

# CROW WING COUNTY

## Dec. 5-8, 2016 Snow Event #4 2016-11



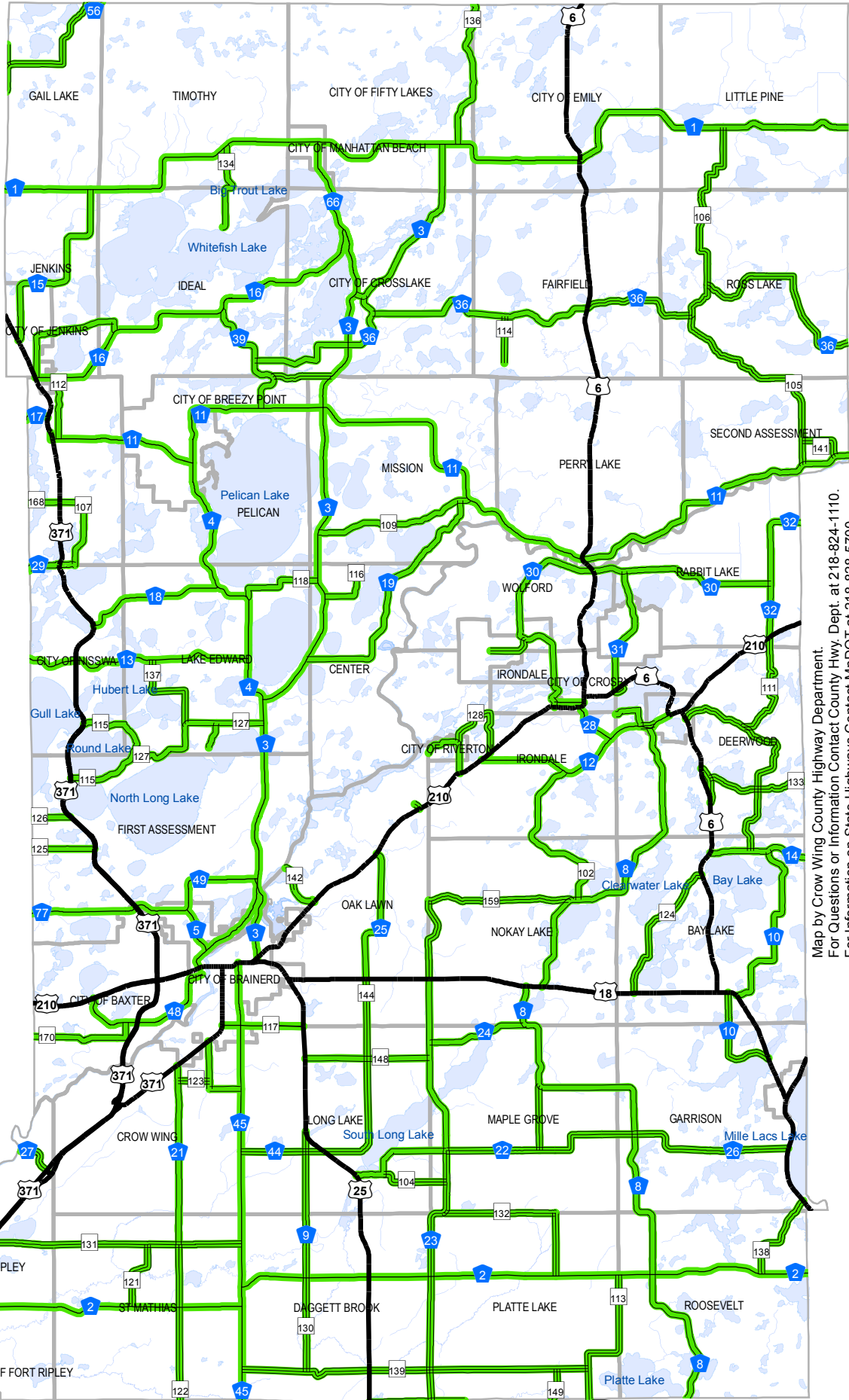
Reported Event Conditions	
Date:	12/5-12/8/16
Event No:	#4 2016-11
Begin Time:	12/5/16 3PM
End Time:	12/8/16 6PM
Weather:	Rain/Snow
Precipitation:	.1"Rn/4"snw
Temperature:	36\ -5
Wind:	15-30 mph

Event Costs	
Salt	\$29,511
Sand	\$470
Brine	\$5,202
Equipment/Fuel	\$25,555
Personnel Reg.	\$11,295
Personnel OT	\$605
<b>Total</b>	<b>\$72,638</b>
Cost Mile	\$130
Season Total:	\$261,479

Priority By Route	
<b>Priority 1</b>	
% Target 1A Met:	100%
% Target 1B Met:	100%
<b>Priority 2</b>	
% Target 2A Met:	100%
% Target 2B Met:	100%
<b>Priority 3</b>	
% Target 3A Met:	100%

**Legend**

- MnDOT Highway
- Route Priority**
- 1 (ADT>5000)
- 2 (500>ADT<5000)
- 3 (ADT<500)
- Route Target**
- Target Achieved
- Target Not Achieved



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.

Report Date: 12/9/2016

## 2016/2017 Summary For Snow Event #4 2016-11 Date 12/6 -12/8/16

Salt Cyds	Salt \$	Sand Cyds	Sand \$	Brine gal	Brine \$	Mat. Total	Equip \$	Reg. Personnel	OT \$
333	\$29,511	14.25	\$470	7882	\$5,202	\$35,183	\$25,555	\$11,295.00	\$605

Total \$72,638

**Total**      \$72,638              24 hrs =      \$3,027 per/hr              344 man hours  
    \$130 per/CL/Mile

### Forecast

1-2" snow 12/5 in the afternoon continuing into the morning of 12/6. Strong winds with temps in the 30s dropping into the 20s and additional 1" of snow in the afternoon on 12/6, falling into the late evening. 1" of snow forecasted to fall 12/7 into Thursday morning 12/8.

### Pre Plan

Start plowing at 5 A.M. on 12/6 and continue as long as needed. 300 lbs salt on centerline.  
 Early start on 12/7 with 800 lbs on icy areas where the wind isn't blowing.  
 Early start on 12/8 with 600-800 lbs on icy areas where the wind isn't blowing.  
 Anti ice to help reduce the chance of ice bonding to intersections and curves on priority 1 roads.

### Comments

Snow fell hard on 12/5 from 3 P.M. to 6 P.M. then flurries until 10 P.M. The snow stayed slushy and burned off most south roads on its own. Roads up north had intermittent wheel paths with spotty ice areas. The snow moved north and disapated which was not predicted on 12/5.  
 Road temps dropped fast on 12/6, requiring us to increase our application rate.  
 Applied salt on 12/8 to icy areas. Salt from 12/7 was working but needed a boost in some areas.  
 Snow finally ended at 6 P.M. on 12/8. Salt on roads kept working melting additional snowfall.  
 Wind throughout this storm helped clean off the roads in most open areas. We did see some snow sticking in areas that remained wet.  
 Anti iced 12/5 & 12/6 on priority 1 intersections and curves.

### Conditions

Pavement temps stayed warm melting most of the snow. CR 12 bare and dry shoulder to shoulder.  
 Roads in the north half of the county melted but had areas of intermittent ice in the wheel paths.  
 Road temps were 32 degrees the morning of 12/6 and fell to 18 by noon.  
 Strong winds and blowing snow with 1.5" of accumulation on 12/6.  
 Road temps were 10-15 degrees the morning of 12/7. Salt still working but slow.  
 Strong winds 30 mph and blowing snow with 1.5" of accumulation on 12/7.  
 Dusting of snow 12-8-16 with 25 mph NW winds blowing snow across roads.  
 We were able to maintain bare wheel paths throughout the event.

Road	RDTemp	Date/Time		Air Temp
142	37	12\5\16	3PM	32
12	37	12\5\16	4:15PM	32
30	32	12\6\16	4:00 AM	25
11	32	12\6\16	4:45AM	25
12	15	12\7\16	4:00 AM	14
8\2	20	12\8\16	5:00 AM	19
3\11	19	12\9\16	6:45 AM	13

Date	High	Low
12\4\16	33	28
12\5\16	36	22
12\6\16	33	17
12\7\16	18	13
12\8\16	20	12
12\9\16	13	-5

### Summery

Most roads melted off in the south on 12/5. North roads had center and shoulder ribbons and sparatic ice in wheel paths. Almost all roads had bare wheel paths the morning of 12/6.  
Went out to scrape and check roads on 12/6, 12/7 &12/8. Strong winds helped dry most open areas.  
Minimal drifting took place.  
Plows were out at 5 A.M. 12/6, 12/7 & 12/8.

**Decisions Made**

We waited to plow on 12/5 until 12/6 in anticipation of more snow on 12/6 falling later so we had coverage throughout the day. The snow was slushy underneath and with rain in the forecast the decision was made to leave the snow so it would soak up the rain and we wouldn't have black ice.  
On 12/6 started with 300-400 lbs and late morning the salt slowed down and started to refreeze. Reapplied at 600 lbs to get the material working better.  
Applied material to icy areas on 12/7. The material continued to work throughout the night into the morning on 12/8 at a rate of 600-800 lbs.

**Lessons Learned**

Apply higher rates earlier when the pavement temps are forecasted to be lower.

**Goals Met/Not Met**

<u>Plowing</u>		<u>Bare wheel paths</u>	
Priority 1	Met	Priority 1	Met
Priority 2	Met	Priority 2	Met
Priority 3	Met		