

CROW WING COUNTY

Dec. 17, 2016 Snow Event #6 2016-13

Reported Event Conditions

Date:	12/17/2016
Event No:	#6 2016-13
Begin Time:	12/16/16 5AM
End Time:	12/17/16 8AM
Weather:	Snow
Precipitation:	2"
Temperature:	10\18
Wind:	15-25 mph

Event Costs

Salt	\$14,326
Sand	\$3,960
Brine	\$3,848
Equipment/Fuel	\$28,110
Personnel Reg.	\$9,958
Personnel OT	\$4,585
Total	\$63,478
Cost Mile	\$113
Season Total:	\$389,257

Priority By Route

Priority 1

% Target 1A Met: 100%
% Target 1B Met: 100%

Priority 2

% Target 2A Met: 100%
% Target 2B Met: 91%

1

Priority 3

Legend

— MnDOT Highway

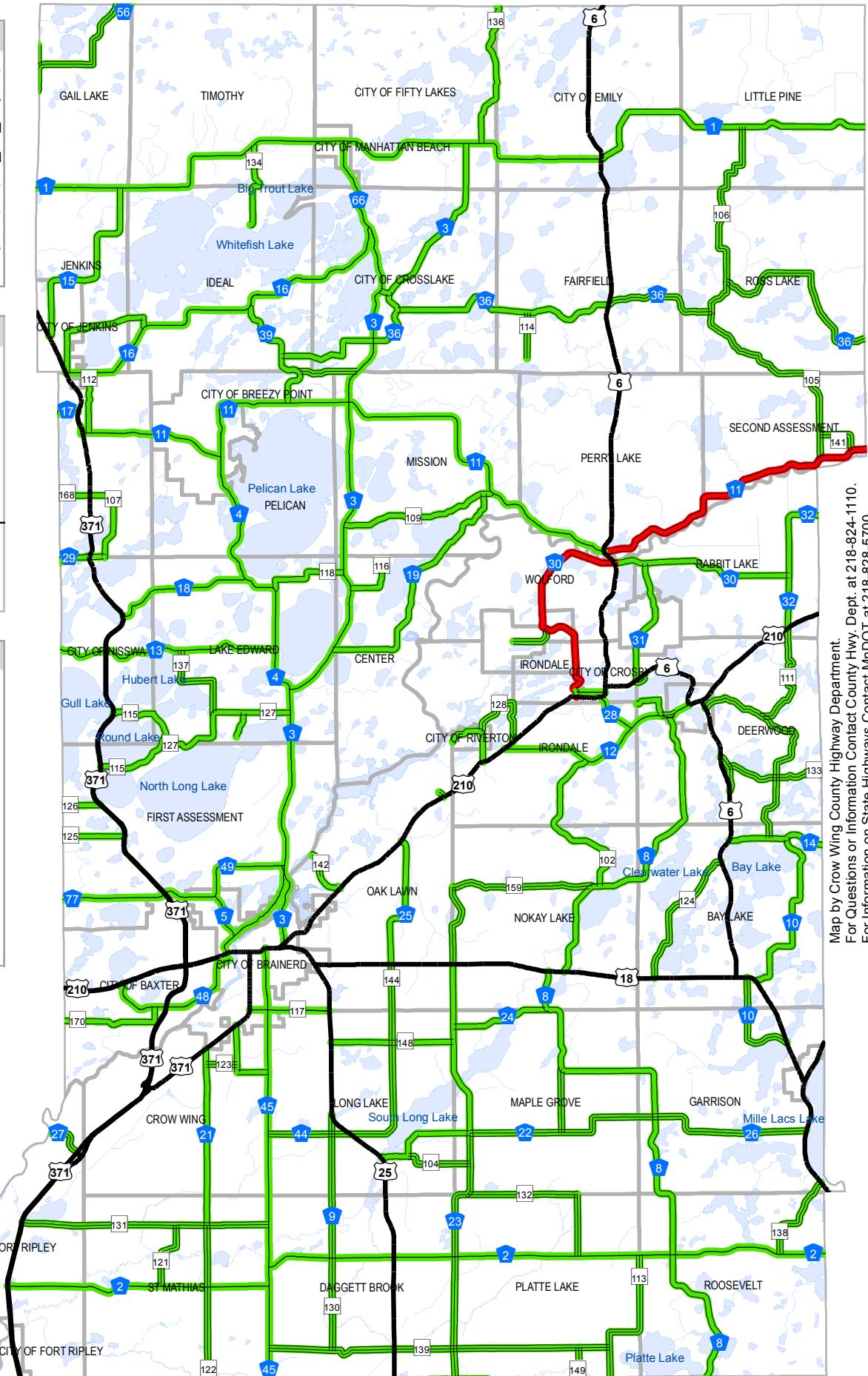
Route Priority

- 1 (ADT>5000)
- 2 (500>ADT<5000)
- 3 (ADT<500)

Route Target

- Target Achieved
- Target Not Achieved

Report Date: 12/22/2016



Map by Crow Wing County Highway Department.
For Questions or Information Contact County Hwy. Dept. at 218-824-1110.
For Information on State Highways Contact MnDOT at 218-828-5700.

2016/2017 Summary For Snow Event #6 2016-13

Date 12-16-16

Salt Cyds	Salt \$	Sand Cyds	Sand \$	Brine gal	Brine \$	Mat. Total	Equip \$	Reg. Personnel	OT \$
162	\$14,326	120	\$3,960	3848	\$2,540	\$20,825	\$28,110	\$9,958.00	\$4,585

Total \$63,478

Forecast

Snow starting 12/16/16 at midnight and continuing until morning, slight break and more snow in the afternoon continuing until 5A.M. on 12-17-16. Winds increasing 10-25 MPH.

Pre Plan

Have the plows start at 7 A.M. on 12-16. Continue plowing until 7 P.M. on 12-16. Come back at 3 A.M. on 12-17 and plow until all routes are covered. Use sand at intersections for traction.

On 12-17 apply sand at 800 lbs on criticals where the wind was not blowing.

Comments

Snow started at 5 A.M. 12-16.

Snow subsided early in the morning on 12/16 so trucks ended at 3:30 P.M. 12/16. Snow started again at 6 P.M. 12/16. Snow ended down south at 5 A.M. 12/17 and continued until 6:30 A.M. on 12/17.

Roads had various icy spots due to shade and cold temperatures.

Conditions

Cold and windy conditions on 12/16 & 12/17.

Very cold and windy.

Road	RDTemp	Date/Time		Air Temp
Hwy 25	6	12\16\16	6AM	4
45	13	12\17\16	5 A.M.	0
Hwy 6	5	12\17\16	4 P.M.	-4
Hwy 6	4	12\18\16	8 A.M.	-2

Date	High	Low
12/15/2016	1	-15
12/16/2016	10	0
12/17/2016	5	-18
12/18/2016	-4	-26
12/19/2016	25	-9
12/20/2016	34	17

Summary

Cold temps and wind hindered us from achieving bare wheel paths on all of our roads. Traffic blew priority 1 wheel paths open. There was wide spread snow ribbons on the center line and shoulders.

Decisions Made

We decided to apply sand at intersections and some curves only because of the blowing snow creating ice. On 12-19-16 we applied salt because we had warmer temperatures and were confident we could melt any ice.

Lessons Learned

The wind cleaned off the roads and removed ice in the open areas. Slow moving traffic areas such as intersections packed snow down.

We were not able to get bare wheel paths on CR 30 north of Ironton and CR 11 east of Highway 6 due to the pavement condition and blowing snow.

Goals Met/Not Met

Plowing

Priority 1 Met

Priority 2 Met

Priority 3 Met

Bare wheel paths

Priority 1 Met

Priority 2 Not met on CR 30, 11E due to pavement condition

Forecast at 3 P.M. 12-15-16

Time (CST)	MN-25 Driving Temp (°F)	MN-25 Driving Cond	MN-25 Driving Frost Prob (%)	Air Temp (°F)	Dew Point (°F)	Rel Humidity (%)	Wind Speed (miles/ hour)	Wind Gust (miles/ hour)	Wind Chill (°F)	Type	Precip Prob (%)	Precip Rate (in/ hr)	Precip Accum (in)	Snow Rate (in/ hr)	Snow Accum (in)	Sky	
Thu 15:00	13	dry	0	1	-9	61	SW	8	-13		0	0.00	0.00	0.0	0.0	HCir	
Thu 16:00	8	dry	0	1	-9	61	SSW	6	-11		0	0.00	0.00	0.0	0.0	HCir	
Thu 17:00	5	dry	0	-2	-10	67	SSW	5	-13		0	0.00	0.00	0.0	0.0	Partly	
Thu 18:00	4	dry	0	-3	-10	71	SSW	5	-13		0	0.00	0.00	0.0	0.0	Partly	
Thu 19:00	3	dry	0	-3	-9	74	SSW	5	-13		0	0.00	0.00	0.0	0.0	Partly	
Thu 20:00	3	dry	0	-2	-8	74	SSW	5	-13		0	0.00	0.00	0.0	0.0	HCldy	
Thu 21:00	3	dry	0	-1	-8	71	SSW	5	-11		0	0.00	0.00	0.0	0.0	Overcast	
Thu 22:00	4	dry	0	-0	-7	71	SSW	5	-10		0	0.00	0.00	0.0	0.0	Overcast	
Thu 23:00	4	dry	0	-0	-6	75	S	4	-10	SN	20	trace	0.00	trace	0.0	Overcast	
Fri 00:00	4	dry	5	1	-5	75	OVRB	2		1	SN	40	trace	trace	trace	Overcast	
Fri 01:00	4	dry	5	2	-4	75	OVRB	3		1	SN	60	trace	trace	trace	Overcast	
Fri 02:00	4	dry	10	2	-3	78	OVRB	3		1	SN	70	0.01	trace	0.2	0.1	Overcast
Fri 03:00	5	snow	10	3	-1	82	OVRB	3		3	SN	80	0.01	0.01	0.2	0.3	Overcast
Fri 04:00	5	snow	10	4	-1	79	OVRB	3		5	SN	80	0.02	trace	0.5	Overcast	
Fri 05:00	5	snow	15	4	-1	79	SE	4		4	SN	80	trace	0.03	0.1	0.6	Overcast
Fri 06:00	6	snow	15	4	0	82	OVRB	3		5	SN	70	trace	0.03	0.1	0.6	Overcast
Fri 07:00	6	snow	15	4	0	82	OVRB	3		5	SN	50	trace	0.03	0.1	0.7	Overcast
Fri 08:00	6	snow	15	5	1	83	OVRB	1		5	SN	50	trace	0.03	0.1	0.7	Overcast
Fri 09:00	7	snow	10	6	1	79	OVRB	1		7	SN	40	trace	0.03	0.1	0.8	Overcast
Fri 10:00	9	snow	10	7	2	79	OVRB	2		7	SN	40	trace	0.04	0.1	0.9	Overcast
Fri 11:00	10	snow	5	7	2	79	OVRB	2		7	SN	30	trace	0.04	trace	0.9	Overcast
Fri 12:00	11	snow	5	9	2	72	OVRB	1		8	SN	40	trace	0.04	trace	1.0	Overcast
Fri 13:00	11	snow	5	9	3	76	OVRB	2		8	SN	60	0.01	0.04	0.2	1.0	Overcast
Fri 14:00	11	snow	5	10	3	72	OVRB	2		10	SN	60	0.01	0.05	0.2	1.2	Overcast
Fri 15:00	11	snow	10	10	3	72	NE	4		3	SN	70	0.01	0.06	0.2	1.5	Overcast
Fri 16:00	10	snow	10	10	3	72	NE	4		3	SN	70	0.02	0.07	0.5	1.7	Overcast
Fri 17:00	10	snow	10	10	3	72	NE	5		1	SN	70	0.02	0.09	0.5	2.1	Overcast
Fri 18:00	11	snow	10	10	4	76	NE	6		-1	SN	70	0.02	0.11	0.5	2.6	Overcast
Fri 19:00	11	snow	15	10	5	79	NE	7	14	-1	SN	70	0.02	0.13	0.5	3.1	Overcast
Fri 20:00	12	snow	10	10	5	79	NE	8	16	-2	SN	70	0.02	0.15	0.4	3.6	Overcast
Fri 21:00	12	snow	10	9	5	83	NE	9	17	-4	SN	70	0.02	0.17	0.4	4.0	Overcast
Fri 22:00	12	snow	5	8	3	79	NE	10	19	-6	SN	70	0.02	0.19	0.4	4.4	Overcast
Fri 23:00	12	snow	5	6	2	83	N	11	19	-10	SN	70	0.01	0.21	0.2	4.8	Overcast
Sat 00:00	12	snow	0	5	-0	79	NE	10	19	-10	SN	70	0.01	0.22	0.2	5.0	Overcast
Sat 01:00	13	snow	0	3	-1	82	N	12	21	-13	SN	70	0.01	0.23	0.2	5.2	Overcast
Sat 02:00	13	snow	0	3	-3	75	N	13	21	-15	SN	70	0.01	0.24	0.2	5.4	Overcast
Sat 03:00	13	snow	0	1	-3	82	N	13	22	-17	SN	70	trace	0.25	trace	5.6	Overcast
Sat 04:00	13	snow	0	1	-5	75	N	13	21	-17	SN	70	trace	0.25	trace	5.6	Overcast
Sat 05:00	13	snow	0	-1	-6	78	N	14	22	-20	SN	70	trace	0.26	trace	5.7	Overcast
Sat 06:00	14	snow	0	-2	-7	78	N	13	21	-20	SN	50	trace	0.26	trace	5.7	Overcast
Sat 07:00	14	snow	0	-4	-9	78	N	12	20	-22	SN	50	trace	0.26	trace	5.7	Overcast
Sat 08:00	14	snow	0	-6	-10	81	N	11	19	-24	SN	40	trace	0.26	trace	5.7	Overcast
Sat 09:00	15	snow	0	-6	-11	78	N	11	19	-24	SN	30	trace	0.26	trace	5.8	Overcast
Sat 10:00	16	snow	0	-5	-11	74	NW	12	19	-24	SN	20	trace	0.27	trace	5.8	Overcast
Sat 11:00	17	snow	0	-6	-13	70	NW	12	19	-26	SN	20	trace	0.27	trace	5.8	Overcast
Sat 12:00	13	snow	0	-5	-13	67	NW	13	19	-24	0	0.00	0.27	0.0	5.8	Overcast	
Sat 13:00	10	snow	0	-6	-14	67	NW	12	18	-26	SN	10	trace	0.27	trace	5.8	HCldy
Sat 14:00	8	snow	0	-7	-15	67	NW	11	18	-26	0	0.00	0.27	0.0	5.8	HCldy	
Sat 15:00			7	-14	70	NW	13	20	-28	SN	10	trace	0.27	trace	5.8	Partly	
Time (CST)	MN-25 SB	MN-25 SB	MN-25 SB	Air Driving Temp (°F)	Dew Driving Point (°F)	Rel Frost Humidity (%)	Wind Wind Speed (miles/ hour)	Wind Wind Gust (miles/ hour)	Wind Wind Chill (°F)	Type	Precip Wind Prob (%)	Precip Chill Rate (in/ hr)	Precip Type Accum (in)	Snow Rate (in/ hr)	Snow Accum (in)	Sky	