels and backcountry lodges in the Park, some of which are still enjoyed by Park visitors today. Throughout the succeeding century, the railroad has maintained its support for and appreciation of the Park, and its trains have continued to travel along the Park's southern boundary.

2.) Question: Why is avalanche hazard mitigation needed along the rail line and U.S. Highway 2?

BNSF Answer: Avalanches in Stevens Canyon threaten not only BNSF's employees and trains, but also passengers on the two Amtrak trains that daily run on the same rail line, and the driving public traveling on nearby U.S. Highway 2. The area has a history of avalanche incidents involving risk to human life and property damage. In 2004, BNSF suffered a derailment as a result of an avalanche and understands that a separate avalanche nearly missed

National Park Service Response to BNSF Questions

2. NPS Response: The history of avalanches in the canyon is documented in Appendix B of the DEIS. The original snowsheds were constructed in the early 1900's to protect trains from avalanches. Active, non-explosive avalanche hazard mitigation has been employed by the railroad since the 2004 avalanche caused derailment incident. The railroad has developed a *Safety Operations Plan*, hired an Avalanche Safety Director, trains employees in avalanche hazard and rescue techniques, and maintains snowsheds. These are all avalanche hazard mitigation techniques that will reduce human, train and equipment exposure to avalanche hazard. The *Safety Operations Plan* with its Avalanche Warning System calls for specific responses by the railroad during different avalanche hazard levels. During periods of high avalanche hazard, the railroad has chosen to reduce its risk with actions such as restricting trains to the inside track or delaying train traffic until avalanche conditions stabilize naturally.

In the railroad's avalanche hazard analysis, prepared by Chugach Adventure Guides, snowsheds were concluded to have the least amount of residual risk of any of the avalanche mitigation techniques including explosive use. Snowsheds, constructed within the railroad right-of-way, would have the least impact on park resources. The benefits of recommended snowshed construction are 100% protection from avalanches and no railroad or Amtrak delays after construction.

hitting a traveler on US Highway 2 during that same period. Within the last century, a passenger train was hit by an avalanche. Avalanche hazard mitigation techniques can effectively reduce the risk of these potentially catastrophic events.

3.) Question: Under what circumstances does BNSF envision using explosives to reduce the hazard of avalanches?

BNSF Answer: BNSF is asking Glacier National Park for permission to employ explosive-based avalanche hazard mitigation when natural avalanche hazard is increasing in the areas of the Park near the rail line, and thereby posing a threat to human safety- including BNSF employees, Amtrak passengers, the motoring public and federal and state agency employees using U.S. Highway 2- as well as rail property and operations. The proposed use of explosives would affect less than 1% of the total acreage of the Park.

Contrary to press reports, BNSF is not proposing to “bomb” the Park. Explosive operations would be utilized for snowpack stability assessment and/or avalanche hazard mitigation. Decisions to implement an explosive use request would be based on site-specific qualitative and quantitative snowpack, weather and field operations. Procedures for explosive operations would follow guidelines established in Appendix H or the 1993 “Avalanche Handbook” written by David McClung and Peter Schaerer and the 1976 USDA Forest Service “Avalanche Handbook” (Agriculture Handbook 489). In sum, BNSF proposes to proactively mitigate avalanche hazards using all available, environmentally responsible and cost-effective tools, including, when necessary, explosives. Its program would be subject to appropriate environmental conditions imposed by the Park, and operated under the supervision of avalanche forecasting and mitigation experts who are fully aware of the Park’s unique value. This is what BNSF originally envisioned would be the focus and direction of the Draft Environmental Impact Statement (DEIS).

Additionally, the preferred alternative allows for the installation of a new weather station, a snowdepth sensor, and avalanche detection devices on federal lands. These actions would add information gathering and emergency notification systems to BNSF’s avalanche hazard mitigation program. There is enough professional knowledge of avalanche hazard and safety that events such as the 2004 derailments should be able to be avoided by identification of the hazard and implementation of delay or restriction mitigation practices even if the railroad chooses not to build snowsheds.

Montana Department of Transportation has an emergency closure procedure for state highways when avalanche danger is elevated. They do not conduct explosive avalanche mitigation on Montana roadways. US Highway 2 is discussed on page 1-14 of the EIS.

3. NPS Response: The DEIS analyzed the impacts of both explosive and non-explosive avalanche mitigation. The alternatives described in the DEIS were a range of alternatives from no action to explosive use including howitzers. NEPA requires a full analysis of all reasonable alternatives, not only the proposal from BNSF. As stated above, MDT does not use explosives for avalanche hazard mitigation on US Highway 2 and they have not proposed explosive avalanche mitigation or any other action on federal lands.

At the beginning of the EIS process, BNSF did not have a detailed, defined proposal for avalanche mitigation. The Forest Service received a letter from BNSF requesting assistance in the acquisition of a 105 mm Howitzer. Before the Howitzer request, BNSF requests to the NPS involved permission for an Avalauncher, hand charges, and helicopter delivery. The DEIS alternatives were partially derived from the alternatives described in the document *Avalanche Hazard Analysis John Stevens Canyon, Essex, Montana* written by Hamre and Overcast in 2004. This document had a recommended explosive use alternative that was used as the basis for Alternative D in the EIS.

4.) Question: What did the Park and Forest Service recommend as avalanche mitigation in the Draft Environmental Impact Statement?

BNSF Answer: The DEIS recommends that BNSF construct approximately one mile of snowsheds along its track, and effectively prohibits BNSF from using explosives for avalanche mitigation. Snowsheds have in the past been one element of a comprehensive avalanche mitigation toolkit. Indeed, BNSF continues to maintain and use a system of snowsheds in Stevens Canyon. The current DEIS process, however, was intended to explore different questions—namely, what environmental impacts could occur if explosives were used for avalanche mitigation in Stevens Canyon, and how those potential impacts could be minimized. It is also worth noting that during the ten year time period of snowshed construction recommended in the DEIS, BNSF would be required to delay or reroute its trains in periods of high avalanche risk (periods which could extend for hours or days at a time) and Amtrak to curtail operations of trains. The cost of delays in traffic to shippers, the public, and the ripple effect of such delays on our nation's ports is significant. Shippers with time-sensitive traffic like UPS and the U.S. Postal Service will not receive shipments in a timely manner, nor will the public waiting to receive its shipments have reliable service.

5.) Question: How has BNSF Responded to the DEIS?

BNSF Answer: Based on its preliminary review of the DEIS, BNSF recently asked the Park for a temporary suspension of the current DEIS process to permit further studies. In BNSF's view, there is a clear need for greater data development, technical analysis and input on state-of-the-art methods to reduce avalanche hazards and protect human life and property. When the necessary additional studies are completed, BNSF envisions that such material would be provided to the public for review and comment.

The EIS team developed the additional details of Alternative D after additional discussion, input, and review from Chugach Adventure Guides, local BNSF staff, and Fort Worth BNSF staff.

4. NPS Response: The DEIS did explore a full range of alternatives including two alternatives that permitted explosive use. The environmental impacts of using explosives were analyzed as well as ways to minimize the impacts. The DEIS analyzed the socioeconomic impacts of train delays and reroutes and determined that impacts to BNSF would be minor to moderate and adverse. Under Alternative C, estimated costs for delays were estimated at \$664,500-1,147,400 annually. Under Alternative D, a continuous program of blasting, delay costs were almost the same as the non-explosive alternatives. In Alternative B, after snowsheds were built, annual costs for BNSF were estimated at \$170,000 for delays associated with snow removal. Regarding delays, under No Action, delays were estimated at an average of 7.1 hours each winter. Under Alternative B, once recommended snowsheds were built, the delays would be non-existent. Under Alternatives C and D, the estimated delay would be up to 15 hours each time explosives were used. Currently, shippers are delayed the least with No Action. Therefore, while delays could affect shippers, explosive use may actually increase, rather than decrease delays.

5. NPS Response: There is a sufficient amount of information in this EIS for impact analysis and selection of a preferred alternative. Track surveys, observational data, and park studies have provided valuable information for species' presence, absence, and habitat use in the analysis area. For example, we know that there are four documented threatened and endangered species using the area. We also know that ungulates use the analysis area as winter range. While research on the specific impacts of explosive avalanche control is not available, specialists have used information from other studies concerning disturbance impacts, habitat use, and effects of human

6.) Question: Why does BNSF believe a suspension of the DEIS process is appropriate?

BNSF Answer: Although BNSF appreciates all of the hard work the Park, Forest Service, and Montana Department of transportation put into the DEIS, it has become clear that several key areas of the report warrant additional consideration. BNSF and other interested stakeholders deserve to meaningfully comment on a fully developed and inclusive draft environmental study.

7.) Question: What aspects of the DEIS are insufficient?

BNSF Answer: As an initial matter, BNSF agrees with the agencies' acknowledgement in the DEIS that the report "lack[s] sufficient scientific baseline data to measure 'impairment' from the implementation of an explosive program for avalanche hazard reduction of this magnitude." BNSF would like to work with the agencies to develop that baseline data, examine what past information Glacier has already in other environmental documents about impacts to wildlife and other Park resources and information developed in similar settings where explosives are used.

8.) Question: What scientific baseline data is missing from the DEIS?

BNSF Answer: To take one example, the DEIS does not include any wildlife or habitat studies. Without such studies, there is no way of measuring what wildlife impact, if any, may occur in the areas where BNSF proposes to perform avalanche mitigation, or even what wildlife resides in those areas. This and other scientific baseline information is necessary to determine the potential environmental avalanche control is not available, specialists have used information from other studies concerning disturbance impacts, habitat use, and effects of human action to determine the effects of an explosive avalanche hazard program. NEPA requires federal agencies to use all available information to make science-based decisions. The cooperating agencies do not have sufficient funding to carry out the research that BNSF would like to see collected. Furthermore, BNSF action to determine the effects of an explosive avalanche hazard program. NEPA requires federal agencies to use all available

information to make science-based decisions. The agencies involved do not have sufficient funding to carry out the research that BNSF would like to see collected. Furthermore, BNSF would not be able to carry out explosive use during the baseline data collection period. The preferred alternative is unlikely to change due to more data collected in the analysis area. It would be contrary to the NPS mission to allow explosive use in an experimental manner to determine the impacts of explosive use solely for BNSF's benefit.

6. NPS Response: The Council on Environmental Quality guidelines for missing and unavailable information (40 CFR §1502.22) were used in preparation of this document. The EIS team identified areas where resource information was missing concerning impacts from explosives and other avalanche mitigation actions. The specialists have used the best available information and their professional judgment to determine the impacts of the alternatives. The draft includes all available information and exhaustive literature searches have provided references that have been checked for relevant information. If BNSF can identify other sources that were not included in the document, we would consider those. The available information is not contradictory or conflicting. Specialists have reached professional determinations based on this information and discussions with specialists in other areas (see DEIS for references and personal communication).

7. NPS Response: The existing information and wildlife research conducted in the area and the documented presence of threatened and endangered species is sufficient to make the decision to not allow experimental explosive use on park lands in John F. Stevens Canyon. The literature review and searches have been extensive. We have examined other environmental documents from Glacier and Flathead National Forest including NEPA documents and research. No known existing information or research examines the resource impacts of an explosive avalanche program. This DEIS is breaking ground in examining an activity that has not been analyzed in past

9.) Question: What other information is missing from the DEIS?

BNSF Answer: Explosives have been used as part of a comprehensive avalanche mitigation program in various National Forests and National Parks for decades, including Yellowstone National Park and Yosemite National Park. The DEIS specifically excludes these programs from its scope of analysis. BNSF believes the similarity between its proposal and the avalanche mitigation currently used on other federal lands merits further examination.

10.) Question: What action should the Park take?

BNSF Answer: BNSF is respectfully requesting that the Park and Montana Department of Transportation work with BNSF to develop needed baseline data and thoroughly examine the potential environmental impacts of a comprehensive avalanche risk reduction plan to protect persons and property traveling through Stevens Canyon. In BNSF's view, this effort will require a temporary stay of the current DEIS process and likely culminate in the preparation of a Supplemental Environmental Impact Statement.

avalanche hazard reduction program NEPA documents. In most areas where explosive avalanche control has been implemented, wildlife has already been impacted by development of ski areas, road corridors, or resource extraction such as mines. We have found no studies or evidence that the use of explosives will not have unacceptable impacts or not cause impairment of park resources. The NPS has identified a preferred alternative based on the potential for impairment or unacceptable impacts that exists under Alternatives C and D. The reasons for the preferred alternative selection are on page 2-13 of the EIS. The DEIS does state that there is a lack of sufficient baseline data to measure impairment from the implementation of an explosive program for avalanche hazard reduction of this magnitude. Developing this baseline data would only provide more information on species use, distribution, and population in the analysis area, not the impacts of an explosive use program.

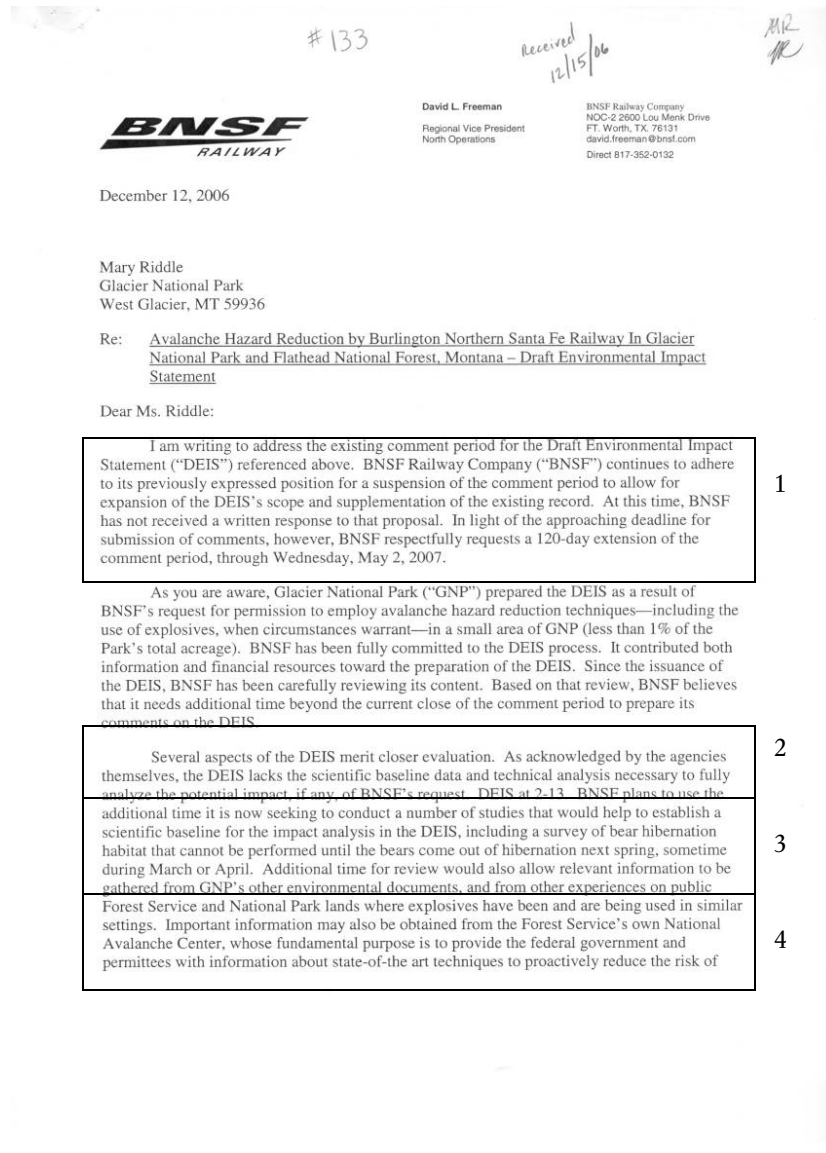
8. NPS Response: The DEIS references and uses several wildlife surveys in the environmental analysis. Two years worth of track surveys and observations were collected in the analysis area. The species found are listed in tables 3-11, 3-12, and 3-13. The park's WOLF database (wildlife observation report form) data are also included in the document. Montana state data for species that were harvested in hunting districts 141 and 160 (inclusive of the analysis area on Forest Service lands) is included. Historic data from the park and the Middle Fork of the Flathead area is also used for species habitat, distribution and use of the area. USFWS (1987), Wasem (1963), McDonald (1980) and Mace and Waller (1997) are all sources of area specific wildlife research used for this analysis. Research on wildlife use of avalanche paths and dependence on avalanche path vegetation is plentiful and is cited in the document. Research on avalanche path natural disturbance regimes and associated vegetation is available and has been used in the EIS analysis.

Winter wildlife surveys in 2005 and 2006 documented 17 species including T+E species (grizzly bear, Canada lynx) and species of concern (wolverine). Winter track surveys in 2001-2003 also documented the presence of wolverine and Canada lynx. WORF database has records for 56 species including T+E species (grizzly bear and Canada lynx) and several species of concern. The BIMS database has 123 bear records from the WAA, including 36 grizzly sightings, including some for February and April, and several in May. We included harvest data from the adjoining Forest Service land. Some information, especially on ungulate use and some of park biologist, John Waller's radio-tracking den locations, was gleaned from unpublished reports and data and from park files. GIS habitat models developed for grizzly bear denning habitat based on published data (Mace and Waller 1997) and for Canada lynx based on general habitat preferences. The studies, survey info, and analysis are found in the Affected Environment and Environmental Consequences chapters of the DEIS under wildlife and threatened and endangered species headings.

9. **NPS Response:** The National Park Service and the National Forest Service have very different mandates. Glacier National Park is an International Biosphere Reserve as well as the world's first International Peace Park with Waterton National Park in Canada. Glacier National Park and the surrounding federal lands are unique. Explosive avalanche mitigation programs in Yellowstone and Yosemite have not undergone a complete environmental analysis that includes explosive use impacts on wildlife, natural sound, park values, or wilderness values. The Yellowstone Draft Winter Use EIS does analyze the impact of avalanche hazard mitigation on human health and safety. There is no scientific research or baseline data from these parks to determine resource impacts of explosive use on park resources. There is little information on the resource impacts or baseline data of explosive avalanche control programs on National

Forest lands. These programs and their environmental impacts were determined to be beyond the scope of this EIS because these programs are unrelated to this proposal and therefore, the EIS did not analyze the impacts of these programs on resources in Yellowstone, Yosemite, and National Forest lands. There is no information from these programs that can be used to determine the environmental impacts of the BNSF proposal and other alternatives in this EIS. The BNSF proposal is precedent setting because it is a request from an outside corporation requesting explosive use on federal lands to manage avalanches along a privately held right-of-way corridor. The programs in Yellowstone and Yosemite are used for administration of those parks in opening park roads and for visitor use. Serious safety issues have occurred in Yellowstone with the public and employees finding military duds outside the recreational closure. Shrapnel and duds from military artillery use are cited as problems with the program and are analyzed in the DEIS. Yellowstone is currently in the process of completing their Final Winter Use Plan. Their preferred alternative includes closing the East Entrance Road during the winter season and eliminating the avalanche reduction program. Currently, Yellowstone is in negotiation with the town of Cody concerning the wording of the final decision and final rule which will define winter operations on Sylvan Pass in the future. This is described in the Errata Sheet for Chapter 1.

10. NPS Response: There is enough existing information, including the data described above, to analyze the impacts from explosive avalanche hazard reduction and the EIS has considered the full range of alternatives. The EIS team of specialists has determined that there is enough baseline information to make professional assessments of the potential for impacts across the range of alternatives. The DEIS uses available information for impact assessment and discloses when information is lacking concerning the impacts of explosive avalanche control. No additional data collection is required for the NPS to select a preferred alternative.



Burlington Northern Santa Fe Railway December 12, 2006

1. The public comment period was extended from 60 days to 90 days. This was a sufficient amount of time for public comment on the document. The public comment period generated over 13,000 comments. In accordance with NEPA, the public comment period on the Draft EIS was provided so that the *public* could comment on the alternatives and analysis presented. For this EIS, BNSF is not considered just a member of the public; you have special status as the project proponent. As such, your role in the process is different and BNSF may submit a new proposal *at any time* during the EIS process. You are not bound by the public comment period in this regard.
2. See response to #1 BNSF Letter November 29, 2006.
3. Bear hibernation data and modeling information for John F. Stevens Canyon from the NPS USFS, and USFWS was used in the analysis as noted on pages 3-40 to 3-3-44. We determined that this was sufficient data to determine the level of effect in Chapter 4. While more data is always welcome, it was not deemed necessary for the impact analysis. See response to Letter 248 Number 2. Map 3-3 (Potential Grizzly Bear Denning Habitat and Recent Grizzly Bear Observations) and pages 3-(40-44) give known bear dens, habitat information, and grizzly bear observations in the wildlife analysis area.

Information from GNP's other environmental planning was used throughout the document. Known information concerning explosive use on other Forest Service and Park Service lands is discussed on pages 1-14 to 1-16. See Bibliography and #9 response to BNSF Questions/Answers.
4. See #2 response from the BNSF Letter November 29, 2006.

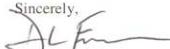
avalanches, thereby protecting human life and property and enhancing public safety. These are but a few examples of the supplemental information that BNSF considers important to the action evaluated in the DEIS. BNSF welcomes GNP's participation in the effort to gather this information.

The DEIS recommends that BNSF construct approximately one mile of snowsheds along its track over a ten year period, and effectively prohibits BNSF from using explosives for avalanche mitigation. Snowsheds have in the past been one component of a comprehensive avalanche mitigation toolkit. Indeed, BNSF continues to use and maintain its current system of sheds. It is BNSF's view, however, that the current DEIS was intended to explore a different question, namely, if explosives were used in the park, what would be their environmental impacts and how could they be minimized.

The agencies' action in this matter will have far-reaching consequences on the protection of human life, property and public safety. Avalanches not only endanger BNSF employees and property, but also Amtrak passengers, federal employees and the motoring public using U.S. Highway 2. Incidents in the past, such as the 2004 avalanche-related derailment and near-miss of U.S. Highway 2, should be avoided by the use of proactive avalanche mitigation management similar to the programs used today in other National Parks and by other railroads. The experiences of these other programs are highly relevant to the circumstances presented here and ought to be included in the scope of the DEIS.

In addition to the topics briefly discussed above, BNSF is preparing other substantive comments on the DEIS, which will also require additional time. Since BNSF is the party seeking action by GNP, there is no reason for the agencies to be concerned about a delay in the environmental review process, particularly when BNSF would be using the time to prepare material for the agencies to consider as part of the environmental review process. Moreover, an extension under these circumstances is consistent with applicable guidance and practice. The DEIS is over 300 pages long, not including references or appendices. An Environmental Impact Statement of this length is outside the established norm, reflecting the complexity and scope of the questions at issue. See 40 C.F.R. § 1502.7. Indeed, it is not uncommon for federal agencies like the National Park Service to grant extensions of time, particularly where, as here, the matters addressed in the DEIS require detailed technical analysis. Without a 120-day extension of the comment period, BNSF and all other interested parties simply will not have enough time to thoroughly address all aspects of the DEIS in their comments. Granting the extension, on the other hand, will serve one of NEPA's fundamental purposes by allowing more opportunity for comment and meaningful participation in the process.

Thank you for your time and attention to this request. BNSF looks forward to working with the Park as this EIS process continues. We hope that you will give prompt consideration to BNSF's extension request.

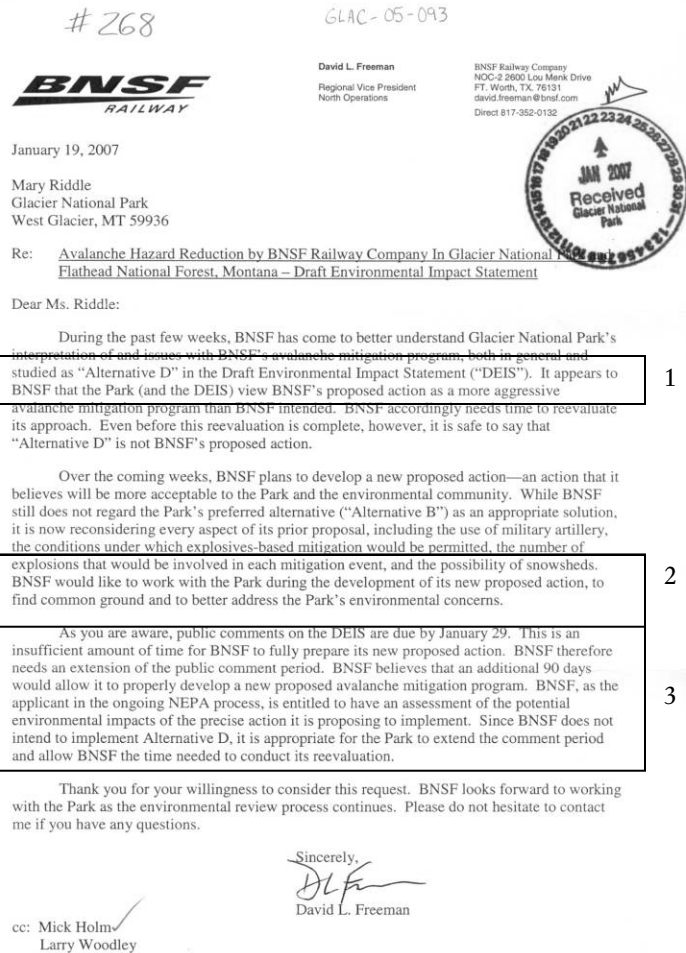
Sincerely,

 David L. Freeman

5. Alternative C has a limited period for permitted explosive use. Under the preferred alternative, there is no timeframe to build snowsheds.
6. The DEIS did explore the use of explosives and the impacts of explosive use in the park. As required by NEPA, the DEIS also analyzed a range of alternatives including no explosive use.

Comment

Response

cc: Michael Holm (Park Supervisor, Glacier National Park)
Regional Director, Intermountain Region, National Park Service
Jim Lynch (Director, Montana Department of Transportation)
Cathy Barbouletos (Forest Supervisor, Flathead National Forest)

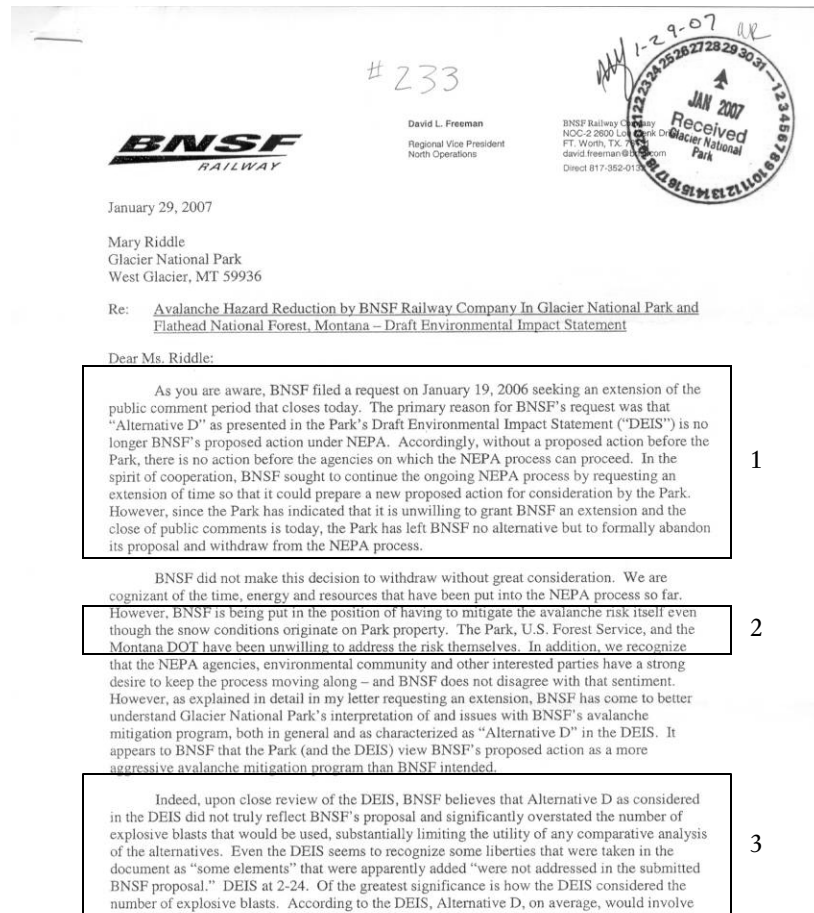


Burlington Northern Santa Fe Railway January 19, 2007

1. It is noted in the FEIS that Alternative D is no longer BNSF's proposal.
2. We are pleased to hear that BNSF has a better understanding of the concerns with explosive use in the park. As stated in the DEIS, this area is recommended wilderness, contains known federally listed threatened and endangered species, and is used by park visitors for winter recreation. Waterton-Glacier International Peace Park is the world's first international peace park, is an International Biosphere Reserve, and is a World Heritage site. We think you will agree these elements cannot be ignored, nor taken lightly.

As neighbors, we have historically demonstrated a shared responsibility and commitment to ensure that park resources are protected. The previous owners of this railroad (Great Northern) understood the hazards with running trains through this area in the winter and built snowsheds to provide protection for employees, freight, and equipment. BNSF has chosen not to build or extend snowsheds in unprotected areas. Only recently has BNSF sought to use explosives on land within Glacier National Park to reduce avalanche hazard.

3. See response #1 to BNSF letter December 12, 2006 above. Once we receive your new proposal, we will evaluate whether the Draft EIS adequately evaluates the new proposal's effects. If not, we will proceed with the Final EIS. We asked to have this proposal by February 28, 2007.



Burlington Northern Santa Fe Railway January 29, 2007

1. The FEIS notes that Alternative D is no longer BNSF's proposal. However, it our understanding that BNSF still desires to use explosives in GNP for avalanche hazard reduction. Therefore, the DEIS analyzes the full range of alternatives. See response #1 to the BNSF December 12, 2006 letter above.
2. To the contrary, GNP, FNF, and MDT have been working with BNSF to reduce avalanche risk. We have permitted avalanche forecasting in the park. MDT has cooperated with closing the highway for BNSF actions and GNP has issued two emergency special use permits despite our concerns regarding impacts to wildlife and using explosives in recommended wilderness.
3. The "additional" elements of Alternative D that were added to the BNSF proposal were the avalanche warning systems, explosive use impact monitoring, and the artillery use closure of 7 miles radius from the howitzer location to safeguard the public from duds. While the railroad did not ask for avalanche warning systems, GNP felt that they should be incorporated into the alternative in the event that BNSF wanted to install the systems in future avalanche hazard efforts. The cooperating agencies attempted to incorporate all conceivable elements of avalanche hazard reduction to avoid the need for another EA or EIS if these were requested. The closure was added after consulting with avalanche specialists Stan Bones, Don Bachman, and Doug Abromeit. The estimation of explosive charges was calculated by

110-165 explosive blasts per season, with as many as 275 blasts during winters with extreme avalanche conditions. DEIS at 4-144; see id at 2-23 (using the same estimates for the Alternative C explosive program). This estimate appears to have been derived from a personal communication to the Park with an employee of the United States Forest Service, who apparently indicated that "avalanche hazard reduction would require an average of 55 explosive shots per event." DEIS at 4-110. Not only has BNSF never endorsed this understanding of its proposal, BNSF's past use of explosives belies these numbers – in the one time that BNSF used explosives in 2006, only 10 explosive shots were used.

Beyond these issues presented in DEIS's consideration of Alternative D, BNSF also believes that the scope of the DEIS is too narrow. The DEIS excludes from consideration the use of explosives at other locations by the Park, U.S. Forest Service and other railroads. DEIS at 1-14 through 1-16. It also dismisses from analysis the threat to traffic on U.S. Highway 2 from avalanches. DEIS at 1-14. It is BNSF's view that by dismissing these areas from the scope of the DEIS, the Park has excluded some of the most highly relevant information that could be brought to bear in this environmental review process.

With an eye toward keeping the NEPA process continuing, BNSF sought the extension of time to reevaluate its approach. Over the coming weeks, BNSF plans to develop a new proposed action—an action that it believes will be more acceptable to the Park and the environmental community. While BNSF still does not regard the Park's preferred alternative ("Alternative B") as an appropriate solution, it is now reconsidering every aspect of its prior proposal, including the use of military artillery, the conditions under which explosives-based mitigation would be permitted, the number of explosions that would be involved in each mitigation event, and the possibility of snowsheds. BNSF would like to work with the Park during the development of its new proposed action, to find common ground and to better address the Park's environmental concerns.

Again, BNSF's decision to abandon its proposal and formally withdraw from the NEPA process (as provided in Section 4.10 of the NPS NEPA Handbook and Director's Order No. 12) is only being undertaken because the Park has indicated that it will not extend the comment period. It is not an appropriate solution for the Park to close the comment period today but still allow BNSF to submit a new proposed action sometime next month. As previously stated, the NEPA process cannot continue forward at the present time because the agencies have no proposed action before them. At such time as BNSF proposes its new action, the Park will have to fully consider that new proposal, prepare additional documentation as may be required to analyze the new proposal in the context of an appropriate scope, and then seek public comment on the supplemental information. BNSF, as the applicant, is entitled to have an assessment of the potential environmental impacts of the precise action it is proposing to implement. That action is no longer Alternative D.

If the Park is willing to reconsider its extension request, BNSF would agree to continue with the NEPA process and submit a new proposed action for consideration by the Park after sufficient time to reevaluate its approach. Otherwise, BNSF must formally abandon its proposal and will revive the NEPA process at such time as its new proposal is ready for consideration by the Park.

Stan Bones, avalanche specialist for the Flathead National Forest. The initial calculation was 55 charges per event. This estimate took into account all types of charges- cast primer, Avalauncher charges, and military ammunition. The frequency of events was calculated over the past 29 years by Blase Reardon, USGS and was found to be an average of 2 events with a range of 0 to 5 events per year. Dave Hamre, Chugach Adventure Guides and BNSF avalanche consultant provided a shot point and trajectory analysis for a 105 howitzer, blaster box, and hand charges. The number of explosives that his analysis estimated was lower than that of Stan Bones. We felt it would be appropriate to use a range of explosive numbers in Appendix C, reflecting the difference of opinion between Mr. Bones and Mr. Hamre. BNSF had numerous opportunities over a year and a half to modify the explosive use numbers and the overall proposal. We received several comments and changes on the proposal from BNSF and Chugach Adventure Guides that were incorporated into the DEIS. When Dave Hamre submitted his shot point analysis, he wrote, "Experience has shown that in a program that ranges from 150 to 200 rounds fired per year, the variability can range from none to 600 rounds fired on a given year. Similar results can be expected in your situation." The explosive charge range was examined by other avalanche specialists and was not found to be unreasonable.

4. See response to *BNSF Questions and Answers* Number 2 and Number 9.
5. To date, GNP has not received a new proposal.
6. Director's Order 12 (§4-10) directs the NPS on how to proceed when terminating an EIS process. It allows for the termination of an EIS for two reasons. The first is if during an analysis it is determined that an environmental assessment is more appropriate and the second is if the *agency* decides not to pursue the action requiring an EIS. Although BNSF has



indicated that they intend to revise the original proposal, they have not indicated that they will withdraw an explosive use request. BNSF has repeatedly approached the NPS since 2004 with requests for special use permits to conduct explosive avalanche hazard mitigation. BNSF has not indicated that they no longer wish to use explosives for avalanche hazard mitigation. Therefore, the FEIS notes that Alternative D is no longer BNSF's specific proposal. However, it is our understanding that BNSF still wishes to use explosives in the park for avalanche hazard reduction. Consequently, the NPS has decided to continue the EIS process.

7. The park requested that BNSF send their revised proposal by February 28, 2007. The park did not receive a new proposal from BNSF. If a new proposal is submitted in the future, the park will evaluate it to determine if the current EIS adequately evaluates the effects of the new proposal. If the effects have not been adequately analyzed, the park will proceed with the preparation of a supplemental Draft EIS. If the effects have already been analyzed and the new proposal is not significantly different from Alternative C or D of the DEIS, the Final EIS and Record of Decision will stand.

GROUPED RESPONSES TO PUBLIC COMMENTS

Since many letters from individuals contained identical substantive comments, we have summarized them in the following section, “Grouped Responses to Individual Comments”. Each comment is followed by a response. Beside each reproduced letter or hearing testimony is our response to comments. Changes to the Draft EIS document for the Final EIS are in the errata sheet following the comments.

AVALANCHE PROCESSES

1. Correspondence ID: 58 Comment ID: 39802

“Snowfall in recent years is far less than historical levels of the 40's, 50's, 60's, & 70's. Avalanches in recent years have been pretty minor in size & problem than those that were deemed common and a part of winter & spring along the Bear Creek Valley.”

Appendix A, Figure 3.1 (Major Avalanche Cycles) in the DEIS has information about the number of annual avalanche cycles since 1910. Avalanche cycles are defined by the amount of snow in avalanche paths that reaches the railroad tracks. Appendix B gives the history of avalanches along the railroad between 1910 and 2006. While the number of avalanche cycles has decreased since 1910, railroad traffic has increased raising the avalanche risk for BNSF.

ALTERNATIVES

2. Correspondence ID: 9096 Comment ID: 40194

“I would recommend that you consider a modified Alternative B - in that BNSF be allowed to build new snow sheds and extend some existing at their cost and not the tax payers and that only during extreme avalanche hazard you would allow explosives to be used via an Avalauncher. Explosive use seems that it would be quite rare as you look at the average avalanche cycles from the past weather data.”

Alternative B includes a provision for explosive use in emergency situations after all other avalanche hazard mitigation has first been employed (forecasting, track restrictions or closures) and only if there is imminent threat to human life or resources. The explosive use methods analyzed under this emergency provision includes Avalauncher, hand delivery, and helicopter delivery. The Avalauncher does not have the range to reach high altitude start zones in the analysis area. Helicopter delivery is the only high altitude delivery method under Alternative B (DEIS page 2-11). Annual avalanche cycles since 1910 are described in figure 3.1, Appendix A page 42. Appendix C has the estimated number of explosives (per year and per cycle) that would be used under Alternatives C and D. However, explosive use under Alternative B would be seldom permitted based on the conditions defined by the NPS for emergency use.

3. Correspondence ID: 7459 Comment ID: 42443

“I'm sure you could find many volunteer skiers that would walk the avalanche prone area and relieve the threat posed.”

Ski cutting or boot packing is used in some avalanche mitigation programs- mostly small sections of ski areas. In this area, this technique would take several groups of skiers or boot packers regularly covering very hazardous avalanche paths. Ski cutting only works

on surface layers of light or moderate snow accumulations. Avalanche conditions in the canyon are most often caused by heavy snow accumulation. Ski cutting would not be an effective avalanche mitigation technique. Boot packing stabilizes deeper layers of snow, but the activity is very labor intensive and is not a reasonable alternative for this area. Ski cutting and boot packing have been added to the Errata Sheet under *Alternatives Considered but Dismissed from Further Consideration*.

4. Correspondence ID: 7738 Comment ID: 42799

“Maybe in the summer... avalanche barriers or diverters could be erected... only in the most prone areas...”

Avalanche barriers or diversion structures were considered on page 2-46 of the DEIS. Mounds, deflector berms, dikes, walls, catchment dams, containment walls and trenches were considered but rejected as reasonable alternatives. These structures require certain snow and landscape requirements to be effective. These requirements are not found in most avalanche paths in the analysis area.

5. Correspondence ID: 8441 Comment ID: 45896

“Gas "bombs" or electronic devices that emit the sound of explosions must be set off no less than a half hour before first shells are fired off to bring down the snowpack... that will hopefully frighten off wolves and other wildlife in the immediate area of targeted impact.”

The use of "gas explosions" to warn wildlife may result in unintended avalanche activity and unpredictable wildlife movements instead of away from avalanche paths. Noise from an "explosive warning" may adversely affect wildlife considerably, causing physiological stress in individuals close to the noise.

Wildlife impact mitigation with the explosive use alternative includes surveying for wildlife in the avalanche paths and not allowing use of explosives if wildlife is present. In the explosive use alternatives, C and D, explosives can only be deployed during daylight hours when wildlife can be seen.

6. Correspondence ID: 8704 Comment ID: 46560

“An avalanche expert should be hired to evaluate the snow conditions to keep the trains safe. The avalanche expert should work in conjunction with BNSF to erect the new snow sheds.”

BNSF has hired an avalanche safety director (ASD). All of the alternatives in the DEIS have a component of avalanche hazard forecasting, avalanche awareness and rescue training. These are described in Chapter 2 under Alternatives B, C, and D. The ASD is responsible for hazard assessment and safety training. Prior to the start of the EIS process, the avalanche paths were defined by Chugach Adventure Guides, a private contractor hired by BNSF, in the report *Avalanche Hazard Analysis, John Stevens Canyon, Essex, Montana*. This report was included in the DEIS as *Appendix A*. The recommended snowshed locations were identified in this document. BNSF engineers would design the snowsheds according to railroad standards.

7. Correspondence ID: 8931 Comment ID: 47315

“Moving the RR would probably be cheaper in the long run. It should never have been run through this area anyway.”

It was assumed that the railroad would remain in its current location on the right-of-way across the Flathead National Forest due to cost, practicality, and availability of property (DEIS page 2-2).

8. Correspondence ID: 9783 Comment ID: 48163

“The only exception to this might be an elevated mag-lev system for public use, and only because this would cause no long term damage nor require ongoing maintenance access to park lands.”

Under the assumptions on page 2-2 of the DEIS, the railroad would remain in its current location on the right-of-way. Mag-lev (magnetically levitated) transport systems are still in the experimental phase in the US and are beyond the scope of this EIS.

9. Correspondence ID: 9816 Comment ID: 48370

“I am surprised that the Gazex system was not even mentioned in the EIS, especially considering that Gazex is the worldwide leader in remote location avalanche control devices. The reference list of Gazex clients is over four hundred names long and Gazex has over 1600 installations in more than twenty countries, including inside and on the border of National Parks. Gazex has proven to be a cost effective solution for railroads, municipalities, mines, roadways and ski resorts since 1989.”

Gasex systems are discussed on page 2-48 of the DEIS under *Alternatives Considered but Dismissed from Further Consideration*.

10. Correspondence ID: 10 Comment ID: 39518

“If BNSF can't or won't build the snow sheds, build them with Federal dollars and charge a toll for all trains transiting the area.”

The use of federal funds would depend on the introduction of legislation. Spending federal dollars would not alter the environmental impact analysis. The socioeconomic impacts would change in that BNSF would not be responsible for the costs of building snowsheds if federal funding were used.

EXPLOSIVE USE

11. Correspondence ID: 8441 Comment ID: 45891

“I insist on a consensus of expert opinion as to when [explosive use] needs to be done, and where, and who will decide how many shells to be employed before EACH occasion of bombing.”

Table 2-1 gives the conditions under which explosives could be used under Alternatives C and D of the DEIS. This table was developed for BNSF's *Avalanche Operations Safety Plan* in anticipation of an explosive use alternative being permitted by the NPS. The development of the table included the unbiased, professional review of several avalanche professionals. Appendix C has anticipated explosive charge numbers in each avalanche path per avalanche cycle under Alternatives C and D. Exact numbers of explosive charges are impossible to predict prior to the explosive effort as the success of the

mission cannot be predicted in advance. The amount of explosives used is inversely proportional to the success of the mission.

12. Correspondence ID: 6592 Comment ID: 40960

“Please rescind your permission for a private corporation to use shelling as a means of avalanche control in Glacier National Park. The methodology has a dubious track record and poses the risk of further damaging an already strained ecosystem.”

Glacier National Park has not issued BNSF a special use permit for a regular program of explosive avalanche hazard reduction. The NPS has issued BNSF an emergency special use permit twice since 2004. The first instance was in response to an avalanche caused derailment where a train was hit by two consecutive avalanches. BNSF had equipment and personnel in the area and requested permission to use explosives to reduce avalanche hazard during their rescue operation. Explosive avalanche hazard reduction was not used during the three day permitted period as the snow stabilized naturally. In 2006, a large winter storm was predicted with already unstable snow conditions according to the BNSF Avalanche Safety Director. BNSF requested permission for explosive avalanche hazard reduction. Glacier National Park granted a 3-day and BNSF used a helicopter to deliver ten cast primer charges in avalanche start zones. The operation was aborted after a few small slides were triggered and BNSF determined that the snow had sufficiently stabilized (DEIS 1-2).

13. Correspondence ID: 8841 Comment ID: 40044

“A single explosion is generally not sufficient to insure the stability of an extensive snowfield or zones with multiple starting zones, or across extensive areas of the landscape. Further, conditions change throughout the winter that alter the stability of the snowpack, e.g development of temperature-gradient induced, weakly bonding crystals at the bottom or within the snowpack, additional snow, changes in temperature, snowpacks becoming isothermal in the spring, etc. All of this argues for extensive use of explosive throughout the winter in high hazard areas like some ski areas. Is this what is planned for Glacier National Park?”

No. GNP evaluated explosive use in the park at BNSF’s request; however, the Preferred Alternative (Alternative B) does not permit explosive use in the park and recommends snowshed construction for avalanche hazard reduction.

14. Correspondence ID: 9126 Comment ID: 40257

“Are there any benefits to the Park environment through the use of fire explosives or is the use purely an economic advantage to the railroad?”

While concern was raised about hazardous material spills and Amtrak safety, explosive use provides no benefit to the park. The use of explosives would reduce the potential for an avalanche caused derailment of BNSF trains and associated hazardous material spill. Each alternative has different mitigation actions that would reduce the potential for an avalanche-caused derailment and resulting spill. The potential for avalanche caused derailments and resulting spills are discussed under each impact topic in Chapter 4 of the DEIS under *Impacts Common to All Alternatives*.

15. Correspondence ID: 32 Comment ID: 39529

“And if BN would have the right to launch artillery attacks on the Park, then who else would be able to do this because you can't single out just one group of people or company.”

The NPS considers and reviews every request for a special use permit. Some are denied and some are granted. If a request for artillery use were submitted to the park, the request would go through a strenuous NEPA analysis and public comment period before a special use permit for explosive use were issued. However, if GNP were to grant a special use permit to BNSF for explosive avalanche hazard reduction, it would set precedent for future permit requests.

GENERAL COMMENT

16. Correspondence ID: 9873 Comment ID: 39989

“I also want to express my frustration with the Glacier National Park website, which would not take my comments in any verifiable form, therefore, making it necessary for me to be here tonight.”

The National Park Service has changed its public comment website to the following URL <http://parkplanning.nps.gov/publicHome.cfm>. Occasionally, this website experiences technical difficulties. We appreciate the effort to use the electronic format; however, the NPS also accepts comments sent by mail, hand delivered, emailed and by phone.

17. Correspondence ID: 26 Comment ID: 39550

“Selling off of public lands to private corporations for ANY reason is an extremely slippery slope we should not get started on. We need to hold our public lands as sacred. If sold to the railroad, they would probably find a way to put luxury condos or some such to make a lot of money while destroying our park. And it is OUR park.”

None of the alternatives includes the sale of any federal lands.

18. Correspondence ID: 1294 Comment ID: 40614

“Why don't people just stay out of these areas until spring. If they do venture into these places then they should be required to sign a waiver stating they will be responsible for any and all expenses incurred should they require rescue. Perhaps they should post a bond of some sort ahead of time to be reimbursed if not needed. Also, anyone choosing to live in these areas should be held responsible for whatever happens since the dangers are well known.”

The park is not closed to recreational use in the winter, although visitors are advised to sign in at trail registers and to be knowledgeable of hazardous conditions. It is not clear whom you are referring to living in the project area. No one lives within federal lands in this area, although there is private property adjacent to the hazard area that is not affected by avalanches.

19. Correspondence ID: 7184 Comment ID: 42091

“And what sort of toxic materials would be lobbed into the park if they'd be using MILITARY artillery, given the military's extravagant history of using poisonous material in its munitions?”

Types of explosive materials and their residues are listed and discussed on pages 4-28 through 4-34 of the DEIS.

20. Correspondence ID: 8020 Comment ID: 43253

“In fact, why should their tracks be in the park at all?”

The railroad tracks lie outside of Glacier National Park on a right-of-way across US Forest Service lands. The northern boundary of the right-of-way is the southern boundary of Glacier National Park.

HEALTH AND SAFETY**21. Correspondence ID: 9851 Comment ID: 48384**

“I think there is some confusing, if not misleading, information in the Appendix in reference to the Avalanche Hazard Index (AHI) and the inference that somehow a statistical probability can be derived from it. I would like to see this better explained and the limits of this analysis clearly defined.”

The information on page 3-71 of the DEIS is clarified in the FEIS Errata Sheet. The AHI is defined as an index, which can be used *only* to compare different avalanche hazard transportation corridors. The AHI is a snapshot in time of many variables. As these variables change, the AHI changes.

22. Correspondence ID: 9851 Comment ID: 48385

“The document also fails to acknowledge the current mitigation and how it has reduced the avalanche danger. Therefore, the AHI is already too high, especially since BNSF is already doing extensive forecasting and reducing traffic with higher danger.”

This information is on page 3-71 of the DEIS. The last sentence on this page states, “Therefore, the avalanche hazard index values in Table 3-1 may be different if the analysis were to be prepared with current avalanche information and mitigation measures implemented by BNSF.” As stated in the EIS, train traffic increases would increase the AHI. A sentence will be added that the AHI is representative of one point in time. The AHI was prepared by Chugach Adventure Guides under contract to BNSF. The NPS does not have the funds or expertise to re-evaluate the AHI. See response to Comment #22 above.

23. Correspondence ID: 9851 Comment ID: 48386

“Finally, it should be repeatedly stressed that without the rail traffic the AHI is ZERO. No target - no danger.”

The AHI in this area is not zero if train traffic continues throughout the winter, even with delays during high avalanche danger. The only time the AHI is zero is during the time that the tracks are closed to traffic. The AHI can be significantly reduced if trains are delayed during periods of high avalanche danger. However, avalanche hazard in high

start zones is not always predictable, thus, the railroad may experience an avalanche during a period when the snow appears stable and when there are no delays or restrictions imposed on the railroad. Avalanches are possible during the whole winter season. The only way to reduce the AHI to the lowest level is to provide 100% protection over the tracks with snowshed structures. This information will be added to page 3-71 of the EIS in the FEIS on the Errata Sheet.

PUBLIC USE AND EXPERIENCE

24. Correspondence ID: 1080 Comment ID: 39748

“Also, what if someone is skiing, snowshoeing, or hiking in the area when the bombs are dropped or the shells impact? What if someone is killed? What if the explosions set off collateral slides on other slopes? It happens in even the best controlled avalanche control areas.”

This was discussed and analyzed on page 2-24 and the map on page 2-16 of the DEIS that describe the recreational closures that would be implemented during the 10-year explosive use period under Alternative C. Page 2-26 and the map on page 2-25 describe the recreational closure area that would be in effect during the winter months under Alternative D due to annual explosive use and 105-howitzer use. Under Alternative D, the area would be closed year-round if unexploded ordnance remained in the area. In Chapter 3, pages 3-77 to 3-80 describe the affected environment of human use and experience in the project area. In Chapter 4, pages 4-142 to 4-145 have an impact analysis of explosive use in Alternatives C and D on public use and experience. In Chapter 4, pages 4-125 to 4-127 of the DEIS have an impact analysis of explosive use on human health and safety including recreationists.

SOCIOECONOMICS

25. Correspondence ID: 3 Comment ID: 39498

“It should not fall on the responsibility of the National Parks Service to pay for the protection of BNSF resources.”

This comment was raised by hundreds of original comment letters and form letters. Page 2-2 of the DEIS states that BNSF would be responsible for all maintenance, infrastructure improvement, and administration of the railroad. Page 4-120, Table 4-16 has the detailed costs of each alternative for BNSF.

26. Correspondence ID: 10 Comment ID: 39517

“When, if ever will this area be remediated and restored to its original condition? If artillery and explosives are used, what are the estimated costs of recovery and restoration compared to the cost of constructing the snow sheds?”

Under Alternative C, impacts on vegetation and soils would be monitored and if measurable impacts were detected, explosive use would be reduced or stopped. The area would be allowed to recover naturally after explosive use was complete. Under Alternative D, explosive use would occur annually. Any impacts from Alternative D would naturally recover or remain disturbed depending on repeated explosive use impact patterns. There are no costs associated with natural recovery for comparison to snowshed construction costs.

27. Correspondence ID: 12 Comment ID: 39525

“If Congress feels money should come from the Federal government... it should not come from the Park Service budget. Perhaps the Defense budget would be more appropriate since I understand one of the claimed public needs for this action is to provide assured delivery of material for defense purposes.”

As described in Comment # 27, BNSF would be responsible for all financial expenditures for railroad maintenance, infrastructure, and administration. BNSF may chose to pursue alternate funding sources.

28. Correspondence ID: 33 Comment ID: 39794

“Even though Alternative C spells out the costs to be incurred by BNSF were it to be implemented, it is our understanding that BNSF would apply (has applied?) for federal subsidy to pay the expenses of avalanche control. Thus, the American taxpayer would be paying the cost of ensuring that BNSF freight, infrastructure and personnel safely traversed the length of track in question.”

To our knowledge, BNSF has not applied for a federal subsidy for avalanche hazard reduction activities. Legislation (HR2039 and S225) was introduced by Representative Donald Young (R-AK) and Representative Ted Stevens (R AK) in 2005 and 2006 respectively. The purpose of these bills was to establish a repository of military hardware to be used for explosive avalanche hazard reduction. Funding requests accompanied both of these bills to be used for avalanche control programs in the US. The bill has been marked-up several times and is likely to be reintroduced this year. Several newspaper articles linked the legislation with the BNSF request to use explosives. We believe that the public perception that BNSF would be subsidized by the federal government originated with these articles. See response to the Montana Wilderness Association letter response #3.

29. Correspondence ID: 9852 Comment ID: 48378

“We do not believe that it is in the public interest for the Park Service to recommend an alternative that involves delaying or restricting freight operations since such delays or restrictions will directly affect the economic interests of the shipping public. Your agency should carefully analyze as part of the environmental study and selection of a preferred alternative the important interests of interstate commerce that are affected by the manner in which the Park Service addresses future avalanche mitigation.”

The socioeconomic impacts of the alternatives including the delays and restrictions were analyzed on pages 4 (97-120). The DEIS also discusses avalanche-related delays the railroad has experienced over the past 29 years (page 3-62). These delays averaged 7.1 hours per year and occurred from the middle of December through March. It is anticipated that future delays would increase somewhat due to better avalanche hazard forecasting. It is important to note that both avalanche caused and non-avalanche caused railroad delays have occurred over the past 100 years. Currently, all of the alternatives, including the BNSF proposal, have delays associated with them. However, only the preferred Alternative B (snowshed construction recommendation) or Alternative C (temporary explosive use and snowshed construction) would result in long-term elimination of avalanche hazard delays.

30. Correspondence ID: 9854 Comment ID: 48352

“We are concerned that the Park Service suggests repeatedly in its EIS that BNSF should mitigate its avalanche risk in Stevens Canyon by imposing “delays and restrictions” on its interstate rail operations. The Port of Vancouver, USA, believes that is not the best method for mitigating the risk of catastrophic avalanches in the Canyon.

Accordingly, we urge the Park Service not to rely on the imposition of “delays and restrictions” on BNSF’s rail service through Stevens Canyon as a regular method of mitigating avalanche hazards. Your agency should take whatever additional time is needed to explore other options. All reasonable and feasible alternatives that serve the purpose and need of BNSF’s proposal to establish a state-of-the-art avalanche mitigation program should be explored. We urge you to expand the scope of the EIS and carefully examine the experience in Glacier and other similar public settings where explosives are used as one of the tools to mitigate avalanches. There is a lot at stake here including the important interests of our nation’s interstate commerce and the interests of the shipping public.”

The DEIS contains an exhaustive analysis of a full range of alternatives and impacts of those alternatives including railroad delays. The DEIS has considered other areas where explosive avalanche hazard reduction has occurred, however, baseline data and impact analysis from explosive use in other programs is non-existent. The analysis stated that the costs of delays under the No Action Alternative would result in an adverse, minor, long-term, and regional impact to BNSF.

31. Correspondence ID: 61 Comment ID: 39804

“The impact of tourism on the local economy should not be ignored.”

The socioeconomic impacts of the alternatives on the local economy, the traveling public, and recreation are on pages 4-103 through 4-120 of the DEIS.

SNOWSHEDS

32. Correspondence ID: 70 Comment ID: 39819

“The last shed built to protect trains from avalanches was years ago, yet it snows every year. Why has Burlington Northern Santa Fe delayed building more protection tunnels over the years and now wants to use artillery shells? Their profits over the years have been bountiful.”

The construction of snowsheds and avalanche hazard response history of BNSF is discussed on page 1-10 of the DEIS. Page 1-14 of the DEIS states that BNSF has communicated to us concerns about the costs of snowsheds and construction delays.

33. Correspondence ID: 22 Comment ID: 39543

“I believe the best course of action for the situation is to require the BNSF to design and build new snow sheds for the area proceeding with due diligence to insure construction in a reasonable time to minimize danger to crews and trains in the area. I think the BNSF should implement designs and select materials to insure the longevity of the structures and ease of maintenance for the next century or more. The structures should be aesthetically pleasing to persons viewing the hand of man

against the wilderness it traverses.

To meet these requirements I believe the structures should be of a new cantilever design with the top side firmly anchored to the uphill side of the mountain and entirely open on the lower side with no structural members which could be damaged or destroyed by a train derailment beneath the shed roof. This would also allow rotary snow plows to throw any accumulated snow from the tracks if needed. The roof structure should be strong enough to support the loads from an avalanche but should be steep enough to cause the snow and debris to continue down the avalanche path to leave the roof clean where possible. The materials used in the construction should be steel or concrete for longevity and strength. The designs should be aesthetically pleasing as well as structurally sound.”

Snowshed construction is discussed on page 2-10 and is based on discussions with BNSF engineer Byron Burns. We will share your suggestions with BNSF.

34. Correspondence ID: 60 Comment ID: 39797

[Regarding snowsheds] “Have engineers design steel structure... on concrete placements in such a manner to be bolted to. Since you have double track you can use one for a work track in such a manner to the least delay to traffic.”

Snowshed construction is discussed on page 2-10 and is based on discussions with BNSF engineer, Byron Burns. We will share your suggestions with BNSF.

35. Correspondence ID: 9096 Comment ID: 40195

“I have spent 20+ years X-Country skiing and back country skiing along highway 2 and feel that perhaps we shouldn't rush into ripping and tearing and building and be observant of the climate changes that are occurring over the next 2-3 years. And then make a decision if truly more snow sheds need to be built or does BNSF need to STOP all train traffic during extreme avalanche cycles until they release naturally which usually will occur within 24-48 hours/approx. of heavy snowfalls and extreme warm-up.”

Global and regional climate change is discussed on page 1-16 of the EIS. The variables are too great to predict the microclimate changes in the analysis area. The NPS, USFS, and MDT would recommend snowsheds under the preferred alternative; however, they cannot require snowshed construction. BNSF would ultimately determine if more snowsheds would be built in the future.

36. Correspondence ID: 7433 Comment ID: 42402

“Even though this method gives BNSF the power to determine the location and construction of the additional snow sheds on private property I believe a representative from NPS must examine these to insure all requirements are met and there is no danger to wildlife.”

Neither the National Park Service nor the US Forest Service has jurisdiction or authority over the construction of snowsheds along the railroad right-of-way. The sheds would be constructed on a right-of-way across Flathead National Forest lands. In the event that snowshed construction affected lands outside of the right-of-way, the agencies would work with the railroad to minimize environmental impacts.

37. Correspondence ID: 7663 Comment ID: 42730

“I would also propose that Burlington Northern be required to provide adequate on-going maintenance funding for the snow sheds so that it will not come back at a future date to request this same plan because the sheds have fallen into disrepair.”

BNSF would construct the sheds on a right-of-way granted by Flathead National Forest on National Forest lands. The right-of-way is not on NPS lands. The sheds would belong to BNSF and they would be responsible for ongoing maintenance and upkeep (see DEIS page 2-2 Planning Assumptions).

38. Correspondence ID: 14 Comment ID: 39479

“I saw no mention of snowsheds having been removed by BNSF. I recollect hearing from friends who worked on the line that several of the original sheds had been torn down. This would have been around ten to fifteen years ago. If these reports are true, they certainly further undermine BNSF's preference for use of explosives to reduce avalanche hazards. I encourage you to investigate whether BNSF had removed the snow sheds. The removal may have occurred prior to BN's merger with the SF.”

According to BNSF staff, no sheds have been removed in the near or distant past. The project area is the only place in the canyon that has snowsheds and the original snowsheds are still in place. The only original shed in the analysis area that is no longer in use is Burn Out. Burn Out shed burned several decades ago and was never rebuilt. A cement retaining wall is all that is left of the original structure. There may have been snowsheds that were constructed and replaced in the early 1900's, but no snowsheds have been removed recently.

UNEXPLODED ORDNANCE

39. Correspondence ID: 6886 Comment ID: 41632

“Has the impact of missing the targets even been considered . . .?”

The subject of target overshoots are discussed on page 1-16 and concerning explosive use recreational closures on pages 2-24 and 2-26. The recreational closures include the full range of military artillery, a seven-mile radius from the gun.

40. Correspondence ID: 8206 Comment ID: 45469

“Lobbing shells (live ammunition) into any area sets up intrinsic hazards. Duds do occur--the shell doesn't go off, but it's live. Who is going to go in (to an active avalanche zone) and defuse it? Or is it going to lie in wait for some unsuspecting hiker, or wild animal? I'd like a list of those volunteers who will go in and take care of this.”

Dud retrieval is discussed on page 2-22 for Alternative C and on page 2-29 for Alternative D. BNSF would be responsible for dud retrieval under both explosive use alternatives. Dud retrieval of cast primer charges is made easier with the attachment of RECCO relocation devices. Duds with RECCO technology can be found right after firing if conditions are safe for retrieval. Military artillery ammunition is not RECCO compatible and is more difficult to find, as it does not have an attached locator. All explosive duds are regulated by the Bureau of Alcohol Tobacco and Firearms and may be required to be located by the military and destroyed in place when found.

VEGETATION

41. Correspondence ID: 9126 Comment ID: 40255

“Will this relocation of snow over time adversely affect the community of vegetation that inhabits the chutes?”

Yes, there are changes in vegetation communities with long-term changes in avalanche processes. The impacts from changes in avalanche path dynamics on vegetation resulting from explosive use are discussed on pages 4-49 through 4-51 in the EIS.

VISUAL RESOURCES

42. Correspondence ID: 9839 Comment ID: 49042

“p 2-53 In Table 2-7, Visual Resources, Alternative C is listed as "Moderate, adverse, localized, and long-term impact." This appears to be in conflict with p 4-137, Alternative C, where the word "moderate" is only mentioned under the Cumulative Impacts.”

43. The language on page 4-137 states, "The impacts on visual resources would be the same as Alternative B." These impacts were listed as **moderate, adverse, localized and long-term**.

44. Correspondence ID: 9839 Comment ID: 39325

“There is no mention of wildlife as a visual resource in the analysis of the environmental consequences of the different alternatives. However, the description of the visual resources in the Affected Environment section (p 3-75) suggests that the impacts of the different alternatives upon wildlife as a visual resource should be analyzed. Page 3-75 mentions "wildlife viewing" as a scenery related activity. And, in describing the visual resources of the affected environment, it is written that, "Wildlife such as elk, deer, moose, and bears are commonly visible as part of the scenery along the travel corridor." If wildlife such as elk, deer, moose, and bears are considered visual resources (as is suggested by the inclusion of the previously cited statement in the description of the area's Visual Resources as part of the Affected Environment) then the potential impacts to wildlife should be considered in the Visual Resources section of the Environment Consequences. Additionally, threatened and endangered species, because of their nature as being unique, should be considered especially valuable visual resources and should be weighted as such in the analysis.”

Wildlife as a scenic resource is analyzed under the Public Use and Experience Section of the EIS. The Public Use and Experience and the Visual Resource sections overlap. A sentence will be added to the Visual Resources analysis section in the Errata Sheet to show that this information is in the Public Use and Experience section. The EIS objectively evaluates the impacts to resources such as threatened and endangered species. The “weighing” of these impacts is done by the decision makers and is documented in the ROD.

45. Correspondence ID: 9839 Comment ID: 49201

"p 3-76 Additional Viewpoints are needed to fully represent the Analysis Area described on p 4-134. The chosen Viewpoints, as represented in the photographs on p 3-76, are dominated by snowsheds. However, the description of the Analysis Area suggests that while it includes the snowsheds, it is not limited to them or the area immediately surrounding them. "The analysis area for visual resources is the area along the US Highway 2 corridor, the railroad corridor, and the slopes above the railroad corridor within the affected project area."

Analyzing additional viewpoints would not contribute new information to the analysis or change the conclusion regarding the impacts of snowsheds on visual resources.

46. Correspondence ID: 9839 Comment ID: 49202

"p 4-135 thru 4-138 consider including the words "Preferred Alternative" and "BNSF Proposal" after the appropriate alternatives, as is done at other locations in the document."

We reduced the length of headings in the Environmental Consequences section to conserve paper. Furthermore, BNSF has informed the NPS that they want to withdraw Alternative D as their proposal.

47. Correspondence ID: 9839 Comment ID: 49204

"p 4-135 Alternative B would NOT have a "moderate, adverse, long-term, site-specific" impact on visual resources but would rather have a MINOR, adverse, long-term, site-specific impact on visual resources. On p 4-13, the impact threshold for MODERATE is "Effects would be readily apparent and would change the character of visual resources in the area." Alternative B would NOT change the character of visual resources in the area as it would involve construction of structures are like in kind to those that already exist. And, to a lesser degree, the effects would NOT be readily apparent to the average observer."

This impact would be moderate as this is the only place in the United States where a grouping of historic snowsheds is visible from a highway. The addition of 5,040 feet of snowsheds, constructed of different materials would be obvious to the casual observer. If all recommended snowsheds were built, this section of canyon would have almost two miles of snowsheds along the railroad tracks. The snowsheds are a dominant feature of the landscape in the analysis area. Doubling the linear footage of snowsheds would have a very noticeable, site-specific impact. The landscape architect determined that this would be a moderate impact.

48. Correspondence ID: 9839 Comment ID: 49206

"Also, on p 4-134, under MODERATE, it says that, "Deviations begin to dominate the valued landscape character being viewed . . ." The effects of Alternative B would absolutely NOT begin to dominate the valued landscape character. Arguably, no amount of snowsheds could begin to dominate a landscape of the scale of that which the Analysis Area encompasses."

See the rest of the Moderate description. The rest of the quote is "...but they borrow valued attributes such as size, shape, edge effect, and pattern of natural openings, vegetative type changes outside the landscape being viewed. The deviations are compatible or complementary to the landscape being viewed." The analysis area is the

six-mile long travel corridor and the steep canyon walls. An additional mile of snowsheds in an area where approximately one mile of snowsheds already exists would be a noticeable change in the environment, indeed a “deviation” from the current view. The USFS scenic integrity level system (DEIS 4-134) was used for this analysis. The USFS landscape architect believes that moderate best describes the visual impacts of Alternative B.

49. Correspondence ID: 9839 Comment ID: 49207

“Also, the analysis of the CUMULATIVE EFFECTS of Alternative B suggests that Alternative B, as described on p 4-135, would have a MINOR, not moderate, impact upon the visual resources of the area. Under Alternative B Cumulative Effects (p 4-136), past actions, on-going actions, and foreseeable future actions, are all listed as having MINOR impacts. The Cumulative Effects Conclusion lists a MODERATE impact. This suggests that, in sum, the multiple minor impacts equate to a moderate impact. The impacts of Alternative B would be similar to those of past-actions, on-going actions, and foreseeable future actions, taken INDIVIDUALLY (not cumulatively) and therefore should likewise be listed as having a MINOR effect.”

See discussion under both the above responses (59 and 60). The addition of 5,040 feet of new snowshed would not be a minor, site-specific impact. The sheds would present a rather large deviation from what is currently present in the canyon and it would have a moderate impact on this site-specific location, as the snowsheds would become a more dominant feature of the landscape.

WILDLIFE

50. Correspondence ID: 9126 Comment ID: 40253

“Regarding bears and other wildlife crossing the tracks, have you also considered tunnels, such as that for goats near the lick area on US 2, at strategic locations along the railroad? There has been considerable study of wildlife crossings between the Park and the Forest Service to the south and I would think that these areas could become the focus of wildlife crossings under rather over the tracks.”

See response to Environmental Protection Agency letter response #1 and #3 for information about wildlife crossings. Both overpasses and underpasses were discussed with regard to wildlife crossings. Underpasses would be very difficult to design in this area as erosion, water movement, and avalanche debris movement in the steep avalanche paths may clog underpasses and may require more maintenance than a wildlife overpass. However, BNSF would be encouraged to consider all wildlife crossing options.

51. Correspondence ID: 13 Comment ID: 39522

“Construction of a mile of new snow shed within the park is a significant alteration of the local landscape. Such sheds present effective barriers to wildlife travel. It is essential for the EIS to better consider the effects on wildlife travel and migration over the long term under the proposed Preferred Alternative.”

The snowsheds would not be constructed in the park; they would be constructed on the BNSF right-of-way on Flathead National Forest lands. The impacts of snowsheds on wildlife are discussed on pages 4-53, 4-68 to 4-70. The effects on wildlife travel and migration over the long term are discussed in full. There is very little information

concerning the wildlife impacts of snowsheds in avalanche paths. However, BNSF would be encouraged to consider all wildlife crossing options. See also response to Environmental Protection Agency letter responses #1 and #3.

52. Correspondence ID: 9243 Comment ID: 40422

“The Park service should also request the railroad to reduce freight train speed limit to 25 mph between Belton - (West Glacier and East Glacier Park. The reduction in speed would give a better chance for grizzly bears to get out of the way of the train. There is no reason why the BNSF should be allowed to continue to kill bears every year. If necessary, the railroad [should] fence between West and East Glacier Park. The railroad already has in place slide fences to detect for rock slides. The fence if installed could be fitted with non electric gates at access points for the parks hiking trails.”

The request for reduced speed limits for grizzly bear protection is beyond the scope of this EIS. This suggestion would be appropriate for the USFWS Habitat Conservation Plan for grizzly bears. Fencing the park boundary would prevent natural wildlife movements between Glacier National Park and the two National Forests south of the park. The park boundary, with the exception of select locations on the east side, is not fenced to permit wildlife movement across adjoining federal state, and tribal lands. The slide fences that exist along the railroad are avalanche detection fences that warn the railroad when avalanches or rock debris have crossed the tracks.

53. Correspondence ID: 8441 Comment ID: 45894

“In further consideration, any "bear caves" that are KNOWN, must be clearly marked in the summertime so that when winter comes, those areas are clearly off limits to bombing any closer than 2000 feet.”

Page 3-42 of the EIS gives approximate locations of known bear dens in the analysis area between 1999 and 2001. Park staff knows that these dens have been used in the past; however, den locations may change annually. Bear dens are difficult to find in the summer months, as they are often shallow hollows dug in the earth. These can be difficult to differentiate from sites of natural erosion. Furthermore, there is no guarantee that a specific den will be used the following winter. Therefore, while we understand your concern, assessing bear den use for the following winter would not necessarily protect bears in the project area.

54. Correspondence ID: 58 Comment ID: 39801

“Ungulates of the area frequent the lower slopes of avalanche chutes during the winter & are sometimes victims of naturally occurring snowslides. If BNSF initiates slides there are no protections provided to prevent the needless deaths & injuries to Elk, deer or moose feeding in their paths.”

Pages 2-19 through 2-23 and 2-28 through 2-29 discuss the mitigation actions that BNSF would have to comply with for explosive use under Alternatives C and D. These include having to shoot during daylight hours to avoid any wildlife seen and if wildlife were seen, explosive use would not be permitted to occur.

55. Correspondence ID: 9873 Comment ID: 39839

“I didn't see anything about grizzlies denning in the slide paths. Mountain goats? They don't hang in deep snow. Wolverines?”

Map 3-3 (Potential Grizzly Bear Denning Habitat and Recent Grizzly Bear Observations) and pages 3-(40-44) give known bear dens, habitat information, and grizzly bear observations in the wildlife analysis area. Page 3-32, Table 3-11 gives the number of mountain goats seen in the 2005 and 2006 winter surveys of the wildlife analysis area. Page 3-32, Table 3-11 gives the number of wolverines seen in the 2005 and 2006 winter surveys of the wildlife analysis area. Page 3-49 gives the wolverine data that we have in the wildlife analysis area.

56. Correspondence ID: 9099 Comment ID: 40220

“... it is our understanding that BNSF has respectfully requested a 120-day extension of the comment period so that they can do further research on the impact that their proposal will have in addressing the Draft Environmental Impact Statement (EIS). We think it is very responsible on the part of BNSF to propose this additional time to do a number of studies to scientifically measure the impact in the EIS, including a survey of bear hibernation that can't be measured until the bears come out of hibernation in March or April of 2007. This additional time for review makes a lot of sense and I think it should be supported.”

The public comment period was extended from 60 days to 90 days. This was a sufficient amount of time for public comment on the document. The public comment period generated over 13,000 comments. In accordance with NEPA, the public comment period on the Draft EIS was provided so that the *public* could comment on the alternatives and analysis presented. BNSF may submit a new proposal *at any time* during the EIS process as the project proponent. They are not bound by the public comment period in this regard.

See response to #1 BNSF Letter November 29, 2006. Bear hibernation data and modeling information for John F. Stevens Canyon from the NPS USFS, and USFWS was used in the analysis as noted on pages 3-40 to 3-3-44. We determined that this was sufficient data to determine the level of effect in Chapter 4. While more data is always welcome, it was not deemed necessary for the impact analysis. See response to Letter 248 Number 2. Map 3-3 (Potential Grizzly Bear Denning Habitat and Recent Grizzly Bear Observations) and pages 3-(40-44) give known bear dens, habitat information, and grizzly bear observations in the wildlife analysis area. Information from GNP's other environmental planning was used throughout the document. Known information concerning explosive use on other Forest Service and Park Service lands is discussed on pages 1-14 to 1-16. See Bibliography and response #9 to BNSF Questions/Answers.

57. Correspondence ID: 9126 Comment ID: 40256

“How will animals that utilize these special landscapes seasonally be affected (by vegetation changes caused by explosive use)?”

The impacts of Alternatives C and D on wildlife are analyzed on pages 4-(55-62) and on threatened and endangered species on pages 4-(71-79). There would most likely be changes in movement patterns of prey species based on changes to vegetation with

explosive use. Predators relying on these species would be affected by changes in the prey species movement patterns.

WATER RESOURCES

58. Correspondence ID: 9126 Comment ID: 40254

“Does this relocation of snow accumulations alter the timing and volume of spring runoff? Where do we really want our snow accumulations in the spring----at higher elevations or in the lower sites?”

The location of snow in avalanche paths and resulting melting processes with respect to explosive use are discussed on page 4-30 for Alternative C and page 4-33 for Alternative D. The relocation of snow to a lower elevation slightly alters the timing and volume of spring runoff. This is a small, south facing area with respect to regional snow accumulations. Snow accumulations and their location in the high elevations or low elevations of the avalanche tracks have a minor effect on water storage and the slow release of snowmelt into Bear Creek.

59. Correspondence ID: 8674 Comment ID: 46476

“I am afraid that lead and heavy metals from the shelling could contaminate the park soils and water.”

The components of explosive chemicals proposed for use under Alternatives C and D are listed in Table 4-3 of the EIS. The water quality analysis for these chemicals is on pages 4-28 through 4-34. The soil analysis for these chemicals is on pages 4-43 through 4-46. The analysis shows that chemical contamination of soils and water are minor.

60. Correspondence ID: 9243 Comment ID: 40423

I do not know if the park is aware that sections of rail are in the middle fork of the Flathead from East of West Glacier to West of Nyack. This rail has been in the river since the flood of 1964. I think it's about time the Park or the EPA make the railroad take this rail out of the river (40 years is long enough).

The Forest Service and BNSF have cooperated in the removal of rail, railroad debris and highway debris over the past two decades. Some rail remains, but it would cause more environmental damage to remove the sections than to leave them in the river corridor.

WHAT'S NEXT

This abbreviated Final Environmental Impact Statement will be made available to the public for 30 days as notification of the National Park Service's intentions. In accordance with the Endangered Species Act, GNP will complete consultation with the US Fish and Wildlife Service. GNP will also complete consultation with the State Historic Preservation Office in accordance with Section 106 of the National Historic Preservation Act. After 30 days, a Record of Decision (ROD) will be prepared and released.

ERRATA SHEET

According to Director's Order 12, an abbreviated final EIS can be prepared if a draft EIS requires only minor changes in response to public comments. The following are changes to the draft EIS document in response to the public review and comments.

Chapter 1 -Purpose and Need for Action

1. Add the following sentence in bold after the first sentence in the *Introduction* on page 1-1.

In the course of the EIS process, BNSF withdrew their proposal. However, the NPS has decided to complete the EIS process because this issue remains unresolved.

2. Delete the following from page 1-10, *Threatened and Endangered Species and other Wildlife*. Gray wolves were delisted from endangered species status on March 28, 2008. Bald eagles were delisted from threatened species status on August 9, 2007.

These are the ~~gray wolf~~, grizzly bear, bull trout, and Canada lynx, ~~and bald eagle~~.

3. Delete the following language on page 1-14 from the section *ISSUES DISMISSED FROM FURTHER ANALYSIS*.

~~The following issues were determined to be unaffected or negligibly affected by the proposed alternatives. They will not be discussed further in this document.~~

4. Add the following bold language to page 1-14 at the beginning of the first paragraph of *ISSUES DISMISSED FROM FURTHER ANALYSIS -Explosive Avalanche Mitigation in Other National Parks and National Forests* section. Remove the following strikethrough language from the same paragraph.

The use of explosives in other NPS areas for avalanche hazard reduction was an issue raised during the public scoping period. The use of explosives in other National Park Service areas on public lands is beyond the scope of this EIS. There is no scientific research or baseline data from other avalanche programs to determine the resource impacts from explosive use. NEPA documents for these other programs are very general and only analyze impacts to human safety instead of resource impacts. One USGS research project on explosive use impacts on the Salt Lake City, Utah water supply was found and that data was used in the water quality section of this document. Global literature searches were conducted to find data on resource impacts from explosive avalanche control programs. This EIS cites all available research on explosive avalanche control in the resource impact analysis.

5. Delete the following paragraph on page 1-15 under the section *ISSUES DISMISSED FROM FURTHER ANALYSIS -Explosive Avalanche Mitigation in Other National Parks and National Forests*.

~~Yellowstone National Park staff uses explosives on Sylvan Pass on the East Entrance Road for public and employee winter travel safety. The program uses a fixed 105 mm howitzer and talus slopes are targeted for avalanche hazard mitigation. The operations staff has to travel through the avalanche hazard area~~

to reach the gun. Helicopter explosive delivery took place in March of 2005 (Billings Gazette, December 15, 2005). According to park personnel, there is currently no Record of Decision or Finding of No Significant Impact document for this federal action. The Billings Gazette (March 19, 1999) reported an incident where a visitor found an unexploded (dud) explosive shell on Sylvan Pass. Since that incident, there have been several attempts to find and remove unexploded ordnance from Sylvan Pass.

Exchange the following bold language paragraph for the deleted paragraph above on page 1-15 under the section *ISSUES DISMISSED FROM FURTHER ANALYSIS - Explosive Avalanche Mitigation in Other National Parks and National Forests*.

Yellowstone National Park staff has used a 105 mm howitzer for explosive avalanche hazard mitigation on Sylvan Pass for winter travel safety since 1997, and a 75 mm recoilless rifle between 1973 and 1996. The park has also recently used helicopter delivered explosives for avalanche hazard mitigation because of safety concerns with the 105 howitzer use. Helicopter explosive delivery first took place in 2005 (Billings Gazette, December 15, 2005). The use of the fixed 105 mm howitzer presents safety issues for staff who must travel through active avalanche hazard zones to reach the gun platform and stand in a rockfall-avalanche zone while on the gun platform. Furthermore, unexploded ordnance (duds) from a previously used 75 mm recoilless rifle and the 105 howitzer is a safety hazard for employees and visitors, with perhaps hundreds of duds unaccounted for in the avalanche zones (YNP 2006). In the late 1990s, for example, a visitor brought a live dud into a nearby visitor; had the dud detonated, several persons could have been killed (Billings Gazette, March 19, 1999). Since that incident, there have been several attempts to find and remove unexploded ordnance from Sylvan Pass. Overshooting the target zone has occurred occasionally and the ammunition may land or explode on Forest Service land north of the park (YNP 2004, 2006). The Sylvan Pass area is frequently closed for avalanche control activities that may take several days to complete.

In the Temporary Winter Use Plans Environmental Assessment (2004) and related Finding of No Significant Impact (2004), Yellowstone analyzed impacts of the explosive avalanche program on health and safety and concluded they were “moderate and adverse.” In 2007, park staff there again analyzed the avalanche control program, with the Final Environmental Impact Statement (Sept. 2007) stating that continued avalanche control would have major, direct, adverse effects on employee health and safety. For this reason, the preferred alternative would have discontinued the use of explosives for avalanche control and closed the pass to motorized oversnow vehicle travel. The Record of Decision and Final Rule (both 2007) contained the following specific provisions pertaining to avalanche control at Sylvan Pass (full forecasting, referred to in the first paragraph, is using specialized remote automated weather stations and daily assessment of the avalanche hazard to monitor conditions and to determine whether the pass may safely be opened to public travel; no explosives are used, and no public or administrative oversnow travel would be allowed during closed periods):

This decision addresses Sylvan Pass in Yellowstone. For the winter season of 2007-2008 the pass will be managed continuing the combined program outlined in the 2004 Temporary Plan. After the winter of 2007-2008, in order to maximize risk reduction, the pass would be open and managed using full avalanche forecasting (as defined in the Sylvan Pass Operational Risk Management Assessment). When full forecasting indicates the pass is safe, the pass would be open to oversnow travel (both motorized and non-motorized access).

The National Park Service will, in good faith, work cooperatively with the State of Wyoming, Park County, Wyoming and the town of Cody to determine how to provide continued snowmobile and snowcoach motorized oversnow access to Yellowstone National Park through the East Gate via Sylvan Pass in the winter use seasons beyond 2007-2008.

The National Park Service will meet with representatives of the State of Wyoming, Park County, Wyoming and the town of Cody to further explore reasonable avalanche and access mitigation safety measures and costs. In order to provide adequate time to amend this Record of Decision reflecting a potential consensus of the parties and to promulgate a new regulation reflecting the amended decision for the 2008-2009 winter use season and beyond, consensus should be reached by June 1, 2008.

In winter and spring 2008, the Yellowstone staff has met several times with these stakeholders; those meetings are ongoing as of this writing in mid-April 2008.

Chapter 2- Alternatives

1. Add the following bold language to the second paragraph on page 2-11 under the *Alternative B- Avalanche Forecasting* section.

All infrastructure proposed in the recommended wilderness area would require preparation of a Minimum Requirement/Minimum Tool Analysis before placement.

2. Delete the following strikeout text on page 2-24.

Alternative D (~~BNSF Proposal~~)

Add the following bold text after the first sentence.

During the public review and comment period of the Draft EIS, BNSF withdrew their proposal (D) and indicated they would like to submit another proposal for consideration. To date a new proposal has not been received. However, we (the NPS) decided to complete our evaluation of what we believe is an acceptable avalanche hazard reduction program, in this area, for the railroad. Alternative D is part of the full range of alternatives required by NEPA, although it is no longer identified as BNSF's proposal.

3. Add the following bold language to the first paragraph on page 2-29 under the *Alternative D- Explosive Avalanche Hazard Reduction* section.

Military personnel or a private contractor may be brought in to detonate the dud in place.

4. On page 2-30-2-39, delete the following text shown as ~~strikeout (BNSF Proposal)~~ in the last column heading of Table 2-3.

5. On page 2-51-2-53 delete the following text shown as ~~strikeout (BNSF Proposal)~~ in the last column heading of Table 2-7.

6. Add the following bold language to page 2-45 *ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS* section.

Ski Stabilization (also called Ski Cutting)

This type of stabilization of starting zones involves frequent skiing of starting zones above the railroad tracks to release small avalanches and pack the snow in the ski tracks. This method only stabilizes the surface snow layers and does not stabilize unstable layers deep within the snowpack. Most of the avalanche start zones in the analysis area are difficult to reach and ski stabilization would require a labor-intensive effort of skier groups to stabilize all of the start zones. Furthermore, this method is only effective in areas with light or moderate snowfall. Weather conditions that cause avalanche cycles in the canyon have deep snowfall and blowing winds that would be difficult and unsafe to stabilize with ski stabilization. This method would not be reliable for avalanche hazard reduction in the project area.

Chapter 3- Affected Environment

1. Remove the status of Bald Eagle and Gray Wolf in the table (Terrestrial Wildlife Species in John F. Stevens Canyon) on pages 3-35 and 3-36.

Bald eagle	<i>Haliaeetus leucocephalus</i>	19	FE, MSC, BEPA
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Gray wolf	<i>Canis lupus</i>	2	FE, MSC
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2. The language in the first paragraph on page 3-37 under the section **FEDERALLY THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN** should be changed to read the following.

~~Four~~ Three species listed as threatened by the Fish and Wildlife Service inhabit the Park and Forest lands: ~~bald eagle~~, grizzly bear, Canada lynx, and bull trout; ~~the gray wolf is listed as 'endangered'.~~ **Gray wolves had endangered status when the Draft EIS was released and were delisted on March 28, 2008. Bald Eagles had threatened status when the Draft EIS was released and were delisted on August 9, 2007.**

3. The Gray Wolf and Bald Eagle affected environment sections on pages 3-37 to 3-40 under the heading **FEDERALLY THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN** should be moved to the end of the **WILDLIFE** section on page 3-34 without federal listing headings.

4. The following changes should be made to the fifth paragraph on page 3-44 Canada Lynx section. Bold language should be added to the paragraph and struck through language removed.

~~All of Glacier National Park was included in the designation though the USFWS will be evaluating the Park's existing management plans for their adequacy to conserve lynx and could remove the Park from designation in the final ruling on critical habitat.~~ **Glacier National Park, including the NPS section of the wildlife analysis area, was designated as critical Canada lynx habitat in November 2006. National Park Service lands were designated critical habitat because the park's management plans lack specific lynx conservation guidance.**

5. Add the following bold language to the first paragraph on page 3-53 under the *AIR QUALITY* section.

Both the Great Bear and Bob Marshall Wilderness are also classified as Class I areas under the Clean Air Act.

6. Add the following photos to page 3-57 under the *HISTORIC BUILDINGS, STRUCTURES, AND CULTURAL LANDSCAPES* section.

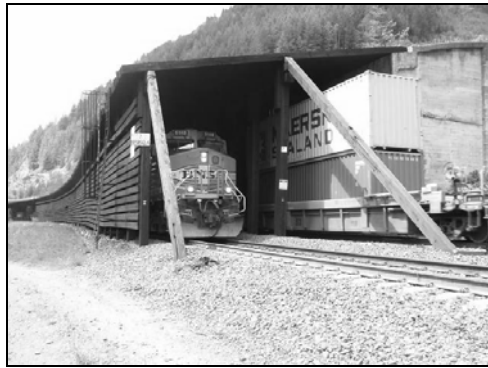


Figure 3-9. Trains passing through Shed 7.

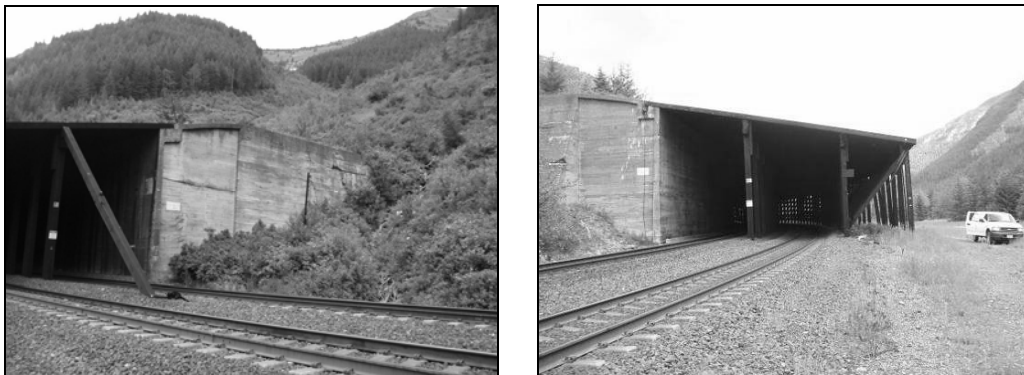


Figure 3-10. Concrete retaining wall of Snowshed 7 connecting to avalanche path.

7. Add the following bold language to the third paragraph on page 3-71 under *HEALTH AND SAFETY*.

The avalanche hazard index is a method to compare different avalanche paths and avalanche prone transportation routes. The index does not offer a statistical probability of avalanche risk or derailment. The 110.45 AHI computed for the Avalanche Risk Analysis, John Stevens Canyon is a snapshot of the railroad avalanche risk at one point in time. The number may increase or decrease with changes in the equation variables such as traffic, restrictions, avalanche hazard forecasting, or other mitigation measures. The AHI would be significantly reduced if all train traffic and human presence were removed from the hazard prone area during periods of high avalanche risk.

Chapter 4- Environmental Consequences

1. Remove the following language from the section *IMPACT TOPICS CONSIDERED- Threatened and Endangered Species and Species of Concern* on page 4-3.

~~GNP and FNF support populations of endangered gray wolves and these species that are federally listed as threatened: bald eagle, grizzly bear, Canada lynx, and bull trout.~~

2. Move all environmental consequences language pertaining to bald eagles in the *FEDERALLY THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN* section on pages 4-63 to 4-79 to the *WILDLIFE* section on pages 4-51 through 4-62.
3. Move all environmental consequences language pertaining to gray wolves in the *FEDERALLY THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN* section on pages 4-63 to 4-79 to the *WILDLIFE* section on pages 4-51 through 4-62.
4. Add the following bold language at the end of the numbered list on page 4-119 under the *Socioeconomic Conclusion* section.
 - 4) **The immediate and long-term economic impacts to local or national customers of BNSF are not quantifiable. It is possible that BNSF will pass their operational costs on to their transportation customers. This decision would depend on many variables including route specific costs, competition from other transportation alternatives, train traffic changes, and cost/benefits that are tied to each alternative. While the preferred alternative may comparatively seem very expensive, the benefits of reduced delays and restrictions along with the reduced potential for an avalanche caused hazardous material spill may reduce long-term transportation costs. BNSF may decide to use their annual revenue to pay for the operational costs and not raise transportation rates. The complexity of BNSF's future business decisions makes it difficult to determine the outcome of identified and unseen variables.**
5. Add the following bold language to the last paragraph on page 4-133 under the *Visual Resources- Methodology* section.

Wildlife is also analyzed as a scenic resource and wildlife viewing as an activity under the Public Use and Experience Section.

Chapter 5- Consultation, Compliance With Federal and State Regulations, and Preparers

1. On page 5-2, the language with a strikethrough should be removed and replaced with the following bold language under the section *Endangered Species Act of 1973, as amended (16 USC 1531 et. Seq.)*.

If a federal action may affect threatened or endangered species, then consultation with the US Fish and Wildlife Service (FWS) is required. The NPS initiated informal consultation with the FWS on May 17, 2005. **A Biological Assessment (BA) will be prepared on the Preferred Alternative and submitted to the FWS with the final EIS for their review and concurrence. The FWS will issue a Biological Opinion prior to NPS and USFS issuance of a Record of Decision. The findings of the BA are based on the best data and scientific information currently available. If new information in the future reveals effects that may impact threatened, endangered, or proposed species or their habitats in a manner or to an extent not considered in this EIS or BA, or the proposed action is subsequently modified in a manner that causes a new effect, or if new species are listed or habitat is identified that may be affected by the action, a revised BA would be prepared. If the Park or Forest concludes that there are no changes from the original determination of effects to listed species in the BA, concurrence from the FWS would be requested on those species with a “may effect” determination. Should a determination of “not likely to adversely affect” change to “likely” based on the potential for new adverse effects, the Park would enter into formal consultation again with FWS. In accordance with the National Environmental Policy Act, all activities associated with the preferred alternative were analyzed regardless of who takes the action. However, based on discussions with FWS staff, Section 7 applies only to actions taken by a federal agency. The snowsheds would not be built with federal funds. Glacier National Park would not issue a special use permit for the construction of snowsheds since the sheds would be constructed by BNSF on United States Forest Service right-of-way lands. According to the Flathead National Forest, the right-of-way agreement with BNSF does not require that the Forest Service issue any permits for operation and maintenance activities taking place by BNSF within the railroad right-of way. No federal permits would be issued by either agency and construction of snowsheds would not be a federal action. Therefore, a Biological Assessment will not be prepared based on the preferred alternative because there is no federal action. Emergency consultation would be initiated by Glacier National Park at the time of the incident to assess the effect of emergency explosive use. A biological assessment, if required, would be prepared at that time.**

Chapter 6- References

Add the following references in bold to the References section.

National Park Service. 2007. Winter Use Plans Final Environmental Impact Statement Yellowstone and Grand Teton National Parks and John D. Rockefeller, Jr. Memorial Parkway. U.S. Department of the Interior. 416 pp. plus appendices.

National Park Service. 2007. Winter Use Plans Record of Decision Yellowstone and Grand Teton National Parks and John D. Rockefeller, Jr. Memorial Parkway. U.S. Department of the Interior. 50 pp.

Yellowstone's Final Regulation. Federal Register, Vol. 72, No 239. December 13, 2007. Pages 70781 – 70804.