CONVERSE COUNTY
APPLICATION FOR WIND ENERGY CONVERSION SYSTEM (WECS) USE PERMIT
PIONEER WIND PARK I
AND PIONEER WIND PARK II
February 2011

Prepared for:

Pioneer Wind Park I, LLC

and Pioneer Wind Park II, LLC

Prepared by:

Wasatch Wind

Wasatch Wind Intermountain, LLC
2700 Homestead Road, Suite 210
Park City, UT 84098

APPLICATION FOR WIND ENERGY CONVERSION SYSTEM (WECS) USE PERMIT

(PURSUANT TO W.S. 18-5-501 THROUGH 18-5-513)

FOR FACILITIES WITH GROSS GENERATION OF 0.5 MEGAWATTS OR GREATER

(FOR OFFICE USE ONLY)
CASE NAME/NO. _____
DATE RECEIVED: _____ FEE/AMOUNT PAID: _____
PLANNING COMM. DATE: _____ RECOMMENDATION BY PLANNING COMM.: _____
COUNTY COMM. DATE: _____TIME:_____DECISION BY CO. COMM.: *APPROVED* *DENIED*
CHAIRMAN:_____DATE SIGNED:_____

1. Name of Applicant: **Pioneer Wind Park I, LLC; Pioneer Wind Park II, LLC**

   Phone #: **435-657-2550** Fax #: **435-647-5889**

   Mailing Address: **2700 Homestead Rd., Suite 210, Park City, UT 84098**

   Email: **christine@wasatchwind.com**

   Relationship of Applicant to Property: **Lessee**

   (*Owner, Tenant, Lessee, Other)*

2. A description of the Applicant, Owner and Operator, including their respective business structures:

   Applicants: Pioneer Wind Park I, LLC (PWP I, LLC) and Pioneer Wind Park II, LLC (PWP II, LLC), both duly licensed to conduct business in Wyoming, propose to own, construct and operate the Projects on leased private and Wyoming State Lands located in Converse County, Wyoming. PWP I, LLC and PWP II, LLC are wholly owned subsidiaries of Wasatch Wind Intermountain, LLC (WWI), a Delaware limited liability company duly licensed to conduct business in Wyoming. Pioneer Wind Park, LLC (PWP, LLC) Pioneer Wind Park I, LLC (PWP I, LLC) and Pioneer Wind Park II, LLC (PWP II, LLC) hold all the assets, permits, supply agreements, and power purchase agreements.

   Name of Authorized Agent: **Brett Woodard** Phone #: **435-503-8822**

   Email: **bwoodard@wasatchwind.com** Fax: **435-647-5889**

3. Legal Description of the location the proposed WECS Project (please use additional sheets if necessary):

   See Following Pages

Project Legal Description

Leased Private Lands in and around the Project Area and Transmission Line Corridor

Township	Range	Section	Description
PWP I, LLC			
32 North	75 West	6	Lots 4, 5, 6 and 7 (Now Tract 52); Lot 12 and Tracts 51 A, B, C and D, Tract 58, Lots 8, 9, and 10, SE/4NE/4; SE/4
32 North	75 West	7	Tract 55A, Lots 5, 6, 7 and 8, E/2, E/2W/2
32 North	75 West	8	W/2NW/4
32 North	75 West	17	SW/4SW/4
32 North	75 West	18	Lots 4, 5, 6, 7, 8 and 9, S/2SE/4, SE/4SW/4
32 North	75 West	19	Lots 1, 2, 3, 4, E/2W/2, N/2NE/4, E/2SE/4
32 North	75 West	20	S/2
32 North	75 West	27	Lots 1, 2, 3, 4, 5, 6, 7 and 8, Tract 43
32 North	75 West	28	Lots 1 and 2, NE/4NE/4, W/2NE/4, NW/4SE/4, NW/4, N/2SW/4 Tract 44; (described under original survey as S1/2SW1/4: Section 27) That part of Tract 45, which was described under original survey as E1/2SE1/4: Section 28 Tract 45; that part of Tract 45 that was described under the original survey as SW/4SE/4 of Section 28 and now located in Section 28 and 33; and Lot 3; and S/2SW/4
32 North	75 West	29	ALL
32 North	75 West	30	Lots 1, 2, 3 and 4, E/2W/2, NE/4, N/2SE/4, SW/4SE/4
32 North	75 West	31	Lots 2 and 3, SE/4NW/4, NE/4SW/4, N/2SE/4, NW/4NE/4, S/2NE/4, and 5.0 acres in Lot 4, more particularly described as follows: Beginning at the southwest corner of Section 31, said corner being the common corner to T31 and 32N, R75 and 76W of the sixth principal meridian, thence north 0°23' west a distance of 922.0 feet to the beginning of closed traverse, thence north 0°23' west a distance of 400.0 feet to the northwest corner of the traverse (also northwest corner of Lot 4), thence south 89°38' east a distance of 1089.0 feet. To the northeast corner of traverse, thence south 69°27' west a distance of 1160.0 feet to the point of beginning of the traverse.
32 North	75 West	32	ALL
32 North	75 West	33	NW/4, N/2SW/4, NW/4SE/4, S/2NE/4, Lots 1, 2, 3 and 4
32 North	75 West	34	Tracts 48 and Lots 1, 2, 3 and 4
32 North	76 West	1	Lot 9
32 North	76 West	12	Lots 1, 2 and 3, NE/4SW/4; Tract 56 (formerly SE/4NE/4 and the E/2SE/4 and the SW/4SE/4); Tract 53 Lots B and C of Tract 55

32 North	76 West	13	Lots 4 and 5
32 North	76 West	18	Tract 57; (described under the original survey as Lots 1 and 2 and NE/4NW/4: of Section18, in Township 32 North, Range 75 West and NE/4NE/4 of Section 13, in Township 32 North Range 76 West of the 6th P.M.) in Section 18, Township 32 North, Range 75 West, and in Section 13, in Township 32 North, Range 76 West of the 6th P.M.
32 North	76 West	23	Lots 5, 6, 8, and 10: Tracts 63A, 63B, 63C and 63D (said Tract 63 de-scribed under the original survey as S/2NE/4: N/2SE/4 Tract 64B in Sections 23 and 24, Tracts 64A, 64C and 64D (said Tract 64 described under the original survey as S/2NW/4: NE/4SW/4: NW/4SE/4 of Section 24)
32 North	76 West	24	Lots 1, 4, 5, 6, 8, 9, 10 and 11
32 North	76 West	25	Lots 1, 2, 3, 4, 5, 6 and 7, SW/4NE/4, NW/4NW/4, S/2NW/4, N/2SW/4, SW/4SW/4, Tracts 46-A, 46-B
32 North	76 West	26	ALL
32 North	76 West	27	E/2NE/4, S/2SW/4NW/4, N/2SW/4, S/2NW/4SE/4
32 North	76 West	28	Lots 1, and 2, SE/4NE/4, SE/4
32 North	76 West	33	Lots 4, 5 and 6, NE/4, N/2SE/4 NE/4SW/4
32 North	76 West	34	Lots 1, 2, 3, 4, and 5, N/2NE/4, SW/4NE/4, W/2NW/4, N/2SW/4, SE/4SE/4 (Now that part of tract 69)
32 North	76 West	35	Lots 1, 2, 3, 4, 5, 6 and 7: W/2NE/4: NW/4: NW/4SE/4 That part of Tract 69 in Sections 34 and 35 which was described under the original survey as NW/4SW/4 of Section 35, SW/4SW/4 (Now that part of Tract 69)
32 North	76 West	1	Lot 9
32 North	76 West	12	Lots 1, 2 and 3, NE/4SW/4; Tract 56 (formerly SE/4NE/4 and the E/2SE/4 and the SW/4SE/4); Tract 53 Lots B and C of Tract 55
32 North	76 West	13	Lots 4 and 5

Leased Private Lands in and around the Project Area and Transmission Line Corridor

PWP II, LLC			
31 North	75 West	4	Lots 7 and 8
31 North	75 West	5	Lots 1, 2, 3 and 4, S/2N/2
31 North	75 West	6	ALL
31 North	75 West	7	Lots 1 and 2, E/2NW/4
31 North	75 West	8	NE/4
31 North	75 West	9	S/2NE/4, NW/4, S/2
31 North	75 West	10	SW/4NE/4, S/2NW/4, SW/4, W/2SE/4
31 North	75 West	17	NE/4, That part of the NW/4 lying north of the county road 18 known as Mormon Canyon Road
31 North	75 West	18	Lots 1, 2, 3 and 4, that part of the NE/4:NW/4 and the NE/4 lying north of the County Road 18 known as Mormon Canyon Road
31 North	75 West	19	Lots 1, 2 and 3, NE/4SW/4, N/2SE/4
31 North	76 West	1	Lots 1, 2, 3, 4, SW/4, S/2NW/4, SW/4NE/4, NW/4SE/4, Pt. SW/4SE/4 lying west of the centerline of the Mormon Canyon Road County Road #18, Pt. E/2E/2 lying west of the centerline of the Mormon Canyon Road County Road #18
31 North	76 West	2	Lots 1, 2, 3 and 4, S/2N/2, NE/4SW/4, SE/4
31 North	76 West	3	Lots 1, 2 and 4, S/N/2, S/2
31 North	76 West	4	Lots 1, 2, 3 and 4, S/2N/2, S/2
31 North	76 West	5	S/2SE/4, and that part of the NE/4SE/4 of Section 5 lying South of the drift fence, and more particularly described by metes and bounds as follows, to-wit: Beginning at a point which is 1320 feet North of the SE Corner of Section 5 and which point is the SE Corner of the NE/4SE/4 of Section 5. Thence proceed along the Forty line West 1320 feet to the SW Corner of the NE/4SE/4 Section 5. Thence proceed North along the Forty line 385 feet to the present drift fence. Thence proceed along the drift fence North 79° East 370 feet to a bend in the fence. Thence proceed along the fence North 49° East 355 feet to a bend in the fence. Thence proceed along the fence North 63°30' East 270 feet to a bend in the fence. Thence proceed along the fence South 82° East 345 feet to a point on the East line of the NE/4SE/4 of Section 5. Thence proceed South along the Forty line 768 feet to our point of beginning, the SE Corner of the NE/4SE/4 of Section 5.
31 North	76 West	8	E/2, S/2NW/4, E/2SW/4
31 North	76 West	9	ALL
31 North	76 West	10	ALL
31 North	76 West	11	NE/4, S/2

31 North	76 West	12	NE/4NE/4, S/2NE/4, NE/4SE/4, That part of the NW/4NE/4, W/2SE/4 and SE/4SE/4 lying east of the County Road 18 known as Mormon Canyon Road Pt. NW/4NE/4, and that part of the S/2, lying west of the centerline of the Mormon Canyon Road County Road #18
31 North	76 West	13	ALL
31 North	76 West	14	ALL
31 North	76 West	15	ALL
31 North	76 West	16	ALL
31 North	76 West	17	E/2, E/2W/2, W/2SW/4
31 North	76 West	20	NE/4, E/2SE/4
31 North	76 West	21	N/2, SE/4, E/2SW/4, SW/4SW/4
31 North	76 West	22	ALL
31 North	76 West	23	N/2NW/4, E/2
31 North	76 West	24	ALL
31 North	76 West	26	N/2, N/2S/2, SW/4SW/4, SE/4SE/4
31 North	76 West	27	ALL
31 North	76 West	28	ALL

Leased Private Lands in and around the Project Area and Transmission Line Corridor

Transmission Line Corridor			
32 North	76 West	1	Lots 5, 6, 7 and 8, SW/4NW/4, SE/4NW/4, SW/4
32 North	76 West	11	Lots 1 and 2, S/2SW/4, S/2NE/4, SE/4
32 North	76 West	12	N/2NW/4, SW/4NW/4, NW/4SW/4, S/2SW/4
32 North	76 West	13	Lots 2 and 3, NW/4NW/4, S/2NW/4, SW/4, NW/4SE/4, SW/4SE/4
32 North	76 West	14	N/2, SE/4, N/2SW/4, SW/4SW/4
32 North	76 West	23	Lots 1 and 2
32 North	76 West	24	Lots 2 and 3

State Lands (Lease Application Pending) within the Proposed Project Area

Township	Range	Section	Description
PWP I, LLC			
32 North	75 West	30	SE/4SE/4
32 North	75 West	31	Lot 1, NE/4NW/4, NE/4NE/4
32 North	76 West	36	Tract 47 (formerly known as Section 36)
PWP II, LLC			
31 North	75 West	5	S/2
31 North	75 West	7	Lots 3 and 4, E/2SW/4, E/2
31 North	75 West	8	W/2, SE/4
31 North	76 West	2	S/2SW/4, NW/4SW/4
31 North	76 West	11	NW/4
31 North	76 West	12	NW/4

Project Summary

Converse County WECS Use Permit

4.

a. Certification that demonstrates reasonable efforts have been undertaken by the applicant to provide notice, in writing, to all owners of land within one (1) mile of the proposed WECS Project, and to all cities and towns located within twenty (20) miles of the WECS Project. Notice shall include a general description of the project including its location, anticipated dates for commencement of construction and operations, projected number of turbines and the likely routes of ingress and egress.

   i. The name(s), address(es), phone number(s) and email(s) of the Applicant(s), Owner(s) and Operator(s), and all participating property owner(s) owning land included in the project;
   ii. The name(s), address(es), and phone number(s) of all non-participating adjacent property owner(s) within one (1) mile of the WECS project site;

See Section A for a copy of the notification letter, the list of participating and non-participating owners of land within one (1) mile and cities and towns notified and USPS certified delivery receipts and/or tracking information.

See Appendix 1 for certification of reasonable effort.

b. Certification that notice of the proposed wind energy facility will be published in a newspaper of general circulation in Converse County at least twenty (20) days prior to the public hearing required by W.S. 18-5-506. The notice shall include a brief summary of the wind energy facility, invite the public to submit comments and identify the time and date of the hearing.

See Section B for a copy of the proposed public hearing notification to be published in the Converse County newspapers of The Glenrock Independent and The Douglas Budget.

See Appendix 1 for certification of intent to publish.

c. Certification that the proposed wind energy facility will comply with all the standards required by W.S. 18-5-504.

See Section C for a list of the standards and how PWP I, LLC and PWP II, LLC will comply. Also included are copies of required waivers concerning the setback distance from a permanent residential dwelling, and notice to record owners and claimants of mineral rights.

See Appendix 1 for certification of compliance.

d. Certification that the proposed wind energy facility will comply with all the applicable zoning and county land use regulations, which regulations shall be no less stringent than the standards required by these regulations.

See Appendix 1, Certification Statement.

e. Certification that a written emergency management plan has been submitted for review and comment to the Converse County Fire Warden, the Converse County Emergency Management Coordinator and the Converse County Sheriff.

See Section E for a copy of the cover letter accompanying the Emergency Management Plan and the USPS certified delivery receipts.

See Appendix 1 for certification of submittal.

Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC further acknowledge that following issuance of the WECS Use Permits, the EMP will be supplemented and revised should any variations in the facility's construction occur which would materially impact the original document.

f. Provide a waste management plan that includes an inventory of estimated solid wastes, and a proposed disposal program for the following:

See Section F for a copy of the PWP I, LLC and PWP II, LLC Waste Management Plan.

g. Provide evidence sufficient for the Converse County Commissioners to determine if the proposed wind energy facility has adequate legal access for roads, transmission lines, and other ingress/egress.

i. Roads: **Access to each turbine across leased lands has been granted via leases with landowners. See Section G for example language provided in the private landowner lease agreements concerning access roads within Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC.**

ii. Transmission Lines: **Access to build the private connection line to the existing PacifiCorp line has been granted via a lease with a private landowner. See Section G for example language provided in the private landowner lease agreements concerning transmission lines within Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC.**

iii. Any other ingress or egress: **Ingress/Egress to the project sites will be via publicly accessible state and county roads. Should the WECS permits be granted, road use agreements with both Converse County and WYDOT will be negotiated. Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC have met with WYDOT on several occasions to this end.**

h. The application also shall describe how private roadways within the facility will be marked as private roadways and shall acknowledge that Converse County will not accept any dedication of the private roadways to the public use, nor is Converse County responsible for any repairs or maintenance of the private roadways.

All project roadways will be clearly signed as private roads at each point they connect with public roadways and at any other intersections where other authorized users of private roadways may encounter project access roadways. Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC acknowledge that Converse County will not accept any dedication of the private roadways to the public use, nor is Converse County responsible for any repairs or maintenance of the private roadways.

The application also shall include a traffic study of any public roadways leading to and away from the proposed facility and the Converse County Commissioners shall require the applicant to enter into a reasonable road use agreement for the use of County roads prior to construction of the facility.

See Section H for copy of the traffic study

Should the WECS Use Permits be issued, PWP I, LLC and PWP II, LLC acknowledge that road use agreements must be negotiated with Converse County prior to the start of construction. Failure to enter into such agreements would constitute noncompliance with terms and conditions of the WECS Use Permits and result in revocation of the Permits.

i. Provide a project plan indicating the proposed roadways, tower locations, substation locations, transmission, collector and gathering lines and other ancillary facility components. If the application is granted, the Converse County Board of Commissioners shall require that the project plan be revised to show the final location of all facilities.

See Section I for Project Plan and Map.

Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC acknowledge that if this permit is granted, it will be for the equipment described within this permit.

j. Certification that there shall be no advertising or promotional lettering on any tower, turbine, nacelle or blade beyond the manufacturer's or the applicant's logo on the nacelle of the turbine.

See Appendix 1, Certification Statement.

k. Provide a site and facility reclamation and decommissioning plan which indicates the planned life of the wind energy facility and the means by which the facility and its site will be decommissioned and reclaimed at the end of the facility's life and which certifies that any owner of land within the wind energy facility and its site who is not the applicant has been consulted in development of the reclamation and decommissioning plan. Such plan shall comply with all requirements adopted by the Industrial Siting Council under W.S. 35-12-105 (d). If the permit is granted, the plan shall be updated every five (5) years until site reclamation and decommissioning is complete.

See Section K for copy of Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC Reclamation and Decommissioning Plan, and example language provided in the private landowner lease agreements concerning decommissioning.

If the WECS Use Permits are granted, PWP I, LLC AND PWP II, LLC shall update the plan every five (5) years until sites' reclamation and decommissioning is complete.

l. For wind energy facilities not meeting the definition of a facility as defined in W.S. 35-12-102 (a)(vii), provide a detailed summary of any significant adverse environmental, social or economic effects that the proposed wind energy facility may have together with any preliminary plans developed to alleviate any of the adverse effects.

Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC meet the definition of a facility as defined in W.S. 35-12-102(a)(vii) and has submitted a Section 109 Permit Application with information pertaining to environmental, social and economic effects.

m. A wind energy facility subject to this article shall meet the requirements adopted pursuant to W.S. 35-12-105 (d) and (e) regardless of whether the facility is referred to the industrial siting council pursuant to W.S. 18-5-509 or is otherwise subject to the industrial siting act.

To finance the construction, operation, decommissioning and reclamation of the Projects, Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC will join with a financial partner that not only understands the nuances of wind farm financing, but also has extensive experience operating wind energy facilities and other energy assets. This financial partner will have the financial capability and be able to provide the financial assurances required under the Industrial Siting Act.

Landowner and Municipal Notifications

January 7, 2011

Marvin M Howrey
2111 E. Azalea Drive
Chandler, AZ 85286

RE: **Proposed Pioneer Park Wind Energy Project, Converse County, Wyoming**

Dear Marvin M Howrey:

Pioneer Wind Park, LLC (PWP), a wholly owned subsidiary of Wasatch Wind Intermountain, LLC (WWI), is pleased to announce the proposed Pioneer Wind Park I (PWP I) and Pioneer Wind Park II (PWP II) (the Projects), to be located in Converse County, Wyoming (See Map Project Location in Attachment 1). We are sending this letter to all landowners within one mile and all cities and towns within 20 miles of the proposed Projects, pursuant to the Converse County Wind Energy Siting Regulations. We plan to submit the permit application in 2011.

General Description of Pioneer Wind Park

PWP plans to own, construct, and operate the Projects, which are proposed to be located on leased private lands and Wyoming State School Trust lands. The Pioneer Wind Park consists of two 50 MW wind energy generation facilities. The power from the Projects has been contracted for sale via two 50 MW Power Purchase Agreements with PacifiCorp (doing business as Rocky Mountain Power in Wyoming). Construction of PWP I is anticipated to begin in 2011 and construction of PWP II in 2012. Each project will consist of 31 wind turbine generators (WTGs).

Implementation of the Project will include the engineering, procurement, and construction of all equipment and facilities necessary for a fully operational wind energy electrical generation project.

Location

The proposed area is located in Converse County, Wyoming (see map in Attachment 2). The northernmost turbines will be located approximately nine miles south of Glenrock near Mormon Canyon Road. An approximately six-mile segment of 230 kilovolt (kV) transmission line will be constructed by PWP and run from a planned collector substation within the project area to an existing 230 kV transmission line owned by PacificCorp-Rocky Mountain Power. The transmission line interconnect site will be located approximately six miles south of Glenrock and west of Converse County Road 18.

Construction Schedule

PWP initiated preliminary geotechnical investigation and surveying work in June 2010. The construction of the Projects will occur in two phases. PWP I will include building 31 WTGs and necessary support buildings, access roads and transmission lines over a period of approximately seven months, with commencement of construction activities anticipated to begin in early June, 2011. PWP II will include building the remaining 31 WTGs in an approximately six-month period, with construction anticipated to start in July 2012. Commercial operation of PWP I will begin in December 2011 and PWP II will begin commercial operation in December 2012.

All required permits will be obtained prior to construction. Access roads for PWP I and much of PWP II are anticipated to be constructed during the months of June and July, 2011. All other pertinent structures for PWP I (substation, O&M building, tower foundations, etc) will be built between mid-July and mid-October, 2011. Additional remaining road construction for PWP II will be completed between July and August, 2012. Turbine erection for PWP II and the construction of related infrastructure will be completed between mid-July and mid-October, 2012.

Transportation – Ingress and Egress

PWP will work with Converse and Natrona Counties and WYDOT officials to address potential impacts to roads and highways. It is anticipated that PWP will enter into the appropriate agreements for use of roads with WYDOT and with the counties, as necessary and appropriate, for improving or repairing any affected roads. PWP is currently considering two options for access to the project area using the existing Converse County roads, Mormon Canyon Road and Windy Ridge Road. The final access route decision will be made after consultation with Converse County and WYDOT officials.

Continued

We appreciate your consideration of the enclosed information. Please feel free to contact myself or Sam Lichenstein, Director of Land Acquisition, if you'd like to discuss this information further. Sam can be reached at: slichenstein@wasatchwind.com or 307-215-0054.

Respectfully,

Christine Watson Mikell
Director of Development
Wasatch Wind Intermountain, LLC

Christine@wasatchwind.com
801-455-1045

Enclosures:

Pioneer Wind Park Fact Sheet

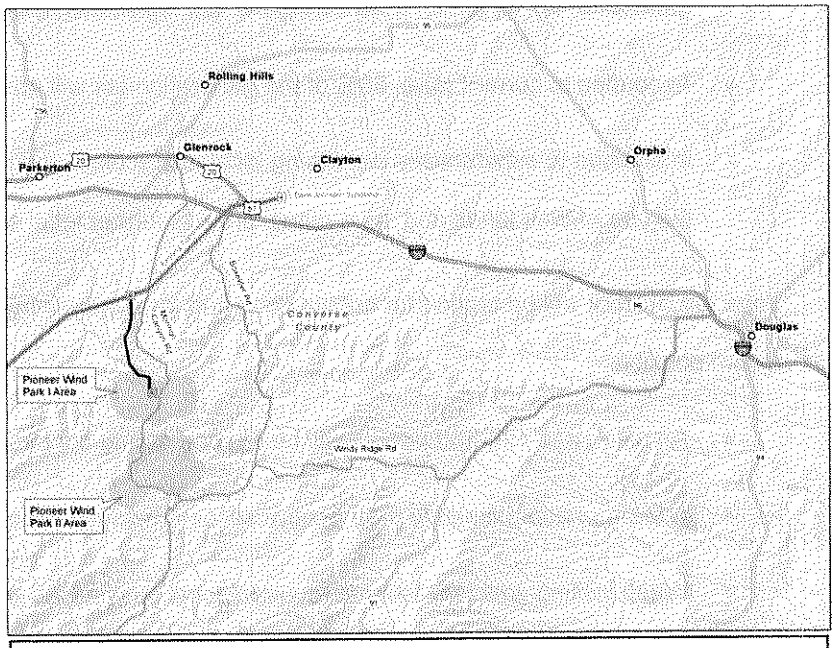
Attachment 1 – Map of Project Location

Attachment 2 – Map of Project Area

The Pioneer Wind Park is a proposed wind energy facility in Converse County, Wyoming, consisting of two 50 MW projects. The first project is expected to begin commercial operations by the end of 2011. Wasatch Wind is working closely with Converse County and the communities of Converse County and the surrounding areas to ensure that issues important to the area are considered and that the community will benefit from the significant contributions that the Pioneer Wind Park will bring to the region.

Pioneer Wind Park Facts

- *Size*: Two 50 MW projects (Pioneer Wind Park I and II)
- *Location*: Approx seven miles south of Interstate 25 and nine miles south of the town of Glenrock
- *Operation Date*: First 50 MW expected to be operational by the end of 2011
- *Turbines*: 31 Turbines per Project
- *Lands*: Primarily private lands. Lease application for State Lands pending.
- *Transmission*: The Park will connect to an existing Rocky Mountain Power 230 kV line approximately six miles north of the project. The connection line will be developed by the Pioneer Wind Park and will cross private lands already under lease.

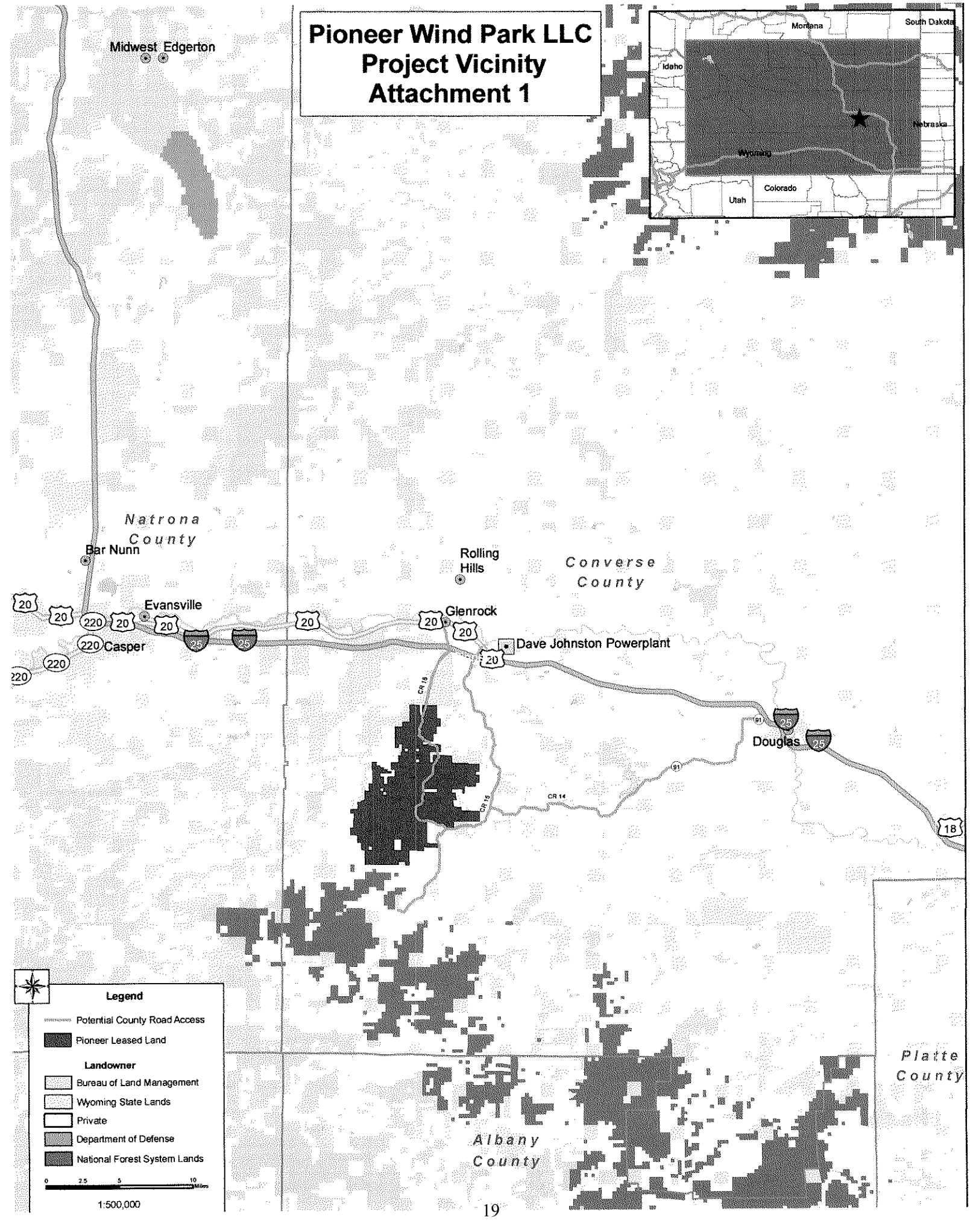


The above map shows the areas being considered for turbine placement for Pioneer Wind Park I and II, as well as the intended transmission route to connect Pioneer Wind Park to an existing Rocky Mountain Power 230 kv line.

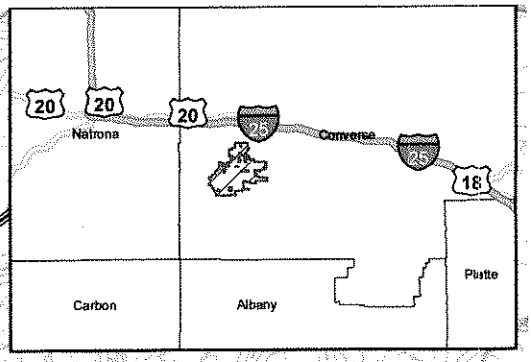
- *Wildlife*: Entire Park area is outside of core sage grouse habitat. Closely coordinating with Wyoming Game and Fish Department. Environmental and cultural studies underway.
- *Market for Power*: Rocky Mountain Power has committed to purchase the power from the Pioneer Wind Park through two, 20-year Power Purchase Agreements. Rocky Mountain Power will use the energy produced by each project to meet the growing needs of customers in Wyoming and the other states the company serves.
- *Permits Sought:* Working to obtain permits from Wyoming's Industrial Siting Council and from Converse County. In doing so we continue to work with Converse County, local governments and the public on issues important to the area.
- *Electricity Output:* At full output over the course of a year, the Pioneer Wind Park will generate power equivalent to meet the annual energy needs of at least 35,000 homes per year.

Updated November 2010

Pioneer Wind Park LLC
Project Vicinity
Attachment 1



Pioneer Wind Park LLC
Proposed Project Area
Attachment 2



CR 19
CR 18
CR 20
CR 17a
Duck Creek Rd
Duck Creek Rd
Mormon Canyon Rd
Boxelder Rd
CR 17

Legend

- Existing MET Towers
- Existing Transmission
- Pioneer Area Leased Lands
- State Lands - Lease Pending
- Pioneer Area - Lease Pending
- Proposed Pioneer Project Area
- Proposed Transmission Corridor

0 0.5 1 2 Miles

1:100,000

Participating Landowner	Principal Landowner Contact	Phone Number	Email	Address	Acres
Cole, Daniel L. Et Ux	Danny Cole	307-358-2436 or 307-358-5765	powderhorn307@hotmail.com	220 S. RIVERBEND DR DOUGLAS, WY 82633	1,556
Danaher, Annie L. Et Al Trustees	Joe Danaher (Son) or Twinkie Wickett (Daughter)	307-436-8834 (Joe) 307-436-2647 (Twinkie) 307-436-5349	hummerw@msn.com	P.O. BOX 102 GLENROCK, WY 82637	120
Grant, Richard C. Jr.	Rick Grant	307.262.6977	rcg_ranch@hotmail.com	199 BOXELDER RD GLENROCK, WY 82637	5,754
Hakalo Family Trust	Lois P. Hakalo	307-436-2672		P.O. BOX 773 GLENROCK, WY 82637	1,760
Hardesty Revocable Trust	Mike Leyba	307.234.1503	leybamike@aol.com	854 S. GRANT CASPER, WY 82601	1,614
Hiser, Margaret A.	Peg or Tim and Craig	307-717-0717 (Peg) 307-436-8727 (Craig)	domouse@vcn.com, bhiser@wyoatty.com	138 N. 6TH ST. DOUGLAS, WY 82633	5,003
Marilyn Nida Howrey		307-262-6288 (Cell) 307-436-9600 (Home) 307-436-5325 (Sister)		P.O. BOX 1527 GLENROCK, WY 82637	364
Howrey, Marvin M		480-322-9348	marv.howrey@yahoo.com	2111 E. AZALEA DR CHANDLER, AZ 85286	200
Howrey, Monte W.		605-456-3313	ha@sdplains.com	13780 REMINTON RD VALE, SD 57788	240
Sno-Shoe Ranches Inc.	Rachel Grant	307.436.2420	willandrachel@hotmail.com	1967 BOXELDER RD GLENROCK, WY 82637	7,380
Stratton, R. Fred Et Ux	Fred & Bobbie Stratton	307-237-1777	fred@realestateincasper.com	941 BOXELDER RD GLENROCK, WY 82637	762
True Ranches, LLC	Bill DeGraeve or Fred Neilsen	307.266.0468 (Bill) 307-267-6005 (Fred)	bdegraeve@truecos.com	DRAWER 2360 CASPER, WY 82602	21,990
Turtle Rock Ranch	Mark Grant	307-436-3490 (Home) 307-259-5013 (Cell)	mhjgrant@hughes.net	1737 BOXELDER RD GLENROCK, WY 82637	10,196

Non-Participating Landowner	Principal Landowner Contact	Phone Number	Email	Address
Hiser, Craig		307-436-8727		P.O. BOX 386 GLENROCK, WY 82637
Lacy Mountain Ranch, LLC	Grady Gaubert			330 COUNTRY CLUB BLVD. THIBODAUX, LA 70301
Pinetree Cattle Company Inc.	George Jackson	307-358-2246		2193 SPRING CANYON RD. DOUGLAS, WY 82633
Pinetree Cattle Company Inc.	Richard Jackson	307-436-2473		P.O. BOX 1509 GLENROCK, WY 82637

Cities and Towns	Principal Contact			Address		
CITY OF CASPER	BILL LUBEN, CASPER CITY ATTORNEY			200 NORTH DAVID CASPER, WY 82601	delivered - received receipt	
CITY OF DOUGLAS	FORREST NEUERBURG			PO BOX 1030 DOUGLAS, WY 82633	delivered - received receipt	
TOWN OF EVANSVILLE				PO BOX 158 EVANSVILLE, WY 82636	delivered - received receipt	
TOWN OF GLENROCK				PO BOX 417 GLENROCK, WY 82637	delivered - received receipt	
TOWN OF ROLLING HILLS				38 SOUTH BADGER GLENROCK, WY 82637	delivered - received receipt	

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Annie L. Danaher
P.O. BOX 102
GLENROCK, WY 82637

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Joe Danaher ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Joe Danaher | C. Date of Delivery 12/28/10

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article *(Transi* 7009 1680 0000 3387 9090

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Daniel L. Cole
220 S. RIVERBEND DR
DOUGLAS, WY 82633

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Cheryl Cole ☐ Agent ☑ Addressee

B. Received by *(Printed Name)* Cheryl Cole | C. Date of Delivery 12/27

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Num *(Transfer fr* 7009 1680 0000 3387 9113

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

24

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Hakalo Family Trust
PO Box 773
~~Glenrock, WY 82637~~

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Jeanetta Richards ☑ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

WY 826 JAN 11 2011 USPS

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7010 0780 0001 8928 7358

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Richard C. Grant, Jr.
199 BOXELDER RD
GLENROCK, WY 82637

COMPLETE THIS SECTION ON DELIVERY

A. Signature
Richard Grant ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Richard Grant | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article *(Trans* 7009 1680 0000 3387 9175

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Margaret A. Hiser
138 N. 6TH ST.
DOUGLAS, WY 82633

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7009 1680 0000 3387 9151

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Hardesty Revocable Trust
Mike Leyba
854 S. GRANT
CASPER, WY 82601

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Bob Hardesty ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Robert Hardesty C. Date of Deliver

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7009 1680 0000 3387 9137

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

25

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Howrey, Monte W.
13780 Reminton RD
Vale, SD 57788

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☑ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7010 0780 0001 8928 7365

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Marilyn Nida
PO Box 1527
Glenrock, WY 82637

JAN 21 2011

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)*

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Fred Stratton
941 BOXELDER RD
GLENROCK, WY 82637

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) FRED STRATTON | C. Date of Delivery 12/25/10

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Artic (Transfer from service label) 7009 1680 0000 3387 9120

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Sno-Shoe Ranches Inc.
Rachel and Will Grant
1967 BOXELDER RD
GLENROCK, WY 82637

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7009 1680 0000 3387 9182

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Turtle Rock Ranch
Mark Grant
1737 BOXELDER RD
GLENROCK, WY 82637

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) Lesli A. Grant | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7009 1680 0000 3387 9205

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

True Ranches, LLC
Bill DeGraeve
DRAWER 2360
CASPER, WY 82602

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7009 1680 0000 3387 9199

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Lacy Mountain Ranch, LLC
330 Country Club Blvd.
Thibodaux, LA 70301

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* L GAUBERT C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7009 1680 0000 3387 9144

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. George Jackson
Pinetree Cattle Co
2193 Spring Canyon Rd
Douglas, WY 82633

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* George Jackson C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

JAN 27 2011

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)*

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

City of Douglas
Attn: Forrest Neuerburg
PO Box 1030
Douglas, WY 82633

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) Amy Spruell | C. Date of Delivery 12.28.10

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service) 7009 1680 0000 3387 9045

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

City of Casper
Attn: Bill Luben, Casper City Attorney
200 North David
Casper, WY 82601

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) Clancy | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Nu (Transfer f 7009 1680 0000 3387 9052

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Town of Glenrock
PO Box 417
Glenrock, WY 82637

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) [illegible] | C. Date of Delivery 12/25/10

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service 7009 1680 0000 3387 9076

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Town of Evansville
PO Box 158
Evansville, WY 82636

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) Sharon Harmon | C. Date of Delivery 12/27/10

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article N (Transfer 7009 1680 0000 3387 9083

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Town of Rolling Hills
38 South Badger
Glenrock, WY 82637

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Terry Flynn ☐ Agent ☐ Addressee

B. Received by (Printed Name) Terry Flynn C. Date of Delivery 12/27

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
*(Transfer from service l*abel) 7009 1680 0000 3387 9069

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154

Michelle Stevens

From: Marv Howrey [marv.howrey@yahoo.com]
Sent: Wednesday, January 19, 2011 10:35 PM
To: Michelle Stevens
Subject: Re: Certified Mail

Hi Michelle,

I did receive the the certified mail.

Thanks,
Marv

--- On **Wed, 1/19/11, Michelle Stevens** <*mstevens@wasatchwind.com*> wrote:

From: Michelle Stevens <mstevens@wasatchwind.com>
Subject: Certified Mail
To: "Marv Howrey" <marv.howrey@yahoo.com>
Date: Wednesday, January 19, 2011, 9:43 PM

Hey Marv.

USPS is telling me you received your certified mailing yesterday! Are they correct?

Thanks!

Michelle

Michelle Stevens

Director of Marketing and Communications

Direct: 435-503-8831 or 307-215-0060

Mobile: 435-503-1278

www.wasatchwind.com

Wasatch Wind

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UNITED STATES POSTAL SERVICE®

Track & Confirm

CRAIG HISER

Search Results

Label/Receipt Number: **7009 1680 0000 3387 9106**
Expected Delivery Date: **December 27, 2010**
Class: **First-Class Mail®**
Service(s): **Certified Mail™**
Return Receipt
Status: **Unclaimed**

Your item was returned to the sender on January 13, 2011 because it was not claimed by the addressee.

Detailed Results:

- **Unclaimed, January 13, 2011, 10:09 am, GLENROCK, WY**
- **Notice Left, January 07, 2011, 10:24 am, GLENROCK, WY 82637**
- **Notice Left, December 27, 2010, 3:02 pm, GLENROCK, WY 82637**
- **Acceptance, December 23, 2010, 5:43 pm, PARK CITY, UT 84060**

Track & Confirm

Enter Label/Receipt Number.

Go >

Notification Options

Track & Confirm by email

Get current event information or updates for your item sent to you or others by email. Go >

Monica Bonner

From: Michelle Stevens
Sent: Friday, January 28, 2011 11:21 AM
To: Craig Hiser (craig_hiser@cameco.com)
Cc: Monica Bonner; Sam Lichenstein
Subject: Certified Letter
Attachments: Converse County notification - Craig Hiser.pdf

Contacts: Craig Hiser

Hey Craig!

How are you? I heard you went to the post office to pick up your letter from us and they had just sent it back a little while before you arrived! That is frustrating! I also understand from Sam that you saw a copy of the letter already. But for your records, I wanted to make sure you had your own copy – the one we tried to send to you. So I've attached it to this email! It's identical to the one you already saw except it has your name on it.

Please let me know if you have any questions. Hope you and the girls are well.

Michelle

Michelle Stevens
Director of Marketing and Communications
Direct: 435-503-8831 or 307-215-0060
Mobile: 435-503-1278
www.wasatchwind.com

Wasatch Wind

clean energy. clean air. clean earth.

UNITED STATES POSTAL SERVICE®

Track & Confirm

PINETREE CATTLE COMPANY INC.

Search Results

Label/Receipt Number: **7009 1680 0000 3388 6081**
Expected Delivery Date: **January 21, 2011**
Class: **First-Class Mail®**
Service(s): **Certified Mail™**
Return Receipt
Status: **Notice Left**

We attempted to deliver your item at 9:48 am on January 21, 2011 in GLENROCK, WY 82637 and a notice was left. You may arrange redelivery by visiting www.usps.com/redelivery or calling 800-ASK-USPS, or may pick up the item at the Post Office indicated on the notice. If this item is unclaimed after 15 days then it will be returned to the sender. Information, if available, is updated periodically throughout the day. Please check again later.

Detailed Results:

- **Notice Left, January 21, 2011, 9:48 am, GLENROCK, WY 82637**
- **Acceptance, January 19, 2011, 4:20 pm, PARK CITY, UT 84098**

Track & Confirm

Enter Label/Receipt Number.

Go >

Notification Options

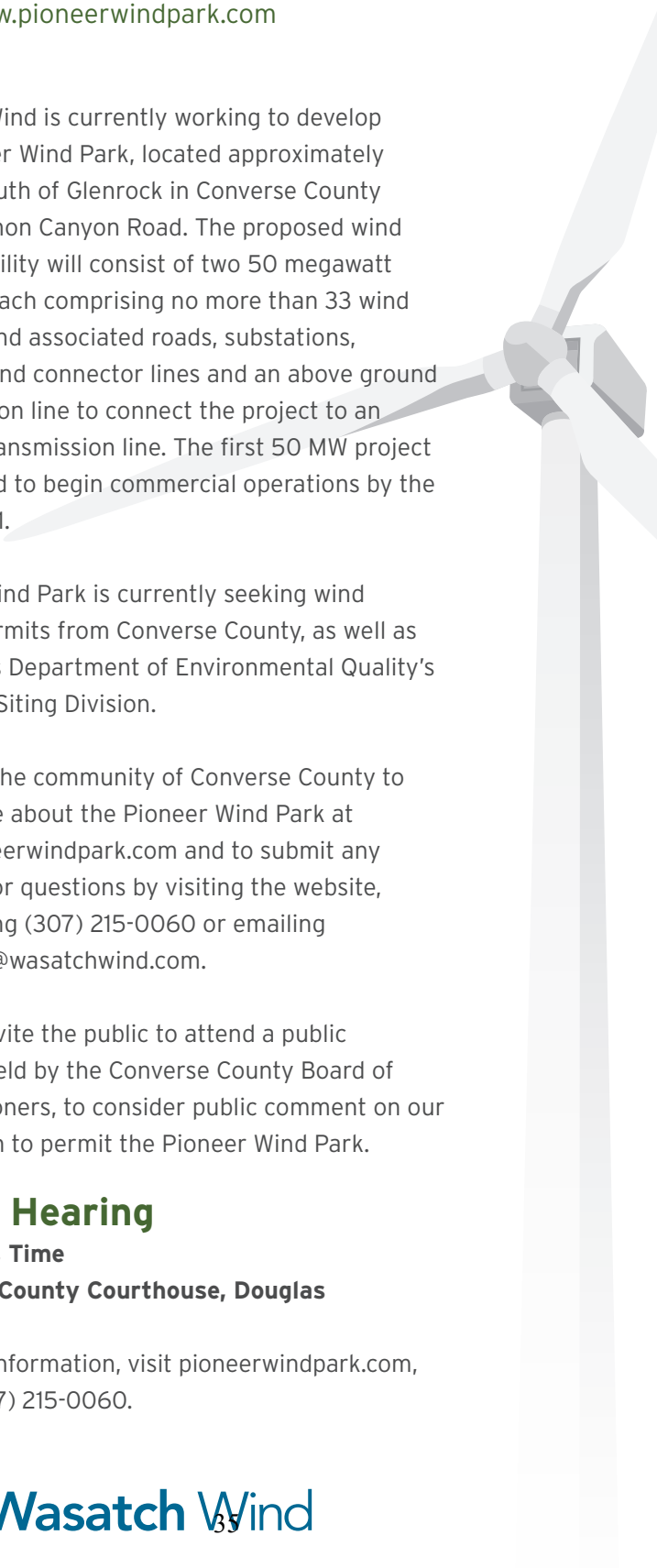
Track & Confirm by email

Get current event information or updates for your item sent to you or others by email. Go >

Public Hearing Publication

Pioneer Wind PARK

www.pioneerwindpark.com



Wasatch Wind is currently working to develop the Pioneer Wind Park, located approximately 9 miles south of Glenrock in Converse County near Mormon Canyon Road. The proposed wind energy facility will consist of two 50 megawatt projects, each comprising no more than 33 wind turbines and associated roads, substations, underground connector lines and an above ground transmission line to connect the project to an existing transmission line. The first 50 MW project is expected to begin commercial operations by the end of 2011.

Pioneer Wind Park is currently seeking wind energy permits from Converse County, as well as Wyoming's Department of Environmental Quality's Industrial Siting Division.

We invite the community of Converse County to learn more about the Pioneer Wind Park at www.pioneerwindpark.com and to submit any feedback or questions by visiting the website, or by calling (307) 215-0060 or emailing mstevens@wasatchwind.com.

We also invite the public to attend a public hearing, held by the Converse County Board of Commissioners, to consider public comment on our application to permit the Pioneer Wind Park.

Public Hearing

Day, Date, Time
Converse County Courthouse, Douglas

For more information, visit pioneerwindpark.com, or call (307) 215-0060.

Wasatch Wind

Setback Waivers

Minimum Standards. (W.S. 18-5-504)

For the Pioneer Wind Park projects, the maximum height of a tower (the height from the base of a turbine to the tip of a blade at its apex) is 397.7 feet.

110% of maximum height of tower = 437.47 feet (.083 miles)
5.5 times maximum height of tower = 2,187.35 feet (.41 miles)
Ten (10) times the maximum height of the tower = 3,977.5 feet (.75 miles)

1. **Property Line:** Certify that the base of any tower is located at a distance of no less than one hundred ten percent (110%) of the maximum height of the tower from any property line contiguous or adjacent to the facility.

   The nearest turbine in Pioneer Wind Park I and II to the nearest property line is 2059.3.

2. **Roads:** Certify that the base of any tower is located at a distance of no less than one hundred ten percent (110%) of the maximum height of the tower from any public road right-of-way.

   Mormon Canyon Road is the closest public road to the projects. Under the current site plan, the nearest turbine to Mormon Canyon Road in PWP I is approximately 690 feet away. In PWP II, the nearest turbine to Mormon Canyon Road is approximately 1,420 feet away. This is illustrated in our site plan.

3. **Platted Subdivision**: Certify that the construction of any tower or other structure, other than underground structures, transmission lines, roadways and structures appurtenant to roadways, at a distance of no less than five and one-half (5.5) times the maximum height of the tower, but in no event no less than one thousand (1,000) feet from any platted subdivision

   The closest platted subdivision to a structure in the Pioneer Wind Park projects is approximately 10 miles away.

4. **Occupied Residences:** Certify that the base of any tower is located at a distance of no less than ten (10) times the maximum height of the tower, but in no event less than one thousand (1,000) feet from a permanent residential dwelling or occupied structure, unless waived in writing by the person holding title to the residential dwelling or occupied structure. If waivers are obtained, supply copies of these waivers. In no case shall the distance from the base of any tower be located less that 110% of the maximum height of the tower from a residential dwelling or occupied structure.

   The nearest permanent residential dwelling or occupied structure to a turbine base is the home of a participating project landowner, located 3537.7 feet from the base of a turbine. A second participating landowner has a residence 3960.2 feet from the base of a turbine. All other residential dwelling or occupied structures are located 4488.2 feet or greater from the base of a turbine.

   The homes of the aforementioned participating landowners are within the setback for Occupied Residence and therefore waivers are included. Both of these occupied residences are greater than 110% maximum height.

5. Certify that the base of any tower is located at a distance of no less than ten (10) times the maximum height of the tower from the limits of any city or town.

The closest city or town limits from the project is the Town of Glenrock, located 8.87 miles away from the closest tower.

Waiver and Release

I, Margaret A. Hiser, aka Margaret A. Fetterman, as the person holding title to a permanent residential dwelling located within the Pioneer Wind Park, am aware of the following minimum standard contained in the Converse County Wind Energy Siting Regulations:

Minimum Standards (WS 18-5-504)

4. Certify that the base of any tower is located at a distance of no less than ten times the maximum height of the tower, but in no event less than one thousand (1,000) feet from a permanent residential dwelling or occupied structure, unless waived in writing by the person holding title to the residential dwelling or occupied structure. If waivers are obtained, supply copies of these waivers. In no case shall the distance from the base of any tower be located less that 110% of the maximum height of the tower from a residential dwelling or occupied structure.

Having reviewed this minimum standard, and having considered its application to me, I do hereby waive the application of this minimum standard as to my property and release Pioneer Wind Park, LLC, and its successors, assigns and affiliates, from its application.

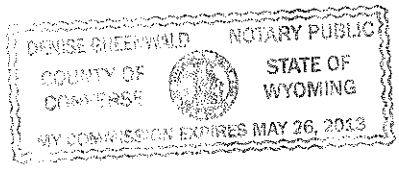
This Waiver and Release shall be effective only during the duration of *Wind Lease Agreement* between Property Owner and Wasatch Wind Development, LLC. Upon the partial or complete termination of said *Wind Lease Agreement* this Waiver and Release shall also terminate. Nothing contained in this waiver releases Wasatch Wind Development, LLC and/or Pioneer Wind Park, LLC; or any their successors and assigns from any other obligation contained in the wind energy ground lease (the *Wind Lease Agreement*) on my property.

Property Owner:

Margaret A. Fetterman

Margaret A. Hiser aka
Margaret A. Fetterman

Date: December 15, 2010



STATE OF WYOMING §
§
COUNTY OF CONVERSE §

The foregoing instrument was acknowledged before me this 15 day of December, 2010, by Margaret A. Hiser aka Margaret A. Fetterman.

Notary Public

My Commission Expires: May 26 2013

Waiver and Release

I, Marilyn J. Nida-Howrey, as the person holding title to a permanent residential dwelling located within the Pioneer Wind Park, am aware of the following minimum standard contained in the Converse County Wind Energy Siting Regulations:

Minimum Standards (WS 18-5-504)

4. Certify that the base of any tower is located at a distance of no less than ten times the maximum height of the tower, but in no event less than one thousand (1,000) feet from a permanent residential dwelling or occupied structure, unless waived in writing by the person holding title to the residential dwelling or occupied structure. If waivers are obtained, supply copies of these waivers. In no case shall the distance from the base of any tower be located less that 110% of the maximum height of the tower from a residential dwelling or occupied structure.

Having reviewed this minimum standard, and having considered its application to me, I do hereby waive the application of this minimum standard as to my property and release Pioneer Wind Park, LLC, and its successors, assigns and affiliates, from its application.

Nothing contained in this waiver releases Pioneer Wind Park, LLC from any other obligation contained in the wind energy ground lease on my property.

Property Owner:

Marilyn J Nida Howrey

Marilyn J. Nida-Howrey

Date: 12-7-2010

STATE OF WYOMING §
§
COUNTY OF CONVERSE §

The foregoing instrument was acknowledged before me this 7th day of December 2010, by Marily J. Nida-Howrey.

KATHERINE L ROBERTS - NOTARY PUBLIC
County of Converse State of Wyoming
My Commission Expires August 9, 2014

Notary Public

My Commission Expires: 8-9-14

Mineral Rights Notifications

Pioneer Wind PARK
A Wasatch Wind Project

Mr. Richard C. Grant
199 Boxelder Rd
Glenrock, WY 82637

November 23, 2010

Dear Mr. Grant:

Re: Notice to Mineral Rights Holders Regarding Two Proposed Pioneer Wind Park Projects Located in Converse County, Wyoming.

Wasatch Wind is currently working to develop the Pioneer Wind Park, located approximately 9 miles south of the Town of Glenrock in Converse County near Mormon Canyon Road. The proposed wind energy facility will consist of two 50 megawatt projects, each comprising 31 wind turbines and associated roads, substations, underground collector lines and an above-ground transmission line to connect the project to an existing transmission line. The first 50 MW project is expected to begin commercial operations by the end of 2011.

Pioneer Wind Park seeks to notify all mineral rights holders (see location information below) in the area of the proposed wind projects of our intention to submit an application to Wyoming's Department of Environmental Quality – Industrial Siting Division to permit the Pioneer Wind Park. This permit application should be available in mid-December at public libraries and local government offices in Glenrock, Douglas, and Casper.

If you have any questions or want more information about the Pioneer Wind Park please visit our website: www.pioneerwindpark.com or call Sam Lichenstein at 307-215-0054.

The Pioneer Wind Park will be located in Township (T) 32 North (N), Range (R) 75 West (W) Sections: 19, 20, 24, 28, 29, 30, 31, 32, 33; T32N R76W Sections: 1, 12, 13, 24, 25, 34, 35, 36; T31N R 75W Sections: 5, 6, 7, 8, 9, 17, 18, 19; T31N R76W Sections: 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, and 24.

Warm regards,

Pioneer Wind Park Development Team

PUBLIC NOTICES

ATTENTION ALL LEGAL ADVERTISERS: ALL LEGALS MUST BE E-MAILED TO budget@netcommander.com

Wasatch-Notice to Mineral Rights...

Notice to Mineral Rights Holders Regarding the Two Proposed Pioneer Wind Park Projects Located in Converse County, Wyoming.

Wasatch Wind is currently working to develop the Pioneer Wind Park, located approximately 9 miles south of Glenrock in Converse County along Mormon Canyon Road. The proposed wind energy facility will consist of two 50 megawatt project segments, each comprising 31 wind turbines and associated roads, substations, underground connector lines and an above ground transmission line to connect the project to an existing transmission line. The first 50 MW project is expected to begin commercial operations by the end of 2011.

Wasatch Wind seeks to notify all mineral rights holders in the area of the proposed wind farm, which is located in Township (T) 32 North (N), Range (R) 75 West (W) Sections: 19, 20, 24, 28, 29, 30, 31, 32, 33; T32N R76W Sections: 1, 12, 13, 24, 25, 34, 35, 36; T31N R 75W Sections: 5, 6, 7, 8, 9, 17, 18, 19; T31N R76W Sections: 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, and 24. It is our intention to submit an application to Wyoming's Department of Environmental Quality – Industrial Siting Division to permit the Pioneer Wind Park. This permit application should be available in mid-December at public libraries and local government offices in Glenrock, Douglas, and Casper.

If Mineral Rights Holders have any questions or want more information about the Pioneer Wind Park please visit our website: www.pioneerwindpark.com or call Sam Lichenstein at 432-230-6344.

Publish November 17, 2010 7334

Emergency Management Plan

Russ Dalgarn
Converse County Emergency Management Coordinator
71 South 200 East
Douglas, WY 82637

February 7, 2011

Dear Mr. Dalgarn,

Please find enclosed a copy of the Pioneer Wind Park I/ Pioneer Wind Park II Emergency Management Plan for your review and comment. I would request that all comments be submitted by February 28th for compilation with the other agencies/individuals reviewing the document.

Following the compilations of all the comments, I would like to schedule another round table discussion at your offices on March 8. Please do not hesitate to contact me should there be any concerns or conflicts with this meeting request.

Kind regards,

Monica R. Bonner
Permitting Manager
Wasatch Wind
Direct 435-503-8823
Office 435-657-2550

Converse County Emergency Agency	Contact	Phone Number	Email	Address
Emergency Management Agency	Russ Dalgarn	307-358-6880 or 307-351-0707	rdalgarn@conversecountyem.com	111 Cedar St. Douglas, WY 82633
Converse County Rural Fire Association	Tom Reed	307-351-7694		1003 Dull Center Rd. Douglas, WY 82633
Converse County Rural Fire Association	Rick Grant	307-262-6977	rcg_ranch@hotmail.com	199 BoxElder Rd Glenrock, WY 82637
Glenrock Fire Department	Jeff Nelson	307-267-7023	glenrockfirechief@msn.com	704 W Birch St, Glenrock, WY 82637
Douglas Fire Department	Rick Andrews	307-358-2334	randrews@arrowelectricinc.com	230 N 2nd St, Douglas, WY 82633
Converse County Ambulance Service	Jay Johnson	307-358-4275	jajohnson@mhccwyo.org	218 N 2nd St, Douglas, WY 82633
Converse County Sheriff	Clint Becker	307-358-4700	clintbecker@sheriff.conversecounty.org	107 N 5th St, Ste 239 Douglas, WY 82633

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City, State, ZIP+4: DOUGLAS, WY 82633

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City, State, ZIP+4: GLENROCK, WY 82637

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Street, Apt. No.; or PO Box No.: 230 No. 2ND ST
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City, State, ZIP+4: GLENROCK, WY 82637

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Street, Apt. No.; or PO Box No.: 218 No. 2ND ST.
City, State, ZIP+4: DOUGLAS, WY 82633

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Sent To: CLINT BECKER
Street, Apt. No.; or PO Box No.: 107 No. 5TH ST., STE 239
City, State, ZIP+4: DOUGLAS, WY 82633

PS Form 3800, August 2006 — See Reverse for Instructions

Waste Management Plan

WASTE MANAGEMENT PLAN

PIONEER WIND PARK I, LLC/PIONEER WIND PARK II, LLC

CONVERSE COUNTY, WYOMING

1 PURPOSE

Solid waste if not properly controlled and disposed of, can be unsightly and cause human safety and health concerns. Uncontrolled hazardous waste can contaminate soils, surface and groundwater, and can be toxic to vegetation, fish and wildlife if ingested in sufficient quantities.

The purpose of this waste management plan is to identify the methodology that Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC will use to mitigate potential impacts resulting from construction and operational waste; and to ensure that their EPC Contractor(s) will comply with all terms and conditions of the WECS Permits.

The following protection measures will minimize the potential environmental effects of solid waste disposal:

- Waste produced during the construction of the PWP I, LLC and PWP II, LLC will be sorted.
- Domestic waste from temporary office quarters will be gathered on a regular basis and stored in closed containers until recycled or disposed.
- Food waste will be stored in a manner that ensures wildlife will not be attracted and will be removed from the site on a daily basis.
- On-site temporary disposal areas for surplus material will be designated.
- The Contractor will designate and use areas for the transfer and limited temporary storage of hazardous materials and special wastes. These sites will be properly labeled and appropriately controlled.
- All surplus materials, rubbish, waste materials and construction debris will be removed from the site upon completion of construction of the PWP I, LLC and PWP II, LLC.
- All waste will be handled in accordance with relevant state and federal requirements.
- Waste material will not be dumped on-site. In such case as waste materials are inadvertently dumped, PWP I, LLC and PWP II, LLC will immediately act to have the dumped material cleaned up and removed.
- No waste or debris will be permitted to enter any watercourse.
- Run-off from a disposal/storage area will not be allowed to enter a watercourse.

2 WASTE STREAMS

2.1 Solid Waste

The generation of solid waste during the construction phases will be handled by a solid waste hauling and management firm contracted by the EPC contractor(s). Two facilities in the area will accept construction waste, one in Glenrock and one in Casper.

Portable haul-off 30-cubic yard dumpsters would be delivered to the Project sites and used to collect construction-generated waste materials. The EPC contractor(s) will solicit waste management bids prior to construction initiation. The contracted waste hauler will remove the portable dumpsters on a regular basis (7-10 times weekly during height of construction activities) and ensure proper treatment and disposal. There are no plans to store or treat solid waste at the Project sites.

2.2 Fuel and Oil Storage

PWP I, LLC, PWP II, LLC and their EPC contractor(s) will have designated collection points for the Projects. Collection points will consist of 55-gallon drums placed on secondary containment pallets in temporary structures during construction and in permanent structures during operations. It is anticipated that used oil generated and stored at the site will not exceed two or three 55-gallon drums during normal operations. Larger amounts of used oil are expected to be temporarily stored on site during scheduled oil changes for the WTGs, which are expected to occur every three years. PWP I, LLC and PWP II, LLC will comply with the applicable sections of the Federal Standards for the Management of Used Oil (40 CFR Part 279) and will contract with appropriate firms to remove used oil from the site for disposal at properly licensed facilities.

Aboveground fuel storage tanks will be used by the EPC Contractor(s) to facilitate on-site equipment refueling. The storage tanks will comply with applicable rules and regulations. No underground tanks will be used during construction or operation of the projects. All aboveground fuel tanks will have secondary containment systems.

The Projects will include an operations and maintenance (O&M) facility which will store lubricants, oils, grease, antifreeze, degreasers, and hydraulic fluids used in the operation and maintenance of the facility. Spent lubricants, oils, grease, antifreeze, degreasers, or hydraulic fluids will be temporarily held in the O&M building while waiting for delivery to a certified recycling center. The above listed materials will be stored in approved containers located above ground. It is not anticipated that fuel storage will be required on site during operations.

2.3 Hazardous Waste

It is anticipated that minimal or no hazardous wastes will be generated during construction of the Projects and that the Projects will qualify for Conditionally Exempt Generator Status under the Resource Conservation and Recovery Act (RCRA). Potential generation of hazardous wastes could include waste paints, solvents, and lubricants. The quantities of such wastes are expected to be well below regulatory thresholds for being considered Small-Quantity or Large-Quantity Generators under RCRA. Potential U.S. Environmental Protection Agency (EPA) waste codes generated include D001, F003, and F005 wastes.

Any such wastes that are generated will be properly characterized and managed by the EPC contractor(s), by PWP I LLC and PWP II, LLC using established SPCC protocols. It is not anticipated that any onsite treatment, storage, or disposal will occur that would require obtaining hazardous waste permits during the construction period. In addition, any wastes generated from a release will be properly characterized and managed by the EPC contractor(s) and by PWP I, LLC and PWP II, LLC.

During the operations it is anticipated that hazardous waste generation will be either zero or minimal and will be well below the regulatory thresholds for small-quantity or large-quantity program requirements. Once the Projects are in operation, PWP I, LLC and PWP II, LLC will contract services for oil waste disposal from the site. Hazardous material wastes, if generated, will be used and handled in a manner that is protective of human health and environment and that complies with all applicable federal, state, and local rules and regulations.

In consultation with the Converse County Weed and Pest Control District, herbicides may be used to minimize the potential for introduction or spread of noxious weeds. Herbicides will be applied by a licensed professional who will select the appropriate herbicides and apply them in accordance with EPA requirements.

3 SPILL MANAGEMENT

The EPC contractor(s) will develop and implement a SPCC Plan in accordance with Federal standards for oil pollution prevention (40 CFR Part 112) and Solid Waste Rules and Regulations. If fuels and/or other petroleum-based products are spilled during construction of the Projects, a treatment/disposal facility currently permitted by the Solid and Hazardous Waste Division will be contracted to dispose and manage the contaminated soils. The General Contractor will contract with properly licensed firms to clean up contaminated area properly dispose of any oily wastes generated as a result of such releases.

Accidental releases of hazardous materials, such as vehicle fuel during construction or lubricating oil for WTGs will be prevented or minimized through proper containment of these substances during use and transportation to the site. Lubricating oils will be used primarily within the WTGs themselves, where any spill will be contained. Any oil waste, rags, or dirty or hazardous solid waste will be collected in sealable drums and removed for recycling or transported and disposed of by a licensed contractor.

In the unlikely event of an accidental hazardous or non-hazardous materials release, any spill or release will be cleaned up, and the contaminated soil or other materials will be disposed of and treated according to applicable federal, state, and local environmental laws and regulations. A spill kit (which contains items such as absorbent pads) will be appropriately located on site to respond to accidental spills if any were to occur. Employees handling hazardous materials will be instructed in the proper handling and storage of these materials as well as where spill kits are located.

Project Access/Easement

Roads and Soil Surfaces

If Lessee exercises its right under this Lease to construct any road, lane, or route on the Property, Lessee shall consider any Landowner suggested locations for the road, lane, or route, but such suggestions shall not be binding on Lessee. Lessee shall use reasonable efforts to use or improve the existing roads on the Property in order to minimize new road construction. Lessee agrees that at the places where it trenches across any road or roads on the Property, it will fully repair the road bed and surface of the road after any of its operations. Promptly after completion of construction, maintenance or removal operations in connection with this Lease, Lessee shall fill all ruts, holes and other depressions caused by such operations and restore all surfaces utilized to as near normal grade and level as is reasonably practicable. Lessee shall re-plant native grass seed, but not crops or other types of vegetation, on any unimproved portion of the Property that was in native grassland prior to construction, and Lessee shall construct water diversion dikes (spreader dams) where necessary to prevent soil erosion caused by the Wind Energy Project on the Property. During Lessee's construction activities, Lessee shall use commercially reasonable efforts to control noxious weeds on those surface areas of the Property disturbed by Lessee. Upon request by Landowner following the Commercial Operation Date, Lessee shall control noxious weedswithin five (5) feet of the shoulders of any new roads constructed by Lessee on the Property and within twenty (20) feet of Lessee's Wind Power Facilities, up to a maximum of two (2) times in any twelve (12) month period. Such control shall be performed in compliance with applicable county or state regulations and laws by chemical application, mowing or other commercially acceptable method, as elected by Lessee. Notwithstanding anything contained in this Section 12.2, Lessee shall not have primary responsibility for maintenance of existing roads on the Property or for repairing damage to such roads caused by parties other than Lessee, its affiliates, grantees, subcontractors or licensees. Nonetheless, Lessee shall be responsible for repairing all road damage caused by Lessee's operations on the Property hereunder.

Siting of Substations and Overhead Transmission Line

Lessee will consult with Landowner as to the location of substations and overhead transmission lines on the Property, provided, however, that Lessee will retain the right, in Lessee's sole discretion, to determine the location of the substations and overhead transmission lines as required by the Wind Energy Project.

Transmission Facilities Easements

Landowner acknowledges, that Lessee and any Assignee shall have the right to construct, operate and maintain Transmission Facilities on the Property if the Transmission Facilities will be used for the transmission of electrical energy from the Wind Energy Project.

Traffic Study

Conducted by

Civil Engineering Professionals, Inc.

Transportation Facilities/Routes

This section of the permit application identifies expected travel routes for construction materials, personnel and all other transport vehicles associated with construction and operation of the Pioneer Wind Park I and Pioneer Wind Park II. At this time, it is not expected that a substantial volume of rail traffic will be generated by this project. Construction materials will primarily be trucked in via Interstate 25 (I-25).

Key Transport Route Roadways

Various Federal, State and County roadways are likely to be impacted by traffic generated by this project. The following paragraphs identify the roadways that are most likely to be impacted by site-generated traffic. Figure 1 on the following page illustrates the layout of the project area with key transportation features noted.

Interstate 25 (I-25)

Interstate 25 extends south from northern Wyoming through Colorado and into New Mexico. Adjacent to the project site, I-25 is a four-lane divided freeway that extends east from Casper past Glenrock and through Douglas before eventually turning south. There are several I-25 interchanges in the general area between Casper and Douglas. However, three particular interchanges are relevant to the access routes that may be used for this project. The Deer Creek Interchange is located at milepost 165.82 southwest of Glenrock. The interchange provides access to Deer Creek Road (County Road 19), which extends south into a rural area and north into Glenrock (as 4th Street). The East Glenrock Interchange is located at milepost 160.78 southeast of Glenrock. It provides access to Birch Street (US 20/26), which extends northwest into Glenrock. The La Prele Interchange is located at milepost 145.90, approximately four miles northwest of Douglas. The La Prele Interchange provides access to Cherokee Trail (County Road 30), which extends north into a rural area and provides connectivity north and south of the interchange with various other local State and County routes.

Mormon Canyon Road

Mormon Canyon Road (County Road 18) extends south from Birch Street in Glenrock as a winding and narrow two-lane highway. Approximately two miles south of Birch Street, Mormon Canyon Road underpasses I-25 and the paved surface turns to gravel. The underpass has a signed clearance of 16'11". Also at this point, a sign along the roadway informs drivers that the unpaved portion of Mormon Canyon is not maintained from the beginning of November through the end of April. South of I-25, Mormon Canyon Road winds up and across the Deer Creek Range of the Rocky Mountains into the Medicine Bow National Forest. Through this area the roadway is

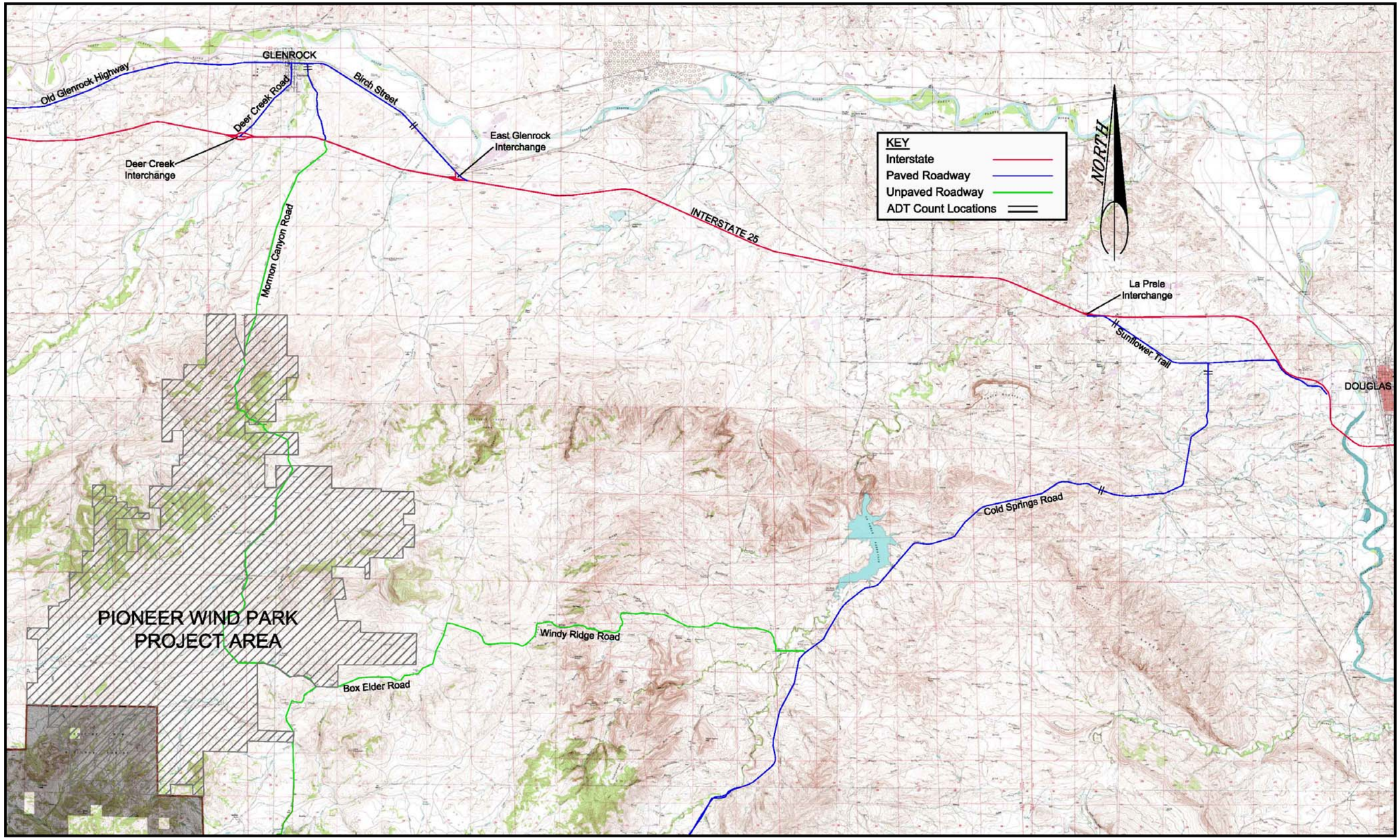


Figure 1. Pioneer Wind Park Area Map

narrow, winding and steep at times with dense foliage and/or rock cliffs along one or both shoulders (see Figure 2). There are no existing bridges on Mormon Canyon Road, but there are several culverts where the road crosses drainage areas (see Figure 3). There are also multiple cattle guards. The roadway width generally varies from 16 feet at the southern end to 24 feet at the intersection with Birch Street. More discussion of the general condition of the roadway is contained in a later section of the report. The measured distance along Mormon Canyon Road from Birch Street to Box Elder Road was 18.0 miles. The Mormon Canyon Road-Box Elder Road intersection is considered to be the common point southern boundary of the project area for the purposes of this study.

Figure 2. Mormon Canyon Road – Mountain

Figure 3. Mormon Canyon Road – Culvert

Birch Street

Birch Street (WY 20/26) extends northwest from the East Glenrock Interchange through Glenrock and on to Casper as the Old Glenrock (State) Highway. Approximately 3.2 miles northwest of the interchange, Birch Street intersects with Mormon Canyon Road. Within Glenrock, Birch Street is a primary east-west oriented through-travel and local business street. It is paved throughout and generally consists of a two-lane rural highway, though a segment of the street through the Glenrock business district is four lanes with curb and gutter. The two-lane highway section is approximately 34 feet wide, with 12-foot travel lanes and 5-foot shoulders.

Sunflower Trail

Sunflower Trail (WY 96) is a two-lane paved rural highway that extends west and southeast from the La Prele Interchange providing access to various rural areas between Glenrock and Douglas. Approximately 3.5 miles southeast of the interchange, Sunflower Trail becomes Cold Springs Road and extends eastward into Douglas. Cold Springs Road also extends south from that intersection. Sunflower Trail has a paved surface width of approximately 24 feet.

Cold Springs Road

Cold Springs Road (WY 91) is a two-lane paved State highway that extends west from the outskirts of Douglas before turning south at its intersection with Sunflower Trail. South of Sunflower Trail, Cold Springs has is a winding and hilly highway with a narrow paved surface (see Figure 4). However, it does not have the same severe grade and alignment concerns as Mormon Canyon Road or Box Elder Road, because it passes through a valley in the mountain range. Approximately 17.1 miles southwest of the La Prele Interchange, Cold Springs Road intersects with Windy Ridge Road, which extends west into the project site area. There are no existing bridges along Cold Springs Road between Sunflower Trail and Windy Ridge Road. However, there is a Pinnacle Materials quarry located along Cold Springs Road (approximately 7.8 miles south of the La Prele Interchange along the travel route) that was generating a substantial volume of truck traffic to and from the Douglas area during the site observation period for this study. Cold Springs Road has a paved surface width of approximately 22 feet. WYDOT is planning a construction project to overlay approximately eight miles of Cold Springs Road from Sunflower Trail south. This project is expected to be constructed in 2011.

Figure 4. Cold Springs Road – Winding Alignment

Windy Ridge Road

Windy Ridge Road (County Road 14) is an unpaved County road that connects Cold Springs Road and Box Elder Road. The road varies in width from approximately 17 feet to 22 feet. There is a small elementary school located approximately ¼ mile west of Cold Springs Road on Windy Ridge Road. Immediately west of the school, the road crosses La Prele Creek. The bridge over the creek is narrowed and degraded (see Figure 5). There are several sharp horizontal curves along Windy Ridge Road and a couple of additional drainage crossings. There is also a section of the road that consists of a long and steep grade (see Figure 6) with poor roadside drainage, which has resulted in some erosion along the edges of the roadway.

Figure 5. Windy Ridge Road – Narrow Bridge

Figure 6. Windy Ridge Road – Steep Grade Area

Box Elder Road

Box Elder Road (WY 90/County Road 17) extends south from Birch Street as a paved two-lane State highway. Approximately 0.8 miles south of Birch Street, Box Elder Road underpasses I-25. The underpass has a signed clearance of 16'4". The road continues as a (paved) State highway for an additional 2.2 miles before becoming a County road. Approximately 8.3 miles south of Birch Street, the roadway surface changes from paved to gravel. Like Mormon Canyon Road, Box Elder Road passes over the Deer Creek Range as it approaches the project area. Steep grades and a narrow, winding alignment are common through this stretch (see Figure 7).

Figure 7. Box Elder Road – Steep Grade

Figure 8. Box Elder Road – Narrow Bridge

There is a narrow bridge that crosses Box Elder Creek just south of the pass (see Figure 8). As for Mormon Canyon Road, there are multiple cattle guard structures along Box Elder Road. Box Elder Road intersects with Windy Ridge Road approximately 13.0 miles south of Birch Street. The total distance along Box Elder Road from Birch Street to Mormon Canyon Road is approximately 16.7 miles. The roadway width generally varies from 18 feet to 28 feet in the unpaved sections. The paved section is typically 21 to 24 feet wide.

Key Transport Route Intersections

Several area intersections will also be impacted as a result of this project. The following paragraphs discuss location, geometrics, traffic control and other key features of each intersection. Figure 1 illustrates the intersection locations relative to the project area.

Birch Street-Mormon Canyon Road

The intersection of Birch Street and Mormon Canyon Road is a "T" intersection that is located immediately east of the Deer Creek Bridge within the town limits of Glenrock. Less than 100 feet to the east, Millar Lane extends north from Birch Street at another "T" intersection. Due to the close proximity and offset of these intersections, and since there are no auxiliary left-turn lanes in either case, westbound left-turns on to Mormon Canyon Road may conflict with eastbound left turns on to Millar Lane. The intersection of Birch Street and Mormon Canyon Road is presumably intended to be two-way stop controlled, although there was not a stop sign posted on the Mormon

Canyon Road approach at the time of traffic observations. Intersection sight distance from the minor approach is adequate in both directions for a typical passenger vehicle or moderate-sized truck.

I-25 Westbound Off-Ramp-Birch Street (East Glenrock Interchange)

The intersection of the I-25 westbound off-ramp at the East Glenrock Interchange and Birch Street has an unusual configuration. The off-ramp serves as the major street for this intersection and actually consists of two lanes, one of which becomes an auxiliary right-turn bay at a downstream County road intersection. The other travel lane becomes the northwestbound primary lane on Birch Street. The resulting intersection configuration is a two-way stop-controlled "T" intersection with two one-way lanes serving as the major street at the intersection. Intersection sight distance is very good at this location.

I-25 Westbound On-Ramp-Birch Street (East Glenrock Interchange)

The remaining ramps at the East Glenrock Interchange (other than the westbound off-ramp) operate as a traditional diamond configuration. The intersection for the westbound on-ramp does not have a minor approach, since the westbound off-ramp is essentially a slip lane onto Birch Street. As a result, this intersection is uncontrolled. The only vehicle conflicts are between northbound left-turns and southbound right-turns accessing the on-ramp. There are no existing sight distance concerns at this intersection.

I-25 Eastbound Ramps-Birch Street (East Glenrock Interchange)

This intersection is a traditional two-way stop controlled diamond interchange ramp intersection, with no southbound approach (there is a parking area south of the intersection). The intersection is spaced very closely to the underpass structure. There are no sight distance issues at this intersection.

I-25 Westbound-Cherokee Trail (La Prele Interchange)

The La Prele interchange is a traditional diamond interchange with very little offset between the ramp intersections and the adjacent frontage road intersections. This intersection is two-way stop controlled. There are no sight distance concerns at the intersection. Both ramps have cattle guard structures.

I-25 Eastbound-Cherokee Trail (La Prele Interchange)

As for the westbound ramps intersection, this intersection is two-way stop controlled. There are no sight distance concerns. Both ramps have cattle guard structures.

Sunflower Trail-Cherokee Trail

This intersection is a two-way stop controlled "T" intersection that is offset only 100 feet from the adjacent La Prele Interchange eastbound ramps intersection. West of the intersection, Sunflower Trail becomes a gravel road after crossing a cattle guard.

Sunflower Trail-Cold Springs Road

The Sunflower Trail-Cold Springs Road intersection is also a two-way stop controlled "T" intersection. The northbound minor approach has a right-turn slip lane that is yield-controlled. Sight distance is adequate to the east and west.

Cold Springs Road-Windy Ridge Road

The intersection of Cold Springs Road and Windy Ridge Road is two-way stop controlled with a stop sign posted on the Windy Ridge Road minor approach. Windy Ridge Road is a gravel road and there is a cattle guard just west of the intersection. Sight distance is somewhat limited to the north and excellent to the south.

Transport Route Alternatives

Two possible routes from I-25 to the project site have been selected for materials and personnel transport. The primary route will utilize Mormon Canyon Road, which extends south from Birch Street in Glenrock to the project site. A secondary route utilizing Sunflower Trail, Cold Springs Road, Windy Ridge Road, and Box Elder Road may be also utilized, but only under special circumstances. All traffic, including transport, construction, and commuter vehicles will be directed to utilize the Mormon Canyon Road route except in the case of an emergency or if otherwise directed. The following paragraphs discuss the access routes in depth and list potential problems relative to the expected design vehicles and traffic loads for this project. For the purposes of this report, the Box Elder Road-Mormon Canyon Road intersection (south end of the project area) was considered as a common origin/destination point. Figure 1 illustrates the transport routes relative to the overall project area.

Mormon Canyon Road Route

The Mormon Canyon Road Route would typically require oversized transport vehicles to enter or exit I-25 at the East Glenrock Interchange. Although the Deer Creek Interchange would be more convenient for traffic from the west, the utilization of that route would require vehicles to travel directly through Glenrock in order to reach Mormon Canyon Road. Personnel commuting from the Casper area would likely utilize the Deer Creek Interchange to access Mormon Canyon Road rather than backtracking from the East Glenrock Interchange. The East Glenrock Interchange would be

utilized by materials and personnel transport from the east. From the interchange, site traffic would utilize Birch Street and Mormon Canyon Road to access the project site. Via this route, transport vehicles would only have to navigate one intersection (Birch Street-Mormon Canyon Road) beyond the interchange in order to reach the project area. From the Deer Creek Interchange, site traffic would utilize Deer Creek Road (4th Street), Birch Street and Mormon Canyon Road to access the project site. The intersection of Birch Street and Mormon Canyon Road may need to be modified in order to accommodate oversized transport vehicles. As was previously discussed, this may also impact the Millar Lane intersection, due to the close proximity and conflict between left-turn movements. The total distance from the Birch Street-Mormon Canyon Road intersection to the Box Elder Road-Mormon Canyon Road intersection along the Mormon Canyon Road route is approximately 18.0 miles. The final 16.0 miles along Mormon Canyon Road are unpaved. Signs at either end of the unpaved portion of Mormon Canyon Road state that the road is not maintained from early November to late April.

The Mormon Canyon Road route would require traffic to cross over the Deer Creek mountain range. The area of the pass is characterized by narrow and winding roads with multiple locations where steep grades are a concern. Significant modification of the roadway would presumably be necessary in order for turbine component transport vehicles to utilize this route. This would be difficult and costly to accomplish given the surrounding terrain. A portion of the roadway is cut into the side of a mountain, with vertical rock faces above and below the road. The roadway surface is narrow and poorly graded, especially toward the south end of Mormon Canyon Road. Although there are no bridges along this route, the road does cross several drainages, so it may be necessary to lengthen culverts if the road is widened. There are no known businesses, schools or other such entities along this route that would be substantially impacted by construction or operations traffic.

Cold Springs Road Route

The Cold Springs Road (alternative) Route would generally require vehicles to enter or exit I-25 at the La Prele Interchange. The clearance for the underpass at the interchange is signed at only 12'11", so some transport vehicles would not be able to access the Cold Springs Road Route via this interchange coming from the east on I-25. As an additional challenge at the La Prele interchange, the ramp intersections have narrow approaches, small radii, and are very closely spaced relative to the adjacent frontage road intersections and the underpass structure. Alternations to the horizontal geometry of this interchange would likely be necessary in order for all of the oversized transport vehicles to be accommodated.

From the La Prele interchange, traffic would utilize Cherokee Trail, Sunflower Trail, Cold Springs Road, Windy Ridge Road and Box Elder Road to reach the project site. Each of the intersections along this route would likely require modification in order to accommodate the large turning radii for the proposed transport vehicles. The total distance from the La Prele Interchange to the Box Elder Road-Mormon Canyon Road intersection is approximately 26.7 miles, with the final 9.6 miles consisting of gravel roads.

Numerous horizontal and vertical curves along this route could also be problematic for some of the transport vehicles. The roads are generally narrow and there is one section of Windy Ridge Road that has a lengthy and steep grade. The pavement on Sunflower Trail and Cold Springs Road is rough and in poor condition in various places, though it should again be noted that WYDOT is planning to overlay eight miles of Cold Springs Road immediately south of Sunflower Trail next year. The gravel surfaces on Windy Ridge Road and Box Elder Road are generally in fair condition, though some rutting and washboarding are evident. There are several cattle guards along the route and one narrow bridge will need to be reconstructed. The bypass route includes two very narrow cattle guards and a concrete bridge/spillway structure over the creek. In addition to the bridge, there are other drainage areas along the route that may require widening of culverts if the roadway is widened.

As an additional consideration for this route, there is a Pinnacle Materials, Inc. quarry located along Cold Springs Road that was generating consistent heavy truck (tractor-trailer) traffic to and from the Douglas area at the time of traffic data collection. If this operation is ongoing during construction of the Pioneer Wind Park, it will be necessary to carefully coordinate transport vehicle travel through this corridor. There is also an elementary school located along the south side of Windy Ridge Road, immediately east of Cold Springs Road.

Traffic Impact Assessment

In order to gauge what effect the construction and operation of Pioneer Wind Parks I and II might have on safety and operations for the local transportation system, it was necessary to evaluate existing traffic operations, calculate traffic projections for construction and daily operations scenarios and forecast impacts that may be caused by the additional traffic loading. The following paragraphs discuss the data collection and analysis procedures that were utilized to evaluate traffic impacts.

Existing Conditions

Traffic Volumes

Prior to evaluating existing traffic operations, it was necessary to observe current traffic conditions and establish a baseline for traffic demand at key locations in the study area. As such, peak hour (AM and PM) turning movement counts were performed at the following key study area intersections in October and November of 2010:

- Deer Creek Road/I-25 Deer Creek Interchange ramps
- Birch Street/4th Street
- Birch Street/Mormon Canyon Road
- Birch Street/I-25 East Glenrock Interchange ramps
- Cherokee Trail/I-25 La Prele Interchange ramps
- Cherokee Trail/Sunflower Trail
- Sunflower Trail/Cold Springs Road

The AM peak period counts were conducted from 7:00-8:00 AM and the PM peak period counts were conducted from 4:30-5:30 PM. Raw count data was not adjusted for seasonal or daily variation. Entering volumes for each intersection approach are shown in Table 2. None of the study area intersections currently experience a particularly high traffic demand. The East Glenrock and La Prele interchange intersections had very low peak hour traffic demands when observed for the purposes of this study.

Average daily traffic (ADT) count data was also obtained from WYDOT for several locations along I-25. Additional ADT and vehicle classification counts were performed for a minimum of 48 hours in October of 2010 at the following locations:

- Mormon Canyon Road – south of Birch Street
- Box Elder Road – south of Birch Street

- Birch Street – northwest of Box Elder Road
- Sunflower Trail – southeast of the La Prele interchange
- Cold Springs Road – south of Sunflower Trail
- Cold Springs Road – west of Pinnacle Materials quarry

Table 1. Existing Conditions Average Daily Traffic Volumes

Location	Average Daily Traffic (vehicles/day)	Heavy Vehicles (%)
Interstate 25 - Deer Creek Interchange	3960*	20%*
Interstate 25 - East Glenrock Interchange	4030*	20%*
Interstate 25 - La Prele Interchange	4100*	20%*
Deer Creek Road - South of Birch Street	2216#	2%#
Mormon Canyon Road - South of Birch Street	485	3%
Birch Street - Northwest of Box Elder Road	1666	7%
Sunflower Trail - Southeast of La Prele Interchange	251	7%
Cold Springs Road - South of Sunflower Trail	355	22%
Cold Springs Road - West of Pinnacle Materials	227	N/A

**Data from WYDOT 2008 Vehicle Miles Book increased by 1% annual growth to approximate 2010 volumes*

 # Estimated based on AM and PM peak hour counts and measured area hourly traffic distribution

Raw traffic count data was not adjusted for any seasonal or day-of-week variation. Table 1 below presents the results of the ADT counts, as well as the traffic volume data provided by WYDOT. The ADT figure for Deer Creek Road was projected based on AM and PM peak hour turning movement volumes and observed area hourly traffic demand variations.

Intersection Capacity

The measure of how efficiently an intersection handles traffic is typically referred to as intersection capacity. Intersection capacity is most often described through a concept known as level of service (LOS). The *Highway Capacity Manual* defines level of service as a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions and comfort and convenience. Level of service is evaluated using letter designations from A to F, with A being the most favorable operating condition and F being the worst. Level of service C is generally considered to be the minimum threshold for acceptable peak hour (generally the morning and evening rush hours) traffic operations.

For this study, existing conditions intersection capacity was evaluated for the AM and PM peak periods at ten key study area intersections. All of the intersection approaches were found to operate at level of service (LOS) B or better during both peak periods, which is an indication of smooth and efficient traffic operations. No significant queues were projected through the capacity calculations. These results are not unexpected given the low level of existing traffic demand for the analyzed intersections. Detailed capacity calculation results for are shown in Table 2 on the following page.

Highway Capacity

As for intersections, the *Highway Capacity Manual* also provides guidance on the evaluation of capacity and level of service for highways and freeways. Critical factors include terrain, availability of passing zones, speed limits, heavy vehicle percentages and of course, overall traffic demand volume. Once again, LOS is evaluated using letter designations from A to F, with A being the most favorable operating condition and F being the worst. Level of service C is generally considered to be the minimum threshold for acceptable peak hour (generally the morning and evening rush hours) traffic operations.

For this study, Birch Street, Sunflower Trail, Cold Springs Road, Deer Creek Road and the paved segment of Mormon Canyon Road were evaluated in terms of highway capacity. I-25 was evaluated relative to freeway capacity. Base free flow speeds were approximated based on the posted speed limits for each roadway. Availability of passing zones was estimated based on site observations. Design hour volumes were calculated from turning movement counts where possible and estimated based on a factor of ADT where peak period turning movement volumes were unavailable. Calculation results showed that all segments of the study area highways currently operate at LOS B or better during the peak traffic periods. I-25 was shown to operate at LOS A in both directions. Table 3 illustrates the results of the calculations.

Projected Traffic Generation

Component Transport and Construction Traffic

The projects for Pioneer Wind Parks I (PWP I) and II (PWP II) will construct 62 wind turbines, 31 in each project. Based on information from the component supplier, each turbine installation would generate approximately 60-65 concrete and other materials trucks, approximately 20 trucks with crane components, as many as 2 assist cranes, 7-8 heavy haul trucks with turbine components, and 2-5 extended reach forklifts for a maximum total of approximately 100 materials and component trucks per turbine. Although each of the above vehicles and components will initially need to be delivered to the project site, the majority of impacting traffic will actually be generated once

Table 2. Existing Conditions Intersection Capacity Calculation Results

Intersection	Approach	EXISTING CONDITIONS (2010)							
		AM Peak				PM Peak			
		Approach Volume (vehs)	Control Delay (s/veh)	LOS	Max Queue (veh)	Approach Volume (vehs)	Control Delay (s/veh)	LOS	Max Queue (veh)
Intersection Control		*Two-Way Stop*							
Deer Creek Road & I-25 EB ramps	NB	6				7			
	SB	6	7.2	A	1	10	7.2	A	1
	EB	22	8.7	A	1	67	8.9	A	1
	Intersection	34	-	-	-	84	-	-	-
Intersection Control		*Two-Way Stop*							
Deer Creek Road & I-25 WB ramps	NB	28	7.4	A	1	70	7.3	A	1
	SB	84				36			
	WB	3	8.7	A	1	3	8.9	A	1
	Intersection	115	-	-	-	109	-	-	-
Intersection Control		*All-Way Stop*							
Birch Street & 4th Street	NB	95	8.6	A	3	116	8.5	A	3
	SB	90	9.0	A	3	79	8.6	A	3
	EB	90	8.5	A	2	137	8.4	A	2
	WB	126	8.9	A	2	145	8.7	A	2
	Intersection	401	8.8	A	-	477	8.6	A	-
Intersection Control		*Two-Way Stop*							
Birch Street & Mormon Canyon Road	NB	4	11.0	B	1	12	12.1	B	1
	EB	254				278			
	WB	220	7.8	A	1	204	7.9	A	1
	Intersection	478	-	-	-	494	-	-	-
Intersection Control		*Two-Way Stop*							
Birch Street & I-25 WB on-ramp	NB	12	7.3	A	1	14	7.3	A	1
	SB	42				69			
	Intersection	54	-	-	-	83	-	-	-
Intersection Control		*Two-Way Stop*							
Birch Street & I-25 WB off-ramp	NB	12	8.6	A	1	13			
	WB	20	7.2	A	1	43			
	Intersection	32	-	-	-	56	-	-	-
Intersection Control		*Two-Way Stop*							
Birch Street & I-25 EB ramps	SB	35	7.3	A	1	35	7.3	A	1
	EB	12	9.0	A	1	13	9.0	A	1
	Intersection	47	-	-	-	48	-	-	-
Intersection Control		*Two-Way Stop*							
Cherokee Trail & I-25 WB ramps	NB	14	7.2	A	1	12	7.2	A	1
	SB	16				8			
	WB	3	8.7	A	1	8	8.4	A	1
	Intersection	33	-	-	-	28	-	-	-
Intersection Control		*Two-Way Stop*							
Cherokee Trail & I-25 EB ramps	NB	16				12			
	SB	12	7.2	A	1	8	7.2	A	1
	EB	8	8.3	A	1	6	8.3	A	1
	Intersection	36	-	-	-	26	-	-	-
Intersection Control		*Two-Way Stop*							
Sunflower Trail & Cherokee Trail	SB	13	8.6	A	1	6	8.6	A	1
	EB	1	7.2	A	1	1	7.2	A	1
	WB	16				11			
	Intersection	30	-	-	-	18			

Table 3. Existing Conditions Highway/Freeway Capacity

Location	Design Hour Volume (veh/hour) - AM/PM	LOS
Deer Creek Road - North of I-25	182/221	B/B
Mormon Canyon Road - South of Birch Street	13/94	A/B
Birch Street - East of Mormon Canyon Road	469/422	B/B
Sunflower Trail - Southeast of La Prele Interchange	29/17	A/A
Cold Springs Road - South of Sunflower Trail	36/36*	A/A
Cold Springs Road - West of Pinnacle Materials	23/23*	A/A
Interstate 25 - Deer Creek Interchange (EB or WB)	301/301*	A/A
Interstate 25 - East Glenrock Interchange (EB or WB)	306/306*	A/A
Interstate 25 - La Prele Interchange (EB or WB)	310/310*	A/A

**Design hour volumes estimated based on ADT volumes*

construction and assembly are initiated at the site. At a maximum, this project would generate approximately 12,400 one-way trips by turbine component and construction materials transport vehicles only. An additional 1100 truck loads per project (2200 total) are anticipated for roadway reconstruction. In total, 14,600 construction-related truck trips are projected for the two projects. Construction activity is expected to peak in August of 2011 during construction of PWP I. It is estimated that 30% of overall construction traffic will occur during this month, resulting in a typically daily demand of 110 one-way truck trips per peak period work day. It is anticipated that all of the raw construction materials (aggregate, concrete, etc.) necessary for roadway base and site improvements will be produced at the project site and thus will not have to be trucked in from I-25. Therefore, it is not expected that any of those 110 daily truck trips would directly impact the streets and highways evaluated via this study.

In addition to the above-referenced construction truck traffic, various ancillary trips related to fuel, mechanics, vendors and maintenance items are also expected. These trips are likely to originate in the Casper, Glenrock, and/or Douglas areas. As such, they would impact traffic operations for streets and intersections evaluated in this analysis. For the purposes of this study, it was estimated that a maximum of approximately 20 one-way trips/day could be expected to account for this maintenance-based traffic.

Commuter Traffic

In terms of employees, it is expected that approximately 70% of the construction work force will be non-locals transplanted in from other areas, with the remaining 30% already living in the immediate area. Once the wind parks are operational, it is expected that approximately 50% of the operations

work force will be local to the area. Of the non-local workforce, it is expected that approximately 75% will live in the Casper area, 18% will live in the Glenrock area, 5% will live in the Douglas area and the remaining employees will reside in other surrounding locales. For local-based employees, it is expected that approximately 60% will be from the Casper area, 20% from the Glenrock area, 15% from the Douglas area and 5% from other local parts.

Construction for PWP I is scheduled to begin in July of 2011 and finish up in December of that year. Construction of PWP II is not scheduled to begin until July of 2012 and would again finish up in December of that year. The overall monthly workforce during construction of PWP I is expected to vary between approximately 48 and 168 employees. For PWP II, the monthly workforce would vary from 48 to 145 employees. During the peak month of construction for PWP I, it is estimated that 168 employees will be commuting to and from the project site. Assuming a carpool rate of 1.5 persons/vehicle and only trip in and one trip out per commuter vehicle, this would result in a commuter traffic generation of 224 one-way trips per day (112 in/112 out). For the purposes of this study, it was assumed that 90% of employees would work a typical day shift and that 10% would work a night shift.

Table 4 below provides a summary of projected total project (PWP I and II) and peak daily site-generated traffic. Commuter traffic is expected to account for nearly 2/3 of the daily projected-generated trips.

Table 4. Traffic Generation Projections

Trip Category	Total Projected Trips (one-way tips - both projects)	Peak Daily Demand (one-way trips/day)
Turbine Component Delivery/Assembly	4340	28
Turbine Construction Materials Trucks	8060	53
Roadway Construction Trucks	2200	29
Miscellaneous Construction Traffic	5160	20
Commuter Traffic	27140	224

Trip Routing

For component delivery purposes, Wasatch Wind has indicated that the majority of component transport vehicles will likely originate from areas south of the project site and that they would primarily utilize I-25 to access the project area. It's also possible that some traffic could be re-routed via an Interstate 80 (I-80)/US 287/WY 487/WY 220 route through Casper and end up approaching the project area eastbound on I-25. Based on information from the developer, it is not anticipated

that any of the roadways associated with the I-80 route would require improvement or modification in order to safely and efficiently accommodate traffic generated by the project. The primary route from I-25 will be the Mormon Canyon Road route, regardless of an eastbound or westbound approach to the Glenrock area. For heavy vehicles, it will be necessary to utilize the East Glenrock interchange to avoid driving through Glenrock.

In terms of everyday project-generated traffic, all commuter and ancillary support vehicular trips will be routed to the project site via the Mormon Canyon Road Route, except in special cases. Traffic from the west on I-25 will likely exit at the Deer Creek Interchange, while traffic from the east will most likely utilize the East Glenrock Interchange.

Traffic Impacts

Pioneer Wind Parks I and II will generate a substantial amount of construction-related traffic during the course of the project. The traffic loadings will consist of construction materials and component transport vehicles, as well as commuter transport vehicles and ancillary support service vehicles. Several access routes are available from I-25 to the project area. However, Wasatch Wind will require that all traffic utilize the Mormon Canyon Road Route, except in special cases, so as to be consistent with the Road User Agreement that will be agreed upon with Converse County.

An evaluation of existing conditions showed that the roadways and intersections encompassed by the alternative routes currently experience a minimal level of traffic demand and thereby, level of service and reserve capacity for those facilities are excellent. Given that existing traffic demands are relatively light in most areas, it is not expected that highway or intersection level of service will degrade such that traffic control or lane expansion improvements would be necessary for any of the associated streets or highways. The following paragraphs discuss specific elements related to expected traffic operations impacts.

Traffic Volumes

Based on information provided by Wasatch Wind in regard to the current proposed construction schedule, it is expected that the early months of PWP I will produce the highest levels of project-generated traffic. As such, the analysis of future traffic impacts focused on that time period of construction, as opposed to a later construction period or the post-construction operations period.

In order to project traffic volumes for the peak construction scenario, it was necessary to calculate daily vehicular demands for component transport, construction activity and workforce commuter traffic. It was also necessary to determine how the project-generated traffic would be distributed

amongst the potential access routes. This projection of construction traffic demand and distribution was calculated based primarily on information provided by Wasatch Wind in regard to workforce scheduling, roadway improvements phasing, and expected materials transport routing. Although the overall number of construction and commuter trips generated by this project (approximately 46,900 trips) seems very high, that volume would be spread out over two construction phases that would span some twelve months worth of work days. Also considering that many of the materials production-related trips will be generated on-site, the net overall daily and peak hour traffic demand impacts for key study area intersections is relatively minor. Table 5 below illustrates the expected levels of average daily traffic during the peak construction period for the wind park, including a nominal background traffic growth factor to account for miscellaneous growth and other unaccounted for traffic. The numbers assume that approximately 30% of wind park construction traffic would be generated during the peak month.

Table 5. Peak Construction Projected Average Daily Traffic Volumes

Location	Average Daily Traffic (vehicles/day)	Percent Increase (%)
Interstate 25 - Deer Creek Interchange	4206	6%
Interstate 25 - East Glenrock Interchange	4262	6%
Interstate 25 - La Prele Interchange	4245	4%
Deer Creek Road - North of I-25	2670	20%
Mormon Canyon Road - South of Birch Street	577	19%
Birch Street - Northwest of Box Elder Road	1745	5%

Table 5 shows that expected increases in average daily traffic along key project area routes could range from 4% to 20% during the peak construction. However, it should be stressed that the greatest overall impact in terms of vehicular traffic will likely occur along the segments of Mormon Canyon Road that are reconstructed in order to accommodate transport vehicles. At this time, no specific information is available relative to sequencing and operations for the off-site road improvement portions of the project. As such, the ADT projections in Table 5 account for all workforce commuter traffic for this project (including roadway improvement crews), as well as wind park materials and component delivery, and ancillary support vehicle trips, but they do not necessarily account for all of the traffic that may be associated with the off-site road improvements.

Intersection Capacity

Peak Construction scenario intersection capacity was recalculated for study area intersections with site-generated traffic demand increases accounted for in the AM and PM peak hours. Additional

calculations were note completed for the intersections associated with the Cold Springs Road Route, since that route will only be utilized under special circumstances. Based on this scenario, all of the intersection approaches were found to operate at level of service (LOS) B or better during both peak periods. No significant queues were projected through the capacity calculations. No mitigable deficiencies were identified relative to intersection capacity. It should be noted however that the capacity calculation results likely do not fully account for how slow-moving and bulky some of the transport vehicles will be as they traverse these intersections. As such, additional delays may be experienced by ancillary vehicles as oversized trucks navigate through intersections. Additional capacity impacts are likely to arise temporarily if any reconstruction is necessary for any of the intersections. Detailed capacity calculation results for the Peak Construction scenario are shown in Table 6 on the following page.

Highway Capacity

Arterial and freeway capacity was also re-evaluated based on the Peak Construction traffic demand scenario. Calculations were not revisited for roadways associated with the Cold Springs Road Route, since that route is not expected to be impacted significantly by this project. Table 7 on the following page illustrates the results of the calculations. All of the highway and free way segments are projected to operate at LOS C or better during the design hour. In areas where roadway reconstruction traffic is heavy or where construction requires detours, slower speeds, etc., it is likely that highway capacity would be temporarily degraded.

Safety

In terms of safety, the biggest concern will be related to conflicts between oversized transport vehicles and the normal everyday traffic stream. Many of the access route roadways are very narrow, with travel lanes less than 12 feet wide and minimal shoulders. As such, it will be critical to have all oversized vehicles escorted with flag cars and proper signage, lighting, etc. to warn approaching and following vehicles. Oversized vehicles also typically have very slow acceleration rates, especially from a stopped position. Intersection approaches along each of the transport routes should be further evaluated in terms of intersection sight distance, such that the reduced startup and acceleration time for heavy vehicles is adequately accounted for.

Table 6. Peak Construction Intersection Capacity Calculation Results

Intersection	Approach	PEAK CONSTRUCTION (2011)							
		AM Peak				PM Peak			
		Approach Volume (vehs)	Control Delay (s/veh)	LOS	Max Queue (veh)	Approach Volume (vehs)	Control Delay (s/veh)	LOS	Max Queue (veh)
Intersection Control		*Two-Way Stop*							
Deer Creek Road & I-25 EB ramps	NB	6				7	-	-	-
	SB	6	7.2	A	1	10	7.2	A	1
	EB	100	9.0	A	1	75	8.9	A	1
	Intersection	112	-	-	-	92	-	-	-
Intersection Control		*Two-Way Stop*							
Deer Creek Road & I-25 WB ramps	NB	28	7.4	A	1	70	7.4	A	1
	SB	92				114			
	WB	3	8.7	A	1	3	9.0	A	1
	Intersection	123	-	-	-	187	-	-	-
Intersection Control		*All-Way Stop*							
Birch Street & 4th Street	NB	173	9.9	A	4	124	9.0	A	4
	SB	90	9.4	A	3	79	9.0	A	3
	EB	103	9.1	A	2	138	8.7	A	2
	WB	135	9.5	A	2	236	10.2	B	4
	Intersection	501	9.6	A	-	577	9.5	A	-
Intersection Control		*Two-Way Stop*							
Birch Street & Mormon Canyon Road	NB	15	12.9	B	1	126	14.2	B	2
	EB	345				287			
	WB	243	8.2	A	1	206	8.0	A	1
	Intersection	603	-	-	-	619	-	-	-
Intersection Control		*Two-Way Stop*							
Birch Street & I-25 WB on-ramp	NB	12	7.3	A	1	14	7.3	A	1
	SB	42				69			
	Intersection	54	-	-	-	83	-	-	-
Intersection Control		*Two-Way Stop*							
Birch Street & I-25 WB off-ramp	NB	12	8.6	A	1	14	8.7	A	1
	WB	31	7.2	A	1	43	7.2	A	1
	Intersection	43	-	-	-	57	-	-	-
Intersection Control		*Two-Way Stop*							
Birch Street & I-25 EB ramps	SB	36	7.3	A	1	46	7.3	A	1
	EB	12	9.0	A	1	13	9.2	A	1
	Intersection	48	-	-	-	59	-	-	-

Table 7. Peak Construction Highway/Freeway Capacity

Location	Design Hour Volume (veh/hour) - AM/PM	LOS
Deer Creek Road - North of I-25	268/307	B/B
Mormon Canyon Road - South of Birch Street	51/132	A/A
Birch Street - East of Mormon Canyon Road	487/440	C/B
Interstate 25 - Deer Creek Interchange (EB or WB)	385/385	A/A
Interstate 25 - East Glenrock Interchange (EB or WB)	357/357	A/A

Geometrics

The most significant impacts are likely to be related to roadway geometrics and structural integrity of roads, culverts, cattle guards, etc. The Mormon Canyon Road Route will likely require significant modification of intersections, horizontal curves, vertical curves, steep grades, culverts, and cattle guards. WYDOT has indicated that it will require Wasatch Wind to enter into a road user damage agreement to account for any damage incurred by State roadway facilities. Converse County will require a similar agreement prior to granting access and/or approval of reconstruction of their facilities. All necessary roadway improvements should be designed based on American Association of State Highway and Transportation Officials (AASHTO), WYDOT, Converse County and other applicable standards.

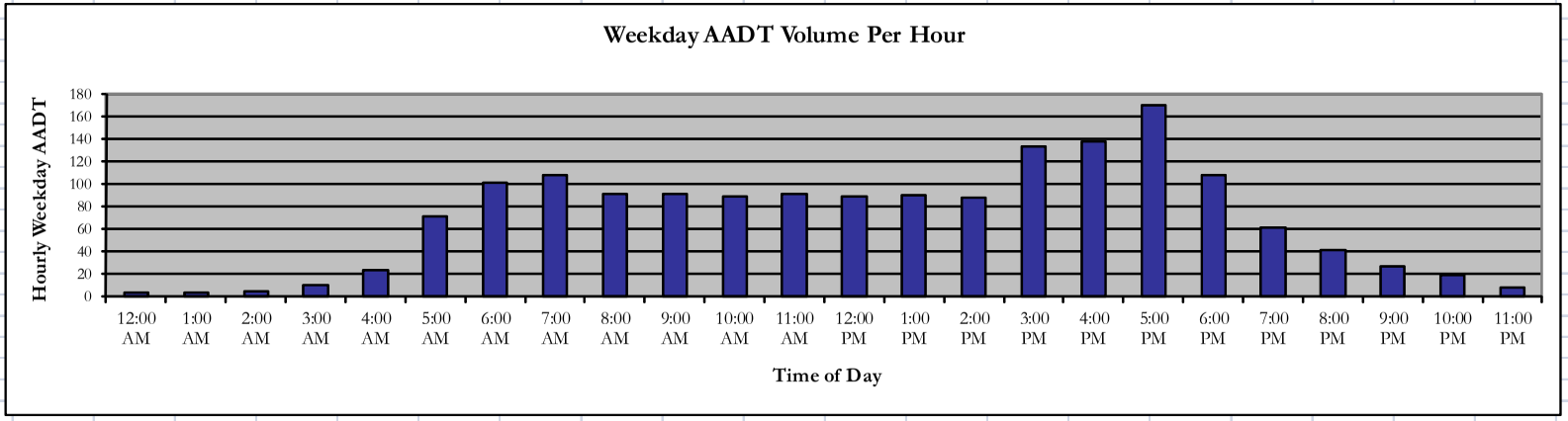
Appendix A – Traffic Counts

VOLUME COUNT SUMMARY

General Information

Counted By:	D.J. Clark	Count Location:	Birch Street - NW of Box Elder Road
Agency/Company:	Sanderson Stewart		
Dates Performed:	October 5-7, 2010	Jurisdiction:	WYDOT/Converse County
Project Number:	SHE-10023	Street Classification:	N/A
Project Description:	Wasatch Wind Farm TA		
		Seasonal Count Factor:	N/A

Hour	10/3/2010 Sunday		10/4/2010 Monday		10/5/2010 Tuesday		10/6/2010 Wednesday		10/7/2010 Thursday		10/8/2010 Friday		10/9/2010 Saturday		Weekday AADT			Weekend AADT		
Begin	NWB	SEB	NWB	SEB	NWB	SEB	NWB	SEB	NWB	SEB	NWB	SEB	NWB	SEB	NWB	SEB	ADT	NWB	SEB	ADT
0:00							2	2	1	1					2	2	4	N/A	N/A	N/A
1:00							2	2	2	2					2	2	4	N/A	N/A	N/A
2:00							3	2	2	2					3	2	5	N/A	N/A	N/A
3:00							4	6	2	8					3	7	10	N/A	N/A	N/A
4:00							1	19	1	26					1	23	24	N/A	N/A	N/A
5:00							17	59	11	56					14	58	72	N/A	N/A	N/A
6:00							32	74	27	67					30	71	101	N/A	N/A	N/A
7:00							58	48	62	47					60	48	108	N/A	N/A	N/A
8:00							42	46	51	41					47	44	91	N/A	N/A	N/A
9:00							46	46	42	49					44	48	92	N/A	N/A	N/A
10:00					41	44	43	45	46	50					43	46	89	N/A	N/A	N/A
11:00					48	40	42	38	61	46					50	41	91	N/A	N/A	N/A
12:00					32	37	42	50	62	44					45	44	89	N/A	N/A	N/A
13:00					52	48	38	41							45	45	90	N/A	N/A	N/A
14:00					50	42	44	40							47	41	88	N/A	N/A	N/A
15:00					89	58	75	45							82	52	134	N/A	N/A	N/A
16:00					81	71	63	61							72	66	138	N/A	N/A	N/A
17:00					93	71	111	64							102	68	170	N/A	N/A	N/A
18:00					66	49	60	41							63	45	108	N/A	N/A	N/A
19:00					32	42	17	31							25	37	62	N/A	N/A	N/A
20:00					24	21	25	12							25	17	42	N/A	N/A	N/A
21:00					16	18	11	8							14	13	27	N/A	N/A	N/A
22:00					11	6	10	9							11	8	19	N/A	N/A	N/A
23:00					5	3	3	5							4	4	8	N/A	N/A	N/A
TOTAL	**0**	**0**	**0**	**0**	**640**	**550**	**791**	**794**	**370**	**439**	**0**	**0**	**0**	**0**	**834**	**832**	**1,666**	**N/A**	**N/A**	**N/A**

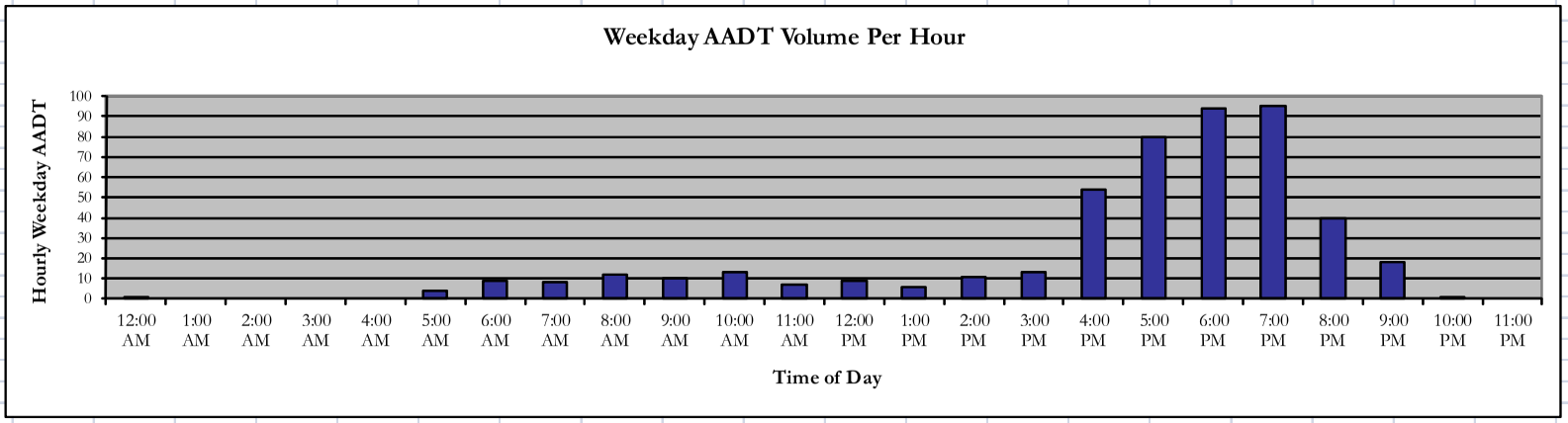


VOLUME COUNT SUMMARY

General Information

Counted By:	D.J. Clark	Count Location:	Mormon Canyon Road - S of Birch Street
Agency/Company:	Sanderson Stewart		
Dates Performed:	October 5-7, 2010	Jurisdiction:	WYDOT/Converse County
Project Number:	SHE-10023	Street Classification:	N/A
Project Description:	Wasatch Wind Farm TA		
		Seasonal Count Factor:	N/A

Hour	10/3/2010 Sunday		10/4/2010 Monday		10/5/2010 Tuesday		10/6/2010 Wednesday		10/7/2010 Thursday		10/8/2010 Friday		10/9/2010 Saturday		Weekday AADT			Weekend AADT		
Begin	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	ADT	NB	SB	ADT
0:00							0	0	0	2					0	1	1	N/A	N/A	N/A
1:00							0	0	0	0					0	0	0	N/A	N/A	N/A
2:00							0	0	0	0					0	0	0	N/A	N/A	N/A
3:00							0	0	0	0					0	0	0	N/A	N/A	N/A
4:00							0	0	0	0					0	0	0	N/A	N/A	N/A
5:00							3	1	2	0					3	1	4	N/A	N/A	N/A
6:00							3	6	3	6					3	6	9	N/A	N/A	N/A
7:00							3	5	3	4					3	5	8	N/A	N/A	N/A
8:00							4	2	7	9					6	6	12	N/A	N/A	N/A
9:00					4	3	5	9	4	6					4	6	10	N/A	N/A	N/A
10:00					7	8	4	4	9	5					7	6	13	N/A	N/A	N/A
11:00					3	4	7	1	3	4					4	3	7	N/A	N/A	N/A
12:00					5	4	2	4	6	6					4	5	9	N/A	N/A	N/A
13:00					4	5	0	3							2	4	6	N/A	N/A	N/A
14:00					5	6	5	6							5	6	11	N/A	N/A	N/A
15:00					9	6	5	5							7	6	13	N/A	N/A	N/A
16:00					11	34	21	42							16	38	54	N/A	N/A	N/A
17:00					14	79	27	38							21	59	80	N/A	N/A	N/A
18:00					18	62	48	60							33	61	94	N/A	N/A	N/A
19:00					83	33	60	13							72	23	95	N/A	N/A	N/A
20:00					68	7	3	1							36	4	40	N/A	N/A	N/A
21:00					29	2	3	1							16	2	18	N/A	N/A	N/A
22:00					0	1	0	1							0	1	1	N/A	N/A	N/A
23:00					0	0	0	0							0	0	0	N/A	N/A	N/A
TOTAL	**0**	**0**	**0**	**0**	**260**	**254**	**203**	**202**	**37**	**42**	**0**	**0**	**0**	**0**	**242**	**243**	**485**	**N/A**	**N/A**	**N/A**

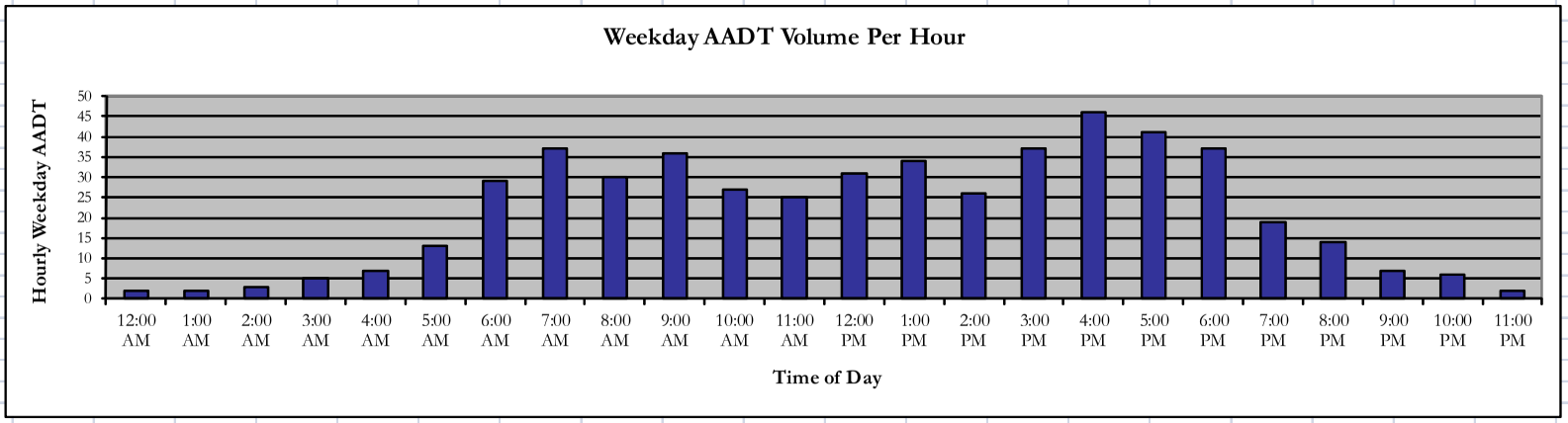


VOLUME COUNT SUMMARY

General Information

Counted By:	D.J. Clark	Count Location:	Box Elder Road - S of Birch Street
Agency/Company:	Sanderson Stewart		
Dates Performed:	October 5-7, 2010	Jurisdiction:	WYDOT/Converse County
Project Number:	SHE-10023	Street Classification:	N/A
Project Description:	Wasatch Wind Farm TA		
		Seasonal Count Factor:	N/A

Hour	10/3/2010 Sunday		10/4/2010 Monday		10/5/2010 Tuesday		10/6/2010 Wednesday		10/7/2010 Thursday		10/8/2010 Friday		10/9/2010 Saturday		Weekday AADT			Weekend AADT		
Begin	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	ADT	NB	SB	ADT
0:00							1	1	0	0					1	1	2	N/A	N/A	N/A
1:00							0	0	1	1					1	1	2	N/A	N/A	N/A
2:00							0	0	3	1					2	1	3	N/A	N/A	N/A
3:00							4	0	4	1					4	1	5	N/A	N/A	N/A
4:00							4	1	5	2					5	2	7	N/A	N/A	N/A
5:00							7	2	13	4					10	3	13	N/A	N/A	N/A
6:00							15	6	31	6					23	6	29	N/A	N/A	N/A
7:00							33	11	20	8					27	10	37	N/A	N/A	N/A
8:00							13	9	16	21					15	15	30	N/A	N/A	N/A
9:00							15	21	23	12					19	17	36	N/A	N/A	N/A
10:00					15	10	18	12	13	15					15	12	27	N/A	N/A	N/A
11:00					14	14	13	9	13	12					13	12	25	N/A	N/A	N/A
12:00					10	13	12	27							11	20	31	N/A	N/A	N/A
13:00					14	21	16	17							15	19	34	N/A	N/A	N/A
14:00					15	9	12	14							14	12	26	N/A	N/A	N/A
15:00					15	20	19	19							17	20	37	N/A	N/A	N/A
16:00					15	29	18	28							17	29	46	N/A	N/A	N/A
17:00					16	25	16	24							16	25	41	N/A	N/A	N/A
18:00					11	23	20	19							16	21	37	N/A	N/A	N/A
19:00					7	9	6	15							7	12	19	N/A	N/A	N/A
20:00					6	12	3	6							5	9	14	N/A	N/A	N/A
21:00					5	6	1	2							3	4	7	N/A	N/A	N/A
22:00					2	4	1	4							2	4	6	N/A	N/A	N/A
23:00					1	0	0	2							1	1	2	N/A	N/A	N/A
TOTAL	**0**	**0**	**0**	**0**	**146**	**195**	**247**	**249**	**142**	**83**	**0**	**0**	**0**	**0**	**259**	**257**	**516**	**N/A**	**N/A**	**N/A**

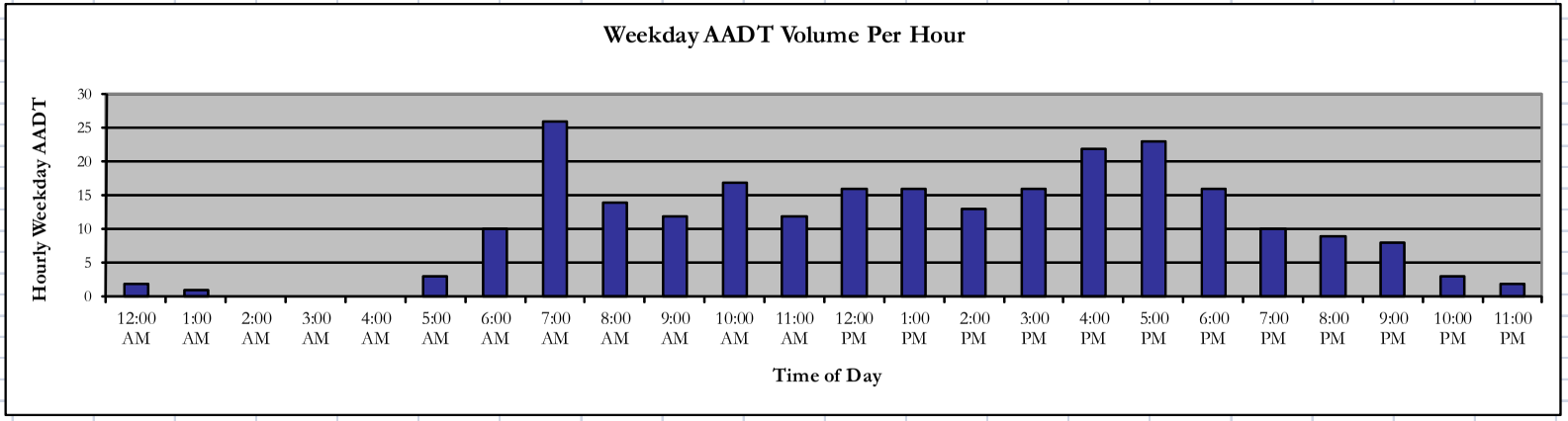


VOLUME COUNT SUMMARY

General Information

Counted By:	D.J. Clark	Count Location:	Sunflower Trail - E of Laprele Interchange
Agency/Company:	Sanderson Stewart		
Dates Performed:	October 5-7, 2010	Jurisdiction:	WYDOT/Converse County
Project Number:	SHE-10023	Street Classification:	N/A
Project Description:	Wasatch Wind Farm TA		
		Seasonal Count Factor:	N/A

Hour	10/3/2010 Sunday		10/4/2010 Monday		10/5/2010 Tuesday		10/6/2010 Wednesday		10/7/2010 Thursday		10/8/2010 Friday		10/9/2010 Saturday		Weekday AADT			Weekend AADT		
Begin	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	ADT	EB	WB	ADT
0:00							1	0	0	2					1	1	2	N/A	N/A	N/A
1:00							0	0	1	0					1	0	1	N/A	N/A	N/A
2:00							0	0	0	0					0	0	0	N/A	N/A	N/A
3:00							0	0	0	0					0	0	0	N/A	N/A	N/A
4:00							0	0	0	0					0	0	0	N/A	N/A	N/A
5:00							1	0	2	1					2	1	3	N/A	N/A	N/A
6:00							7	3	6	2					7	3	10	N/A	N/A	N/A
7:00							13	15	13	11					13	13	26	N/A	N/A	N/A
8:00							8	7	7	4					8	6	14	N/A	N/A	N/A
9:00							7	3	6	6					7	5	12	N/A	N/A	N/A
10:00							4	9	11	9					8	9	17	N/A	N/A	N/A
11:00					3	6	4	4	6	14					4	8	12	N/A	N/A	N/A
12:00					11	11	4	4	13	7					9	7	16	N/A	N/A	N/A
13:00					10	6	5	9	9	8					8	8	16	N/A	N/A	N/A
14:00					6	5	10	4							8	5	13	N/A	N/A	N/A
15:00					5	8	11	7							8	8	16	N/A	N/A	N/A
16:00					11	10	9	13							10	12	22	N/A	N/A	N/A
17:00					14	7	12	12							13	10	23	N/A	N/A	N/A
18:00					7	7	7	10							7	9	16	N/A	N/A	N/A
19:00					4	5	5	4							5	5	10	N/A	N/A	N/A
20:00					2	3	4	8							3	6	9	N/A	N/A	N/A
21:00					5	3	5	2							5	3	8	N/A	N/A	N/A
22:00					3	1	1	0							2	1	3	N/A	N/A	N/A
23:00					1	0	2	0							2	0	2	N/A	N/A	N/A
TOTAL	**0**	**0**	**0**	**0**	**82**	**72**	**120**	**114**	**74**	**64**	**0**	**0**	**0**	**0**	**131**	**120**	**251**	**N/A**	**N/A**	**N/A**

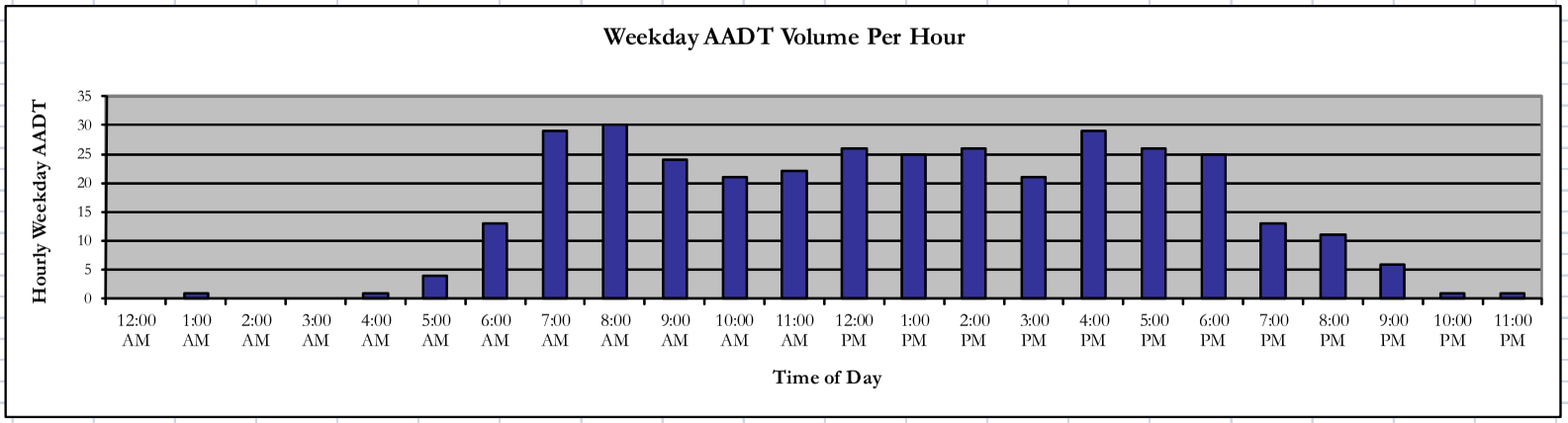


VOLUME COUNT SUMMARY

General Information

Counted By:	D.J. Clark	Count Location:	Cold Springs Road - S of Sunflower Trail
Agency/Company:	Sanderson Stewart		
Dates Performed:	October 5-7, 2010	Jurisdiction:	WYDOT/Converse County
Project Number:	SHE-10023	Street Classification:	N/A
Project Description:	Wasatch Wind Farm TA		
		Seasonal Count Factor:	N/A

Hour	10/3/2010 Sunday		10/4/2010 Monday		10/5/2010 Tuesday		10/6/2010 Wednesday		10/7/2010 Thursday		10/8/2010 Friday		10/9/2010 Saturday		Weekday AADT			Weekend AADT		
Begin	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	ADT	NB	SB	ADT
0:00							0	0	0	0					0	0	0	N/A	N/A	N/A
1:00							0	1	0	1					0	1	1	N/A	N/A	N/A
2:00							0	0	0	0					0	0	0	N/A	N/A	N/A
3:00							0	0	0	0					0	0	0	N/A	N/A	N/A
4:00							1	0	0	0					1	0	1	N/A	N/A	N/A
5:00							1	2	2	2					2	2	4	N/A	N/A	N/A
6:00							2	7	3	13					3	10	13	N/A	N/A	N/A
7:00							18	7	21	11					20	9	29	N/A	N/A	N/A
8:00							9	10	18	21					14	16	30	N/A	N/A	N/A
9:00							5	7	14	21					10	14	24	N/A	N/A	N/A
10:00							9	3	14	14					12	9	21	N/A	N/A	N/A
11:00					13	11	7	6	16	13					12	10	22	N/A	N/A	N/A
12:00					13	17	2	3	24	18					13	13	26	N/A	N/A	N/A
13:00					12	17	10	4	14	18					12	13	25	N/A	N/A	N/A
14:00					19	17	4	11							12	14	26	N/A	N/A	N/A
15:00					15	12	7	8							11	10	21	N/A	N/A	N/A
16:00					20	14	14	10							17	12	29	N/A	N/A	N/A
17:00					10	20	11	9							11	15	26	N/A	N/A	N/A
18:00					14	18	13	4							14	11	25	N/A	N/A	N/A
19:00					8	6	6	6							7	6	13	N/A	N/A	N/A
20:00					2	1	9	9							6	5	11	N/A	N/A	N/A
21:00					4	2	1	4							3	3	6	N/A	N/A	N/A
22:00					0	0	0	1							0	1	1	N/A	N/A	N/A
23:00					0	0	0	2							0	1	1	N/A	N/A	N/A
TOTAL	**0**	**0**	**0**	**0**	**130**	**135**	**129**	**114**	**126**	**132**	**0**	**0**	**0**	**0**	**180**	**175**	**355**	**N/A**	**N/A**	**N/A**

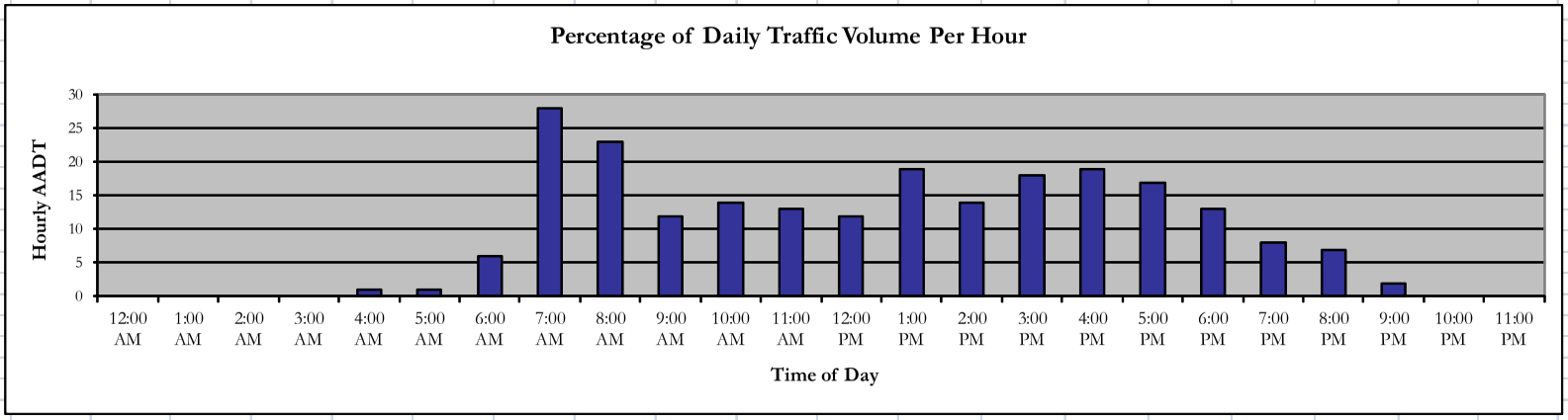


VOLUME COUNT SUMMARY

General Information

Counted By:	D.J. Clark	Count Location:	Cold Springs Road - West of quarry
Agency/Company:	Sanderson Stewart		
Dates Performed:	October 5-7, 2010	Jurisdiction:	Converse County
Project Number:	SHE-10023	Street Classification:	N/A
Project Description:	Wasatch Wind Farm TA		
		Seasonal Count Factor:	N/A

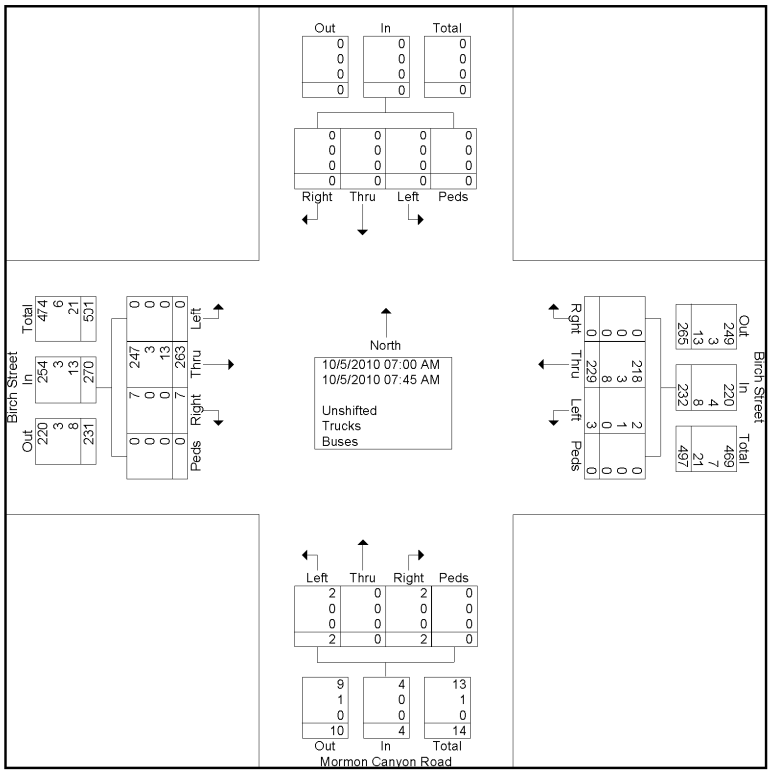
Hour Begin	10/3/2009 Sunday	10/4/2009 Monday	10/5/2009 Tuesday	10/6/2009 Wednesday	10/7/2009 Thursday	10/8/2009 Friday	10/9/2009 Saturday	Annual Average Daily Traffic (AADT)	Hourly Percentage of Total (%)
	BD	BD	BD	BD	BD	BD	BD	BD	BD
0:00				0	0			0	0.0%
1:00				0	0			0	0.0%
2:00				0	0			0	0.0%
3:00				0	0			0	0.0%
4:00				1	1			1	0.4%
5:00				1	0			1	0.4%
6:00				5	6			6	2.6%
7:00				24	31			28	12.3%
8:00				19	26			23	10.1%
9:00				10	13			12	5.3%
10:00				15	12			14	6.2%
11:00				15	10			13	5.7%
12:00				9	14			12	5.3%
13:00				18	20			19	8.4%
14:00			12	15	16			14	6.2%
15:00			19	17				18	7.9%
16:00			14	23				19	8.4%
17:00			17	17				17	7.5%
18:00			16	10				13	5.7%
19:00			7	8				8	3.5%
20:00			4	10				7	3.1%
21:00			4	0				2	0.9%
22:00			0	0				0	0.0%
23:00			0	0				0	0.0%
TOTAL	**0**	**0**	**93**	**217**	**149**	**0**	**0**	**227**	**100.0%**



SANDERSON STEWART

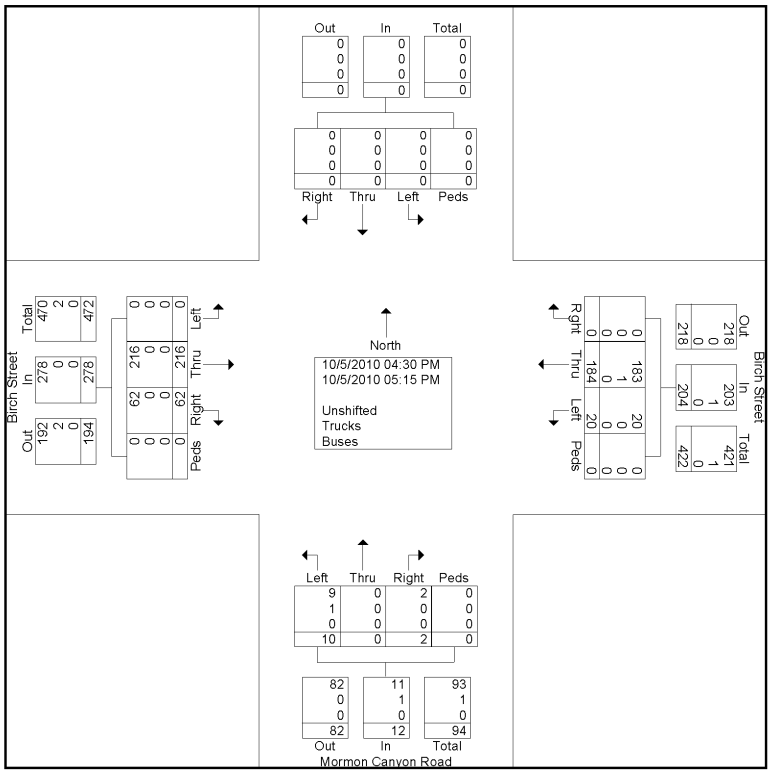
1300 North Transtech Way
Billings, MT 59102
Intersection Count

File Name : Birch-Mormon Canyon_AM_60min_101310
Site Code : 00000000
Start Date : 10/5/2010
Page No : 2



SANDERSON STEWART
1300 North Transtech Way
Billings, MT 59102
Intersection Count

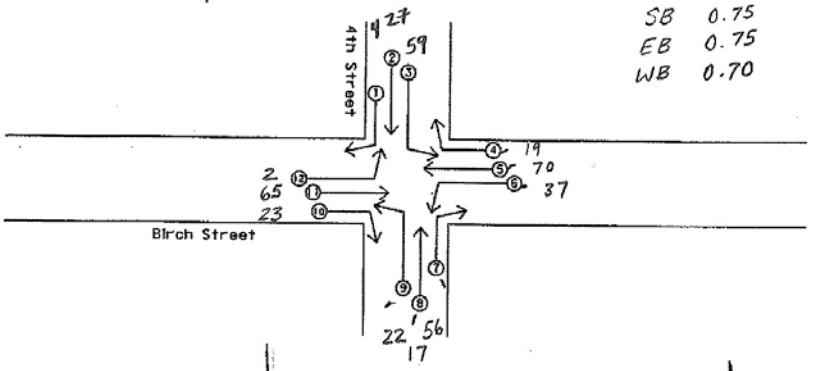
File Name : Birch-Mormon Canyon_PM_60min_100510
Site Code : 00000000
Start Date : 10/5/2010
Page No : 2



Counted By: Amy/Rob
Date: 11/22/19

Peak Period: AM

NB 0.68
SB 0.75
EB 0.75
WB 0.70

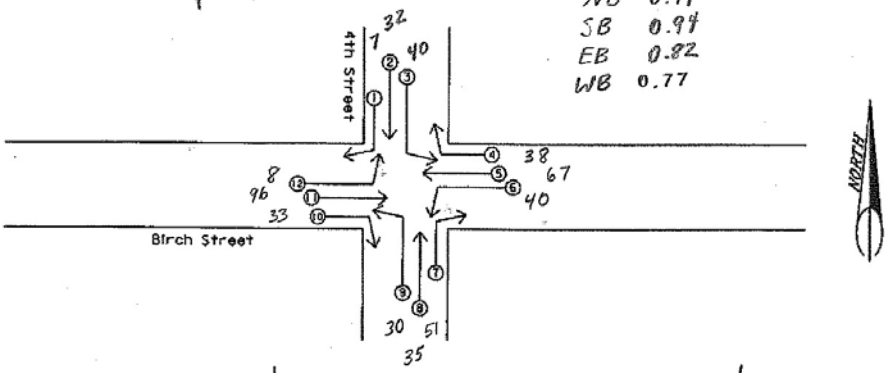


	1	2	3	4	5	6	7	8	9	10	11	12	
7:00-7:15	2	5	10	2 T-0-	20 T-1 B-	7 T- B-	10 T- B-1	5 T- B-	1 T- B-	2	9	0	73
7:15-7:30	1	9	14	4 T- B-	5 T- B-	10 T- B-1	8 T- B-	2 T- B-	5 T-1 B-	7	14	2	81
7:30-7:45	1	6	12	4 T- B-	25 T-1 B-1	4 T- B-	23 T-1 B-III	2 T- B-	4 T- B-	6	20	0	107
7:45-8:00	0	7	23	9 T- B-	20 T- B-	16 T- B-1	15 T- B-1	8 T- B-	12 T- B-	8	22	0	140
	4	27	59	19	70	37	56	17	22	23	65	2	401

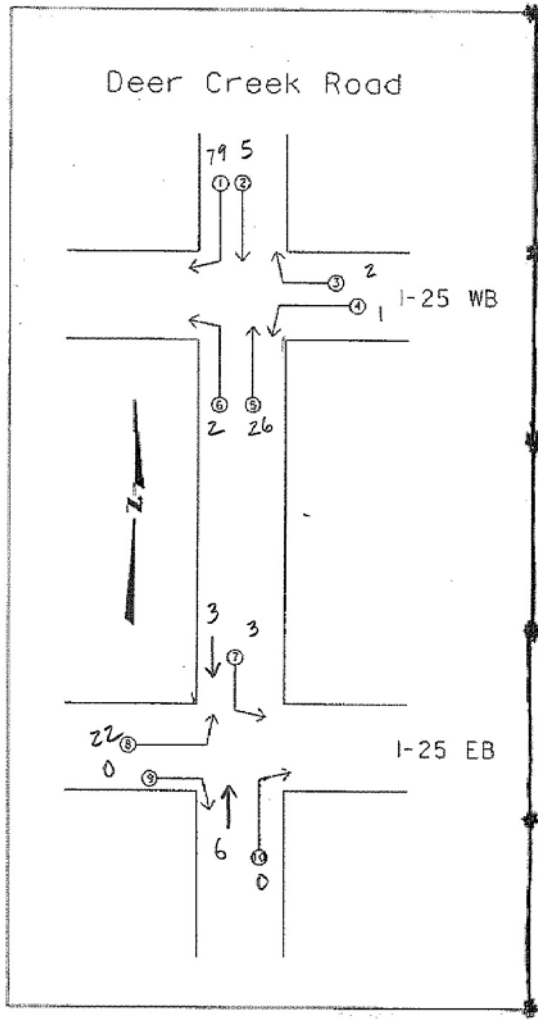
Counted By: Amy Billinger
Date: 11/22/10

Peak Period: PM

NB 0.94
SB 0.94
EB 0.82
WB 0.77



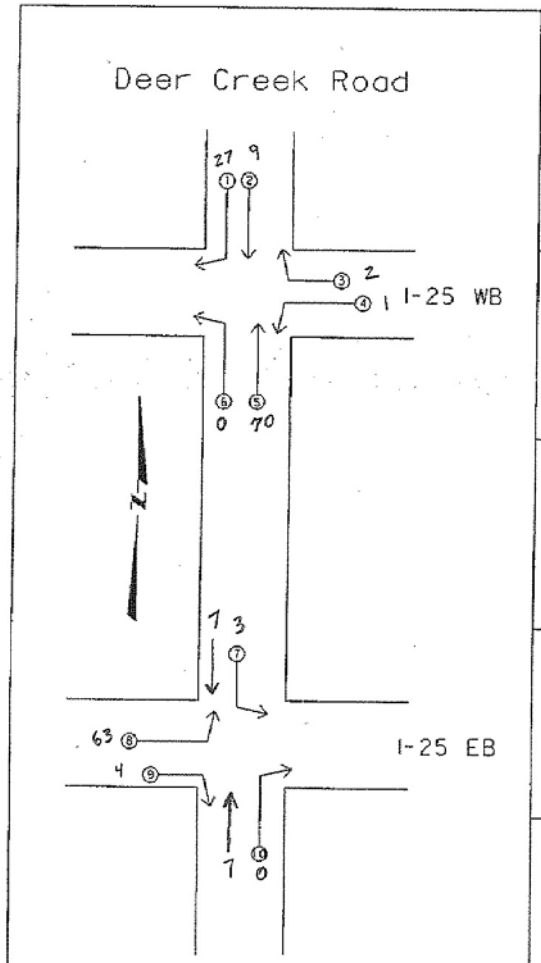
	1	2	3	4	5	6	7	8	9	10	11	12	
4:30-4:45	1	11	14	7	21	13	14	11	4	10	16	2	124
4:45-5:00	3	8	9	7	12	12	18	7	7	7	24	1	115
5:00-5:15	3	10	8	17	20	10	10	12	9	8	33	1	141
5:15-5:30	0	3	9	7	14	5	9	5	10	8	23	4	97
	7	32	40	38	67	40	51	35	30	33	96	8	477



Counted By: Amy Billinger Date: 11/23/10

Peak Period: AM

	1	2	3	4	5	6	7	8	9	10
7:00-7:15	17				5			5		
7:15-7:30	20				9			9		
7:30-7:45	32	4	1	1	5	2	2	2		
7:45-8:00	10	1	1		7		1	6		
	79	5	2	1	26	2	3	22	0	0



Counted By: Robert Bennett Date: 11/23/10

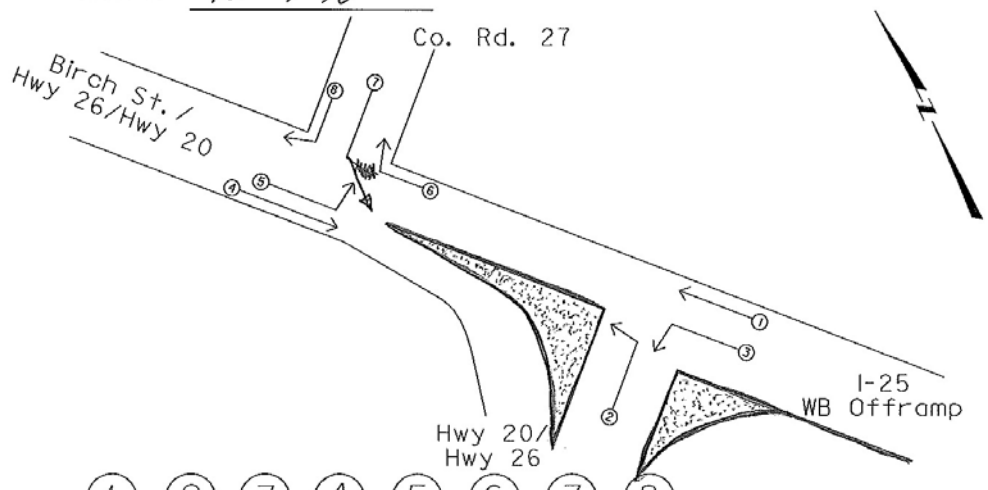
Peak Period: PM

	NB ↙ 1	↓ 2	↰ 3	← 4	↑ 5	↰ 6	SB ↳ 7	↑ 8	↘ 9	↱ 10
4:30-4:45 TK	5	2, 1	1		11		1	10	1	
4:45-5:00 TK	6	1	1		17			16	1	
5:00-5:15 Bus TK	10	2			21		1	16, 1	1	
5:15-5:30 TK	6	3		1	21		1	20	1	
	27	9	2	1	70		3	63	4	

307-267-2467 - Amy L / CEPI PWR PLANT INTERCHANGE - GLENROCK

Counted By: HAL HARTMAN Peak Period: Morning (AM)

Date: 10-7-10

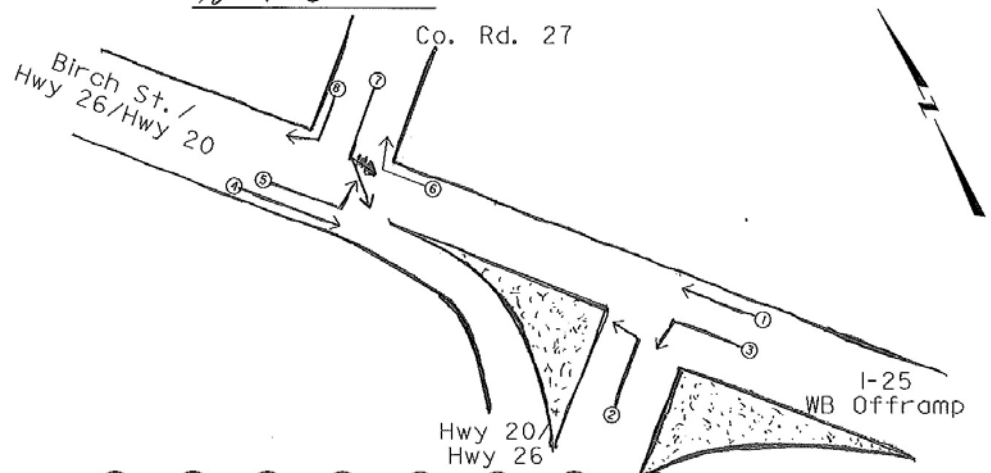


	1	2	3	4	5	6	7	8					Totals
7:00-7:15	3	3		10	1	2	1	2					
7:15-7:30	5	2		14	1		3	3					
7:30-7:45	7	3		7				1					
7:45-8:00	4	4		6	5		1	2					
Totals	20	12		37	7	2	5	12					

PWR PLANT INTERCHANGE - GLENROCK

Counted By: ALLAN HARTMAN Peak Period: Evening (PM)

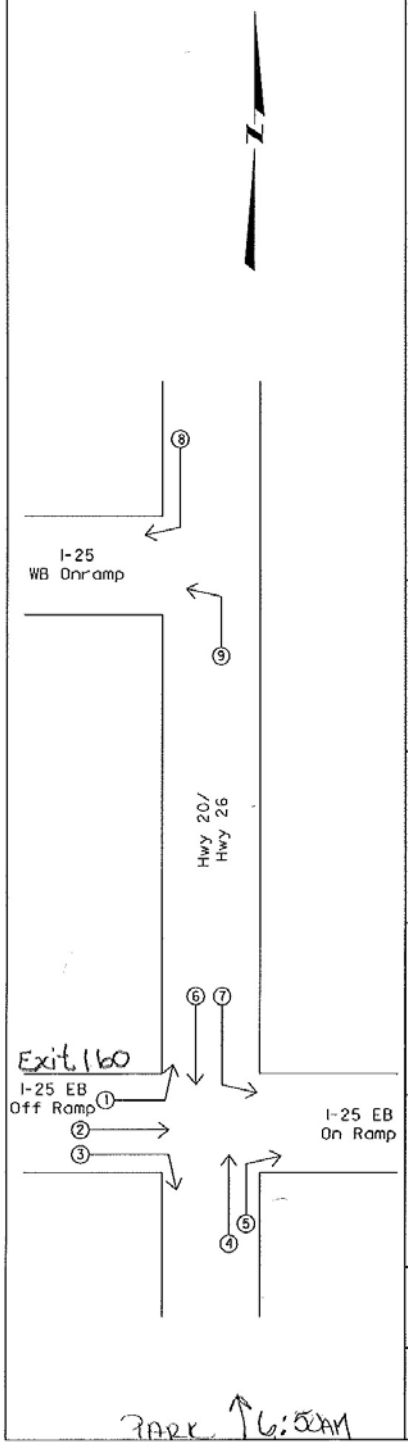
Date: 10-7-10



	1	2	3	4	5	6	7	8					Totals
4:30-4:45	13	1		10	1		5	5					
	B- T- 2	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-					
4:45-5:00	6	2		8	2		11	13					
	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-					
5:00-5:15	9	5		8	1	5	14	10					
	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-					
5:15-5:30	14	5		13	4	2	10	8					
	B- T-	B- T-	B- T-	B- T- 1	B- T-	B- T-	B- T-	B- T-					
Totals	43	13		39	8	7	40	38					

PWR PLANT INTERCHANGE – GLEN ROCK

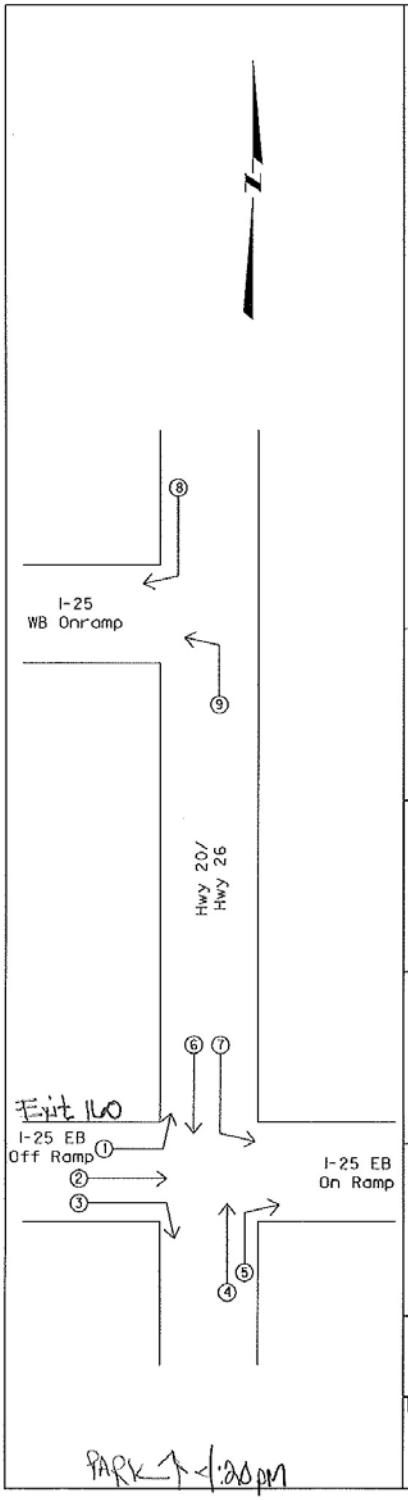
Counted By: Amy Billinger
Date: October 7, 2010
Peak Period: Morning (AM)



	1	2	3	4	5	6	7	8	9
7:00 to 7:15	11 (2) T- B-	1 (1) T- B-	T- B-	T- B-	T- B-	T- B-	10 T- B-	T- B-	T- B-
7:15 to 7:30	M-1 1 (2) T- B-	T- B-	T- B-	T- B-	T- B-	T- B-	10 T- B-	3 T- B-	T- B-
7:30 to 7:45	3 T- B-	T- B-	T- B-	T- B-	T- B-	T- B-	10 T- B-1	2 T- B-	T- B-
7:45 to 8:00	4 T- B-	T- B-	T- B-	T- B-	T- B-	T- B-	4 T- B-	2 T- B-	T- B-
Totals	11	1					34	7	

PWR PLANT INTERCHANGE - GLENROCK

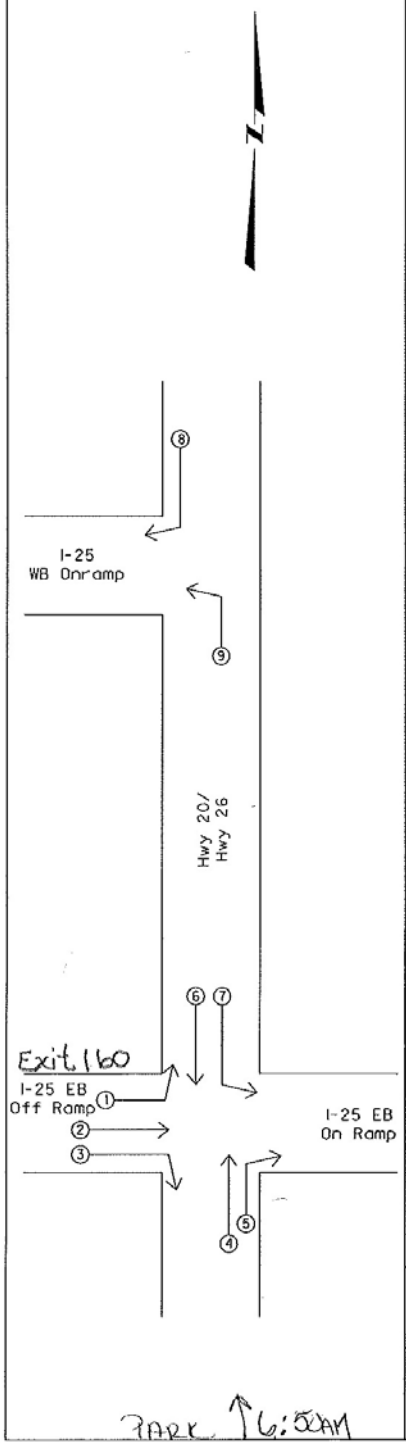
Counted By: Amy Billinger
Date: October 7, 2010
Peak Period: Evening (PM)



	1	2	3	4	5	6	7	8	9
4:30 to 4:45	2						10	2	1
4:45 to 5:00	2						6	12	
5:00 to 5:15	4						6	13	
5:15 to 5:30	5						11	7	
Totals	13						33	34	1

PWR PLANT INTERCHANGE – GLEN ROCK

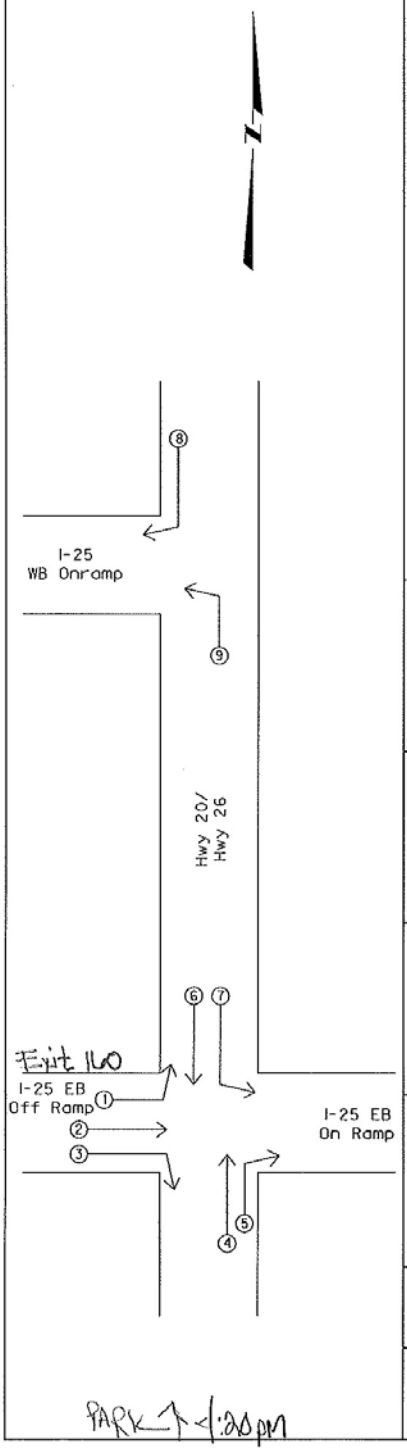
Counted By: Amy Billinger
Date: October 7, 2010
Peak Period: Morning (AM)



	1	2	3	4	5	6	7	8	9
7:00 to 7:15	11 (2) T- B-	1 (1) T- B-	T- B-	T- B-	T- B-	T- B-	10 T- B-	T- B-	T- B-
7:15 to 7:30	M-1 1 (2) T- B-	T- B-	T- B-	T- B-	T- B-	T- B-	10 T- B-	3 T- B-	T- B-
7:30 to 7:45	3 T- B-	T- B-	T- B-	T- B-	T- B-	T- B-	10 T- B-1	2 T- B-	T- B-
7:45 to 8:00	4 T- B-	T- B-	T- B-	T- B-	T- B-	T- B-	4 T- B-	2 T- B-	T- B-
Totals	11	1					34	7	

PWR PLANT INTERCHANGE - GLENROCK

Counted By: AMY Billinger
Date: October 7, 2010
Peak Period: Evening (PM)



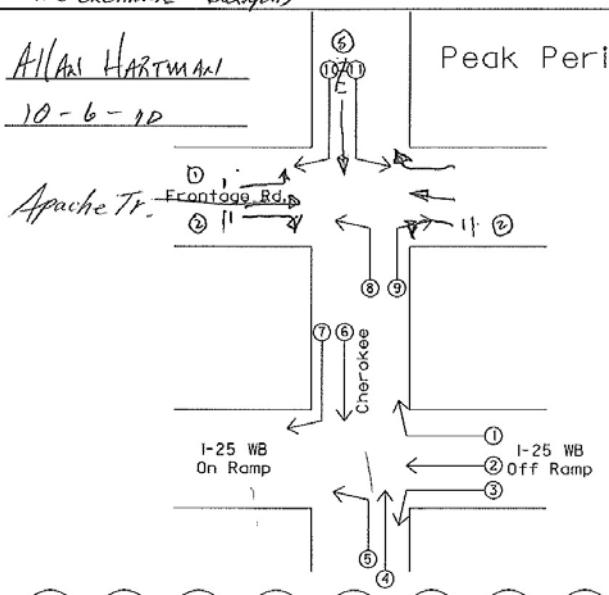
	1	2	3	4	5	6	7	8	9
4:30 to 4:45	2						10	2	1
4:45 to 5:00	2						6	12	
5:00 to 5:15	4						16	13	
5:15 to 5:30	5						11	7	
Totals	13						33	34	1

LA PRELE INTERCHANGE - Douglas Arm/@CEPI 3:50pm 10/6/10

Counted By: Al/Ari Hartman

Date: 10-6-10

Peak Period: Evening (PM)

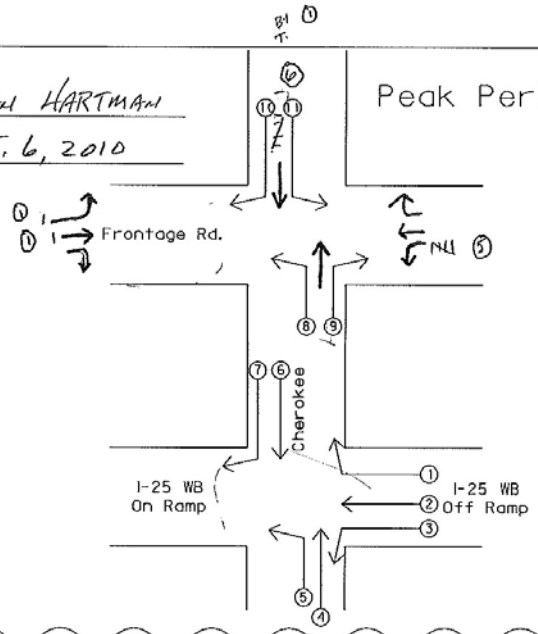


	1	2	3	4	5	6	7	8	9	10	11		Totals
4:30-4:45	IIII (4) B- T-	B- T-	I (1) B- T-	B- T	III (3) B- T-	B- T-	B- T-	B- T-	B- T-	B T-	B- T-		
4:45-5:00	I (1) B- T-	B- T-	B- T-	I (1) B- T-	I (1) B- T-	B- T-	B- T-	B- T-	I (1) B- T-	B- T-	B- T-		
5:00-5:15	I (1) B- T-	B- T-	B- T-	B- T-	II (2) B- T-	II (2) B- T-	I (1) B- T-	I (1) B- T-	I (1) B- T-	B- T-	B- T-		
5:15-5:30	I (1) B- T-	I (1) B- T-	B- T-	I (1) B- T-	III (3) B- T	II (2) B- T-	B- T-	B- T-	B- T-	B- T-	I (1) B- T-		
Totals													

Counted By: Allan Hartman

Date: Oct. 6, 2010

Peak Period: Morning 7(AM)

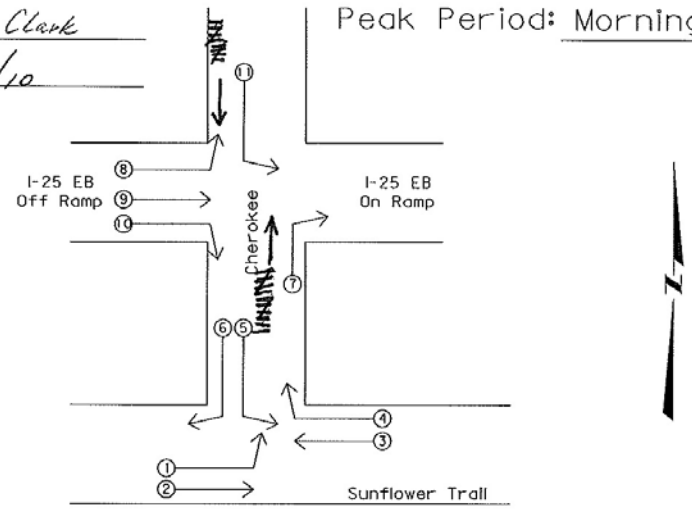


	1	2	3	4	5	6	7	8	9	10	11		Totals
7:00-7:15	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-		
7:15-7:30	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-		
7:30-7:45	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-		
7:45-8:00	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-		
Totals													

Counted By: D. J. Clark

Date: 10/6/10

Peak Period: Morning (AM)



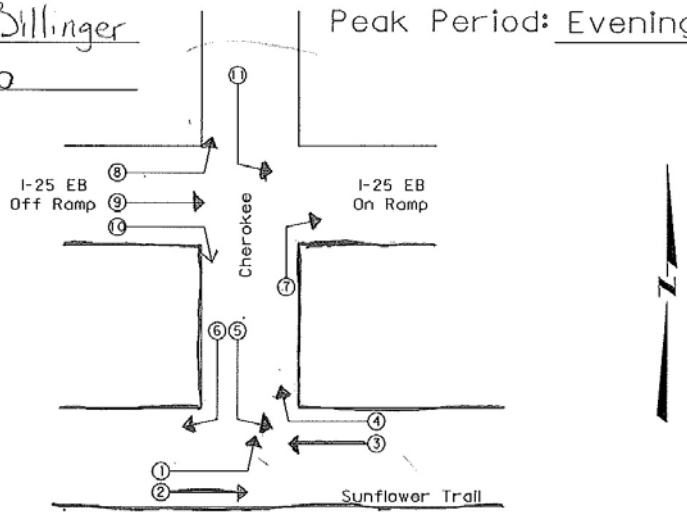
	1	2	3	4	5	6	7	8	9	10	11		Totals
7:00-7:15				3	1					1	1		
7:15-7:30				7	6					2	2		
7:30-7:45				6	2					1	3		
7:45-8:00		1			4					4	1		
Totals													

LAFRELE INTERCHANGE - Day/PARK ↓

Counted By: Amy Dillinger

Date: 10/6/10

Peak Period: Evening (PM)



	1	2	3	4	5	6	7	8	9	10	11		Totals
4:30-4:45	B- T-	B- T-	B- T-	2 B- T-	1 B- T-	B- T-	B- T-	B- T-	B- T-	1 B- T-	3 B- T-		
4:45-5:00	B- T-	B- T-	B- T-	4 B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	2 B- T-		
5:00-5:15	B- T-	B- T-	B- T-	1 B- T-	B- T-	B- T-	B- T-	B- T-	B- T-	4 B- T-	3 B- T-		
5:15-5:30	1 B- T-	B- T-	B- T-	4 B- T-	4 B- T-	B- T-	B- T-	B- T-	B- T-	1 B- T-	B- T-		
Totals													

Appendix B – Existing Conditions Intersection Capacity Calculation Results

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Birch/Mormon Canyon
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Existing Conditions
Analysis Time Period	AM Peak (7:00-8:00)		

Project Description SHE-10023

East/West Street: Birch Street	North/South Street: Mormon Canyon Road
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		247	7	2	218	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	274	7	2	242	0
Percent Heavy Vehicles	0	--	--	60	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	2		2			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	2	0	2	0	0	0
Percent Heavy Vehicles	60	0	33	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		2		4				
C (m) (veh/h)		1011		526				
v/c		0.00		0.01				
95% queue length		0.01		0.02				
Control Delay (s/veh)		8.6		11.9				
LOS		A		B				
Approach Delay (s/veh)	--	--	11.9					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Birch/Mormon Canyon*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*PM Peak (4:30-5:30)*		

Project Description *SHE-10023*

East/West Street: *Birch Street*	North/South Street:
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*216*	*62*	*20*	*184*	
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*240*	*68*	*22*	*204*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*		*2*			
Peak-Hour Factor, PHF	*0.90*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*11*	*0*	*2*	*0*	*0*	*0*
Percent Heavy Vehicles	*10*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*22*		*13*				
C (m) (veh/h)		*1264*		*521*				
v/c		*0.02*		*0.02*				
95% queue length		*0.05*		*0.08*				
Control Delay (s/veh)		*7.9*		*12.1*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*12.1*					
Approach LOS	--	--	*B*					

 HCS+™ Version 5.4 Generated: 11/23/2010 2:44 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*I-25 WB/Birch*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*AM Peak (7:-00-8:00)*		

Project Description *SHE-10023*

East/West Street: *I-25 WB off-ramp*	North/South Street: *Birch Street*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				*0*	*20*	
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*22*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration				*LT*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*12*					
Peak-Hour Factor, PHF	*0.90*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*13*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*0*	*0*	*0*	*0*
Configuration	*L*					

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*L*					
v (veh/h)		*0*	*13*					
C (m) (veh/h)		*1636*	*1014*					
v/c		*0.00*	*0.01*					
95% queue length		*0.00*	*0.04*					
Control Delay (s/veh)		*7.2*	*8.6*					
LOS		*A*	*A*					
Approach Delay (s/veh)	--	--	*8.6*					
Approach LOS	--	--	*A*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*I-25 WB/Birch*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*PM Peak (4:30-5:30)*		

Project Description *SHE-10023*

East/West Street: *I-25 WB off-ramp*	North/South Street: *Birch Street*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				*0*	*43*	
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*47*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*0*
Configuration				*LT*	*T*	
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*13*					
Peak-Hour Factor, PHF	*0.90*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*14*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*0*	*0*	*0*	*0*	*0*
Configuration	*L*					

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*	*L*					
v (veh/h)		*0*	*14*					
C (m) (veh/h)		*1636*	*998*					
v/c		*0.00*	*0.01*					
95% queue length		*0.00*	*0.04*					
Control Delay (s/veh)		*7.2*	*8.7*					
LOS		*A*	*A*					
Approach Delay (s/veh)	--	--	*8.7*					
Approach LOS	--	--	*A*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Birch/I-25 WB*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*AM Peak (7:00-8:00)*		

Project Description *SHE-10023*

East/West Street: *I-25 WB on-ramp*	North/South Street: *Birch Street*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*12*			*35*	*7*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*13*	*0*	*0*	*38*	*7*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*40*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*							
v (veh/h)	*0*							
C (m) (veh/h)	*1576*							
v/c	*0.00*							
95% queue length	*0.00*							
Control Delay (s/veh)	*7.3*							
LOS	*A*							
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Birch/I-25 WB*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*PM Peak (4:30-5:30)*		

Project Description *SHE-10023*

East/West Street: *I-25 WB on-ramp* | North/South Street: *Birch Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*1*	*13*			*35*	*34*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*1*	*14*	*0*	*0*	*38*	*37*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*40*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*							
v (veh/h)	*1*							
C (m) (veh/h)	*1537*							
v/c	*0.00*							
95% queue length	*0.00*							
Control Delay (s/veh)	*7.3*							
LOS	*A*							
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Birch/I-25 EB*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*AM Peak (7:00-8:00)*		

Project Description *SHE-10023*

East/West Street: *I-25 EB ramps* | North/South Street: *Birch Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				*35*		
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*38*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--		--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*12*	*0*				
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*13*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*40*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*				*LT*		
v (veh/h)		*38*				*13*		
C (m) (veh/h)		*1636*				*910*		
v/c		*0.02*				*0.01*		
95% queue length		*0.07*				*0.04*		
Control Delay (s/veh)		*7.3*				*9.0*		
LOS		*A*				*A*		
Approach Delay (s/veh)	--	--				*9.0*		
Approach LOS	--	--				*A*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Birch/I-25 EB*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*PM Peak (4:30-5:30)*		

Project Description *SHE-10023*

East/West Street: *I-25 EB ramps* | North/South Street: *Birch Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				*35*		
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*38*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*13*	*0*				
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*14*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*40*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*				*LT*		
v (veh/h)		*38*				*14*		
C (m) (veh/h)		*1617*				*910*		
v/c		*0.02*				*0.02*		
95% queue length		*0.07*				*0.05*		
Control Delay (s/veh)		*7.3*				*9.0*		
LOS		*A*				*A*		
Approach Delay (s/veh)	--	--				*9.0*		
Approach LOS	--	--				*A*		

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	D.J. Clark
Agency/Co.	Sanderson Stewart
Date Performed	11/23/2010
Analysis Time Period	AM Peak (7:00-8:00)

Site Information

Intersection	Birch/4th
Jurisdiction	WYDOT
Analysis Year	Existing Conditions (2010)

Project ID SHE-10023

East/West Street: Birch Street | North/South Street: 4th Street

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	2	65	23	37	70	19
%Thrus Left Lane	69			37		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	22	17	56	59	27	4
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	TR	LT	TR	LTR		LTR	
PHF	0.75	0.75	0.70	0.70	0.68		0.75	
Flow Rate (veh/h)	60	58	87	91	138		119	
% Heavy Vehicles	6	6	4	4	8		6	
No. Lanes	2		2		1		1	
Geometry Group	5		5		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
Prop. Left-Turns	0.0	0.0	0.6	0.0	0.2		0.7	
Prop. Right-Turns	0.0	0.5	0.0	0.3	0.6		0.0	
Prop. Heavy Vehicle	0.1	0.1	0.0	0.0	0.1		0.1	
hLT-adj	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1	-0.3	0.4	-0.1	-0.2		0.2	

Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
hd, initial value (s)	3.20	3.20	3.20	3.20	3.20		3.20	
x, initial	0.05	0.05	0.08	0.08	0.12		0.11	
hd, final value (s)	5.48	5.10	5.66	5.15	4.63		5.02	
x, final value	0.09	0.08	0.14	0.13	0.18		0.17	
Move-up time, m (s)	2.3		2.3		2.0		2.0	
Service Time, t_s (s)	3.2	2.8	3.4	2.9	2.6		3.0	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	310	308	337	341	388		369	
Delay (s/veh)	8.73	8.26	9.26	8.62	8.63		9.02	
LOS	A	A	A	A	A		A	
Approach: Delay (s/veh)	8.50		8.93		8.63		9.02	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.78							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*D.J. Clark*
Agency/Co.	*Sanderson Stewart*
Date Performed	*11/23/2010*
Analysis Time Period	*PM Peak (4:30-5:30)*

Site Information

Intersection	*Birch/4th*
Jurisdiction	*WYDOT*
Analysis Year	*Existing Conditions (2010)*

Project ID *SHE-10023*

East/West Street: *Birch Street* North/South Street: *4th Street*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	8	96	33	40	67	38
%Thrus Left Lane	63			49		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	30	35	51	40	32	7
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	TR	LT	TR	LTR		LTR	
PHF	0.82	0.82	0.77	0.77	0.94		0.94	
Flow Rate (veh/h)	82	83	92	94	122		83	
% Heavy Vehicles	0	0	3	3	1		0	
No. Lanes	2		2		1		1	
Geometry Group	5		5		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1	0.0	0.6	0.0	0.3		0.5	
Prop. Right-Turns	0.0	0.5	0.0	0.5	0.4		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	
hLT-adj	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1	-0.3	0.3	-0.3	-0.2		0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20		3.20	
x, initial	0.07	0.07	0.08	0.08	0.11		0.07	
hd, final value (s)	5.27	4.88	5.52	4.87	4.65		4.94	
x, final value	0.12	0.11	0.14	0.13	0.16		0.11	
Move-up time, m (s)	2.3		2.3		2.0		2.0	
Service Time, t_s (s)	3.0	2.6	3.2	2.6	2.6		2.9	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	332	333	342	344	372		333	
Delay (s/veh)	8.69	8.19	9.13	8.28	8.51		8.58	
LOS	A	A	A	A	A		A	
Approach: Delay (s/veh)	8.44		8.70		8.51		8.58	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.56							
Intersection LOS	A							

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Deer Creek/I-25 EB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Existing Conditions (2010)
Analysis Time Period	AM Peak (7:00-8:00)		

Project Description SHE-10023

East/West Street: I-25 EB ramps	North/South Street: Deer Creek Road
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		6	0	3	3	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	6	0	3	3	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	22	0	0			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	24	0	0	0	0	0
Percent Heavy Vehicles	0	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT					LTR	
v (veh/h)		3					24	
C (m) (veh/h)		1628					1007	
v/c		0.00					0.02	
95% queue length		0.01					0.07	
Control Delay (s/veh)		7.2					8.7	
LOS		A					A	
Approach Delay (s/veh)	--	--				8.7		
Approach LOS	--	--				A		

 HCS+™ Version 5.4 Generated: 11/24/2010 10:22 AM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*PM Peak (4:30-5:30)*		

Project Description *SHE-10023*

East/West Street: *I-25 EB ramps* | North/South Street: *Deer Creek Road*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*7*	*0*	*3*	*7*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*7*	*0*	*3*	*7*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*63*	*0*	*4*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*70*	*0*	*4*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*40*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*					*LTR*	
v (veh/h)		*3*					*74*	
C (m) (veh/h)		*1627*					*1004*	
v/c		*0.00*					*0.07*	
95% queue length		*0.01*					*0.24*	
Control Delay (s/veh)		*7.2*					*8.9*	
LOS		*A*					*A*	
Approach Delay (s/veh)	--	--				*8.9*		
Approach LOS	--	--				*A*		

 HCS+™ Version 5.4 Generated: 11/24/2010 10:23 AM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Deer Creek/I-25 EB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Existing Conditions (2010)
Analysis Time Period	AM Peak (7:00-8:00)		

Project Description SHE-10023

East/West Street: I-25 WB ramps | North/South Street: Deer Creek Road

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	26			5	79
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	2	28	0	0	5	87
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				1	0	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	1	0	2
Percent Heavy Vehicles	0	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT			LTR				
v (veh/h)	2			3				
C (m) (veh/h)	1515			969				
v/c	0.00			0.00				
95% queue length	0.00			0.01				
Control Delay (s/veh)	7.4			8.7				
LOS	A			A				
Approach Delay (s/veh)	--	--	8.7					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Deer Creek/I-25 EB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Existing Conditions (2010)
Analysis Time Period	PM Peak (4:30-5:30)		

Project Description SHE-10023

East/West Street: I-25 WB ramps	North/South Street: Deer Creek Road
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	70			9	27
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	77	0	0	10	30
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				1	0	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	1	0	2
Percent Heavy Vehicles	0	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT			LTR				
v (veh/h)	0			3				
C (m) (veh/h)	1583			923				
v/c	0.00			0.00				
95% queue length	0.00			0.01				
Control Delay (s/veh)	7.3			8.9				
LOS	A			A				
Approach Delay (s/veh)	--	--	8.9					
Approach LOS	--	--	A					

 HCS+™ Version 5.4 Generated: 11/24/2010 10:24 AM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Cherokee/I-25*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*AM Peak (7:00-8:00)*		

Project Description *SHE-10023*

East/West Street: *I-25 WB ramps*	North/South Street: *Cherokee Trail*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*9*	*5*			*9*	*7*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*1.00*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*10*	*5*	*0*	*0*	*10*	*7*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*3*	*0*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*3*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*			*LTR*				
v (veh/h)	*10*			*3*				
C (m) (veh/h)	*1613*			*972*				
v/c	*0.01*			*0.00*				
95% queue length	*0.02*			*0.01*				
Control Delay (s/veh)	*7.2*			*8.7*				
LOS	*A*			*A*				
Approach Delay (s/veh)	--	--	*8.7*					
Approach LOS	--	--	*A*					

 HCS+™ Version 5.4 Generated: 10/12/2010 2:40 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Cherokee/I-25
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Existing Conditions (2010)
Analysis Time Period	PM Peak (4:30-5:30)		

Project Description	SHE-10023
East/West Street:	I-25 WB ramps
Intersection Orientation:	North-South
North/South Street:	Cherokee Trail
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	10	2			7	1
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	11	2	0	0	7	1
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				1	0	7
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	1	0	7
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT			LTR				
v (veh/h)	11			8				
C (m) (veh/h)	1625			1073				
v/c	0.01			0.01				
95% queue length	0.02			0.02				
Control Delay (s/veh)	7.2			8.4				
LOS	A			A				
Approach Delay (s/veh)	--	--	8.4					
Approach LOS	--	--	A					

HCS+™ Version 5.4 Generated: 10/12/2010 2:42 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Cherokee/I-25 EB*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*AM Peak (7:00-8:00)*		

Project Description *SHE-10023*

East/West Street: *I-25 EB ramps*	North/South Street: *Cherokee Trail*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*14*	*2*	*7*	*5*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*15*	*2*	*7*	*5*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*8*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*8*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*40*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*					*LTR*	
v (veh/h)		*7*					*8*	
C (m) (veh/h)		*1613*					*1084*	
v/c		*0.00*					*0.01*	
95% queue length		*0.01*					*0.02*	
Control Delay (s/veh)		*7.2*					*8.3*	
LOS		*A*					*A*	
Approach Delay (s/veh)	--	--					*8.3*	
Approach LOS	--	--					*A*	

 HCS+™ Version 5.4 Generated: 10/15/2010 12:23 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Cherokee/I-25 EB*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*PM Peak (4:30-5:30)*		

Project Description *SHE-10023*

East/West Street: *I-25 EB ramps*	North/South Street: *Cherokee Trail*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*12*	*0*	*8*	*0*	
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*13*	*0*	*8*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*6*			
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*6*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*40*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*					*LTR*	
v (veh/h)		*8*					*6*	
C (m) (veh/h)		*1619*					*1091*	
v/c		*0.00*					*0.01*	
95% queue length		*0.01*					*0.02*	
Control Delay (s/veh)		*7.2*					*8.3*	
LOS		*A*					*A*	
Approach Delay (s/veh)	--	--					*8.3*	
Approach LOS	--	--					*A*	

 HCS+™ Version 5.4 Generated: 10/15/2010 12:26 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Sunflower/Cherokee*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*AM Peak (7:00-8:00)*		

Project Description *SHE-10023*

East/West Street: *Sunflower Trail*	North/South Street: *Cherokee Trail*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*0*	*1*			*0*	*16*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*1*	*0*	*0*	*0*	*17*
Percent Heavy Vehicles	*0*	--	--	*40*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*13*		*0*
Peak-Hour Factor, PHF	*0.90*	*1.00*	*0.90*	*0.90*	*1.00*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*14*	*0*	*0*
Percent Heavy Vehicles	*7*	*0*	*8*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*0*						*14*	
C (m) (veh/h)	*1613*						*1017*	
v/c	*0.00*						*0.01*	
95% queue length	*0.00*						*0.04*	
Control Delay (s/veh)	*7.2*						*8.6*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--					*8.6*	
Approach LOS	--	--					*A*	

HCS+™ Version 5.4 Generated: 10/12/2010 2:46 PM

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Sunflower/Cherokee*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Existing Conditions (2010)*
Analysis Time Period	*PM Peak (4:30-5:30)*		

Project Description	*SHE-10023*
East/West Street:	*Sunflower Trail*
Intersection Orientation:	*East-West*
North/South Street:	*Cherokee Trail*
Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*1*	*0*			*0*	*11*
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*1*	*0*	*0*	*0*	*0*	*12*
Percent Heavy Vehicles	*0*	--	--	*40*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*6*		*0*
Peak-Hour Factor, PHF	*0.90*	*1.00*	*0.90*	*0.90*	*1.00*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*6*	*0*	*0*
Percent Heavy Vehicles	*7*	*0*	*8*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*1*						*6*	
C (m) (veh/h)	*1620*						*1017*	
v/c	*0.00*						*0.01*	
95% queue length	*0.00*						*0.02*	
Control Delay (s/veh)	*7.2*						*8.6*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--					*8.6*	
Approach LOS	--	--					*A*	

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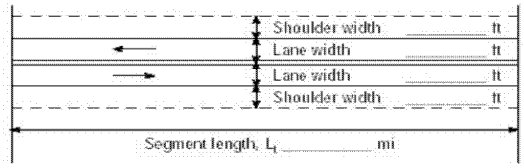
Appendix C – Existing Conditions Highway/Freeway Capacity Calculation Results

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Birch Street*
Agency or Company	*Sanderson Stewart*	From/To	*Glenrock Int to Mormon Canyon*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*469* veh/h
Directional split	*53 / 47*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*7* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*547*
v_p * highest directional split proportion[2] (pc/h)	*290*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*1.3 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*48.2 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.8*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*41.1*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.993*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*525*
v_p * highest directional split proportion[2] (pc/h)	*278*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*37.0*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*18.3*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*55.3*

Level of Service and Other Performance Measures

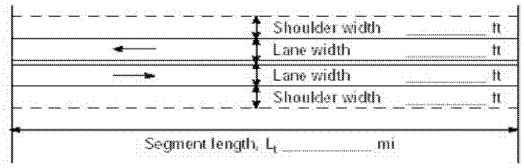
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.17*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*417*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Birch Street*
Agency or Company	*Sanderson Stewart*	From/To	*Glenrock Int to Mormon Canyon*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*PM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*422* veh/h
Directional split	*51 / 49*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*7* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*492*
v_p * highest directional split proportion[2] (pc/h)	*251*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*1.3 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*48.2 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.9*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*41.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.993*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*472*
v_p * highest directional split proportion[2] (pc/h)	*241*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*34.0*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*19.4*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*53.4*

Level of Service and Other Performance Measures

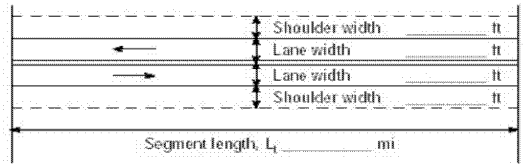
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*B*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.15*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*375*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Mormon Canyon Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Birch Street*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*13* veh/h
Directional split	*69 / 31*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*3* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*21*
v_p * highest directional split proportion[2] (pc/h)	*14*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.2*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*44.9*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.977*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*19*
v_p * highest directional split proportion[2] (pc/h)	*13*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*1.7*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*23.7*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*25.4*

Level of Service and Other Performance Measures

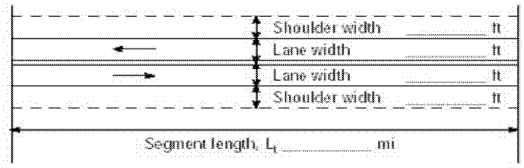
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.01*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*7*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Mormon Canyon Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Birch Street*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling	
Two-way hourly volume	*94* veh/h
Directional split	*87 / 13*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*3* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*154*
v_p * highest directional split proportion[2] (pc/h)	*134*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.5*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*42.6*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.977*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*139*
v_p * highest directional split proportion[2] (pc/h)	*121*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*11.5*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*32.9*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*44.4*

Level of Service and Other Performance Measures

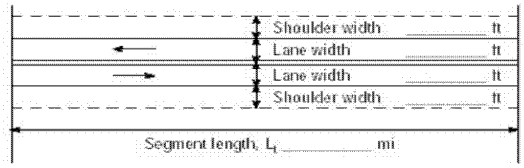
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*B*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.05*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*52*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Deer Creek Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Birch Street*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*181* veh/h
Directional split	*52 / 48*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*292*
v_p * highest directional split proportion[2] (pc/h)	*152*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.5*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*40.6*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.984*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*265*
v_p * highest directional split proportion[2] (pc/h)	*138*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*20.8*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*19.4*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*40.2*

Level of Service and Other Performance Measures

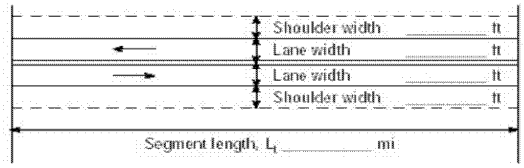
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*B*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.09*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*101*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Deer Creek Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Birch Street*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*221* veh/h
Directional split	*52 / 48*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*356*
v_p * highest directional split proportion[2] (pc/h)	*185*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.8*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*39.7*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.984*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*324*
v_p * highest directional split proportion[2] (pc/h)	*168*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*24.8*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*19.8*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*44.6*

Level of Service and Other Performance Measures

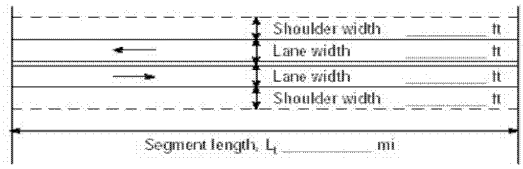
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*B*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.11*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*123*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Sunflower Trail*
Agency or Company	*Sanderson Stewart*	From/To	*East of La Prele interchange*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*29* veh/h
Directional split	*55 / 45*
Peak-hour factor, PHF	*0.90*
No-passing zone	*60*
% Trucks and Buses , P_T	*3* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*47*
v_p * highest directional split proportion[2] (pc/h)	*26*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
		Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Field Measured speed, S_{FM}	*mi/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Observed volume, V_f	*veh/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.6*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*44.4*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.977*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*43*
v_p * highest directional split proportion[2] (pc/h)	*24*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*3.7*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*21.1*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*24.8*

Level of Service and Other Performance Measures

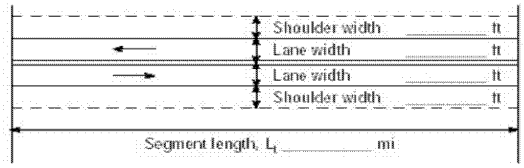
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.01*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*16*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Sunflower Trail*
Agency or Company	*Sanderson Stewart*	From/To	*East of La Prele interchange*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*PM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*17* veh/h
Directional split	*55 / 45*
Peak-hour factor, PHF	*0.90*
No-passing zone	*60*
% Trucks and Buses , P_T	*3* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*28*
v_p * highest directional split proportion[2] (pc/h)	*15*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.3*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*44.7*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.977*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*25*
v_p * highest directional split proportion[2] (pc/h)	*14*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*2.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*21.0*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*23.2*

Level of Service and Other Performance Measures

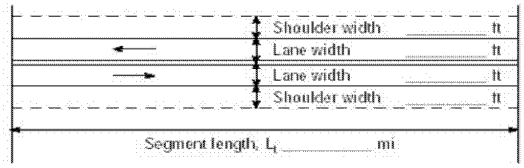
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.01*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*9*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Cold Springs Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Sunflower Trail*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*36* veh/h
Directional split	*50 / 50*
Peak-hour factor, PHF	*0.90*
No-passing zone	*80*
% Trucks and Buses , P_T	*22* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.752*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*75*
v_p * highest directional split proportion[2] (pc/h)	*38*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.7 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*43.7*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.850*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*61*
v_p * highest directional split proportion[2] (pc/h)	*31*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*5.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*19.1*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*24.3*

Level of Service and Other Performance Measures

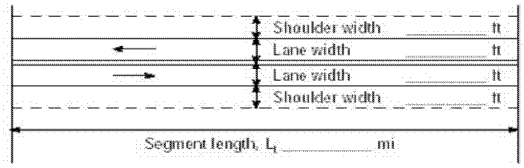
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.02*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*20*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Cold Springs Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Sunflower Trail*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*PM Peak*	Analysis Year	*Existing Conditions*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*36* veh/h
Directional split	*50 / 50*
Peak-hour factor, PHF	*0.90*
No-passing zone	*80*
% Trucks and Buses , P_T	*22* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.752*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*75*
v_p * highest directional split proportion[2] (pc/h)	*38*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.7 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*43.7*

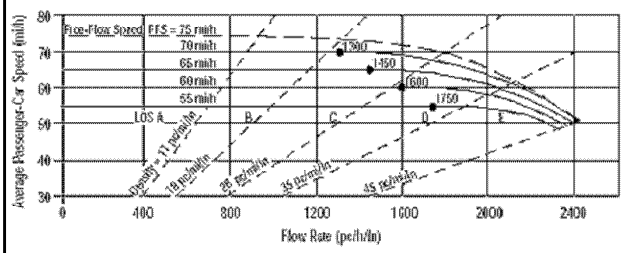
Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.850*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*61*
v_p * highest directional split proportion[2] (pc/h)	*31*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*5.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*19.1*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*24.3*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.02*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*20*

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway/Direction of Travel	*I-25*
Agency or Company	*Sanderson Stewart*	From/To	*Deer Creek Interchange*
Date Performed	*11/11/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM or PM*	Analysis Year	*Existing Conditions*

Project Description Pioneer Wind Park TA

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs				
Volume, V	*301*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*20*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Rolling*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*2.0*
E_T	*2.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.769*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*75.0*	mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*217*	pc/h/ln	Design LOS		
S	*75.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*2.9*	pc/mi/ln	S		mi/h
LOS	*A*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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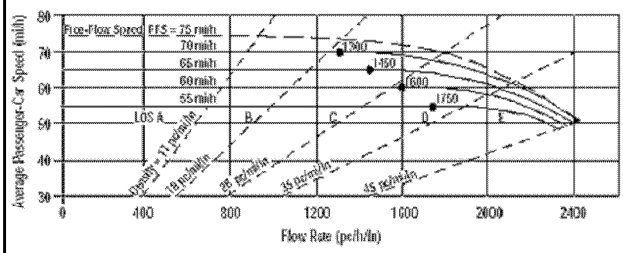
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway/Direction of Travel	*I-25*
Agency or Company	*Sanderson Stewart*	From/To	*Glenrock Interchange*
Date Performed	*11/11/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM or PM*	Analysis Year	*Existing Conditions*

Project Description Pioneer Wind Park TA

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs				
Volume, V	*306*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*20*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Rolling*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*2.0*
E_T	*2.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.769*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*75.0*	mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*221*	pc/h/ln	Design LOS		
S	*75.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*2.9*	pc/mi/ln	S		mi/h
LOS	*A*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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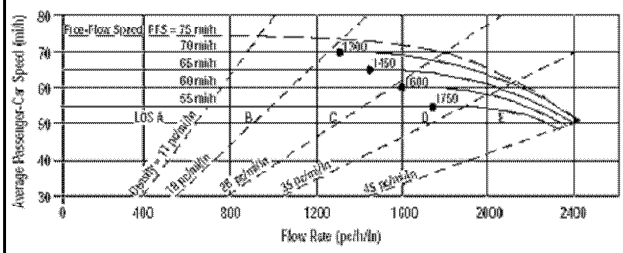
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway/Direction of Travel	*I-25*
Agency or Company	*Sanderson Stewart*	From/To	*LaPrele Interchange*
Date Performed	*11/11/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM or PM*	Analysis Year	*Existing Conditions*

Project Description Pioneer Wind Park TA

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	*310*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*20*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Rolling*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*2.0*
E_T	*2.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.769*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*75.0*	mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*224*	pc/h/ln	Design LOS		
S	*75.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*3.0*	pc/mi/ln	S		mi/h
LOS	*A*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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Appendix D – Peak Construction Intersection Capacity Calculation Results

ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*D.J. Clark*
Agency/Co.	*Sanderson Stewart*
Date Performed	*11/23/2010*
Analysis Time Period	*AM Peak (7:00-8:00)*

Site Information

Intersection	*Birch/4th*
Jurisdiction	*WYDOT*
Analysis Year	*Peak Construction (2011)*

Project ID *SHE-10023*

East/West Street: *Birch Street* North/South Street: *4th Street*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	2	78	23	45	71	19
%Thrus Left Lane	69			37		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	22	17	134	59	27	4
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	TR	LT	TR	LTR		LTR	
PHF	0.75	0.75	0.70	0.70	0.68		0.75	
Flow Rate (veh/h)	72	63	101	91	253		119	
% Heavy Vehicles	6	6	4	4	8		6	
No. Lanes	2		2		1		1	
Geometry Group	5		5		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0	0.0	0.6	0.0	0.1		0.7	
Prop. Right-Turns	0.0	0.5	0.0	0.3	0.8		0.0	
Prop. Heavy Vehicle	0.1	0.1	0.0	0.0	0.1		0.1	
hLT-adj	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1	-0.2	0.4	-0.1	-0.3		0.2	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20		3.20	
x, initial	0.06	0.06	0.09	0.08	0.22		0.11	
hd, final value (s)	5.84	5.49	6.03	5.50	4.64		5.31	
x, final value	0.12	0.10	0.17	0.14	0.33		0.18	
Move-up time, m (s)	2.3		2.3		2.0		2.0	
Service Time, t_s (s)	3.5	3.2	3.7	3.2	2.6		3.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	322	313	351	341	503		369	
Delay (s/veh)	9.31	8.77	9.95	9.08	9.86		9.44	
LOS	A	A	A	A	A		A	
Approach: Delay (s/veh)	9.06		9.54		9.86		9.44	
LOS	A		A		A		A	
Intersection Delay (s/veh)	9.55							
Intersection LOS	A							

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ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*D.J. Clark*
Agency/Co.	*Sanderson Stewart*
Date Performed	*11/23/2010*
Analysis Time Period	*PM Peak (4:30-5:30)*

Site Information

Intersection	*Birch/4th*
Jurisdiction	*WYDOT*
Analysis Year	*Peak Construction (2011)*

Project ID *SHE-10023*

East/West Street: *Birch Street* North/South Street: *4th Street*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	8	97	33	118	80	38
%Thrus Left Lane	63			49		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume (veh/h)	30	35	59	40	32	7
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	TR	LT	TR	LTR		LTR	
PHF	0.82	0.82	0.77	0.77	0.94		0.94	
Flow Rate (veh/h)	83	83	203	102	130		83	
% Heavy Vehicles	0	0	3	3	1		0	
No. Lanes	2		2		1		1	
Geometry Group	5		5		2		2	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1	0.0	0.8	0.0	0.2		0.5	
Prop. Right-Turns	0.0	0.5	0.0	0.5	0.5		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	
hLT-adj	0.5	0.5	0.5	0.5	0.2	0.2	0.2	0.2
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	0.1	-0.3	0.4	-0.3	-0.2		0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20	3.20	3.20	3.20	3.20		3.20	
x, initial	0.07	0.07	0.18	0.09	0.12		0.07	
hd, final value (s)	5.48	5.08	5.69	4.97	4.94		5.28	
x, final value	0.13	0.12	0.32	0.14	0.18		0.12	
Move-up time, m (s)	2.3		2.3		2.0		2.0	
Service Time, t_s (s)	3.2	2.8	3.4	2.7	2.9		3.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	333	333	453	352	380		333	
Delay (s/veh)	8.97	8.46	11.05	8.48	9.01		9.01	
LOS	A	A	B	A	A		A	
Approach: Delay (s/veh)	8.71		10.20		9.01		9.01	
LOS	A		B		A		A	
Intersection Delay (s/veh)	9.47							
Intersection LOS	A							

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Birch/I-25 EB*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Peak Construction (2011)*
Analysis Time Period	*AM Peak (7:00-8:00)*		

Project Description *SHE-10023*

East/West Street: *I-25 EB ramps* | North/South Street: *Birch Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				*52*		
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*57*	*0*	*0*
Percent Heavy Vehicles	*0*	--	--	*32*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*1*	*0*	*0*
Configuration				*L*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*58*	*0*				
Peak-Hour Factor, PHF	*0.90*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*64*	*0*	*0*	*0*	*0*	*0*
Percent Heavy Vehicles	*78*	*0*	*0*	*40*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration	*LT*					

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*L*				*LT*		
v (veh/h)		*57*				*64*		
C (m) (veh/h)		*1447*				*700*		
v/c		*0.04*				*0.09*		
95% queue length		*0.12*				*0.30*		
Control Delay (s/veh)		*7.6*				*10.7*		
LOS		*A*				*B*		
Approach Delay (s/veh)	--	--				*10.7*		
Approach LOS	--	--				*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Birch/I-25 EB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	PM Peak (4:30-5:30)		

Project Description SHE-10023

East/West Street: I-25 EB ramps	North/South Street: Birch Street
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				40		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	44	0	0
Percent Heavy Vehicles	0	--	--	15	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	0	0	1	0	0
Configuration				L		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	18	0				
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	20	0	0	0	0	0
Percent Heavy Vehicles	28	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration	LT					

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L				LT		
v (veh/h)		44				20		
C (m) (veh/h)		1542				829		
v/c		0.03				0.02		
95% queue length		0.09				0.07		
Control Delay (s/veh)		7.4				9.4		
LOS		A				A		
Approach Delay (s/veh)	--	--				9.4		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Birch/I-25 WB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	AM Peak (7:00-8:00)		

Project Description SHE-10023

East/West Street: I-25 WB on-ramp	North/South Street: Birch Street
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	58			52	12
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	64	0	0	57	13
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	0
Percent Heavy Vehicles	0	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT							
v (veh/h)	0							
C (m) (veh/h)	1544							
v/c	0.00							
95% queue length	0.00							
Control Delay (s/veh)	7.3							
LOS	A							
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Birch/I-25 WB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	PM Peak (4:30-5:30)		

Project Description SHE-10023

East/West Street: I-25 WB on-ramp | North/South Street: Birch Street

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	1	18			40	80
Peak-Hour Factor, PHF	0.90	0.90	0.90	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	1	20	0	0	44	88
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	0
Percent Heavy Vehicles	0	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration						

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT							
v (veh/h)	1							
C (m) (veh/h)	1466							
v/c	0.00							
95% queue length	0.00							
Control Delay (s/veh)	7.5							
LOS	A							
Approach Delay (s/veh)	--	--						
Approach LOS	--	--						

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*D.J. Clark*	Intersection	*Birch/Mormon Canyon*
Agency/Co.	*Sanderson Stewart*	Jurisdiction	*WYDOT*
Date Performed	*10/12/2010*	Analysis Year	*Peak Construction (2011)*
Analysis Time Period	*AM Peak (7:00-8:00)*		

Project Description *SHE-10023*

East/West Street: *Birch Street*	North/South Street: *Box Elder Road*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*260*	*38*	*5*	*219*	
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*0.90*	*0.90*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*288*	*42*	*5*	*243*	*0*
Percent Heavy Vehicles	*0*	--	--	*60*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*5*		*3*			
Peak-Hour Factor, PHF	*0.90*	*1.00*	*0.90*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*5*	*0*	*3*	*0*	*0*	*0*
Percent Heavy Vehicles	*60*	*0*	*33*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*5*		*8*				
C (m) (veh/h)		*966*		*471*				
v/c		*0.01*		*0.02*				
95% queue length		*0.02*		*0.05*				
Control Delay (s/veh)		*8.7*		*12.8*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*12.8*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Birch/Mormon Canyon
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	PM Peak (4:30-5:30)		

Project Description SHE-10023

East/West Street: Birch Street	North/South Street: Box Elder Road
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		217	65	21	197	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	241	72	23	218	0
Percent Heavy Vehicles	0	--	--	5	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	41		5			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	45	0	5	0	0	0
Percent Heavy Vehicles	80	0	60	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		23		50				
C (m) (veh/h)		1230		399				
v/c		0.02		0.13				
95% queue length		0.06		0.43				
Control Delay (s/veh)		8.0		15.3				
LOS		A		C				
Approach Delay (s/veh)	--	--	15.3					
Approach LOS	--	--	C					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	I-25 WB/Birch
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	AM Peak (7:-00-8:00)		

Project Description	SHE-10023
East/West Street:	I-25 WB off-ramp
North/South Street:	Birch Street
Intersection Orientation:	East-West
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				17	25	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	18	27	0
Percent Heavy Vehicles	0	--	--	100	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	0	0	0	2	0
Configuration				LT	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	58					
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	64	0	0	0	0	0
Percent Heavy Vehicles	78	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	0	0	0	0
Configuration	L					

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT	L					
v (veh/h)		18	64					
C (m) (veh/h)		1161	787					
v/c		0.02	0.08					
95% queue length		0.05	0.26					
Control Delay (s/veh)		8.1	10.0					
LOS		A	A					
Approach Delay (s/veh)	--	--	10.0					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	I-25 WB/Birch
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	PM Peak (4:30-5:30)		

Project Description	SHE-10023
East/West Street:	I-25 WB off-ramp
Intersection Orientation:	East-West
North/South Street:	Birch Street
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)				0	43	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	47	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	0	0	0	2	0
Configuration				LT	T	
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	13					
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	14	0	0	0	0	0
Percent Heavy Vehicles	34	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	1	0	0	0	0	0
Configuration	L					

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT	L					
v (veh/h)		0	14					
C (m) (veh/h)		1636	917					
v/c		0.00	0.02					
95% queue length		0.00	0.05					
Control Delay (s/veh)		7.2	9.0					
LOS		A	A					
Approach Delay (s/veh)	--	--	9.0					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Deer Creel/I-25 EB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	AM Peak (7:00-8:00)		

Project Description SHE-10023

East/West Street: I-25 EB ramps	North/South Street: Deer Creek Road
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		6	0	3	3	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	6	0	3	3	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	100	0	0			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	111	0	0	0	0	0
Percent Heavy Vehicles	0	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT					LTR	
v (veh/h)		3					111	
C (m) (veh/h)		1628					1007	
v/c		0.00					0.11	
95% queue length		0.01					0.37	
Control Delay (s/veh)		7.2					9.0	
LOS		A					A	
Approach Delay (s/veh)	--	--				9.0		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Deer Creek/I-25 EB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	PM Peak (4:30-5:30)		

Project Description SHE-10023

East/West Street: I-25 EB ramps	North/South Street: Deer Creek Road
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		7	0	3	7	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	7	0	3	7	0
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	71	0	4			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	78	0	4	0	0	0
Percent Heavy Vehicles	0	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	0	0
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT					LTR	
v (veh/h)		3					82	
C (m) (veh/h)		1627					1004	
v/c		0.00					0.08	
95% queue length		0.01					0.27	
Control Delay (s/veh)		7.2					8.9	
LOS		A					A	
Approach Delay (s/veh)	--	--				8.9		
Approach LOS	--	--				A		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Deer Creek/I-25 EB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	AM Peak (7:00-8:00)		

Project Description	SHE-10023
East/West Street:	I-25 WB ramps
Intersection Orientation:	North-South
North/South Street:	Deer Creek Road
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	26			5	87
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	2	28	0	0	5	96
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				1	0	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	1	0	2
Percent Heavy Vehicles	0	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT			LTR				
v (veh/h)	2			3				
C (m) (veh/h)	1504			966				
v/c	0.00			0.00				
95% queue length	0.00			0.01				
Control Delay (s/veh)	7.4			8.7				
LOS	A			A				
Approach Delay (s/veh)	--	--	8.7					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	D.J. Clark	Intersection	Deer Creek/I-25 EB
Agency/Co.	Sanderson Stewart	Jurisdiction	WYDOT
Date Performed	10/12/2010	Analysis Year	Peak Construction (2011)
Analysis Time Period	PM Peak (4:30-5:30)		

Project Description SHE-10023

East/West Street: I-25 WB ramps	North/South Street: Deer Creek Road
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	70			9	105
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	77	0	0	10	116
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				1	0	2
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	1	0	2
Percent Heavy Vehicles	0	0	0	40	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT			LTR				
v (veh/h)	0			3				
C (m) (veh/h)	1473			902				
v/c	0.00			0.00				
95% queue length	0.00			0.01				
Control Delay (s/veh)	7.4			9.0				
LOS	A			A				
Approach Delay (s/veh)	--	--	9.0					
Approach LOS	--	--	A					

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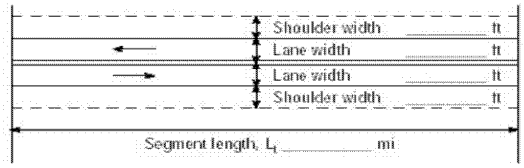
Appendix E – Peak Construction Highway/Freeway Capacity Calculation Results

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Birch Street*
Agency or Company	*Sanderson Stewart*	From/To	*Glenrock Int to Mormon Canyon*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*487* veh/h
Directional split	*53 / 47*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*7* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*568*
v_p * highest directional split proportion[2] (pc/h)	*301*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*1.3 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*48.2 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.8*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*41.0*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.993*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*545*
v_p * highest directional split proportion[2] (pc/h)	*289*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*38.1*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*18.0*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*56.1*

Level of Service and Other Performance Measures

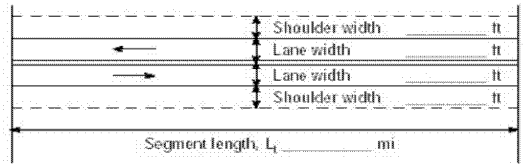
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*C*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.18*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*433*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Birch Street*
Agency or Company	*Sanderson Stewart*	From/To	*Glenrock Int to Mormon Canyon*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*PM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*440* veh/h
Directional split	*51 / 49*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*7* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.953*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*513*
v_p * highest directional split proportion[2] (pc/h)	*262*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*1.3 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*48.2 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.9*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*41.3*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*1.00*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.993*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*492*
v_p * highest directional split proportion[2] (pc/h)	*251*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*35.1*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*19.1*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*54.2*

Level of Service and Other Performance Measures

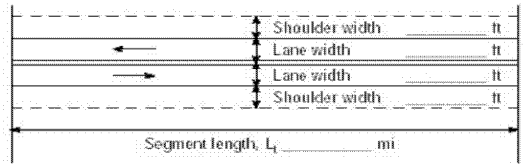
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*B*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.16*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*391*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Deer Creek Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Birch Street*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*268* veh/h
Directional split	*65 / 35*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*432*
v_p * highest directional split proportion[2] (pc/h)	*281*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*3.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*38.9*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.984*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*393*
v_p * highest directional split proportion[2] (pc/h)	*255*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*29.2*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*19.1*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*48.3*

Level of Service and Other Performance Measures

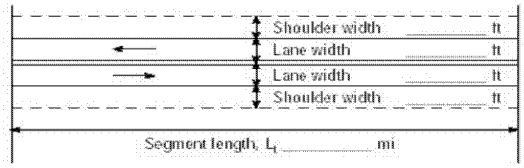
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*B*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.14*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*149*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Deer Creek Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Birch Street*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*307* veh/h
Directional split	*60 / 40*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*2* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.971*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*495*
v_p * highest directional split proportion[2] (pc/h)	*297*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.9*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*38.5*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.984*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*450*
v_p * highest directional split proportion[2] (pc/h)	*270*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*32.7*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*18.1*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*50.8*

Level of Service and Other Performance Measures

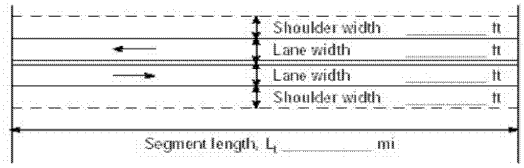
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*B*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.15*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*171*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Cold Springs Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Sunflower Trail*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*62* veh/h
Directional split	*50 / 50*
Peak-hour factor, PHF	*0.90*
No-passing zone	*80*
% Trucks and Buses , P_T	*22* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.752*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*129*
v_p * highest directional split proportion[2] (pc/h)	*65*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.7 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.7*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*42.6*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.850*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*105*
v_p * highest directional split proportion[2] (pc/h)	*53*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*8.8*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*19.7*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*28.5*

Level of Service and Other Performance Measures

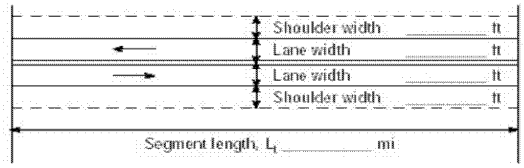
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.04*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*34*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Cold Springs Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Sunflower Trail*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*PM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*62* veh/h
Directional split	*50 / 50*
Peak-hour factor, PHF	*0.90*
No-passing zone	*80*
% Trucks and Buses , P_T	*22* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*0*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.752*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*129*
v_p * highest directional split proportion[2] (pc/h)	*65*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.7 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.0 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*1.7*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*42.6*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.850*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*105*
v_p * highest directional split proportion[2] (pc/h)	*53*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*8.8*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*19.7*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*28.5*

Level of Service and Other Performance Measures

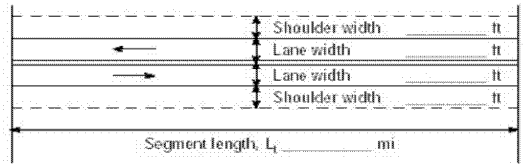
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.04*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*34*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Mormon Canyon Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Birch Street*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*51* veh/h
Directional split	*69 / 31*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*3* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*83*
v_p * highest directional split proportion[2] (pc/h)	*57*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.8*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*43.9*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.977*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*75*
v_p * highest directional split proportion[2] (pc/h)	*52*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*6.4*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*23.1*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*29.5*

Level of Service and Other Performance Measures

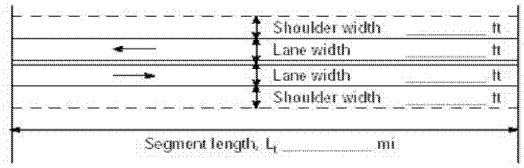
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.03*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*28*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Mormon Canyon Road*
Agency or Company	*Sanderson Stewart*	From/To	*South of Birch Street*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*PM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*132* veh/h
Directional split	*65 / 35*
Peak-hour factor, PHF	*0.90*
No-passing zone	*50*
% Trucks and Buses , P_T	*3* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*216*
v_p * highest directional split proportion[2] (pc/h)	*140*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*2.0*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*41.6*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.977*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*195*
v_p * highest directional split proportion[2] (pc/h)	*127*
Base percent time-spent-following, $BPTSF(\%)=100(1-e^{-0.000879v_p})$	*15.8*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*20.9*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*36.7*

Level of Service and Other Performance Measures

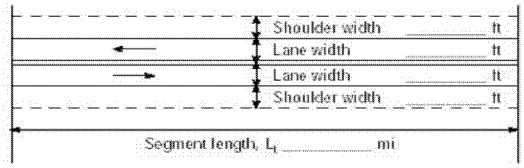
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.07*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*73*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Sunflower Trail*
Agency or Company	*Sanderson Stewart*	From/To	*East of La Prele interchange*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*47* veh/h
Directional split	*64 / 36*
Peak-hour factor, PHF	*0.90*
No-passing zone	*60*
% Trucks and Buses , P_T	*3* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*77*
v_p * highest directional split proportion[2] (pc/h)	*49*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.9*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*43.8*

Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.977*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*69*
v_p * highest directional split proportion[2] (pc/h)	*44*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*5.9*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*24.9*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*30.7*

Level of Service and Other Performance Measures

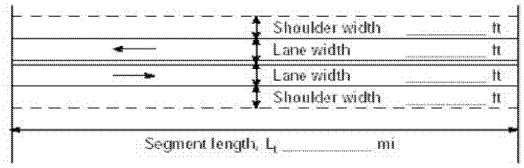
Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.02*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*26*

TWO-WAY TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway	*Sunflower Trail*
Agency or Company	*Sanderson Stewart*	From/To	*East of La Prele interchange*
Date Performed	*10/16/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*PM Peak*	Analysis Year	*Peak Construction*

Project Description: *Pioneer Wind Farm TA*

Input Data



■ Class I highway ■ Class II highway

Terrain ■ Level ■ Rolling

Two-way hourly volume	*34* veh/h
Directional split	*68 / 32*
Peak-hour factor, PHF	*0.90*
No-passing zone	*60*
% Trucks and Buses , P_T	*3* %
% Recreational vehicles, P_R	*0%*
Access points/ *mi*	*2*

Average Travel Speed

Grade adjustment factor, f_G (Exhibit 20-7)	*0.71*
Passenger-car equivalents for trucks, E_T (Exhibit 20-9)	*2.5*
Passenger-car equivalents for RVs, E_R (Exhibit 20-9)	*1.1*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*0.957*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*56*
v_p * highest directional split proportion[2] (pc/h)	*38*

Free-Flow Speed from Field Measurement		Estimated Free-Flow Speed	
Field Measured speed, S_{FM}	*mi/h*	Base free-flow speed, $BFFS_{FM}$	*50.0 mi/h*
Observed volume, V_f	*veh/h*	Adj. for lane width and shoulder width[3], f_{LS} (Exhibit 20-5)	*4.2 mi/h*
Free-flow speed, FFS FFS=S_{FM}+0.00776(V_f/ f_{HV})	*mi/h*	Adj. for access points, f_A (Exhibit 20-6)	*0.5 mi/h*
		Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*45.3 mi/h*

Adj. for no-passing zones, f_{np} (*mi/h*) (Exhibit 20-11)	*0.7*
Average travel speed, ATS (*mi/h*) ATS=FFS-0.00776v_p-f_{np}	*44.2*

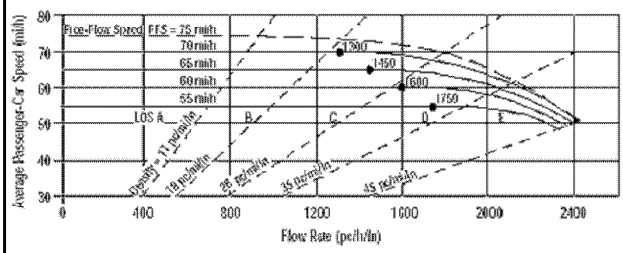
Percent Time-Spent-Following

Grade Adjustment factor, f_G (Exhibit 20-8)	*0.77*
Passenger-car equivalents for trucks, E_T (Exhibit 20-10)	*1.8*
Passenger-car equivalents for RVs, E_R (Exhibit 20-10)	*1.0*
Heavy-vehicle adjustment factor, f_{HV}=1/ (1+ $P_T(E_T$-1)+$P_R(E_R$-1))	*0.977*
Two-way flow rate[1], v_p (pc/h)=V/ (PHF * f_G * f_{HV})	*50*
v_p * highest directional split proportion[2] (pc/h)	*34*
Base percent time-spent-following, BPTSF(%)=100(1-$e^{-0.000879v_p}$)	*4.3*
Adj. for directional distribution and no-passing zone, $f_{d/np}$(%)(Exh. 20-12)	*26.3*
Percent time-spent-following, PTSF(%)=BPTSF+$f_{d/np}$	*30.6*

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 20-3 for Class I or 20-4 for Class II)	*A*
Volume to capacity ratio, v/c=V_p/ 3,200	*0.02*
Peak 15-min veh-miles of travel, VMT_{15} (veh- *mi*)= 0.25L_t(V/PHF)	*19*

BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway/Direction of Travel	*I-25*
Agency or Company	*Sanderson Stewart*	From/To	*Deer Creek Interchange*
Date Performed	*11/11/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM or PM*	Analysis Year	*Peak Construction*

Project Description Pioneer Wind Park TA

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	*385*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*20*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Rolling*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*2.0*
E_T	*2.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.769*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*75.0*	mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*278*	pc/h/ln	Design LOS		
S	*75.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*3.7*	pc/mi/ln	S		mi/h
LOS	*A*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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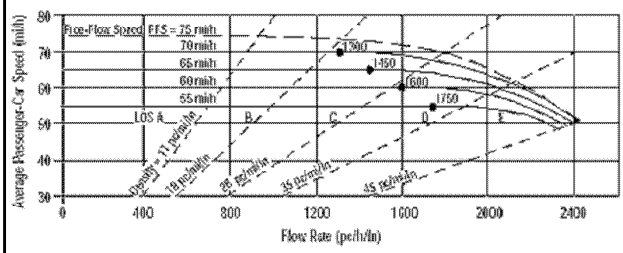
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway/Direction of Travel	*I-25*
Agency or Company	*Sanderson Stewart*	From/To	*Glenrock Interchange*
Date Performed	*11/11/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM or PM*	Analysis Year	*Peak Construction*

Project Description Pioneer Wind Park TA

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs				
Volume, V	*357*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*20*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Rolling*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments			
f_p	*1.00*	E_R	*2.0*
E_T	*2.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.769*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*75.0*	mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*258*	pc/h/ln	Design LOS		
S	*75.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*3.4*	pc/mi/ln	S		mi/h
LOS	*A*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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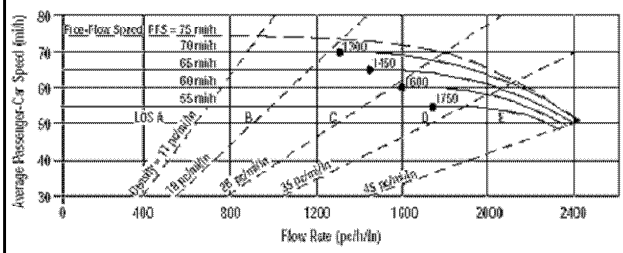
BASIC FREEWAY SEGMENTS WORKSHEET



Application	Input	Output
Operational (LOS)	FFS, N, v_p	LOS, S, D
Design (N)	FFS, LOS, v_p	N, S, D
Design (v_p)	FFS, LOS, N	v_p, S, D
Planning (LOS)	FFS, N, AADT	LOS, S, D
Planning (N)	FFS, LOS, AADT	N, S, D
Planning (v_p)	FFS, LOS, N	v_p, S, D

General Information		***Site Information***	
Analyst	*D.J. Clark*	Highway/Direction of Travel	*I-25*
Agency or Company	*Sanderson Stewart*	From/To	*LaPrele Interchange*
Date Performed	*11/11/2010*	Jurisdiction	*WYDOT*
Analysis Time Period	*AM or PM*	Analysis Year	*Peak Construction*

Project Description Pioneer Wind Park TA

■ Oper.(LOS) ■ Des.(N) ■ Planning Data

Flow Inputs

Volume, V	*344*	veh/h	Peak-Hour Factor, PHF	*0.90*
AADT		veh/day	%Trucks and Buses, P_T	*20*
Peak-Hr Prop. of AADT, K			%RVs, P_R	*0*
Peak-Hr Direction Prop, D			General Terrain:	*Rolling*
DDHV = AADT x K x D		veh/h	Grade % Length	*mi*
Driver type adjustment	*1.00*		Up/Down %	

Calculate Flow Adjustments

f_p	*1.00*	E_R	*2.0*
E_T	*2.5*	$f_{HV} = 1/[1+P_T(E_T - 1) + P_R(E_R - 1)]$	*0.769*

Speed Inputs			**Calc Speed Adj and FFS**		
Lane Width	*12.0*	ft	f_{LW}		mi/h
Rt-Shoulder Lat. Clearance	*6.0*	ft	f_{LC}		mi/h
Interchange Density	*0.50*	l/mi	f_{ID}		mi/h
Number of Lanes, N	*2*		f_N		mi/h
FFS (measured)	*75.0*	mi/h	FFS	*75.0*	mi/h
Base free-flow Speed, BFFS		mi/h			

LOS and Performance Measures			**Design (N)**		
Operational (LOS)			Design (N)		
v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)	*248*	pc/h/ln	Design LOS		
S	*75.0*	mi/h	v_p = (V or DDHV) / (PHF x N x f_{HV} x f_p)		pc/h
D = v_p / S	*3.3*	pc/mi/ln	S		mi/h
LOS	*A*		D = v_p / S		pc/mi/ln
			Required Number of Lanes, N		

Glossary		**Factor Location**	
N - Number of lanes	S - Speed	E_R - Exhibits23-8, 23-10	f_{LW} - Exhibit 23-4
V - Hourly volume	D - Density	E_T - Exhibits 23-8, 23-10, 23-11	f_{LC} - Exhibit 23-5
v_p - Flow rate	FFS - Free-flow speed	f_p - Page 23-12	f_N - Exhibit 23-6
LOS - Level of service	BFFS - Base free-flow speed	LOS, S, FFS, v_p - Exhibits 23-2, 23-3	f_{ID} - Exhibit 23-7
DDHV - Directional design hour volume			

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Project Plans

Pioneer Wind Park I/Pioneer Wind Park II Project Overview

The project area is located in Converse County, Wyoming. The northern extent of the project area (the transmission interconnect location) is located approximately six miles south of Glenrock, Wyoming. Elevations throughout the project area vary from approximately 5,500 feet to 7,000 feet above mean sea level. Interstate 25 runs approximately four miles north of the project area. There are several improved, unpaved roads within the project area, the most prominent being Mormon Canyon Road (County Road CR-18). The project area is relatively undeveloped, is mainly used for ranching, and contains an approximately quarter-acre open-pit rock quarry. The nearest perennial water body to the two Projects is Willow Creek, which traverses the project area from west to east, separating Pioneer Wind Park I and Pioneer Wind Park II into two qualifying facilities under Federal law.

Facilities and related infrastructure associated with the proposed Projects will include WTGs mounted on steel tubular towers, pad-mounted transformers, buried power collection electrical systems and fiber optic communications cables. Access roads, meteorological (met) towers, a supervisory control and data acquisition (SCADA) system, and an operations and maintenance (O&M) building will also be constructed. A single substation serving both Projects will be constructed onsite. An approximately five mile-long 230 kV transmission line will extend north-northwest from this substation to an electrical switchyard where it will interconnect with Rocky Mountain Power's existing 230 kV transmission line, which extends southwest from the Dave Johnston Power Plant.

Pioneer Wind Park I, LLC (PWP I, LLC) is anticipated to begin construction in June 2011 and will include building Thirty-one (31) General Electric (GE) 1.6xle (1.6-megawatt [MW]) wind turbine generators (WTGs) for a total nameplate capacity of 49.6 MW and necessary support buildings, access roads and transmission lines over approximately six months. Commercial operation of PWP I, LLC is planned to begin in December 2011.

Construction of Pioneer Wind Park II, LLC (PWP II, LLC) will include erecting Thirty-one (31) GE 1.6xle WTGs for a total nameplate capacity of 49.6 MW over an approximately five-month period, with construction anticipated to start in July 2012. Commercial operation of PWP II, LLC is planned to begin commercial operation in December 2012.

The principal components of the Projects include WTGs mounted on three-section tubular towers, transformers, electrical collector lines, fiber optic communication cables, access roads, meteorological

towers, a supervisory control and data acquisition (SCADA) system, an aviation obstacle lighting control system, an operations and maintenance building, an approximately five-mile long 230-kV transmission line and a temporary concrete batch plant (only utilized onsite during construction).

Wind Turbine Generators

The Projects will each install and erect 31 GE 1.6-MW xle WTGs. The GE 1.6xle is a three-blade, active yaw and pitch, regulated machine with power and torque control capabilities. The rotor diameter is 270.7 ft (82.5m), the height at the hub is expected to be 262.4 ft (80 m). The rotor-swept area is 6,393 yd2 (5,345 m^2) and the rotor typically operates at up to 20 revolutions per minute (rpm). The WTG will start to operate when the 10-minute average wind speed is 7.8 miles per hour (mph). To minimize strain on the turbine blades and gear box and other turbine components, the WTG will stop operating when the 10-minute average wind speed is 55.9 mph or greater.

The WTGs will be mounted on a poured-concrete spread-foot foundation. They will be spaced at distances generally ranging from two and a half to four rotor diameters between WTGs within a turbine row, and at least eight rotor diameters between turbine rows, depending on the characteristics of the specific turbine location. Refer to map of the proposed site plan and preliminary turbine layout.

Rotor Blades

The rotor for a GE wind turbine is made of three high-tech blades, made of laminated materials such as composites, balsa wood, carbon fiber, and fiberglass that have high strength-to-weight ratios. The rotors are bolted on the central hub, and a pitch mechanism allows the blade to rotate on its axis to take advantage of different wind speeds. The blades are shaped like an airplane wing or airfoil. As a result, wind creates lift on the blades causing the rotor hub to spin. This rotation is transferred to a gearbox where the speed of rotation is increased to the speed required for the attached electric generator that is housed in the nacelle. The blades are non-metallic and equipped with a sophisticated lightning protection system.

The heart of the wind turbine is its electrical generating system. The rotor drives a large shaft into a gearbox, which steps up the revolutions per minute to a speed suitable for the electrical generator. The gearbox and generator are mounted on a bedplate to increase durability and minimize noise. The shaft usually has two independent braking systems as safety mechanism. The gearbox, generator, and various

pieces of control equipment are enclosed within the nacelle, which houses the unit that protects the turbine mechanics and electronics from environmental exposure.

The turbine has a yaw drive system to keep the rotor facing the wind and to unwind cables. The drive system consists of an electric or hydraulic motor, mounted on the nacelle, which drives a pinion, mounted on a vertical shaft through a reducing gearbox. The drive system also contains the brake system, which is able to stop the turbine from turning. To control the functioning of the WTG, the drive system is fitted with a number of sensors to read the speed and direction of the wind, the amount of electrical generation, the rotor speed, the blades' pitch, the turbine's vibration, the temperature of the lubricants, and other variables. A computer processes the inputs to carry out normal operation of the turbine, and a safety system can override the controller in an emergency. To condition and control the power output, the generator is equipped with a remote control and monitoring system.

Tower Structure

The nacelle and generator are mounted on top of a tubular steel tower to allow the blades to take advantage of winds aloft. Towers used for the WTGs consist of three tubular steel sections coated with paints and sealants. The towers supporting each WTG will be a tapered steel monopole, approximately 262 ft (80m) in height. The tower is supported by a reinforced-concrete foundation ranging from 48 to 80 ft in diameter, depending on final engineering design. The tower will be uniformly painted a neutral color that complies with Federal Aviation Administration (FAA) requirements for daylight marking. The towers feature a locked entry door at ground level and an internal access ladder with safety platforms for access to the nacelle. A controller cabinet will be located inside the base of each tower. Towers are pre-fabricated in three sections and delivered and assembled on site.

Transformer

A pad-mounted step-up transformer will be installed at the base of each WTG to increase the output voltage to the level of the power collection system (34.5 kV). A small concrete slab or fiberglass foundation, a concrete vault, or other suitable base will be used to support the step-up transformers.

Foundations

The tower for the WTG will be set on a poured-in-place spread-foot concrete foundation. The actual foundation design for each WTG turbine will be determined based on site-specific geotechnical information and structural loading requirements of the turbine model.

Aviation Lighting System

The WTGs will be grouped in arrays, and some of the WTGs will require FAA-mandated aviation warning lights. The number of WTGs with lights and the lighting pattern of the WTGs will be determined through consultation with the FAA prior to construction.

WWI is committed to minimizing visual impacts caused by the aviation warning lights located at the top of WTGs. Consequently, PWP I, LLC and PWP II, LLC intend to install a radar-based obstruction lighting control system that, pending FAA approval, will allow PWP I, LLC and PWP II, LLC aviation warning lights to remain off until triggered by the system when a low-flying aircraft is detected and determined to be tracking on an unsafe heading. As the aviation warning lights are only activated by this activity, this system leaves the nighttime sky free of unnecessary light pollution, thus minimizing visual impacts and associated public nuisance issues.

Power Collection System

A network of collection power cables will be installed along and between the turbine strings to collect power generated by the individual wind turbines, transform the power to 34.5 kV, and route it to the collector substation. Collection power cables will be buried wherever possible at a minimum of four feet below the ground surface. The collector substation, located on the PWP I site, will convert the electricity to transmission voltage (230 kV) for delivery into the interconnection substation or switchyard and then to the electrical grid.

The Project electrical system will therefore consist of three key elements:

1. A collector system that collects energy generated at 690 volts from each WTG, transforms it to 34.5 kV through a pad-mounted transformer, and delivers the power through a network of electrical conductors.

2. A collector substation that transforms energy delivered by the collector system from 34.5 kV to 230 kV.
3. A 230 kV transmission line, which delivers the electricity and interconnects to the Rocky Mountain Power transmission line.

SCADA System

A supervisory control and data acquisition (SCADA) system will be installed to collect operating and performance data from each WTG and provide remote monitoring and operation of the WTGs when appropriate. The WTGs will be linked to one or more central computers via a fiber optic network installed in the electrical collector line trenches, at least four feet below the ground surface. The host computer(s) is expected to be located in the substation building control room in the PWP I project site. The SCADA software will consist of applications developed by the turbine vendor and/or a third party SCADA vendor.

Meteorological Towers

Two permanent meteorological (met) towers will be constructed within the boundary of the project sites for the purpose of collecting meteorological data and forecasting conditions. The final location of the met towers will be determined in consultation with the WTG vendor.

Operations and Maintenance Buildings

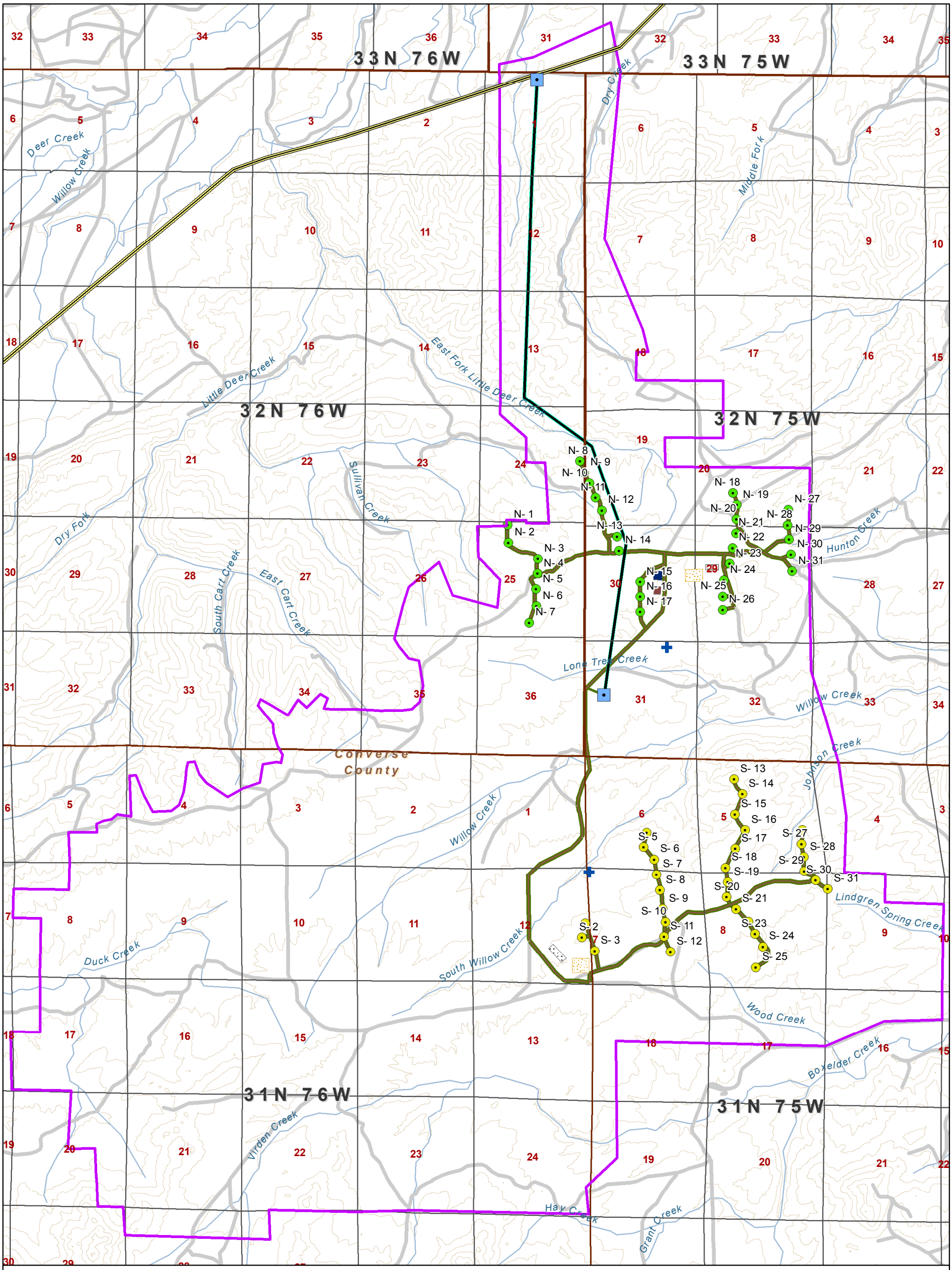
An O&M building will be constructed within the Projects' boundaries. The O&M building will be approximately 5,000 ft^2 and will include space for offices, bathroom and kitchen facilities, a break room, a storage area, and a garage for vehicle, turbine, and equipment maintenance. A fenced, graveled area for parking and storage also will be provided. The O& M building will use a new groundwater well or will purchase water from an existing well to supply water for domestic use and will discharge to an on-site septic system.

Access Roads

Mormon Canyon Road (County Road 18) bisects the two Project areas and will provide the main access route for construction, operation, and maintenance vehicles. PWP I, LLC and PWP II, LLC intend to execute a road use agreement with Converse County, which will specify how Mormon Canyon Road will be improved, maintained, repaired and reclaimed (if necessary) before, during and after construction of the Projects.

There is a network of existing dirt roads in the project area that stem off of Mormon Canyon Road. Where possible, these roads will be used as turbine access roads, minimizing disturbance caused by new road construction. All new and existing roads used to access the proposed turbine arrays will be widened to 16 ft (where necessary), graded and graveled to facilitate access by construction vehicles. Roads used for crane access will be 16-ft wide with 8-ft wide hardened shoulders (32-ft wide total). Following construction, shoulders will be ripped, reclaimed, and re-vegetated to mitigate soil compaction caused by crane traffic.

Raw materials used for access road and crane pad preparation will include aggregate and crushed rock for road base and water for dust control and road compaction. These materials will come from licensed and permitted sources located within the project area.


33N 76W
33N 75W
32N 76W
32N 75W
31N 76W
31N 75W
Converse County
Deer Creek
Willow Creek
Little Deer Creek
East Fork Little Deer Creek
Dry Creek
Middle Fork
Sullivan Creek
Dry Fork
South Cart Creek
East Cart Creek
Hunton Creek
Lone Tree Creek
Willow Creek
Johnson Creek
Lindgren Spring Creek
Wood Creek
Boxelder Creek
South Willow Creek
Duck Creek
Virden Creek
Hay Creek
Grant Creek
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Site Data
Pioneer Wind Park I Turbines
Pioneer Wind Park II Turbines
Pioneer Substations
MET Towers
Project Roads
Proposed 230 kV Transmission Line
Proposed Underground 34.5 kV Collector Line
Exisitng Transmission
Laydown Areas
Parking Areas
O&M Building
Batch Plant
Pioneer Study Area Boundary
1:52,000
0
0.5
1
2 Miles
N
Preliminary Site Plan
Pioneer Wind Park
Wasatch Wind
Converse County, Wyoming
PioneerWind PARK

Reclamation & Decommissioning Plan

DECOMMISSIONING PLAN

PIONEER WIND PARK I, LLC/PIONEER WIND PARK II, LLC

CONVERSE COUNTY, WYOMING

1 PROJECT INFORMATION

1.1 Purpose

The purpose of this decommissioning plan is to identify the methodology that Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC will use to mitigate potential impacts resulting from the termination of operations at the end of the Projects' useful life. The decommissioning plan identifies the specific components that will be removed and the estimated costs associated with the removal of the components.

1.2 Anticipated Life of the Project

The proposed wind turbine generators ("WTGs") have an expected useful life of 20 years and will be continually maintained throughout the life of Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC. The Power Purchase Agreement that PWP I, LLC and PWP II, LLC has with PacifiCorp is also 20 years. With routine maintenance, WTG's can last up to another five years, at which time it may be possible to replace old components to extend the life of the turbines. As such the PPA could be renegotiated for another five years or more depending on the WTG's performance. At some point, however, it will become necessary to decommission and either remove or replace the turbines.

1.3 ISC Requirements governing Decommissioning and Reclamation Process

The Wyoming Industrial Siting Council has strict requirements concerning the decommissioning and reclamation process. Facility decommissioning documentation must include provisions to remove and dispose of all components and associated or ancillary equipment or structures above and below ground to a depth (48) inches; however, it allows for buildings to be left on site if approved by surface landowner. This process must begin within (12) months after the end of useful life, or when no electricity in generated for a continuous (12) months of the facility of an individual WTG.

Reclamation must include regarding, revegetation and monitoring with the intent to restore the land to a condition equal to the original condition. As any ground disturbing activity can increase the risk of weed introduction, the control and monitoring of noxious weeds must continue following initially seeding for a period of five years.

In addition to the ISC, each individual landowner has language in their lease describing their individual requirements and deferring to any other more stringent requirements.

2 DECOMMISSIONING TASKS

2.1 Wind Turbine Removal

Wind turbines are bolted to the foundation and pedestal and can be removed in a relatively straightforward manner using appropriately sized cranes and equipment. After removal the wind turbines could be either scrapped or transported to another site for reuse.

If the wind turbines are resold for reuse, the rotor, nacelle and tower sections would be disassembled and transported from the site in a manner similar as would be used to deliver the turbines to the site. If the wind turbines are not sold for reuse, they would be disassembled and sold for scrap. The hub, blades, and nacelle would be removed to ground level for a scrap company to break down and strip high value components. Cabling internal to the towers would be removed and scrapped to recover the high value copper conductor materials. Tower sections would be lowered to grade and cut into transportable sections for delivery to a scrap metal purchaser. Control cabinets in the base would be stripped of high value components and the balance turned over to a scrap company for haul and disposal. The project areas would then be cleaned and all debris removed.

2.2 Removal of Pad Mount Transformers

The pad mount transformers at the base of every wind turbine would be valuable for reuse. The transformers could be unbolted from their foundations, removed from the site, refurbished, and resold. Above ground cables will be removed and the copper conductor materials can be salvaged for scrap value. The project areas will be thoroughly cleaned and all debris removed.

2.3 Above Ground Electrical Collection Lines

Above ground electrical collection lines and associated components (conductors, switches and other hardware) will be dismantled and the materials will be disposed at appropriate facilities, recycled or sold. Poles will be removed to a proper disposal facility and the holes backfilled with clean topsoil.

2.4 Foundation Removal

After the wind turbine and pad-mount transformer are removed, topsoil in the area of the wind turbine foundation pedestal and the pad-mount transformer foundation would be removed to a proper temporary storage pile, and the foundation pedestal and transformer foundation would be exposed. The anchor bolts, rebar, conduits, and concrete in the wind turbine foundation pedestal and transformer foundation would be removed to four feet below grade.

After removal of the foundation materials, the areas would be filled with clean compatible sub-grade material compacted to a density similar to the surrounding fields. Topsoil would then be replaced. Unexcavated areas compacted by equipment used in the decommissioning process would be tilled in a manner adequate to restore the topsoil and subgrade material to the density consistent with surrounding area. The disturbed areas would be seeded with a utility mix of native vegetation or pasture grasses and mulched. The mix and method would depend upon consultation with current landowners. To limit the introduction and spread of noxious weeds and other invasive plant species, the project sites will be monitored for a period of five years and any undesirable plants will be controlled using mechanical or chemical methods. Overall, impacts to native vegetation communities will be minimized through the use of BMPs.

2.5 Electrical Collection System

The electrical collection system cables will be installed such that the main conductors will be 48" or more below grade. Cables in the area of the pad-mount transformers would be cut to a depth of 48" or more, but the cables between the transformers may not be removed as part of project decommissioning. Environmental and agricultural impacts are minimized by leaving the cables in place. The cables contain no materials known to be harmful to the environment. The cable installation would include a warning tape and tracer cable that would warn anyone that could be digging in the area of the proximity of the cables both during and after project operation.

2.6 Substations

Disassembly will include the removal of the steel, conductors, buss work, breakers and control panels and other materials that can be reconditioned and reused or sold as scrap. All rebar, conduits and concrete in the foundation or pre-cast components will be removed to 48” below grade. Holes will be filled with clean compatible sub-grade material that is compacted to a density similar to the surrounding area and then cover with the topsoil. The disturbed areas would be seeded with a utility mix of native vegetation or pasture grasses and mulched. The mix and method would depend upon consultation with current landowners.

2.7 Access Roads

Access roads may be left in place for use by the property owners should they choose. If not, all roads and other compacted areas would be tilled in a manner adequate to restore the topsoil and subgrade material to the density consistent with surrounding area. The disturbed areas would be seeded with a utility mix of native vegetation or pasture grasses and mulched. The mix and method would depend upon consultation with current landowners. To limit the introduction and spread of noxious weeds and other invasive plant species, the project sites will be monitored for a period of five years and any undesirable plants will be controlled using mechanical or chemical methods upon consultation with current landowners. Overall, impacts to native vegetation communities will be minimized through the use of BMPs.

2.8 Material Removal

The demolition contractor will remove decommissioning debris to a disposal facility permitted to operate under the current and applicable regulations at the time the equipment is removed.

3 DECOMMISSIONING COSTS

The cost to decommission and reclaim PWP I, LLC, which includes the transmission lines and substations, is estimated at $10,003,400. Decommissiong costs for PWP II, LLC are estimated to total $8,764,400. These costs will be reevaluated and updated every five years until reclamation is complete.

4 DECOMMISSIONING BOND

To ensure funds are available to cover costs of decommissioning, Pioneer Wind Park I, LLC and Pioneer Wind Park II, LLC intend to obtain a security serving as collateral in the form of a surety bond, certificate of deposit, corporate guarantee or other form acceptable to the DEQ and ISC with the value of the security reflecting the gross decommissioning and reclamation costs. The amount of the assurance will be adjusted up or down every five years based on an estimate prepared by a certified professional engineer.

In addition, each private landowner lease includes language addressing and establishing individual removal bonds.

Reclamation & Decommissioning – Lease Language

Within twelve (12) months after termination, surrender, or expiration of this Lease and upon the written request of Landowner, Lessee will remove, raze or demolish all Wind Turbines and other above-ground Improvements on the Property to a depth required by applicable law, but not less than three feet (3') below grade, and restore the surface of the Property to its approximate original condition that existed before Lessee installed any Wind Turbines or other above-ground Improvements upon the Property, normal wear and tear excepted, all at Lessee's sole cost and expense. If Lessee is required to obtain any permits prior to commencing the removal, razing or demolition process, the twelve (12) month removal period shall begin to run after Lessee receives all such required permits or approvals. Failure to remove, raze or demolish any Improvement item within said period and restore the surface of the Property as provided above may, at the option of Landowner, be deemed an abandonment of the Improvement to Landowner and Landowner shall have the right to keep such Improvement or to remove, raze or demolish any property deemed to be abandoned by Lessee and to receive reimbursement from Lessee for the actual and reasonable cost of such removal, razing, demolition and restoration of the surface of the Property. In such event, Landowner shall be entitled to the salvage value of any such Improvements removed.

On or before the fifteenth (15th) anniversary of the Commercial Operation Date, Lessee shall provide security to cover the estimated removal costs associated with the Wind Turbines and other above-ground Improvements on the Property in accordance with the provisions of this Lease. The security shall be, at Lessee's option, either a surety bond from an issuer reasonably acceptable to Landowner, a corporate guarantee (from a financially responsible entity that is reasonably acceptable to Landowner and whose credit rating is investment grade), a letter of credit issued by a financial institution reasonably acceptable to Landowner, a cash deposit, or other security reasonably acceptable to Landowner (the selected security being herein referred to as the "Removal Bond"). The amount of the Removal Bond shall be the estimated cost of removing the foregoing Improvements, net of their estimated salvage value, as estimated by a construction company selected by Lessee and reasonably acceptable to Landowner. The amount of the Removal Bond shall be updated every five (5) years after the initial estimate based on a new estimate by a construction company selected by Lessee and reasonably acceptable to Landowner. Notwithstanding the foregoing, if a Repowering Event (as defined below) occurs prior to the fifteenth (15th) anniversary of the Commercial Operation Date, Lessee shall not be required to deliver the Removal Bond until the first day of the calendar year following the fifteenth (15th) anniversary of the completion of such Repowering Event, unless a second Repowering Event has occurred, in which case Lessee shall not be required to deliver the Removal Bond until the fifteenth (15th) anniversary of the completion of such second Repowering Event. Once in place, Lessee shall keep the Removal Bond (or a replacement Removal Bond) in force throughout the remainder of the Initial Term or then current Renewal Term, except that upon the occurrence of a Repowering Event, Lessee may discontinue the Removal Bond until the fifteenth (15th) anniversary of the completion of the Repowering Event. In the event the county or other governmental authority requires Lessee to provide security for removal or decommissioning of the Wind Energy Project, Lessee shall provide a single Removal Bond that benefits both Landowner and the governmental authority in a manner consistent with the requirements of the governmental authority, and the governmental authority shall have access to the Property pursuant to reasonable notice to effect or complete the required removal or decommissioning. In order to maximize the economies of scale

associated with the removal of a wind farm, Lessee may elect to have the net removal costs of the Improvements calculated on the basis of the entire Wind Energy Project and not on such costs solely for the Property, and the Removal Bond may be provided on that basis. As used in this Section, a "Repowering Event" means the removal and replacement of the Wind Turbines, or portions thereof, on the Property with new Wind Turbines or other components, outside of a warranty event or replacement due to equipment failure or routine maintenance, to provide an output of equal or greater rated megawatt nominal capacity from the Property.

Certification Statement

As witnessed by my signature, these statements will serve as certification documentation for the Pioneer Wind Park I and Pioneer Wind Park II WECS Use Permit Application.

I certify that reasonable efforts were taken to notify in writing all landowners within one (1) mile of the proposed project boundaries, and all cities and towns located within twenty (20) miles of the proposed project boundaries.

I certify that notice of the public hearing as defined by W.S. 18-5-506 will be published in The Glenrock Independent and The Douglas Budget at least twenty (20) days prior to the public hearing.

I certify that the Pioneer Wind Park I and Pioneer Wind Park II wind energy projects will comply with all standards defined by W.S. 18-5-504 concerning construction setbacks, mineral rights notifications, and final "as built" Project Plan.

I certify that the Pioneer Wind Park I and Pioneer Wind Park II wind energy projects will comply with all applicable zoning and land use regulations as per the Converse County Land Use Plan.

I certify that a written Emergency Management Plan was submitted for review and comment to the Converse County Fire Warden, the Converse Count Emergency Management Coordinator and the Converse County Sheriff.

I certify that there shall be no advertising or promotional lettering on any tower, turbine, nacelle or blade beyond the manufacturer's or the applicant's logo on the nacelle of the turbine.

Brett Woodard
Manager
Pioneer Wind Park I, LLC
Pioneer Wind Park II, LLC