



Memorandum

TO: Mayor Diane Wolfe Marlin and Members of the City Council

FROM: William R. Gray, Public Works Director
John Collins, Operations Manager

DATE: May 18, 2017

RE: 2016/2017 Winter Summary

Where did the winter go? All aspects of the past winter season were very mild. The season started with the first snow fall on December 4, 2016, and ended with the last measurable snow fall on March 14, 2017. During this time, the Operations Division responded to ten (10) separate snow or ice related events.

The City did experience two separate ice events that were of much concern. When the first ice event occurred on December 16th, the city was affected by 24 hours of continuous freezing mist and drizzle, rain, and light dusting of snow followed by temperatures dropping to below zero. The second ice event on January 14th and 15th proved to be less of an issue but did require spreading salt. According to the Illinois State Water Survey, 8.1 inches of snow were recorded during this winter season, with the heaviest snowfall totaling 1.8 inches falling on March 13th. An average winter snowfall is around 24 inches. This past winter season Urbana experienced 72 days of precipitation, no record low temperatures, six days of record high temperatures (five of which were in February with temperatures reaching 70 degrees), and the ground temperature at the four-inch level not dropping below 32 degrees all season. Total liquid precipitation from the first of November to the end of March was below average by over 3.5 inches.

The total cost for addressing the 2016/2017 winter season events was **\$226,571**. Listed below is a breakdown of expenses for the most recent winter season.

Salt*	\$57,902
Salt Brine	\$2,325
Calcium Chloride	\$1,695
Ice Melt**	\$1,339
Employee Hours/Cost	\$80,530
Employee O/T Hours/Cost	\$35,148
Equipment Cost	\$40,802
Contractual Cost	\$6,830
Total Cost	\$226,571

- Salt* This material cost includes salt used by the C-U Mass Transit District, the Urbana School District, and the Urbana Champaign Sanitary District.
- Ice Melt** This material is treated salt used at the Parking Deck and on brick sidewalks and on other sidewalks of concern at the City Building.

Here are some miscellaneous notes from this past winter season:

Materials consumed

- 1057 ton of salt*
- 9,300 gallons of salt brine
- 2,322 gallons of calcium chloride
- 2,625 pounds of Ice Melt**

Employee and equipment hours

- 1,535 employee hours worked
- 885 employee overtime hours worked
- 1,191 equipment hours

Materials carried over for next season

- 1,344 ton of salt
- 3,400 gallons of calcium chloride

The City's Sidewalk Snow Removal Ordinance was enacted twice this past season. The overall response to and coverage of the affected areas was very good throughout all the Urbana districts.

The Operations Division will continue working to reduce the cost of the City's winter operations; however, it has been and will continue to be accomplished in small steps. Taking this approach will ensure that gaps in coverage are minimized to protect the safety of Urbana's citizens, motorists, pedestrians, and the biking community.

This year the Operations Division trained two new employees for snow removal and they all did a great job.

Attached is a spreadsheet of the 2016/2017 winter material, equipment, contractual and labor costs for comparison.

For any question regarding items presented in this report, please feel free to contact the Urbana Public Works Department.

10 YEAR SNOW SEASON COMPARISON 2007/08-2016/17

	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017
Snowfall in Inches	26.3	18.7	27.1	41	11.4	23.3	43.2	26.1	12.6	8.1
Number of Snow/Ice Events	17	30	22	16	13	15	26	12	11	10
Plowing Events	4	5	5	7	1	4	9	8	4	0
Salting Only Events	13	25	17	9	12	11	17	4	7	10
Salt Usage in Tons	1,500	1,508	2,868	2,286	772/850*	755/817*	2149/2296*	1149/1263*	671/755*	982/1057*
Salt Usage Per Inch of Snow in Tons	57	81	106	56	68	32.4	50	44	53	121**
Salt Cost per Inch of Snow	\$2,166	\$5,231	\$7,079	\$3,730	\$5,047	\$2,193	\$3,334	\$2,652	\$3,784	\$7,148
Total Salt Cost	\$56,962	\$97,822	\$191,841	\$152,911	\$57,537	\$51,106	\$144,025	\$69,262	\$47,675*	\$57,902*
Salt Brine In Gallons				25,515	15,444	12,665	7,730	3,750	3,298	9,300
Salt Brine Per Inch of Snow				622	1355	135.9	179	144	262	1148
Salt Brine Cost per Inch of Snow				\$156	\$339	\$34	\$45	\$36	\$66	\$287
Total Salt Brine Cost				\$6,379	\$3,861	\$3,166	\$1,933	\$940	\$825	\$2,325
Calcium Chloride in Gallons	7530	6,315	3,864	5,850	1500	0	5,230	4,194	0	2,322
Calcium Chloride Usage Per Inch of Snow	286	338	143	143	132	0	121	160	0	287
Calcium Chloride Cost Per Inch of Snow	\$123	\$161	\$93	\$97	\$89	\$0	\$79	\$115	\$0	\$210
Total Calcium Chloride Cost	\$3,238	\$3,009	\$2,512	\$3,978	\$1,020	\$0	\$3,400	\$3,001	\$0	\$1,695
Ice Melt in Lbs.	6,500	7,000	3650	4,750	3220	2,820	4,400	4,555	1,550	2,625
Ice Melt Usage Lbs. Per Inch of Snow	247	374	135	116	282	121	102	175	123	324
Ice Melt Cost Per Inch of Snow	\$89	\$139	\$54	\$46	\$113	\$48	\$41	\$100	\$70	\$165
Total Ice Melt Cost	\$2,340	\$2,598	\$1,460	\$1,900	\$1,288	\$1,128	\$1,760	\$2,610	\$883	\$1,339
Employee Regular Labor Cost	\$128,236	\$91,482	\$81,031	\$123,733	\$31,286	\$88,418	\$138,561	\$62,736	\$65,086	\$80,530
Employee Overtime Cost	\$51,914	\$40,253	\$66,198	\$95,038	\$26,390	\$56,806	\$153,600	\$88,748	\$34,700	\$35,148
Employee Cost Per Inch of Snow	\$6,850	\$7,045	\$5,433	\$5,336	\$5,059	\$6,233	\$6,763	\$5,804	\$7,919	\$14,281
Total Employee Cost	\$180,150	\$131,735	\$147,229	\$218,771	\$57,676	\$145,225	\$292,161	\$151,484	\$99,786	\$115,678
Equipment Cost	\$90,440	\$77,380	\$133,482	\$158,864	\$42,363	\$94,326	\$243,629	\$118,098	\$57,245	\$40,802
Equipment Cost Per Inch of Snow	\$3,439	\$4,138	\$4,926	\$3,875	\$3,716	\$4,048	\$5,640	\$4,524	\$4,543	\$5,037
Contractual Cost	\$5,520	\$4,947	\$8,724	\$10,674	\$3,873	\$16,176	\$25,903	\$15,350	\$11,660	\$6,830
Total Cost for Winter Operations	\$338,650	\$317,491	\$485,248	\$551,577	\$167,618	\$315,323	\$712,811	\$364,917	\$218,074*	\$226,571*
Total Cost Per Inch of Snow	\$12,876	\$16,978	\$17,905	\$13,453	\$14,703	\$13,533	\$16,500	\$13,982	\$17,307*	\$27,972*
* This includes salt used by the C-U Mass Transit District, Urbana School District and the Urbana Champaign Sanitary District										
Salt Brine was not used prior to the 2010/2011 Winter Season										
** This number includes 380 ton of salt used for the ice event on December 14th										