

ATTACHMENT A – Table of Contents

Name	Description	Scale
Mapbook 1	Land Use/Land Cover	1:100,000
Mapbook 2	Farmland Classifications, Steep Slopes, and Low Revegetation Potential	1:100,000
Mapbook 3	Hydrologic Features	1:100,000
Mapbook 4	Geologic Formations and Faults	1:100,000
Mapbook 5	Severe Soil Erosion Potential	1:100,000
Mapbook 6	Soils Requiring Drilling/Blasting or Heavy Ripping	1:100,000
Figure 1 - Oversize	Montana to Gulf Coast - Entire Project Area	1:3,500,000
Figure 2 - Oversize	Avoidance Areas and Ownership	1:350,000
Figure 3 - Oversize	Big Game, Fisheries, and Avian Distribution and Habitats	1:350,000
Figure 4 - Oversize	Visual Resource Management Areas	1:350,000
Transmission Line Figure 1 - Oversize	Avoidance Areas and Ownership with Transmission Lines	1:350,000
Transmission Line Figure 2 - Oversize	Big Game, Fisheries, and Avian Distribution and Habitats with Transmission Lines	1:350,000
Transmission Line Figure 3 - Oversize	Geologic Formations and Faults with Transmission Lines	1:350,000
Confidential Volume		
Confidential Mapbook 1	Sensitive Wildlife and Cultural Resources	1:100,000
Confidential Transmission Line Figure 1 - Oversize	Sensitive Wildlife with Transmission Lines	1:350,000

Orientation to the Mapbooks

Each Mapbook follows the same format and maps appear starting with Route Alternative B, then additional maps that complete Route Alternative A, and finally maps that complete Route Alternative A1A. See below for a listing of what mileposts are covered by each map.

Route Alternative	Map Number	From Milepost	To Milepost
Alternative B	Map 01 of 27	0	18
Alternative B	Map 02 of 27	18	40
Alternative B	Map 03 of 27	40	61
Alternative B	Map 04 of 27	61	82
Alternative B	Map 05 of 27	82	104
Alternative B	Map 06 of 27	104	124
Alternative B	Map 07 of 27	124	145
Alternative B	Map 08 of 27	145	167
Alternative B	Map 09 of 27	167	188
Alternative B	Map 10 of 27	188	211
Alternative B	Map 11 of 27	211	231
Alternative B	Map 12 of 27	231	249
Alternative B	Map 13 of 27	249	268
Alternative B	Map 14 of 27	268	288

Route Alternative	Map Number	From Milepost	To Milepost
Alternative A	Map 01 of 27	0	18
Alternative A	Map 02 of 27	18	41
Alternative A	Map 15 of 27	41	62
Alternative A	Map 16 of 27	62	81
Alternative A	Map 17 of 27	81	102
Alternative A	Map 18 of 27	102	121
Alternative A	Map 19 of 27	121	141
Alternative A	Map 20 of 27	141	156
Alternative A	Map 21 of 27	156	171
Alternative A	Map 22 of 27	171	191

Route Alternative	Map Number	From Milepost	To Milepost
Alternative A1A	Map 01 of 27	0	18
Alternative A1A	Map 02 of 27	18	41
Alternative A1A	Map 15 of 27	41	61
Alternative A1A	Map 16 of 27	61	78
Alternative A1A	Map 23 of 27	78	93
Alternative A1A	Map 24 of 27	93	114
Alternative A1A	Map 25 of 27	114	133
Alternative A1A	Map 26 of 27	133	150
Alternative A1A	Map 27 of 27	150	180
Alternative A1A	Map 20 of 27	180	184
Alternative A1A	Map 21 of 27	184	200
Alternative A1A	Map 22 of 27	200	223

About Mapbook 1

Title: Land Use/Land Cover

Orientation:

To follow Route B, please see maps: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14

To follow Route A, please see maps: 1, 2, 15, 16, 17, 18, 19, 20, 21, and 22

To follow Route A1A, please see maps: 1, 2, 15, 16, 20, 21, 22, 23, 24, 25, 26, and 27

(Each Mapbook follows this same format. For a listing of what mileposts are covered by each map, please see the first page of this map volume for the information.)

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

- 3.3(3): base maps of study area and alternative facility locations;
- 3.3(8): delineate proposed alternatives on base maps with township, range, section;
- 3.4(3)(a): cities, towns & unincorporated communities and residential clusters;
- 3.4(3)(b): the developed residential, industrial and commercial areas adjoining cities, towns, and unincorporated communities;
- 3.4(3)(c): designated residential growth areas;
- 3.4(3)(d): highways and roads designated as scenic routes or scenic byways by a land management agency;
- 3.4(3)(e): railroads and railroad right-of-ways;
- 3.4(3)(f): electric transmission lines of 50 kV or greater voltage design;
- 3.4(3)(g): non-timbered grassland or rangeland;
- 3.4(3)(h): forested lands;
- 3.4(3)(i): communication facilities;
- 3.4(3)(j): military installations;
- 3.4(3)(l): airports and airfields;
- 3.4(3)(m): national trails;
- 3.4(3)(n): cropland differentiated by types of irrigated lands.
- 3.7(2)(a-j & l-n): same components as in 3.4(3) above.
- 3.7(2)(p): mines permitted under Title 82, Chapter 4, MCA;
- 3.7(2)(q): platted subdivisions;
- 3.7(2)(r): major public buildings;
- 3.7(2)(s): pipelines 8 inches or greater in diameter;
- 3.7(2)(t): schools and land areas designated by local school boards for future school development;
- 3.7(2)(v): individual residences and farm support buildings;
- 3.7(7): access roads.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Pump Station	2008	TROW Engineering
Valve	2008	TROW Engineering
Airport (public and private airports, private heliport)	2004	US Geological Survey (USGS), Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Airport CISDM (private and public airports)	2008	Montana Department of Administration Information Technology Services Division, Geographical Information Services (GIS), Montana State Library, Helena, 2008
Heliport CISDM (private and public heliports)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Structures (residence, out-building, commercial, industrial, or other)	2008	AECOM Environment (formerly ENSR Corporation)
Schools	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Mine	2005	USGS, Reston, Virginia, 2005
Tower ASR (communication facility)	2003	USGS, Snake River Field Station, 2003
Tower Cellular (communication facility)	2003	USGS, Snake River Field Station, 2003
Tower IFBS (communication facility)	2003	Federal Communications Commission, Office of Engineering and Technology, USGS, Snake River Field Station, 2003
Tower TV Radio (communication facility)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Lewis and Clark Campsite	2003	Montana State Library, Helena, 2003
Lewis and Clark Trail	2003	Montana State Library, Helena, 2003
Montana National Guard	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File
Steele City Segment Routes	2008	TROW Engineering
Pipe oil (pipeline 8 inches or greater in diameter, unknown diameter)	1999	Montana State Library, Helena, 1999
Electric Transmission Lines 50kV or greater	2008	NA
Platted Subdivision	2008	County Planner (Fallon County)
Incorporated City or Town, Unincorporated Community	2001	Montana State Library, Helena, 2001
Cadastral (developed industrial, residential and commercial)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
School Property	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Military Installations (US Department of Defense land)	1996	Montana State Library, Helena, 1996
Indian Reservations	1991	Montana State Library, Helena, 1991
Land cover (forested land, fallow land, mechanically irrigated, Non-timbered grass or rangeland, flood irrigated, hay field, dry cropland, flood irrigated)	2008	AECOM Environment (formerly ENSR Corporation) interpretation of Montana Department of Revenue Agricultural Land Reappraisal
Base Layers, not in Legend		
Access Roads	2008	TROW Engineering
Roads (Roads 2000)	2000	US Census Bureau, TIGER 2000 Line File
Canada	2005	ESRI

Data References:

Dataset Title	Year	Source
States	2008	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California 2008
City or Town	2003	Montana State Library, Helena, 2003
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2005
PLSS (Townships)	1996	Montana State Library, Helena, 1996
PLSS (Sections)	1996	Montana State Library, Helena, 1996
MFSA Mapbook 11x17 100K	NA	NA
UTM 13 NAD83 100K Topo	Various Dates	USGS
Hydrography (NHD area 24K)	2008	USGS in cooperation with US Environmental Protection Agency (USEPA), USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD waterbody 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD flowline 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (major rivers 100K)	1993	Montana State Library, Helena, 1993
Hydrography (major lakes 100K)	1993	Montana State Library, Helena, 1993
Mileposts	2008	TROW Engineering
Pipeline Route Canada	2007	TROW Engineering

About Mapbook 2

Title: Farmland Classifications, Steep Slopes, and Low Revegetation Potential

Orientation:

To follow Route B, please see maps: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14

To follow Route A, please see maps: 1, 2, 15, 16, 17, 18, 19, 20, 21, and 22

To follow Route A1A, please see maps: 1, 2, 15, 16, 20, 21, 22, 23, 24, 25, 26, and 27

(Each Mapbook follows this same format. For a listing of what mileposts are covered by each map, please see the first page of this map volume for the information.)

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

- 3.4(2)(a): areas with slopes greater than 15%;
- 3.4(3)(o): prime or unique farmland and orchards;
- 3.4(5)(a): less than 15%;
- 3.4(5)(b): 15 to 30%;
- 3.4(5)(c): greater than 30%; and
- 3.7(2)(o): prime or unique farmland and orchards;
- 3.7(8)(c): an overlay of constraints to reclamation and re-vegetation potential.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Pump Station	2008	TROW Engineering
Valve	2008	TROW Engineering
Lewis and Clark Campsite	2003	Montana State Library, Helena, 2003
Airport (public and private airports, private heliport)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Airport CISDM (private and public airports)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Heliport CISDM (private and public heliports)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Steele City Segment Routes	2008	TROW Engineering
Access Roads	2008	TROW Engineering
Lewis and Clark Trail	2003	Montana State Library, Helena, 2003
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File

Data References:

Dataset Title	Year	Source
Soils (revegetation potential), Bighorn County	2007	US Department of Agriculture National Resources Conservation Service (USDA NRCS)
Soils (revegetation potential), Carter County	2007	USDA NRCS
Soils (revegetation potential), Custer County	2007	USDA NRCS
Soils (revegetation potential), Daniels, Roosevelt Counties	2007	USDA NRCS
Soils (revegetation potential), Dawson County	2008	USDA NRCS
Soils (revegetation potential), Fallon County	2007	USDA NRCS
Soils (revegetation potential), Garfield County	2007	USDA NRCS
Soils (revegetation potential), McCone County	2007	USDA NRCS
Soils (revegetation potential), Phillips County	2007	USDA NRCS
Soils (revegetation potential), Powder River County	2007	USDA NRCS
Soils (revegetation potential), Prairie County	2007	USDA NRCS
Soils (revegetation potential), Richland County	2007	USDA NRCS
Soils (revegetation potential), Rosebud County	2007	USDA NRCS
Soils (revegetation potential), Sheridan County	2007	USDA NRCS
Soils (revegetation potential), Treasure County	2006	USDA NRCS
Soils (revegetation potential), Valley County	2007	USDA NRCS
Soils (revegetation potential), Wibaux County	2007	USDA NRCS
Soils (revegetation potential), Yellowstone County	2008	USDA NRCS
NAD83 UTM13 Terrain Slope Bands (slope between 15 and 30 percent, slope greater than 30 percent)	2007	National Elevation Dataset (NED) (USGS)
Soils (prime or unique farm land), Bighorn County	2007	USDA NRCS
Soils (prime or unique farm land), Carter County	2007	USDA NRCS
Soils (prime or unique farm land), Custer County	2007	USDA NRCS
Soils (prime or unique farm land), Daniels and Roosevelt counties	2007	USDA NRCS
Soils (prime or unique farm land), Dawson County	2008	USDA NRCS
Soils (prime or unique farm land), Fallon County	2007	USDA NRCS
Soils (prime or unique farm land), Garfield County	2007	USDA NRCS
Soils (prime or unique farm land), McCone County	2007	USDA NRCS
Soils (prime or unique farm land), Phillips County	2007	USDA NRCS
Soils (prime or unique farm land), Powder River County	2007	USDA NRCS
Soils (prime or unique farm land), Prairie County	2007	USDA NRCS
Soils (prime or unique farm land), Richland County	2007	USDA NRCS
Soils (prime or unique farm land), Rosebud County	2007	USDA NRCS

Data References:

Dataset Title	Year	Source
Soils (prime or unique farm land), Sheridan County	2007	USDA NRCS
Soils (prime or unique farm land), Treasure County	2006	USDA NRCS
Soils (prime or unique farm land), Valley County	2007	USDA NRCS
Soils (prime or unique farm land), Wibaux County	2007	USDA NRCS
Soils (prime or unique farm land), Yellowstone County	2008	USDA NRCS
Indian Reservations	2004	Montana State Library, Helena, 1991
Base Layers, not in Legend		
Pipeline Route Canada	2007	TROW Engineering
Canada	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
States	2008	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Roads (Roads 2000)	2000	US Census Bureau, TIGER 2000 Line File
School Property	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Cadastral (developed industrial, residential, and commercial)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Incorporated City or Town, Unincorporated Community	2001	Montana State Library, Helena, 2001
City or Town	2003	Montana State Library, Helena, 2003
Platted Subdivision	2008	County Planner (Fallon County)
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California
PLSS (townships)	1996	Montana State Library, Helena, 1996
PLSS (sections)	1996	Montana State Library, Helena, 1996
MFSA Mapbook 11x17 100K	NA	NA
UTM 13 NAD83 100K Topo	Various Dates	USGS
Mileposts		TROW Engineering
Hydrography (NHD area 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD waterbody 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD flowline 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (major rivers 100K)	1993	Montana State Library, Helena, 1993
Hydrography (major lakes 100K)	1993	Montana State Library, Helena, 1993
NAD83 UTM13 Terrain Hill shade	2007	National Elevation Dataset (NED) (USGS)

About Mapbook 3

Title: Hydrologic Features

To follow Route B, please see maps: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14

To follow Route A, please see maps: 1, 2, 15, 16, 17, 18, 19, 20, 21, and 22

To follow Route A1A, please see maps: 1, 2, 15,16, 20, 21, 22, 23, 24, 25, 26, and 27

(Each Mapbook follows this same format. For a listing of what mileposts are covered by each map, please see the first page of this map volume for the information.)

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

- 3.4(1)(h): municipal watersheds;
- 3.4(1)(j): streams listed by the department that are not attaining designated beneficial uses of water;
- 3.4(1)(u): standing waterbodies, including any lake, wetland, marsh or reservoir; and intermittent waterbodies and internally drained basins that reach a surface area of 20 acres or more at least one year out of ten;
- 3.4(1)(v): surface supplies of potable water;
- 3.4(4)(a): public lands owned by federal and state management agencies;
- 3.4(4)(b): tribal and Indian reservation;
- 3.7(9)(f): 100-year floodplain;
- 3.7(17): names of perennial streams and department water quality classifications.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Valve	2008	TROW Engineering
Pump Station	2008	TROW Engineering
Lewis and Clark Campsite	2008	Montana State Library, Helena, 2003
Lewis and Clark Trail	2008	Montana State Library, Helena, 2003
Steele City Segment Routes	2008	TROW Engineering
Access Roads	2008	TROW Engineering
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File
Wild and Scenic Rivers	2003	Montana Fish, Wildlife and Parks, 2003
Floodplains (100 year)	1995-2007	Federal Emergency Management Agency
Water Quality Assessment (classifications)	2006	Montana DEQ
Stream not Attaining Designated Beneficial Use (impaired rivers)	2006	Montana DEQ

Data References:

Dataset Title	Year	Source
Lake or Reservoir not Attaining Designated Beneficial Use (impaired lakes)	2006	Montana DEQ, Research Triangle International
Water Body (larger than 10 acres)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners, Reston, Virginia
Hydrologic Unit (5th level)	2007	Montana Natural Resources Conservation Service, Bozeman, 2007
Hydrologic Unit (6th level)	2007	Montana Natural Resources Conservation Service, Bozeman, 2007
Land Owners	2007	Montana State Library, Helena, Montana
Base Layers, not in Legend		
Mileposts	2008	TROW Engineering
Pipeline Route Canada	2007	TROW Engineering
Canada	2005	ESRI
States	2008	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Roads (Roads 2000)	2000	US Census Bureau, TIGER 2000 Line File
City or Town	2003	Montana State Library, Helena, Montana, 2003
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California
PLSS (townships)	1996	Montana State Library, Helena, 1996
PLSS (sections)	1996	Montana State Library, Helena, 1996
MFSA Mapbook 11x17 100K	NA	NA
UTM 13 NAD83 100K Topo	Various Dates	USGS
Hydrography (NHD area 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD waterbody 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD flowline 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (major rivers 100K)	1993	Montana State Library, Helena, 1993
Hydrography (major lakes 100K)	1993	Montana State Library, Helena, 1993
Military Installations (US Department of Defense land)	1996	Montana State Library, Helena, 1996
Wilderness Study Area	2003	BLM
Stewardship Easements (Montana Fish, Wildlife and Parks; The Nature Conservancy; US Fish and Wildlife Service)	2007	Montana Natural Heritage Program (MTNHP), Montana State Library, Helena, 2007
National Parks and Monuments (National Historic Site, Park, Monument, Recreation Area)	2005	National Park Service, 2005
USFWS Wilderness Area	2003	MTNHP, Montana State Library, Helena, 2003
National Wildlife Refuge	2002	MTNHP, Montana State Library, Helena, 2002
State Wildlife Management Area	2008	Montana Fish, Wildlife and Parks, 2008
Indian Reservations	1991	Montana State Library, Helena, 1991

About Mapbook 4

Title: Geologic Formations

Orientation:

To follow Route B, please see maps: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14

To follow Route A, please see maps: 1, 2, 15, 16, 17, 18, 19, 20, 21, and 22

To follow Route A1A, please see maps: 1, 2, 15, 16, 20, 21, 22, 23, 24, 25, 26, and 27

(Each Mapbook follows this same format. For a listing of what mileposts are covered by each map, please see the first page of this map volume for the information.)

Summary of Circular MFSA-2 Components Addressed by this Mapbook:

3.2(1)(e): for pipelines, active faults;

3.4(1)(s): areas with geologic units or formations that show a high probability of including significant paleontological resources;

3.4(1)(w): for substations, switching stations, and/or terminus points, active faults.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Geologic Map Units	1998-2007	Montana Bureau of Mines and Geology
Contacts	1998-2007	Montana Bureau of Mines and Geology
Geologic Regions (clinker and paleosol)	1998-2007	Montana Bureau of Mines and Geology
Base Layers, not in Legend		
Pump Station	2008	TROW Engineering
Valve	2008	TROW Engineering
Mileposts	2008	TROW Engineering
Steele City Segment Routes	2008	TROW Engineering
Pipeline Route Canada	2007	TROW Engineering
Access Roads	2008	TROW Engineering
Pipe Oil (pipeline 8 inches or greater in diameter, unknown diameter)	2008	Montana State Library
Tower ASR	2004	USGS, Snake River Field Station
Lewis and Clark Campsite	2003	Montana State Library, Helena, 2003
Lewis and Clark Trail	2003	Montana State Library, Helena, 2003

Data References:

Dataset Title	Year	Source
Electric Transmission Lines 50kV or greater	NA	NA
Canada	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
States	2008	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Roads (Roads 2000)	2000	US Census Bureau, TIGER 2000 Line File
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File
City or Town	2003	Montana State Library, Helena, 2003
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California
PLSS (townships)	1996	Montana State Library, Helena, 1996
PLSS (sections)	1996	Montana State Library, Helena, 1996
MFSA Mapbook 11x17 100K	NA	NA
UTM 13 NAD83 100K Topo	Various Dates	USGS
Hydrography (major rivers 100K)	1993	Montana State Library, Helena, 1993
Hydrography (major lakes 100K)	1993	Montana State Library, Helena, 1993
Strike and Dip of Inclined Beds	1998-2007	Montana Bureau of Mines and Geology
Faults	1998-2007	Montana Bureau of Mines and Geology
FTYPE	1998-2007	Montana Bureau of Mines and Geology
Folds (axis)	1998-2007	Montana Bureau of Mines and Geology
Folds (anticline, monocline, syncline or plunge direction)	1998-2007	Montana Bureau of Mines and Geology
Geologic Lines (ancient river channel axis, geological liniment determined from air photos, extent of glaciation [hachures on glaciated side], silcrete bed, terrace scarp, unconformity)	1998-2007	Montana Bureau of Mines and Geology

About Mapbook 5

Title: Severe Soil Erosion Potential

Orientation:

To follow Route B, please see maps: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14

To follow Route A, please see maps: 1, 2, 15, 16, 17, 18, 19, 20, 21, and 22

To follow Route A1A, please see maps: 1, 2, 15,16, 20, 21, 22, 23, 24, 25, 26, and 27

(Each Mapbook follows this same format. For a listing of what mileposts are covered by each map, please see the first page of this map volume for the information.)

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

3.4(1)(k): highly erodible soils and areas with severe reclamation constraints;

3.7(8)(a): wind and water erosion risk;

3.7(8)(b): mass movement potential.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Pump Station	2008	TROW Engineering
Valve	2008	TROW Engineering
Airport (public and private airports, private heliport)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Airport CISDM (private and public airports)		Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Heliport CISDM (private and public heliports)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Steele City Segment Routes	2008	TROW Engineering
Access Roads	2008	TROW Engineering
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Lewis and Clark Campsite	2003	Montana State Library, Helena, 2003
Lewis and Clark Trail	2003	Montana State Library, Helena, 2003
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File
Indian Reservations	1991	Montana State Library, Helena, 1991
Wind Erodability (Bighorn County)	2007	USDA NRCS
Wind Erodability (Carter County)	2007	USDA NRCS
Wind Erodability (Custer County)	2007	USDA NRCS

Data References:

Dataset Title	Year	Source
Wind Erodability (Daniels and Roosevelt counties)	2007	USDA NRCS
Wind Erodability (Dawson County)	2008	USDA NRCS
Wind Erodability (Fallon County)	2007	USDA NRCS
Wind Erodability (Garfield County)	2007	USDA NRCS
Wind Erodability (McCone County)	2007	USDA NRCS
Wind Erodability (Phillips County)	2007	USDA NRCS
Wind Erodability (Powder River County)	2007	USDA NRCS
Wind Erodability (Prairie County)	2007	USDA NRCS
Wind Erodability (Richland County)	2007	USDA NRCS
Wind Erodability (Rosebud County)	2007	USDA NRCS
Wind Erodability (Sheridan County)	2007	USDA NRCS
Wind Erodability (Treasure County)	2006	USDA NRCS
Wind Erodability (Valley County)	2007	USDA NRCS
Wind Erodability (Wibaux County)	2007	USDA NRCS
Wind Erodability (Yellowstone County)	2008	USDA NRCS
Water Erodability (Bighorn County)	2007	USDA NRCS
Water Erodability (Carter County)	2007	USDA NRCS
Water Erodability (Custer County)	2007	USDA NRCS
Water Erodability (Daniels and Roosevelt counties)	2007	USDA NRCS
Water Erodability (Dawson County)	2008	USDA NRCS
Water Erodability (Fallon County)	2007	USDA NRCS
Water Erodability (Garfield County)	2007	USDA NRCS
Water Erodability (McCone County)	2007	USDA NRCS
Water Erodability (Phillips County)	2007	USDA NRCS
Water Erodability (Powder River County)	2007	USDA NRCS
Water Erodability (Prairie County)	2007	USDA NRCS
Water Erodability (Richland County)	2007	USDA NRCS
Water Erodability (Rosebud County)	2007	USDA NRCS
Water Erodability (Sheridan County)	2007	USDA NRCS
Water Erodability (Treasure County)	2006	USDA NRCS
Water Erodability (Valley County)	2007	USDA NRCS
Water Erodability (Wibaux County)	2007	USDA NRCS

Data References:

Dataset Title	Year	Source
Water Erodability (Yellowstone County)	2008	USDA NRCS
Highly Erodible Soils Underlain by Cretaceous Shales	2008	USDA NRCS
Base Layers, not in Legend		
Mileposts	2008	TROW Engineering
Pipeline Route Canada	2007	TROW Engineering
Canada	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
States	2008	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
Roads (Roads 2000)	2000	US Census Bureau, TIGER 2000 Line File
School Property	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Cadastral (developed industrial, residential, and commercial)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Incorporated City or Town, Unincorporated Community	2001	Montana State Library, Helena, 2001
City or Town	2003	Montana State Library, Helena, 2003
Platted Subdivision	2008	County Planner (Fallon County)
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California
PLSS (townships)	1996	Montana State Library, Helena, 1996
PLSS (sections)	1996	Montana State Library, Helena, 1996
MFSA Mapbook 11x17 100K	NA	NA
UTM 13 NAD83 100K Topo	Various Dates	USGS
Hydrography (NHD Area 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD waterbody 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD flowline 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (major rivers 100K)	1993	Montana State Library, Helena, 1993
Hydrography (major lakes 100K)	1993	Montana State Library, Helena, 1993
Military Installations (US Department of Defense Land)	1996	Montana State Library, Helena, 1996
Land cover (forested land, fallow land, mechanically irrigated, non-timbered grass or rangeland, flood irrigated, hay field, dry cropland, flood irrigated)	2008	AECOM Environment (formerly ENSR Corporation)

About Mapbook 6

Title: Soils Requiring Drilling/Blasting or Heavy Ripping

Orientation:

To follow Route B, please see maps: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 14

To follow Route A, please see maps: 1, 2, 15, 16, 17, 18, 19, 20, 21, and 22

To follow Route A1A, please see maps: 1, 2, 15, 16, 20, 21, 22, 23, 24, 25, 26, and 27

(Each Mapbook follows this same format. For a listing of what mileposts are covered by each map, please see the first page of this map volume for the information.)

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

3.8(1)(a)(iii)(A): rock trenching that requires drilling and blasting;

3.8(1)(a)(iii)(B): rock trenching that requires heavy ripping equipment, but not drilling and blasting.

Data References:

Dataset Title	Year	Source
Pump Station	2008	TROW Engineering
Valve	2008	TROW Engineering
Airport (public and private airports, private heliport)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Airport CISDM (private and public airports)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Heliport CISDM (private and public heliports)	2008	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Steele City Segment Routes	2008	TROW Engineering
Access Roads	2008	TROW Engineering
Lewis and Clark Campsite	2003	Montana State Library, Helena, 2003
Lewis and Clark Trail	2003	Montana State Library, Helena, 2003
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File
Indian Reservations	1991	Montana State Library, Helena, 1991
Rock Trenching that Requires Drilling and Blasting	2008	USDA NRCS
Heavy Ripping (Bighorn County)	2007	USDA NRCS
Heavy Ripping (Carter County)	2007	USDA NRCS
Heavy Ripping (Custer County)	2007	USDA NRCS
Heavy Ripping (Daniels and Roosevelt counties)	2007	USDA NRCS

Data References:

Dataset Title	Year	Source
Heavy Ripping (Dawson County)	2008	USDA NRCS
Heavy Ripping (Fallon County)	2007	USDA NRCS
Heavy Ripping (Garfield County)	2007	USDA NRCS
Heavy Ripping (McCone County)	2007	USDA NRCS
Heavy Ripping (Phillips County)	2007	USDA NRCS
Heavy Ripping (Powder River County)	2007	USDA NRCS
Heavy Ripping (Prairie County)	2007	USDA NRCS
Heavy Ripping (Richland County)	2007	USDA NRCS
Heavy Ripping (Rosebud County)	2007	USDA NRCS
Heavy Ripping (Sheridan County)	2007	USDA NRCS
Heavy Ripping (Treasure County)	2006	USDA NRCS
Heavy Ripping (Valley County)	2007	USDA NRCS
Heavy Ripping (Wibaux County)	2007	USDA NRCS
Heavy Ripping (Yellowstone County)	2008	USDA NRCS
Base Layers, not in Legend		
Mileposts	2008	TROW Engineering
Pipeline Route Canada	2007	TROW Engineering
Canada	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
States	2008	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
Roads (Roads 2000)	2000	US Census Bureau, TIGER 2000 Line File
School Property	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Cadastral (developed industrial, residential and commercial)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Incorporated City or Town, Unincorporated Community	2001	Montana State Library, Helena, 2001
City or Town	2003	Montana State Library, Helena, 2003
Platted Subdivision	2008	County Planner (Fallon County)
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California
PLSS (townships)	1996	Montana State Library, Helena, 1996
PLSS (sections)	1996	Montana State Library, Helena, 1996
MFSA Mapbook 11x17 100K	NA	NA
UTM 13 NAD83 100K Topo	Various Dates	USGS
Hydrography (NHD area 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD waterbody 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners

Data References:

Dataset Title	Year	Source
Hydrography (NHD flowline 24K)	2008	USGS in cooperation with USEPA, USDA Forest Service, and other federal, state, and local partners
Hydrography (major rivers 100K)	1993	Montana State Library, Helena, 1993
Hydrography (major lakes 100K)	1993	Montana State Library, Helena, 1993
Military Installations (US Department of Defense land)	1996	Montana State Library, Helena, 1996
Land Cover (forested land, fallow land, mechanically irrigated, non-timbered grass or rangeland, flood irrigated, hay field, dry cropland, flood irrigated)	2008	AECOM Environment (formerly ENSR Corporation)

About Figure 1

Title: Montana to Gulf Coast – Entire Project Area

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

3.3(3): alternative locations of proposed facility.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Pipeline (Cushing Extension)	2008	TROW Engineering
Steele City Segment Routes(Alternative A, Alternative A1A, Alternative B)	2008	TROW Engineering
Pipeline Alternatives Phase I (Gulf Coast Segment, Houston Lateral, Option B, and Option D)	2008	TROW Engineering
Pipeline Route Canada	2007	TROW Engineering
National Wildlife Refuge, Region 6 (US Fish and Wildlife Service)	2002	MTNHP, Montana State Library, Helena, 2002
National Wildlife Refuge, Region 3 (US Fish and Wildlife Service)	2002	MTNHP, Montana State Library, Helena, 2002
US Bureau of Land Management	2008	BLM
US Forest Service	2008	USDA Geospatial Service and Technology Center, Salt Lake City, Utah 2008
Indian Reservations	1991	Montana State Library, Helena, 1991
Canadian Indian Reservation	2005	DMTI Spatial Inc., ESRI, Redlands, CA 2005
National Park	2008	National Park Service, 2008
Base Layers, not in Legend		
Cities (other)	2005	DMTI Spatial Inc., ESRI, Redlands, California, 2005
Canada Major Cities (capital cities)	2005	DMTI Spatial Inc., ESRI, Redlands, California, 2005
Canada Medium Cities	2005	DMTI Spatial Inc., ESRI, Redlands, California, 2005

Data References:

Dataset Title	Year	Source
Pipeline Route Alternatives (Options A and B)	2008	TROW Engineering
Canada Provinces	2005	DMTI Spatial Inc., ESRI, Redlands, California, 2005
States	2008	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
USA	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2005
Interstate Highways	2000	US Census Bureau, TIGER 2000 Line File
Waterbodies (bay or estuary or ocean, lake, reservoir, stream)	2005	DMTI Spatial Inc., ESRI, Redlands, California, 2005
Canada Waterbodies (water areas)	2005	DMTI Spatial Inc., ESRI, Redlands, California, 2005
Canadian National Park	2005	DMTI Spatial Inc., ESRI, Redlands, California, 2005
Mexico States	2005	Sistemas de Información Geográfica, S.A. de C.V., ESRI Redlands, California, 2005

About Figure 2

Title: Avoidance Areas and Ownership

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

- 3.2(1)(d): avoidance areas;
- 3.3(3): alternative location of proposed facility in Montana and study area;
- 3.3(8): overlays of proposed and alternative locations for linear facility that show township, range and section;
- 3.4(1)(a): areas specified in Section 3.2(1)(d) that are located within the study area;
- 3.4(1)(c): national natural landmarks, natural areas, research natural areas, areas of critical environmental concern, special interest areas, research botanical areas, outstanding natural areas designated by the national park service, the USDA Forest Service, the Bureau of Land Management, or the State of Montana;
- 3.4(3)(a): cities, towns and unincorporated communities, and residential clusters of 5 or more;
- 3.4(3)(d): existing federal and state highways, and designated and existing county roads;
- 3.4(3)(d)(i): highways and roads designated as scenic routes or scenic byways by a land management agency;
- 3.4(3)(e): railroads and railroad right-of-ways;
- 3.4(3)(f): electric transmission lines of 50 kV or greater voltage design;
- 3.4(3)(i): communication facilities;
- 3.4(3)(j): military installations;
- 3.4(3)(k): land areas covered by conservation easements;
- 3.4(3)(l): airports and airfields;
- 3.4(3)(m): national trails;
- 3.4(3)(p): mines permitted under Title 82, Chapter 4, MCA;
- 3.4(4)(a): public land owned by federal and state management agency;
- 3.4(4)(b): tribal and Indian reservation land;
- 3.7(7): access roads;
- 3.7(15)(a): recreation areas;
- 3.7(15)(b): overlays of recreation areas and sites located within the impact zones for each alternative facility location;
- 3.7(15)(c): information specified in (b) must be provided for the following recreation areas and site:
 - (i) national wilderness areas;
 - (ii) national primitive areas;
 - (iii) national parks and monuments;
 - (iv) national wildlife refuges and ranges;
 - (v) state parks;
 - (vi) corridors of rivers in the national wild and scenic rivers system and eligible for inclusion in the system;
 - (vii) roadless areas of 5,000 acres or greater in size, managed by federal or state agencies to retain their roadless character;

- (viii) national natural landmarks where recreation is listed as a current site use; natural areas, research natural areas, areas of critical environmental concern, special interest areas, research botanical areas, outstanding natural areas designated by the-national park service, the USDA Forest Service, the Bureau of Land Management, or the State of Montana;
- (ix) national trails;
- (x) streams and rivers listed as class I or II fishery resources by the Montana Department of Fish, Wildlife and Parks; and
- (xi) based on consultation with appropriate local, state, and federal agencies, any other public or private recreational areas or sites receiving extensive public use such as fishing access areas, public and private campgrounds and ski areas, local parks and picnic areas, located within the impact zones.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Pump Station	2008	TROW Engineering
Valve	2008	TROW Engineering
National Natural Landmarks	2008	National Park Service
Agricultural Experiment Station	2008	Montana State University
Airport (public and private airports, private heliport)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Airport CISDM (private and public airports)	2008	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Heliport CISDM (private and public heliports)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
State Park	2008	National Park Service
Tower ASR (communication facility)	2003	USGS, Snake River Field Station, 2003
Tower Cellular (communication facility)	2003	USGS, Snake River Field Station, 2003
Tower IFBS (communication facility)	2003	Federal Communications Commission, Office of Engineering and Technology, USGS, Snake River Field Station, 2003
Tower TV Radio (communication facility)	2008	Montana Department of Administration Information Technology Services Division, GIS Services, Montana State Library, Helena, 2008
Mine	2005	USGS Reston, Virginia, 2005
Montana National Guard	2008	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Lewis and Clark Campsite	2003	Montana State Library, Helena, 2003
Lewis and Clark Trail	2003	Montana State Library, Helena, 2003
Class I and Class II Streams	2007	Montana Fish, Wildlife and Parks
Steele City Segment Routes	2008	TROW Engineering

Data References:

Dataset Title	Year	Source
Pipeline (Cushing Extension)	2008	TROW Engineering
Steele City Segment Routes	2008	TROW Engineering
Pipeline Alternatives Phase I (Gulf Coast Segment, Houston Lateral, Option B, and Option D)	2008	TROW Engineering
Access Roads	2008	TROW Engineering
Electric Transmission Lines 50kV or greater	2008	NA
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File
Incorporated City or Town, Census Designated Place	2001	Montana State Library, Helena, 2001
Stewardship Easements (Montana Fish, Wildlife and Parks; The Nature Conservancy; US Fish and Wildlife Service)	2007	MTNHP, Montana State Library, Helena, 2007
Coal Mine Permit	2006	Montana Department of Environmental Quality (Montana DEQ), Montana State Library, Helena, 2006
BLM Special Management Areas (Area of Critical Environmental Concern)	2007	MTNHP, Montana State Library, Helena, 2007
Wilderness Study Area	2008	
Land Owners	2007	MTNHP, Montana State Library, Helena, 2007
State Park (state park)	2005	USGS, Reston, Virginia
Avoidance Areas (National Wilderness Area, National Wildlife Refuge (USFWS), State Fish, Wildlife and Parks, National Battlefield, Park, Historic Site or Monument (NPS), slope greater than 30 percent)	2007	MTNHP, Montana State Library, Helena, 2007
Indian Lands or Reservations	1991	Montana State Library
Area of Critical Environmental Concern	2007	MTNHP
Ownership (BLM); Bankhead-Jones Land Use Lands (BLM); Bureau of Reclamation; Indian Lands or Reservations; Military Reservations/Corps of Engineers; National Forest Service Land (USFS); National Park Service (NPS); National Wildlife Refuge (USFWS); Private Lands, State Lands, State Fish, Wildlife and Parks, other, water)	2007	MTNHP

Data References:

Dataset Title	Year	Source
BASE LAYERS, NOT IN LEGEND		
Recreation Sites (campground, park, or picnic area)	2007	Montana Fish, Wildlife and Parks, Information Services Division, Information Management Bureau, September 28, 2007
Mine Plants (mine)		
Milepost (ALTERNATIVE, MP_INDEX_10, Alternative A, Y, Alternative A1A, Y, Alternative B, Y)		TROW Engineering
Cities Montana (Population: 0 – 1,000; Population: 1,000 – 10,000; Population: 10,000 – 100,000)	2004	Montana State Library, Helena
Military Installations (U.S. Department of Defense land)	2007	MTNHP
Pipeline Route Canada		TROW Engineering
Communication Facilities (tower ASR, tower cellular, tower IFBS, tower TV radio)	2003	USGS, Snake River Field Station
States	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Townships	1996	Montana State Library
RDS2000 (road class, limited access highway, US highway without limited access, state, and secondary highway local road or city street)	2001	U.S. Census Bureau Geography Division
Major River 100K	1993	Montana State Library
Major Lakes 100K	1993	Montana State Library
National Recreation Area	2005	National Park Service
Roadless Area	2006	USDA Forest Service - Geospatial Service and Technology Center

About Figure 3

Title: Big Game, Fisheries, and Avian Distribution and Habitats

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

- 3.4(1)(b): state or federal waterfowl production areas;
- 3.4(1)(d): designated critical habitat for state or federally listed threatened or endangered species;
- 3.4(1)(i): streams and rivers listed in Montana Department of Fish, Wildlife and Parks river database as being class I or II streams or rivers;
- 3.4(1)(m): the winter distribution of elk, deer, moose, pronghorn, mountain goat and bighorn sheep and areas where they concentrate during severe winters, as identified by the Montana Department of Fish, Wildlife and Parks, the Bureau o Land Management, and the USDA Forest Service;
- 3.4(1)(o): habitats occupied at least seasonally by mountain sheep and mountain goats as identified through consultation with the Montana Department of Fish, Wildlife and Parks;
- 3.4(1)(q): areas with high waterfowl population densities including prime waterfowl habitat that have been identified through consultation with the Montana Department of Fish, Wildlife and Parks and other areas identified by the Montana Department of Fish, Wildlife and Parks or US fish and wildlife service as waterfowl concentration areas or low-level feeding flight paths;
- 3.4(2)(b): any liquid pipeline crossing of a river or stream that is located within 15 miles upstream of a stream or stream reach identified as class I by the Montana Department of Fish, Wildlife and Parks in the Montana rivers database or a diversion for a municipal water supply;
- 3.8(1)(C)(i)(B): crossings of streams identified as having fishery value class I or II by MDFWP.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Pump Station	2008	Trow Engineering
Valve	2008	Trow Engineering
Steele City Segment Routes (Alternative A, Alternative A1A, Alternative B)	2008	Trow Engineering
Avian Species Distribution (raptor nest, sharp-tail grouse distribution)	2001	Montana Fish, Wildlife and Parks
Nesting/Early Brood-rearing and Year-Long Distribution of Sage Grouse	2001	Montana Fish, Wildlife and Parks
Piping Plover Critical Habitat	2001	Montana Fish, Wildlife and Parks
Waterfowl Production Area	2005	MTNHP
Big Game Species Distribution (winter distribution of elk, pronghorn antelope, big horn sheep, white-tailed deer, and mule deer; year-long distribution of big horn sheep)	2008	Montana Fish, Wildlife and Parks
Fisheries Rating (Class I Stream, Class II Stream, stream crossed by pipeline within 15 miles of a Class I stream)	2007	Montana Fish, Wildlife and Parks
Base Layers, not in Legend		

Data References:

Dataset Title	Year	Source
Winter Distribution of Moose	2008	Montana Fish, Wildlife and Parks
Winter Distribution of Mountain Goat	2008	Montana Fish, Wildlife and Parks
Year-Long Distribution of Mountain Goat	2008	Montana Fish, Wildlife and Parks
Major Rivers 100K	1993	Montana State Library
Major Lakes 100k	1993	Montana State Library
Railroad 2003 (railroad, abandoned railroad)	2003	Federal Railroad Administration, Bureau of Transportation Statistics
Indian Reservation	1991	Montana State Library
RDS2000 Road Class (limited access highway, US highway without limited access, state and secondary highway, local road, or city street)	2001	US Census Bureau Geography Division
Townships	1996	Montana State Library
States	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Pipeline Route Canada	2008	TROW Engineering
Cities Montana (Population: 0 – 1,000; Population: 1,000 – 10,000; Population: 10,000 – 100,000)	2003	Montana State Library
Access Roads	2008	TROW Engineering

About Figure 4

Title: Visual Resource Management Areas

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

- 3.4(1)(l): areas where the presence of the facility would be incompatible with published visual management plans or regulations designed to protect viewsheds adopted by federal, state, or local governments;
- 3.4(3)(i): communication facilities;
- 3.4(9): An overview of the landscape aesthetics of the study area;
- 3.7(10): Visual resource and viewer information for any recreation area, national register or national register eligible site, residential area, and highway or county road;

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Pump Station	2008	TROW Engineering
Valve	2008	TROW Engineering
Tower ASR (communication facility)	2003	USGS, Snake River Field Station, 2003
Tower Cellular (communication facility)	2003	USGS, Snake River Field Station, 2003
Tower IFBS (communication facility)	2003	Federal Communications Commission, Office of Engineering and Technology, USGS, Snake River Field Station, 2003
Tower TV Radio (communication facility)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Communication Facilities (tower ASR, tower cellular, tower IFBS, tower TV radio)	2003	USGS, Snake River Field Station
Steele City Segment Routes	2008	TROW Engineering
Access Roads	2008	TROW Engineering
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File
Incorporated City or Town, Census Designated Place	2001	Montana State Library, Helena, 2001
State Parks	2005	USGS, Reston, Virginia

Data References:

Dataset Title	Year	Source
Base Layers, not in Legend		
Milepost (ALTERNATIVE, MP_INDEX_10, Alternative A, Y, Alternative A1A, Y, Alternative B, Y)	2008	TROW Engineering
Cities Montana	2004	Montana State Library, Helena
Military Installations (U.S. Department of Defense land)	2007	MTNHP
Pipeline Route Canada	2008	TROW Engineering
States	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Townships	1996	Montana State Library, Helena
RDS2000 (road class, limited access highway, US highway without limited access, state and secondary highway local road or city street)	2001	US Census Bureau Geography Division
Major Rivers 100K	1993	Montana State Library, Helena
Major Lakes 100K	1993	Montana State Library, Helena
Indian Lands or Reservations	1991	Montana State Library, Helena

About Transmission Line Figure 1

Title: Transmission Line – Avoidance Areas and Ownership with Transmission Lines

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

- 3.2(1)(d): avoidance areas;
- 3.4(1)(a): areas specified in Section 3.2(1) (d) that are located within the study area;
- 3.4(1)(c): national natural landmarks, natural areas, research natural areas, areas of critical environmental concern, special interest areas, research botanical areas, outstanding natural areas designated by the national park service, the USDA Forest Service, the Bureau of Land Management, or the State of Montana;
- 3.4(3)(a): cities, towns and unincorporated communities, and residential clusters of 5;
- 3.4(3)(d): existing federal and state highways, and designated and existing county roads;
- 3.4(3)(d)(i): highways and roads designated as scenic routes or scenic byways by a land management agency;
- 3.4(3)(e): railroads and railroad right-of-ways;
- 3.4(3)(f): electric transmission lines of 50 kV or greater voltage design;
- 3.4(3)(i): communication facilities;
- 3.4(3)(j): military installations;
- 3.4(3)(k): land areas covered by conservation easements;
- 3.4(3)(l): airports and airfields;
- 3.4(3)(m): national trails;
- 3.4(3)(p): mines permitted under Title 82, Chapter 4, MCA;
- 3.4(4)(a): public land owned by federal and state management agency;
- 3.4(4)(b): tribal and Indian reservation land;
- 3.7(15)(a): recreation areas;
- 3.7(15)(b): overlays of recreation areas and sites located within the impact zones for each alternative facility location;
- 3.7(15)(c): information specified in (b) must be provided for the following recreation areas and sites;
 - (i) national wilderness areas;
 - (ii) national primitive areas;
 - (iii) national parks and monuments;
 - (iv) national wildlife refuges and ranges;

- (v) state parks;
- (vi) corridors of rivers in the national wild and scenic rivers system and eligible for inclusion in the system;
- (vii) roadless areas of 5,000 acres or greater in size, managed by federal or state agencies to retain their roadless character;
- (viii) national natural landmarks where recreation is listed as a current site use; natural areas, research natural areas, areas of critical environmental concern, special interest areas, research botanical areas, outstanding natural areas designated by the-national park service, the USDA Forest Service, the Bureau of Land Management, or the State of Montana;
- (ix) national trails;
- (x) streams and rivers listed as class I or II fishery resources by the Montana Department of Fish, Wildlife and Parks; and
- (xi) based on consultation with appropriate local, state, and federal agencies, any other public or private recreational areas or sites receiving extensive public use such as fishing access areas, public and private campgrounds and ski areas, local parks and picnic areas, located within the impact zones.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Pump Station	2008	TROW Engineering
Valve	2008	TROW Engineering
National Natural Landmarks	2008	National Park Service
Agricultural Experiment Station	2008	Montana State University
Airport (public and private airports, private heliport)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
Airport CISDM (private and public airports)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Heliport CISDM (private and public heliports)	2004	USGS, Montana National Spatial Data Infrastructure Partnership Office, Bozeman, 2004
State Park	2008	National Park Service
Tower ASR (communication facility)	2003	USGS, Snake River Field Station, 2003
Tower Cellular (communication facility)	2003	USGS, Snake River Field Station, 2003
Tower IFBS (communication facility)	2003	Federal Communications Commission, Office of Engineering and Technology, USGS, Snake River Field Station, 2003
Tower TV Radio (communication facility)	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008
Mine	2005	USGS, Reston, Virginia, 2005
Montana National Guard	2008	Montana Department of Administration Information Technology Services Division, GIS, Montana State Library, Helena, 2008

Data References:

Dataset Title	Year	Source
Lewis and Clark Campsite	2003	Montana State Library, Helena, 2003
Lewis and Clark Trail	2003	Montana State Library, Helena, 2003
Class I and Class II Streams	2007	Montana Fish, Wildlife and Parks
Steele City Segment Routes	2008	TROW Engineering
Pipeline (Cushing Extension)	2008	TROW Engineering
Steele City Segment Routes	2008	TROW Engineering
Pipeline Alternatives Phase I (Gulf Coast Segment, Houston Lateral, Option B and Option D)	2008	TROW Engineering
Access Roads	2008	TROW Engineering
Electric Transmission Lines 50kV or greater	2008	TROW Engineering
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File
Incorporated City or Town, Census Designated Place	2001	Montana State Library, Helena, 2001
Stewardship Easements (Montana Fish, Wildlife and Parks; The Nature Conservancy; US Fish and Wildlife Service)	2007	MTNHP, Montana State Library, Helena, 2007
Coal Mine Permit	2006	Montana DEQ, Montana State Library, Helena, 2006
BLM Special Management Areas (Area of Critical Environmental Concern)	2007	Montana DEQ, Montana State Library, Helena, 2007
Wilderness Study Area	2003	BLM
Land Owners	2007	Montana State Library, Helena
State Parks	2005	USGS, Reston, Virginia
Avoidance Areas (National Wilderness Area; National Wildlife Refuge (USFWS); State Fish, Wildlife and Parks; National Battlefield Park; historic site or monument (NPS); slope greater than 30 percent)	2007	MTNHP, Montana State Library, Helena, 2007
Indian Lands or Reservations	1991	Montana State Library, Helena
Area of Critical Environmental Concern	2007	MTNHP

Data References:

Dataset Title	Year	Source
Ownership (BLM); Bankhead-Jones Land Use Lands (BLM); Bureau of Reclamation; Indian Lands or Reservations; Military Reservations/Corps of Engineers; National Forest Service Land; National Park Service; National Wildlife Refuge (USFWS), private lands; state lands; State Fish, Wildlife and Parks; other; water)	2007	MTNHP
BASE LAYERS, NOT IN LEGEND		
Recreation Sites (campground, park or picnic area)	2007	Montana Fish, Wildlife and Parks, Information Services Division, Information Management Bureau, September 28, 2007
Mine Plants (mine)	2005	USGS
Milepost (ALTERNATIVE, MP_INDEX_10, Alternative A, Y, Alternative A1A, Y, Alternative B, Y)	2008	TROW Engineering
Cities Montana	2004	Montana State Library, Helena
Military Installations (U.S. Department of Defense Land)	2007	MTNHP
Pipeline Route Canada	2008	TROW Engineering
Communication Facilities (tower ASR, tower cellular, tower IFBS, tower TV radio)	2003	USGS, Snake River Field Station
States	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Townships	1996	Montana State Library
RDS2000 (road class, limited access highway, US highway without limited access, state and secondary highway local road or city street)	2001	US Census Bureau Geography Division
Major Rivers 100K	1993	Montana State Library
Major Lakes 100K	1993	Montana State Library
National Recreation Area	2005	National Park Service
Roadless Area	2006	USDA Forest Service - Geospatial Service and Technology Center

About Transmission Line Figure 2

Title: Transmission Line – Big Game, Fisheries and Avian Distribution and Habitats

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

- 3.4(1)(b): state or federal waterfowl production areas;
- 3.4(1)(d): designated critical habitat for state or federally listed threatened or endangered species;
- 3.4(1)(e): habitats occupied at least seasonally by resident state or federally listed threatened and endangered species;
- 3.4(1)(i): streams and rivers listed in Montana Department of Fish, Wildlife and Parks river database as being class I or II streams or rivers;
- 3.4(1)(m): the winter distribution of elk, deer, moose, pronghorn, mountain goat and bighorn sheep and areas where they concentrate during severe winters, as identified by the Montana Department of Fish, Wildlife and Parks, the Bureau Of Land Management, and the USDA Forest Service;
- 3.4(1)(o): habitats occupied at least seasonally by mountain sheep and mountain goats as identified through consultation with the Montana Department of Fish, Wildlife and Parks;
- 3.4(1)(p): sage grouse and sharp-tailed grouse breeding areas, the winter distribution of sage grouse and sharp-tailed grouse, and areas where they concentrate during severe winters as designated by the Montana Department of Fish, Wildlife and Parks;
- 3.4(1)(q): areas with high waterfowl population densities including prime waterfowl habitat that have been identified through consultation with the Montana Department of Fish, Wildlife and Parks and other areas identified by the Montana Department of Fish, Wildlife and Parks or US fish and wildlife service as waterfowl concentration areas or low-level feeding flight paths; and
- 3.4(2)(b): any liquid pipeline crossing of a river or stream that is located within 15 miles upstream of a stream or stream reach identified as class I by the Montana Department of Fish, Wildlife and Parks in the Montana rivers database or a diversion for a municipal water supply.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Pump Station	2008	Trow Engineering
Valve	2008	Trow Engineering
Steele City Segment Routes (Alternative A, Alternative A1A, Alternative B)	2008	Trow Engineering
Avian Species Distribution (raptor nest, sharp-tailed grouse distribution)	2001	Montana Fish, Wildlife and Parks
Nesting/Early Brood-rearing and Year-Long Distribution of Sage Grouse	2001	Montana Fish, Wildlife and Parks
Piping Plover Critical Habitat		
Waterfowl Production Area	2005	MTNHP

Data References:

Dataset Title	Year	Source
Big Game Species Distribution (winter distribution of elk, pronghorn antelope, big horn sheep; white-tailed deer, mule deer; year-long distribution of big horn sheep)	2008	Montana Fish, Wildlife and Parks
Fisheries Rating (Class I and II Stream; stream crossed by pipeline within 15 miles of a Class I stream)	2007	Montana Fish, Wildlife and Parks
Base Layers, not in Legend		
Winter Distribution of Moose	2008	Montana Fish, Wildlife and Parks
Winter Distribution of Mountain Goat	2008	Montana Fish, Wildlife and Parks
Year-Long Distribution of Mountain Goat	2008	Montana Fish, Wildlife and Parks
Major Rivers 100K	1993	Montana State Library, Helena
Major Lakes 100k	1993	Montana State Library
Railroad 2003 (railroad, abandoned railroad)	2003	Federal Railroad Administration, Bureau of Transportation Statistics
Indian Reservation	1991	Montana State Library, Helena
RDS2000 Road Class (limited access highway, US highway without limited access, state and secondary highway, local road or city street)	2001	US Census Bureau Geography Division
Townships	1996	Montana State Library, Helena
States	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., Redlands, California
Pipeline Route Canada	2008	TROW Engineering
Cities Montana (Population 0; 1,000; 10,000; 10,000-100,000)	2003	Montana State Library, Helena
Access Roads	2008	TROW Engineering

About Transmission Line Figure 3

Title: Transmission Line – Geologic Formations

Summary of Circular MFSA–2 Components Addressed by this Mapbook:

- 3.2(1)(e): for pipelines, avoidance of the areas referenced in (d) and active faults;
- 3.4(1)(s): areas with geologic units or formations that show a high probability of including significant paleontological resources (w) for substations, switching stations, and/or terminus points, active faults; and
- 3.4(1)(w): for substations, switching stations, and/or terminus points, active faults; and
- 3.7(8)(b): mass movement potential, existing areas, bedrock geology and soils, slope aspect, vegetation, and ground water.

(Refer to Circular MFSA-2 2004 Edition for full application requirements)

Data References:

Dataset Title	Year	Source
Sensitive Species Data (sage grouse lek)	2007	Montana Fish, Wildlife and Parks, 2007
Sensitive Species Data (sharp-tail grouse lek)	2008	Montana Fish, Wildlife and Parks, 2008
Sage Grouse Lek Areas	2008	Montana Fish, Wildlife and Parks, 2008
Natural Heritage Species of Concern	2008	MTNHP
Natural Heritage Sites Footprint (ecological site)	2008	MTNHP
Previously Recorded Cultural Sites (quarter sections)	2008	Montana State Historic Preservation Office (SHPO)/AECOM Environment (formerly ENSR Corporation)
Previously Recorded Cultural Sites (half sections)	2008	Montana SHPO/AECOM Environment (formerly ENSR Corporation)
Previously Recorded Cultural Sites (sections)	2008	Montana SHPO/AECOM Environment (formerly ENSR Corporation)
Sensitive Cultural Data (cultural sites)	2008	Montana SHPO/AECOM Environment (formerly ENSR Corporation)
Valve	2008	TROW Engineering
Pump Station	2008	TROW Engineering
Lewis and Clark Campsite	2003	Montana State Library, Helena, 2003
Lewis and Clark Trail	2003	Montana State Library, Helena, 2003
Steele City Segment Routes	2008	TROW Engineering
Access Roads	2008	TROW Engineering

Data References:

Dataset Title	Year	Source
Railroads (railroad and abandoned railroad)	2000	US Census Bureau, TIGER 2000 Line File
Land Owners	2007	Montana State Library, Helena
Base Layers, not in Legend		
Mileposts	2008	TROW Engineering
Pipeline Route Canada	2007	TROW Engineering
Pipe Oil (pipeline 8 inches or greater in diameter, unknown diameter)	2008	Montana State Library, Helena
Electric Transmission Lines 50kV or greater	NA	NA
Canada	2005	ESRI
States	2008	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California, 2008
Scenic Byways	2000	US Census Bureau, TIGER 2000 Line File
Roads (Roads 2000)	2000	US Census Bureau, TIGER 2000 Line File
City or Town	2003	Montana State Library, Helena, 2003
Counties	2005	Tele Atlas North America, Inc./Geographic Data Technology, Inc., ESRI, Redlands, California
PLSS (townships)	1996	Montana State Library, Helena, 1996
PLSS (sections)	1996	Montana State Library, Helena, 1996
MUFSA Mapbook 11x17 100K	NA	NA
UTM 13 NAD83 100K Topo	Various Dates	USGS
Hydrography (NHD area 24K)	2008	USGS cooperation with USEPA Protection Agency, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD waterbody 24K)	2008	USGS cooperation with USEPA Protection Agency, USDA Forest Service, and other federal, state, and local partners
Hydrography (NHD Flowline 24K)	2008	USGS cooperation with USEPA Protection Agency, USDA Forest Service, and other federal, state, and local partners
Hydrography (major rivers 100K)	1993	Montana State Library, Helena, 1993
Hydrography (major lakes 100K)	1993	Montana State Library, Helena, 1993
Military Installations (US Department of Defense land)	1996	Montana State Library, Helena, 1996

Data References:

Dataset Title	Year	Source
Indian Reservations	2004	Montana State Library, Helena
Wilderness Study Area	2003	BLM
Stewardship Easements (Montana Fish, Wildlife and Parks; The Nature Conservancy; US Fish and Wildlife Service)	2007	MTNHP, Montana State Library, Helena, 2007
National Parks and Monuments (National historic site, park, monument, recreation area)	2005	National Park Service, 2005
USFWS Wilderness Area	2003	MTNHP, Montana State Library, Helena, 2003
National Wildlife Refuge	2002	MTNHP, Montana State Library, Helena, 2002
State Wildlife Management Area	2008	Montana Fish, Wildlife and Parks, 2008
Indian Reservations	1991	Montana State Library, Helena, 1991