Yellowstone National Park Winter Use Plan / Supplemental Environmental Impact Statement – February 2013

APPENDIX A: COMPARABILITY ASSESSMENT OF SNOWMOBILE AND SNOWCOACH TRANSPORTATION EVENT IMPACTS TO PARK RESOURCES AND VALUES AND THE VISITOR EXPERIENCE

EXECUTIVE SUMMARY

This appendix was prepared in response to requests made during the public comment period on the Draft Winter Use Plan / Supplemental Environmental Impact Statement (plan/SEIS) that a stand-alone section of the final plan/SEIS be dedicated to discussing the comparability of snowmobile and snowcoach transportation events in terms of their relative impacts to park resources and values and visitor experience.

A transportation event is defined as one best available technology (BAT) snowcoach or a group of seven to ten New BAT snowmobiles traveling together through the park.

The purpose of this appendix is to assess the comparability of transportation event impacts to park resources and values and the visitor experience for the following five impact topics: (1) Wildlife and Wildlife Habitat, including Rare, Unique, Threatened, or Endangered Species, and Species of Concern, (2) Air Quality, (3) Soundscapes and the Acoustic Experience, (4) Visitor Use, Experience, and Accessibility, and (5) Health and Safety. Given best available data, for each of these impact topics it was feasible to meaningfully assess comparability of the two types of transportation events at either the "per person" or "per transportation event" levels for one or more metrics. The existing data did not permit meaningful assessment of comparability for impact topics Socioeconomic Values and Park Operations and Management. These impact topics are reviewed in-depth in chapter 4 of the plan/SEIS.

By "comparable," the National Park Service (NPS) explains how the impacts from the two types of transportation events are relatively close to one another and that neither mode of transportation consistently results in less adverse impacts to park resources and values or provides a more beneficial visitor experience. The NPS does not state the two types of oversnow vehicle (OSV) transportation are *equivalent*; rather, the comparability analysis reveals that:

- One mode of transportation is not conclusively cleaner, quieter, or less harmful to wildlife than the other;
- One mode of transportation does not provide for higher quality visitor experiences than the other;
- One mode of transportation is not conclusively more harmful to health and safety of visitors and employees than the other; and
- At the levels prescribed under the preferred alternative, neither form of oversnow transportation will result in a level of adverse impacts on park resources that would necessitate an outright ban on that type of transportation.

Due to the unique situation in Yellowstone in winter, whenever possible the analyses rely on monitoring and modeling data from peer-reviewed publications and technical reports specific to Yellowstone, and are limited to the "managed use" era (December 2004 through present).

For Wildlife and Wildlife Habitat, Including Rare, Unique, Threatened, or Endangered Species, and Species of Concern:

- White et al. (2009) found that probabilities of movement were greater for bison exposed to snowcoaches than for those exposed to snowmobiles; "the odds of observing a movement response were 1.1 times greater for each additional snowmobile, 1.5 times greater for each additional coach" (p. 587).
- For bison, there are mixed results in terms of percentage of "active" movement responses generated by the two different types of events. In 2006/2007, snowmobiles caused an "active" movement response 3.1 percent of the time verse snowcoaches which caused an "active" movement response 0.7 percent of the time. In 2008, snowmobiles caused an "active" movement response 8 percent of the time to snowcoaches 8.8 percent. In 2009, the percentages were almost event (3.5 percent to 3.5 percent, snowmobiles to snowcoaches).
- For elk, during the winter seasons of 2006/2007 and 2008/2009, no "active" behavioral response (travel, alarm-attention, or flight) was observed from either snowmobile or snowcoach transportation events. During the winter season of 2007/2008, snowmobile transportation events caused an "active" behavioral response 11.4 percent of the time and snowcoaches caused an "active" behavioral response 20.5 percent of the time.
- For trumpeter swans, the results are mixed in terms of percentage of "active" movement responses caused by the two different types of transportation events. For the three years of reporting summarized in this appendix, snowmobiles caused an "active" movement response 3.4 to 4.8 percent of the time while snowcoaches caused swans to exhibit an "active" movement response zero to 13.8 percent of the time.
- The best available evidence strongly indicates that OSV use during the managed use era has had no discernible effect on population dynamics or distribution for the five species (bison, elk, trumpeter swans, wolves, and bald eagles) that have been studied extensively and that other ecosystem stressors, not OSV use, are dominant influences on these wildlife species.

For Air Quality:

- Snowmobile transportation events and snowcoach transportation events both offer some benefits and some drawbacks relative to each other in terms of tailpipe emissions and that there is no universally "cleaner" (less polluting) mode of oversnow transportation.
- During a representative roundtrip from West Yellowstone to Old Faithful, a New BAT snowmobile transportation event produces less carbon monoxide (CO) than a BAT snowcoach event. However, a BAT snowcoach transportation event produces considerably less hydrocarbons (HC) and nitrogen oxides (NO_x) than a New BAT snowmobile transportation event during the same representative roundtrip.
- At the SEIS alternative level, SEIS alternatives 4a–4d are as clean as or cleaner than the other two SEIS alternatives (2b and 3b) at the "per person" level for a maximum use day.

For Soundscapes and the Acoustic Experience:

- Across 10 sites, snowcoach transportation events were audible for, on average, 2 minutes and 21 seconds (2:21) and snowmobile transportation events were audible, on average, for 2 minutes and 36 seconds (2:36), a difference of, on average, 15 seconds.
- When measured at 50 feet at cruising speed, a group of ten New BAT snowmobiles (each producing 67 dBA), measure 3 dBA lower than a single BAT snowcoach at cruising speed (approximately half of the noise energy). The two types of transportation events would have similar noise energy levels at more distant locations.

- At a distance, if vehicles are not visible, trained acousticians, as well as people with less experience, typically cannot differentiate between the noise produced by snowmobile and snowcoach transportation events.
- Once BAT is in place for snowcoaches and New BAT in place for snowmobiles, there is no evidence to support a compelling advantage for one type of OSV transportation event over another in terms of preservation of the natural soundscape.

For Visitor Use, Experience, and Accessibility:

- Visitors, regardless of their chosen mode of transportation, are highly satisfied with their overall experience.
- Given established OSV travel patterns and routes, visitors have comparable opportunities to experience wildlife and other features of interest and to experience natural soundscapes, whether they are on a snowmobile or riding in a snowcoach.

For Health and Safety:

- Employee and visitor exposure levels to air pollutants and elevated noise produced by OSVs do not exceed U.S. Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA) or National Institute for Occupational Safety and Health (NIOSH) standards.
- On February 15, 2009, at the West Entrance, snowcoaches were separated from snowmobiles into two different lanes to determine if employee exposure levels to CO varied by transportation event type. CO readings were slightly higher over the sampling period in the snowmobile lane; however, peak readings for CO were higher in the snowcoach lane. Neither lane reached the NIOSH ceiling of 200 ppm in either entrance lane.

For many of the topics evaluated, the environmental impacts were similar and for other topics the impacts are different. However, in summary for the five impact topics for which assessing comparability at the person or event levels was possible, data indicates that impacts for both modes of transportation are low and that no one mode of transportation is clearly better, in terms of limiting environmental impacts and providing high quality visitor experiences, than the other.