

- authorized officer must approve the construction routes or other means of avoidance in advance of use.
- To minimize sensitive feature disturbance and/or reduce visual contrast, in designated areas structures will be placed so as to avoid sensitive features such as, but not limited to, riparian areas, water courses and cultural sites and/or to allow conductors to clearly span the features, within limits of standard tower design.
- *Minimize damage from transmission line structure location in flood plains by placing structures on a high point. If this is not possible, two approaches can be employed depending on the site and situation. The concrete foundations which support the structure can have additional reveal. This is a practical approach to secure protection from about five feet of water depth. If the flows are higher than this, particularly from ice flows, an earth embankment can be built to support the structure at the higher elevation. The slopes of this embankment are protected by rip-rap to prevent erosion of the embankment and potential settlement of the structure. Damage to the facilities with these practices is expected to be minimal and normally does not occur.*

4.3.3 Effects of Each Alternative

4.3.3.1 No Action

Under the No Action Alternative, the MSTI project would not be constructed and no water and wetland resource impacts would occur.

4.3.3.2 Townsend to Mill Creek (Melrose) Segments

A1: PREFERRED ROUTE

The A1: Preferred Route alignment is approximately 112.9 miles long. There would be a total of 18.3 miles of low and 1.7 miles of moderate residual impacts. The main impacts include:

- crossing the Missouri River, a class I fisheries resource river and navigable waterway, and the associated riparian wetlands and designated floodplain;
- crossing the Boulder River;
- crossing the Big Hole River, a class I fisheries resource river;
- crossing 27 segments with perennial streams;
- crossing 201 segments with intermittent streams;
- crossing 8.7 miles of wetlands (interpreted); and
- crossing Homestake Lake located in the Homestake Recreation Area.

The A1: Preferred Route ground disturbance from clearing and grading for structures, work areas, and access roads would disturb an estimated 49.9 acres. Estimated ground disturbance would be: 51.9 miles of low access levels, 38.7 miles of moderate access levels, and 22.6 miles of high access levels.

A2: PARALLEL COLSTRIP LINES ROUTE

The A2 route alignment is approximately 121.7 miles long. There would be a total of 16.6 miles of low and 10.0 miles of moderate residual impacts. This alternative has the highest impacts of the three routes between Townsend and Mill Creek, with 1.7 fewer miles of low residual impacts and 8.3 more miles of moderate residual impacts than the Preferred Route. The main impacts include:

- crossing the Missouri River, a class I fisheries resource river and navigable waterway, and the associated riparian wetlands and designated floodplain;
- crossing 50 segments with perennial streams;
- crossing 143 segments with intermittent streams;
- crossing the Big Hole River, a class I fisheries resource river; and

4.6.2.2 Impact Type

Physical impacts to land uses were assessed along the centerline of each of the alternative routes for the inventoried land use categories. The impact types identified for land uses along the centerlines of alternative routes are characteristically direct and long-term, and include any impact that:

- Displaces, alters, or otherwise physically affects any existing, developing or planned residential, commercial, industrial, governmental, or institutional use or activity.
- Displaces, alters, or otherwise physically affects any existing agricultural use or activity.
- Displaces, alters, or otherwise physically affects any existing or planned air facility or air travel-related activity.
- Displaces, alters, or otherwise physically affects any area designated as suitable for timber production.
- Alters or otherwise physically affects any established, designated or planned park, recreation, preservation, or educational use area or activity.
- Affects applicable comprehensive and regional plans and/or approved, adopted, or officially stated policies, goals, or operations of communities or governmental agencies.

The effects of the Project to land jurisdiction involve primarily land policies, land management plans, and permitting requirements of federal, state, and local agencies. The land jurisdictions mapped in the inventory were used to identify the potentially affected land agencies and to quantify the land area potentially affected by the study area. In addition, these data were used to assess the socioeconomic impacts (refer to Volume II, Socioeconomic Technical Report).

The crossing or paralleling of existing utilities is a matter of technical coordination and realty agreements with the affected utilities. Impacts were not assessed for these situations.

4.6.2.3 Mitigation Measures

Environmental protection and specifically recommended mitigation measures were applied, where appropriate, to minimize the potential initial high and moderate impact levels identified through the impact assessment model (also refer to Environmental Protection Measures Volume I-C, Appendix B and Specifically Recommended Mitigation Measures described in Volume I-C, Appendix C). The Environmental Protection Measures described in this document are preliminary measures that are part of the project description, but are not finalized or committed to until further discussions with the MDEQ and other agencies are conducted. Likewise, the Specifically Recommended Mitigation Measures are preliminary, and not committed to by NorthWestern, until discussions are held on this subject with the MDEQ and other agencies. *During consultation with the Montana Department of Transportation (MDT), no specific concerns were identified regarding Montana roads and the MSTI project. MDT will not suggest mitigation until specific roads are identified and encroachment permits are filed. Encroachment permits would carry conditions for specific road crossings.*

Impact assessment assumes that all Environmental Protection Measures would be implemented as a part of the project. Specific mitigation measures are recommended when it is determined that Environmental Protection Measures do not fully mitigate an impact. Measures from the list of Specifically Recommended Mitigation Measures (2, 3, 4, 5, 6, 7, and 8) were applied to land use, on a case-by-case basis, where appropriate (Table 4.6-1).

The environmental protection measures listed in Appendix B (Volume 1-C) include construction methods that have been incorporated into the project design to reduce the potential for impacts to the environment. Some of these construction methods would secondarily reduce impacts to cultural resources in particular. These include environmental protection measures 1.1, 1.2, 1.3, 1.6, 1.7, 2.8, 3.2, 4.1, 4.3, 4.4, 4.5, 4.6, and 5.5. By incorporating these measures into the project design, potential impacts to cultural resources would be reduced. In some cases where impacts to cultural resources cannot be avoided, environmental protection measures would minimize impacts. Specifically Recommended Mitigation Measures, listed in Appendix B, Volume 1-C and discussed in section 4.10.5, include the development of a Section 106 Programmatic Agreement (PA). The PA could include measures such as relocating access roads, spanning some resources, using topographic screening to avoid effects on visual setting, implementing erosion control measures, and other construction methods that would substantially reduce or eliminate impacts to specific cultural resources.

4.10.4 IMPACT TYPE

Certain activities associated with the development of transmission line projects have a high potential to impact cultural resources in a variety of ways depending on the particular type of resource involved. Earth-moving activities which cause both on and below ground surface disturbance have the highest potential to directly impact archaeological resources and can occur during project area preparation, construction of new transmission lines, and continuing operation and maintenance of the lines. Of these activities, preparation of the project area has the greatest potential to directly impact cultural resources because these activities tend to disturb larger areas of the ground surface than actual construction due to the grading of access roads. Ground clearing can compact soils, crush artifacts, and alter prehistoric and historic features. Although site preparation is considered a temporary action, damage to cultural resources resulting from these activities is permanent. Construction of a new transmission line has the potential to affect cultural resources both on and below the ground surface. As with project preparation, ground disturbance associated with road grading, platform leveling, and guy wire installation can directly impact cultural resources. For the expected permanent ground disturbance see Chapter 2, Section 2.5.

Access-related impacts can have an indirect impact on cultural resources caused by improving existing roads or creating new roads into a previously remote area thereby increasing pedestrian and vehicle traffic. The likelihood of unauthorized collection of artifacts and intentional, as well as inadvertent, destruction of structures or landscape features increase with ease of access.

Physical impacts to cultural resources as a result of ground disturbing activities or increased public access to sites are expected within 250 feet of the proposed alternative centerlines.

Visual impacts may occur to some significant cultural resources such as Native American sacred sites, historic trails, and the settings of certain classes of historic buildings when modern structures such as large transmission towers are introduced into the viewshed of these resources. These visual impacts remain as long as the transmission structures are in place. For this project, potential visual impacts were considered for National Register listed or eligible resources that were located within 0.5 mile to either side of the proposed alternative centerline.

4.10.5 SPECIFIC MITIGATION MEASURES

Mitigation measures would be implemented on a case-by-case basis following the identification of cultural resources along the Preferred Route. These mitigation measures can be applied individually to impacts or combined with other mitigation measures to reduce or eliminate impacts. The impacts

remaining after application of mitigation measures are termed residual impacts. Any high residual impacts determined for cultural resources for this project are based on the presence of cultural resources within 250 feet of the route centerlines (see Volume II Cultural Resources Technical Report, Appendix A, Table 4). These impacts can be reduced to low-level impacts by implementing the mitigation measures for cultural resources outlined in Volume I-C, Appendix B, Section 4. Additionally, as part of the Section 106 process a Programmatic Agreement (PA) may be prepared setting forth the criteria for identifying, evaluating, and managing cultural resources along the selected alternative. The parties to the agreement may include Northwestern, BLM, USFS, MDNRC, MDEQ, Idaho SHPO, Montana SHPO, and interested Native American Tribes. Among other things,