opportunities and the alternative corridors. An additional sheet at 1:12,000 scale was developed for the substation analysis and siting process.

2.3 STUDY AREA

The Project study area was defined to include feasible alternatives for the location of a 500kV transmission line, or alternatively a 230kV or 345kV line. Major physiographic features, jurisdictional boundaries, sensitive land uses and existing utility corridors helped to define the study area boundaries, representing the limits of reasonable or feasible transmission line alternatives for the Project. The extent of the study area is described below and illustrated in Exhibit 1. The size of the study area is approximately 25,000 square miles. *The regional study conducted in 2006 defined an area of interest according to: major physiographic features, jurisdictional boundaries, sensitive land uses and existing utility corridors. Cost was not a major factor in defining the regional study area. However the factors considered above would have monetary considerations associated with them (e. g. crossing rugged mountains would incur added engineering and construction costs).*

The northern portion of the study area boundary is in Montana, and the northern boundary of the study area is defined by the location of the existing Colstrip 500kV transmission lines, and by the alternative northern terminations at either the existing Garrison Substation, a new Townsend substation site, or a new Ringling Substation.

The eastern boundaries were defined east of Bozeman and the Bridger Range, and by the designated Wilderness areas on the west side of Yellowstone National Park. The Madison River valley on the west side of the Madison Range is the boundary outside of which we considered that no reasonable alternative routes could be located. From Henry's Lake south, the study boundary follows Henry's Fork and then the main Snake River.

In Idaho, the southern, western and eastern boundaries were defined to include logical boundaries, including the existing transmission line corridor between Borah, Brady and Midpoint Substations. The boundaries also avoided the Fort Hall Indian Reservation and the urban areas of Idaho Falls, Pocatello, and Twin Falls.

The western boundary is defined almost solely on difficult mountains and terrain in the Bitterroot and Lemhi Ranges on or near the Montana – Idaho border. Most of the mountain ranges within the study area are north-south trending, and would be very difficult to cross from east to west. The White Knob and Pioneer Mountains both present terrain challenges that similarly helped identify the boundary in the southern portion of the study area to the west of the Idaho National Laboratory (INL).

2.4 DATA COLLECTION

Resource data covering the two study areas were obtained from a variety of sources. Sources included published and unpublished literature, documents, reports, studies, maps, BLM Resource Management Plans (RMPs) and Forest Service Plans. Available GIS coverages were obtained from BLM, Forest Service and other federal agencies such as the US Department of Agriculture, National Resources Conservation Service (NRCS) and Montana and Idaho state agencies and other national and state data bases.

Meetings with Montana and Idaho state office personnel, BLM field offices and Forest Service resource specialists in the seven National Forests were conducted to gather pertinent data and information, and to seek agency guidance on avoidance areas and areas of agency preference for the siting of a new transmission line corridor. Inventory data were collected for six primary resource areas including land use resources, visual resources, cultural resources, biological resources, water resources and wetlands and earth resources and slope. Resource data were then mapped utilizing GIS.

- Fifty acres minimum of vacant land;
- Suitable topography for construction to minimize cut and fill areas and overall disturbance. Maximum slopes of 8%;
- Existing roads within 1 mile;
- Ownership, land acquisition and public fees;
- Permitted uses, existing zoning, and permitting requirements;
- Close to existing Colstrip 500 kV transmission line: within 1 mile;
- Land acquisition costs based on Montana State Assessors; and
- Environmental issues identified during data collection and sensitivity analysis for the transmission line corridors (Composite Sensitivity Overlay).

2.8 ALTERNATIVE ROUTE IDENTIFICATION

After corridors were identified based on composite constraints, preliminary transmission line links and routes were developed. Existing aerial photography was used in conjunction with the composite constraints overlay to identify optimal location of assumed centerlines. During the routing processes, location of residential areas, stream crossings and agricultural fields was carefully considered.

Public meetings held in cooperation with the Department (after NorthWestern decided to proceed with the MSTI project) helped eliminate, identify and modify the alternatives that were carried forward into the Application

The Regional Study, also known as the Preliminary Siting and Engineering Study Report was conducted to determine the feasibility of the project and identify preliminary routes for the purposes of conducting a preliminary engineering study and preparation of preliminary cost estimates.

The primary purposes of the study were to evaluate voltage options and engineering, permitting and cost parameters so that NorthWestern could make a decision whether or not to proceed with the project. The study was an internal Northwestern Energy facility feasibility study that included analysis of alternative projects, including identifying alternative routes, voltage options of 230kV, 345kV and 500kV, AC vs. DC, design criteria, conductor and structure options and estimated costs for all of the voltage options and preliminary alternative routes.

Meetings with Montana and Idaho state office personnel, BLM field offices and Forest Service resource specialists in the seven National Forests were conducted to gather pertinent data and information and to seek guidance on avoidance areas and areas of agency preference for the siting of a new transmission line.
However, no public outreach program or public meetings were conducted during this feasibility study because NorthWestern had not made a decision whether or not to proceed with the project or whether to proceed with the preparation and filing of a MFSA Application with DEQ.

2.9 ALTERNATIVE ROUTE RECONNAISANCE

Refinement of the routing options based on conditions not evident in aerial photography of from other data occurred based on field observations. Most of the preliminary routes were driven to the extent practical and areas of routing concerns and on the ground conditions were noted. Changes in conditions occurring from the time of the original aerial photography was taken influenced the final routing alignments. The final alignments evaluated during the preliminary impact assessment and alternatives comparison phases of the project were sited to reflect the most reasonable alignments for transmission line routing.

2.10 PRELIMINARY IMPACT ASSESSEMENT

Preliminary and residual impact levels for each of the alternatives were quantified based on crossing of resource sensitivity. Links, routes and subroutes were identified, and mileage of expected initial high, moderate and low impacts quantified. Preliminary expected initial impacts were correlated with resource sensitivity levels as follows:

- High Sensitivity=High Impacts
- Moderate Sensitivity=Moderate Impacts
- Low Sensitivity/Opportunity Areas=Low Impacts

Impact levels were modified for visual, cultural, and biological resources to one level below initial levels, except where Exclusion areas were crossed, to determine preliminary residual impact levels as follows: