

**CHAPTER 9**

**SUMMARY OF PROPOSED MITIGATION MEASURES  
AND  
BEST MANAGEMENT PRACTICES**

## **9.0 SUMMARY OF PROPOSED MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES**

The following additional measures have been identified and incorporated into the Hatcher Pass Transit Project to reduce potential environmental effects.

**Table 9-1: Proposed Mitigation Measures and Best Management Practices**

Resource Category	Proposed Mitigation Measures and Best Management Practices (BMPs)
Air Quality	<p>Dust will be minimized by watering during dust producing activities throughout construction as needed.</p> <p>Exposed earthwork attributable to the Hatcher Pass Transit Project will be stabilized as soon as possible to reduce windblown particulate in the area.</p>
Geology	<p>By using BMPs and sound engineering design principles, impacts of these activities will be minor and are not expected to impact the environment. Use of standard engineering practices for tectonically active regions will be employed to minimize the impacts of earthquakes on constructed components of the Proposed Action.</p> <p>By minimizing excavation and vegetation removal, terracing excavation areas, and using diversion ditches and retaining walls, erosion and slope instability will be minimized.</p> <p>Existing surficial peat and organic silt will be completely removed from the traffic areas and replaced with properly compacted structure fill, except where the roadway will be built up over soft silts.</p> <p>Embankments will be constructed with a combination of structural fill and classified fill and will generally have maximum finished side slopes of 2:1 (horizontal:vertical). All embankment materials will be compacted to a minimum density of 95 percent. In addition, a geotextile is recommended if any soft silty material is encountered to separate the new backfill from the existing soft material.</p> <p>Retaining walls will likely be necessary to construct the upper and lower parking lots in the Northern Area. It is recommended that all retaining structures and subgrade walls be designed to withstand the lateral pressures imposed by the backfill soils, groundwater, and any surcharge or point loads behind the wall.</p>
Biological Resources	<p>To avoid impacting bald or Golden Eagle nests, a second eagle nest survey will be conducted prior to construction to verify that no new nests have been established. If a nest is found, USFWS will be consulted and avoidance and/or minimization measures such as the establishment of a buffer around the nest will be implemented to reduce any potential impact. An eagle nest permit will be obtained from the USFWS if necessary.</p> <p>To protect nesting birds, all vegetation clearing will be done outside the bird nesting window of May 1 to July 15.</p> <p>Stream crossings will be designed to promote natural hydrology and instream flows to maintain passage of fish and other aquatic organisms and mammals. Culverts and bridges will be designed to provide fish and aquatic organism passage and minimize changes in the stream's hydrologic function. In addition, stream simulation methods will be used to minimize changes in the aquatic environment in culverts.</p> <p>The MSB will maintain and clean debris from within and around culverts to ensure fish passage is maintained.</p> <p>The MSB will continue long-term monitoring of water quality in the Little Susitna River.</p> <p>The MSB will collect water quantity data in the Little Susitna River per agreement with DNR.</p> <p>Non-disturbed vegetated buffers of at least 75 feet will be maintained between developed facilities where streams or wetlands parallel the proposed access road and parking lot (per the MSB's BMPs for development around water bodies).</p> <p>To reduce the risk of creating nuisance bears, bear-proof trash receptacles will be located in parking lots and at transit facilities.</p> <p>To increase safety, public information will be posted on how to avoid conflicts with bears.</p> <p>The ROW limits will be cleared up to 10 feet beyond the cut or fill slope per DOT&amp;PF standard practice for a low-volume/low-speed roadway. Clearing of tall woody vegetation will increase visibility and reduce the potential for moose-vehicle collisions.</p>

**Table 9-1: Proposed Mitigation Measures and Best Management Practices (cont.)**

Resource Category	Proposed Mitigation Measures and Best Management Practices (BMPs)
	<p>The ROW will be heavily seeded with red fescue to deter moose forage near roads.</p> <p>Moose crossing signs will be placed within the ROW to alert users to the presence of moose in the area.</p> <p>To avoid introducing invasive plant species into the project area, the following BMPs will be followed for weed control:</p> <ul style="list-style-type: none"> <li>Using certified weed-free straw, topsoil, gravel, and other new materials brought into the site.</li> <li>Seeding all disturbed areas with native species.</li> <li>- Monitoring the site for future weed infestations.</li> </ul>
Wetlands and Other Waters of the U.S.	<p>An option to mitigate wetland impacts is through the MSB’s wetlands mitigation bank if it is established at the time mitigation is required. If mitigation bank service area does not exist at the time mitigation is required, the MSB will offset wetland impacts through in-lieu fee mitigation.</p> <p>Wetland boundaries will be flagged, and operation of construction vehicles will be limited to the permitted boundaries within the Hatcher Pass Transit Project area or on existing roads and pads. There are no mandated wetland buffer zones in the state of Alaska.</p> <p>Equipment servicing and fueling operations will not occur within 100 feet of any drainage channels, wetlands, or other water bodies. Adequate sorbent materials will be kept on-site to be used to contain and clean up any spill of petroleum products.</p> <p>An “Erosion and Sediment Control Plan” (ESCP) will be developed to provide an outline for measures to be taken by the Contractor during construction. BMPs will be used during construction activities to minimize water quality impacts to wetlands, streams or rivers, and other water bodies. The Contractor will be required to develop and implement a “Stormwater Pollution Prevention Plan” (SWPPP) in compliance with the DEC APDES General Permit for Construction Activities in Alaska.</p> <p>Staging areas will not be allowed within 200 feet of any wetland, stream, or river. Protective transfer measures will be implemented, and the Contractor will be required to identify all fuels that will be used and/or stored in the Hatcher Pass Transit Project area, prepare a waste disposal plan, and prepare a spill prevention, control, and countermeasure plan.</p> <p>Fuels and hazardous substances will not be stored within 200 feet of any wetland, stream or river, and other water bodies or drainages.</p>
Water Resources and Water Quality	<p>Stormwater runoff from the addition of impervious area, buildings, and other non-vegetated surfaces would be diverted to vegetated swales or settling basins prior to being discharged.</p> <p>All exposed earthwork attributable to the Hatcher Pass Transit Project will be stabilized at the earliest date possible to prevent erosion both during and after project completion. This will also be addressed in the ESCP and the SWPPP.</p> <p>The Contractor will be required to develop a HMCP to address hazardous material that will be used during project construction and to detail measures to control discharges of such materials into Waters of the U.S.</p> <p>Equipment servicing and fueling operations will not occur within 100 feet of any drainage channels, wetlands, or other water bodies. Adequate sorbent materials will be kept on-site to be used to contain and clean up any spill of petroleum products.</p> <p>An ESCP will be developed to provide an outline for measures to be taken by the Contractor during construction. BMPs will be used during construction activities to minimize water quality impacts to wetlands, streams or rivers, and other water bodies. The Contractor will be required to develop and implement a SWPPP in compliance with the DEC APDES General Permit for Construction Activities in Alaska.</p>

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Historic, Archaeological, and Cultural Resources	<p>Should the Contractor’s operation encounter prehistoric artifacts, burials, remains of dwelling sites or paleontological remains, work shall cease operations in the area immediately and notify the Engineer and the SHPO. No artifacts or specimens shall be further disturbed for removed from the ground and no further operations shall be performed in that area until so direct by the Engineer.</p>
Visual and Aesthetic Resources	<p>The use of hooded or downward-directional lighting, light sensors, and timing circuits will be used in order to preserve the night skies of the surrounding area.</p>
Parks, Trails, and Recreation	<p>Traffic impacts will be mitigated through traffic control practices and construction timing to avoid peak use periods. The MSB will limit hours of construction to reduce impacts to nearby residential areas in the Southern Area.</p>
Social and Community Setting	<p>The Contractor will develop a “Traffic Control Plan” to minimize impacts to existing communities and access into existing residential areas. The MSB will limit hours of construction to reduce impacts to nearby residential areas in the Southern Area.</p>
Utilities	<p>The Contractor will notify the local community of work on utility systems prior to construction activities.</p>
Noise and Vibration	<p>Construction equipment will be equipped with mufflers that meet the minimum original equipment manufacturer specifications to reduce noise.</p> <p>The MSB has several ordinances regulating different types of noise. Rules are different throughout the MSB and not all types of noises are regulated. MSB code does not regulate levels of noise generated by most motorized vehicles operating on private property, public access easements, roads, and public lands, nor does MSB code regulate levels of noise generated by tools and equipment being used in building construction in most areas (MSB, 2010a). However, the MSB will limit hours of construction to reduce noise-related impacts to nearby residential areas in the Southern Area.</p>
Hazardous Waste and Materials	<p>The Contractor will be required to prepare and implement a HMCP to address hazardous material that would be used or encountered during project construction and to detail measures to control discharges of such materials into the Waters of the U.S.</p> <p>Adequate sorbent materials will be kept on-site to be used to contain and clean up any spill of petroleum hydrocarbons.</p>