Utilizing Training and Technology to Achieve Results

West Des Moines Stats

- Population 63,541 (2015)
- Approximately 40sq mi
- Approximately 785 Lane Miles of Roadway

Training Goals

- Enhanced education
- Understanding operational goals
- Buy-In
- Modifying culture
- Networking with others

Training

- In-House Training
- Regional Training Events
- Certificate Programs
- After Event Analysis

L3 communications

Results

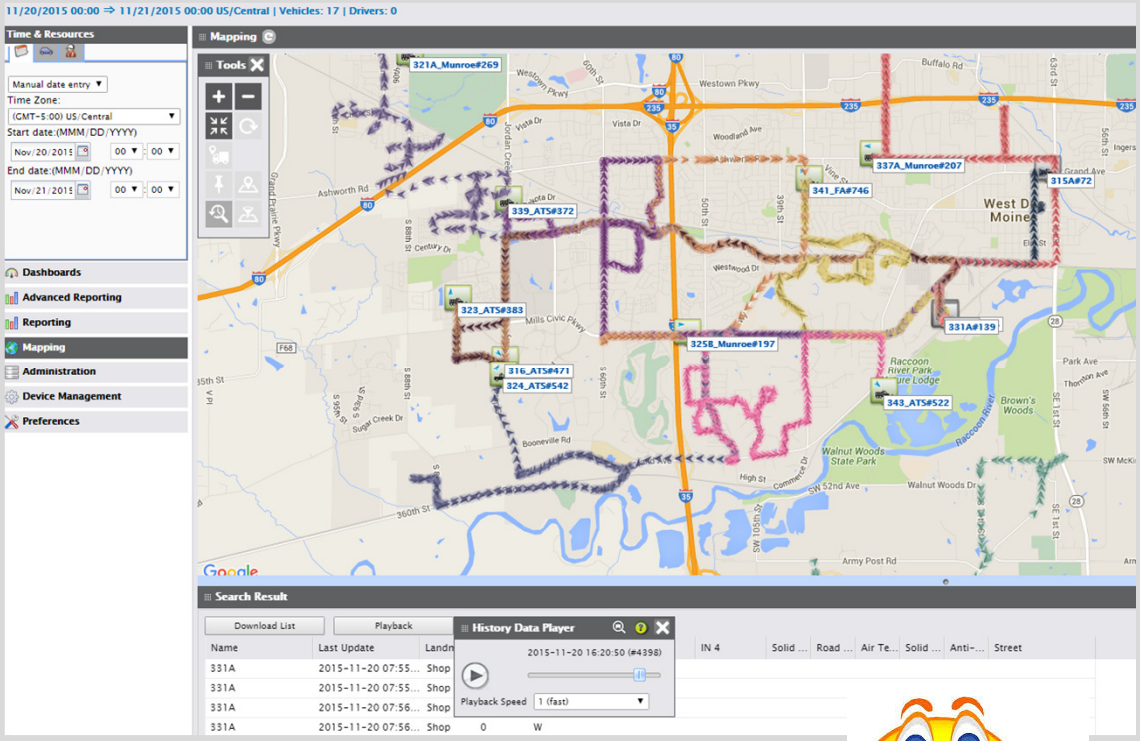
- Organizational shift
- Increased awareness
- Understanding of agency goals
- Field staff expertise

Technology Tools

- Automated Vehicle Location
- Trucks and Components
- Weather tools
- Traffic network cameras
- On-demand blending

Automated Vehicle Location (AVL)

- Real-time data
- Material Inventory
- Coaching tool
- Increased customer service
- Contractor oversight



Controllers

Sensors

Reports

- Material usage (granular and liquid)
- Vehicle status
- Customer service
- GIS data points

City of West DesMoines - Salt Usage Report for WestDemoines 315A FA

Report period	From dd/MM/yyyy HH:mm	to dd/MM/yyyy HH:mm
	24/03/2013 08:00	24/03/2013 13:00

Vehicle Name : WestDemoines 315A FA

Date	Start	End	Miles	Dead	Serviced Miles	Salt	Granular
D M Y	Time	Time	Spread	Head	Total	Used (lbs)	Rate
03/24/2013	9:35	12:15	6.77	16.22	22.98	1,307	107
					Totals:	**1,307**	**107**

Supervisor's signature

Trucks and Components

Plow Blades

SUPERIOR SCRAPING AND LESS VIBRATION/NOISE

Anti/De-icing Units

Weather Tools

- RWIS
- Friction sensors
- Contracted Weather Service
- MDSS
- Traffic network

Local RWIS Implementation

Map | Station Summary | Station Wall | **Stations** | Forecast | Alerts | Reports | Admin | Tools | Help

Westown Parkway @ 22nd Street (Show station on map)

Coordinates
93° 44' 10" W 41° 35' 49" N

Altitude
270 m

Nearest stations

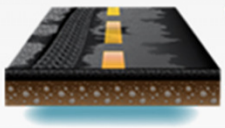
West Des Moines East	3.6 km
West Des Moines West	3.6 km
Jordan Creek Parkway @ Woodland Ave	6.2 km

Groups

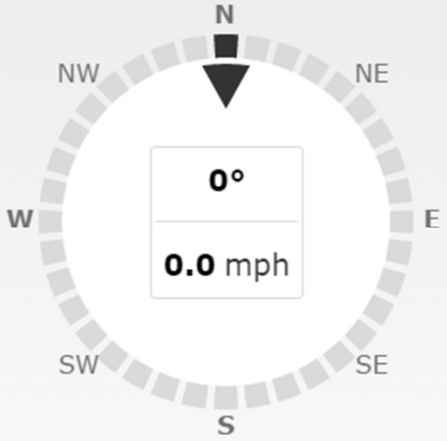
Station Overview | Graph | Camera History | History Table

Current conditions
05.20.2016 04:10 AM

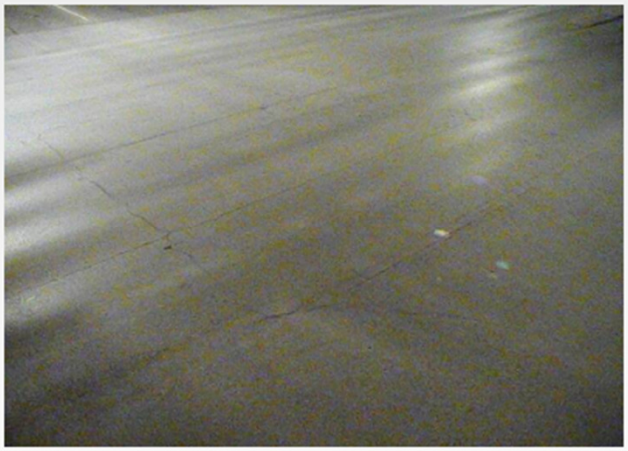
Air Temperature	57.6 °F
Dew Point Temperature	46.0 °F
Relative Humidity	66 %
Level of grip	0.82
Surface State	moist
Surface Temperature	63.1 °F

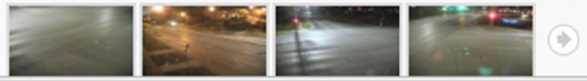


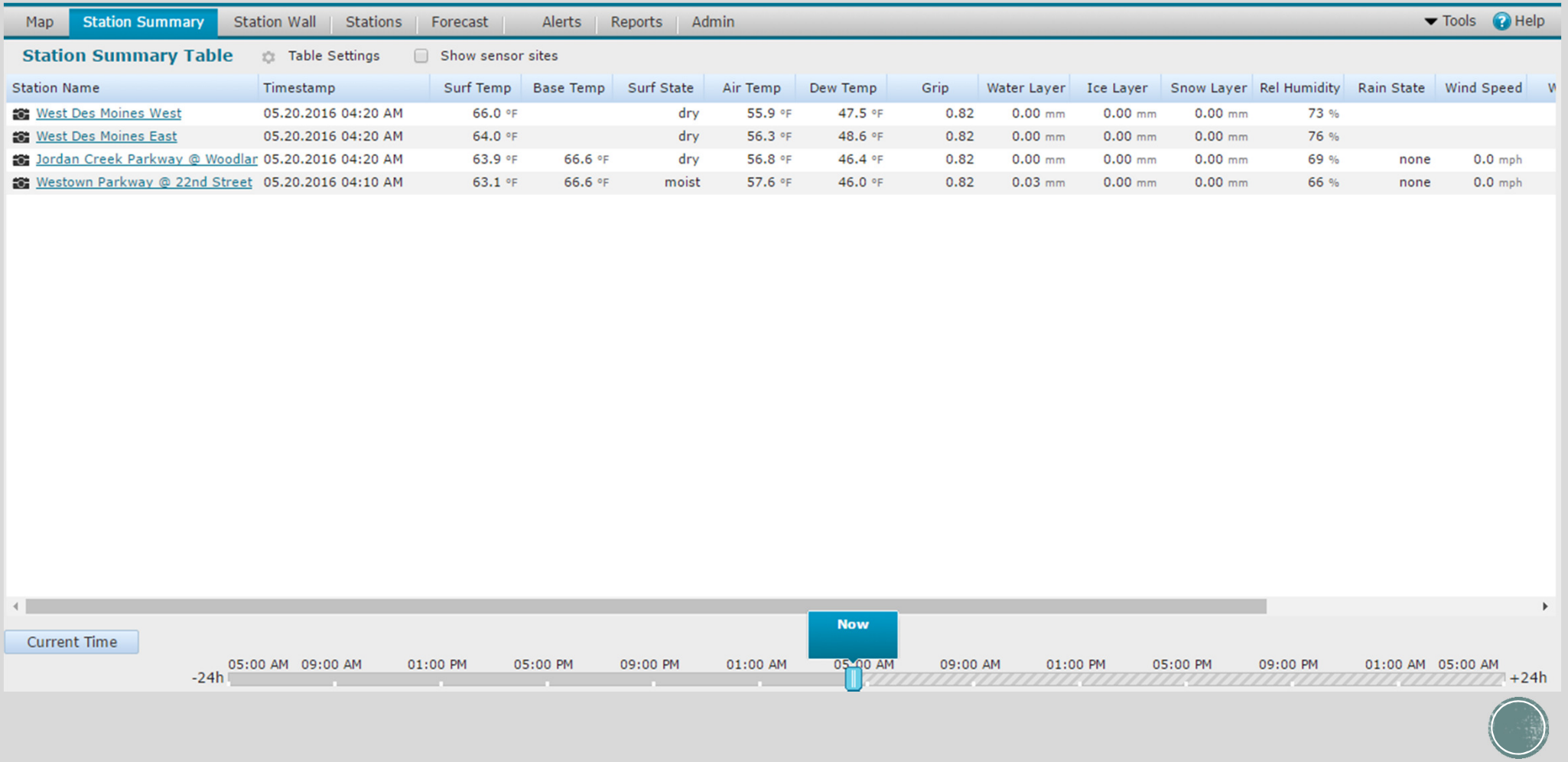
Wind
05.20.2016 04:10 AM



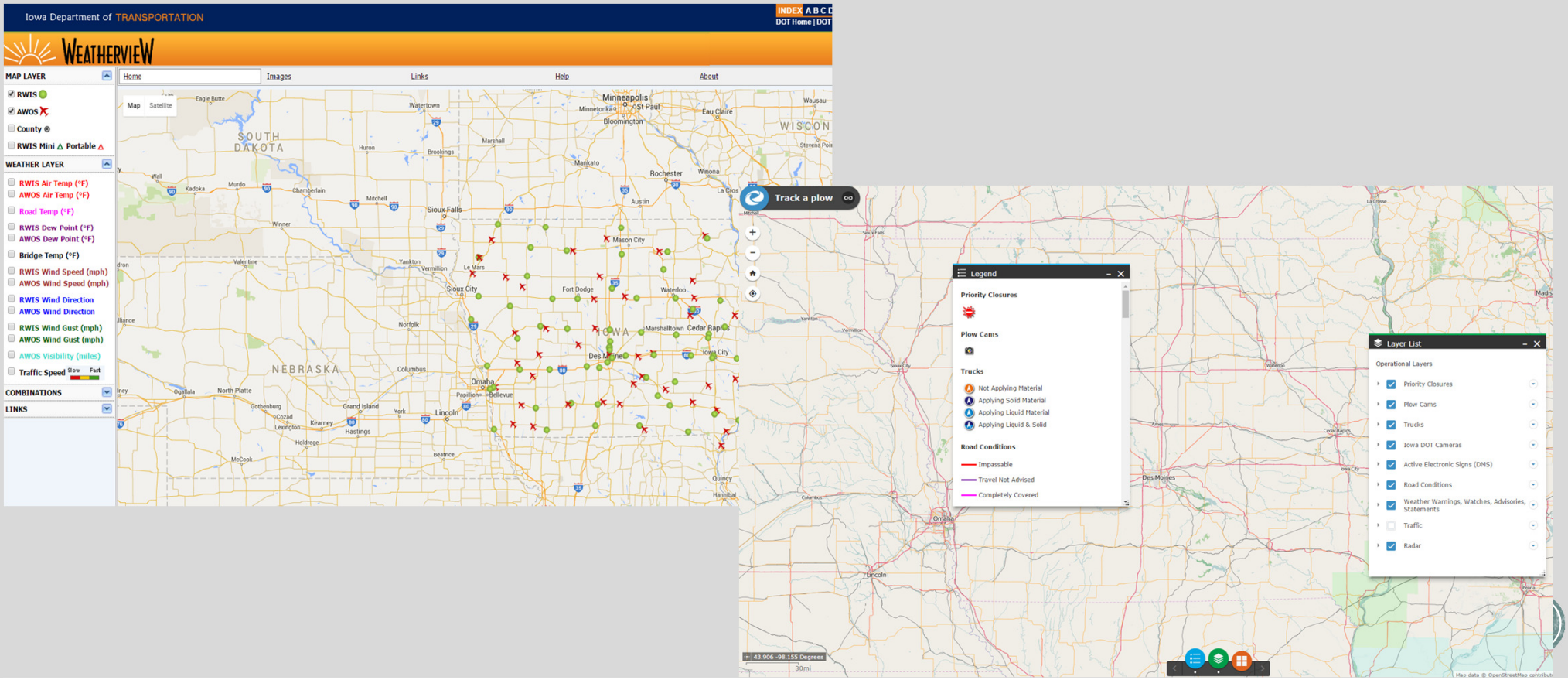
Roadside camera
05.20.2016 04:22 AM



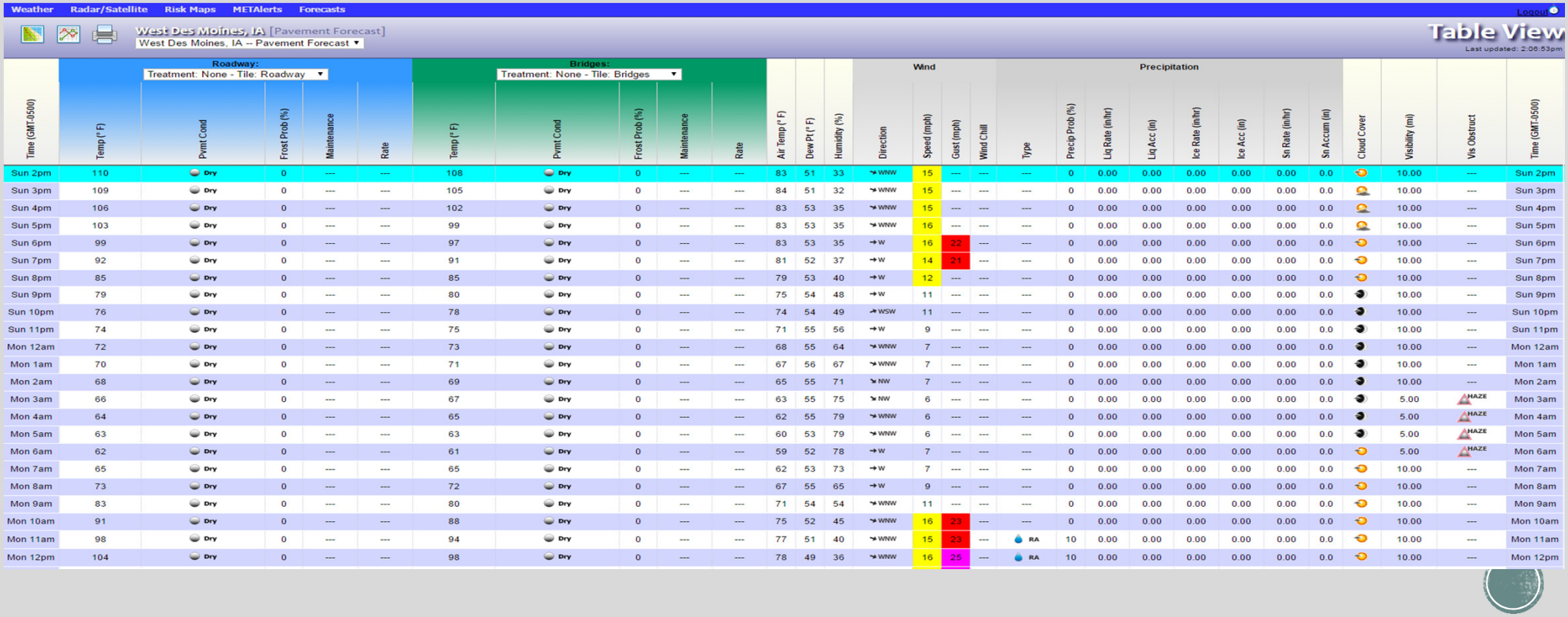



Map
Station Summary
Station Wall
Stations
Forecast
Alerts
Reports
Admin
Tools
Help
Station Summary Table
Table Settings
Show sensor sites
Station Name
Timestamp
Surf Temp
Base Temp
Surf State
Air Temp
Dew Temp
Grip
Water Layer
Ice Layer
Snow Layer
Rel Humidity
Rain State
Wind Speed
West Des Moines West
05.20.2016 04:20 AM
66.0 °F
dry
55.9 °F
47.5 °F
0.82
0.00 mm
0.00 mm
0.00 mm
73 %
West Des Moines East
05.20.2016 04:20 AM
64.0 °F
dry
56.3 °F
48.6 °F
0.82
0.00 mm
0.00 mm
0.00 mm
76 %
Jordan Creek Parkway @ Woodlar
05.20.2016 04:20 AM
63.9 °F
66.6 °F
dry
56.8 °F
46.4 °F
0.82
0.00 mm
0.00 mm
0.00 mm
69 %
none
0.0 mph
Westown Parkway @ 22nd Street
05.20.2016 04:10 AM
63.1 °F
66.6 °F
moist
57.6 °F
46.0 °F
0.82
0.03 mm
0.00 mm
0.00 mm
66 %
none
0.0 mph
Now
Current Time
05:00 AM
09:00 AM
01:00 PM
05:00 PM
09:00 PM
01:00 AM
05:00 AM
09:00 AM
01:00 PM
05:00 PM
09:00 PM
01:00 AM
05:00 AM
-24h
+24h

Utilizing State Resources



Contracted Weather Service



Weather | Radar/Satellite | Risk Maps | METAlerts | Forecasts — Logout

West Des Moines, IA [Pavement Forecast]

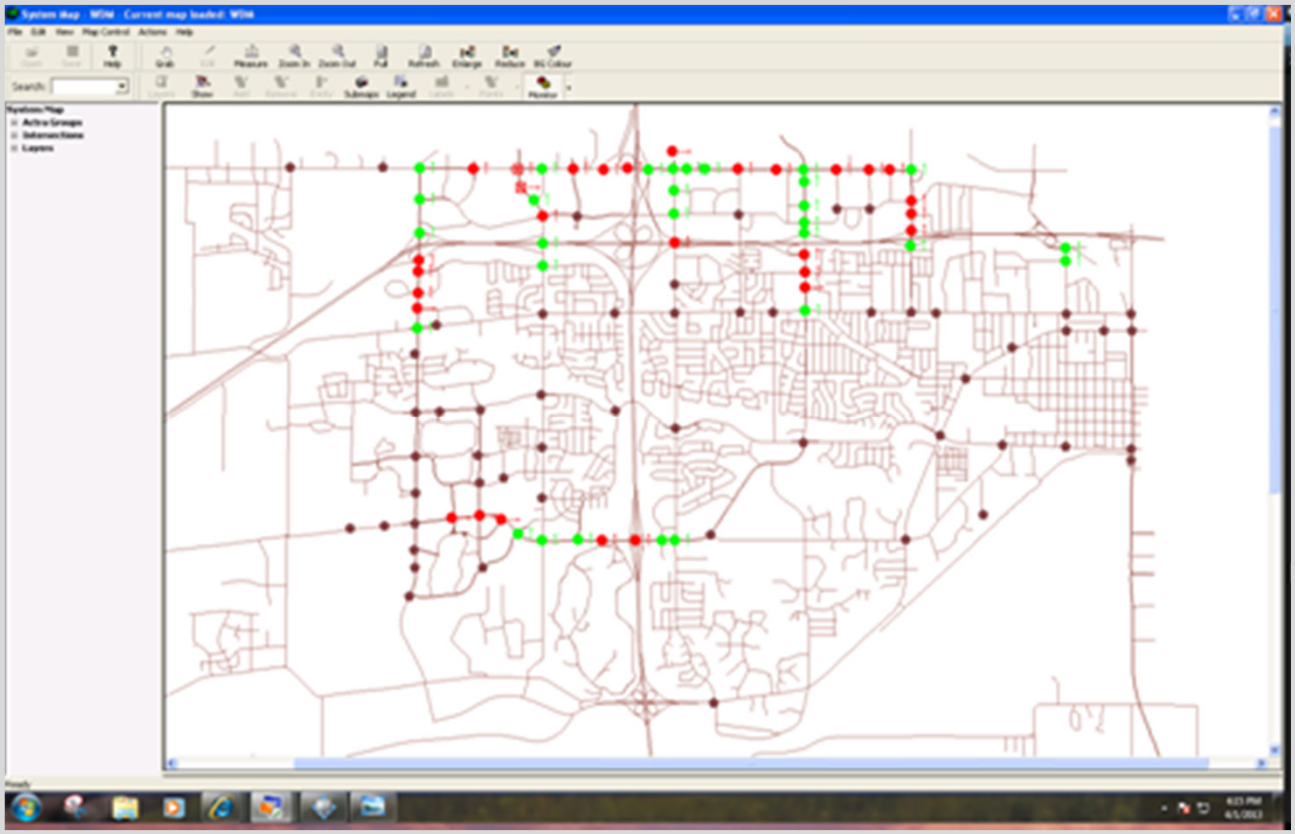
West Des Moines, IA -- Pavement Forecast

Table View

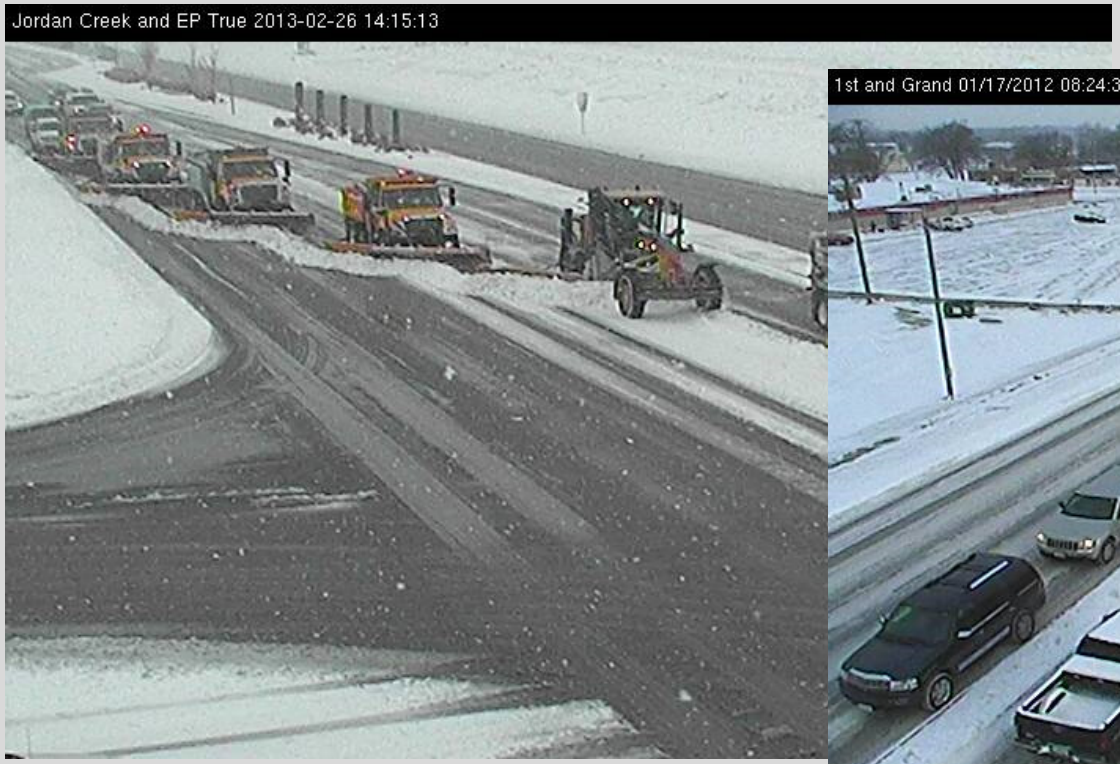
Last updated: 2:06:53pm

Time (GMT-0500)	Roadway: Treatment: None - Tile: Roadway					Bridges: Treatment: None - Tile: Bridges					Air Temp (° F)	Dew Pt (° F)	Humidity (%)	Wind				Precipitation								Cloud Cover	Visibility (mi)	Vis Obstruct	Time (GMT-0500)
	Temp (° F)	Pvmt Cond	Frost Prob (%)	Maintenance	Rate	Temp (° F)	Pvmt Cond	Frost Prob (%)	Maintenance	Rate				Direction	Speed (mph)	Gust (mph)	Wind Chill	Type	Precip Prob (%)	Liq Rate (in/hr)	Liq Acc (in)	Ice Rate (in/hr)	Ice Acc (in)	Sn Rate (in/hr)	Sn Accum (in)				
Sun 2pm	110	Dry	0	---	---	108	Dry	0	---	---	83	51	33	WNW	15	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 2pm
Sun 3pm	109	Dry	0	---	---	105	Dry	0	---	---	84	51	32	WNW	15	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 3pm
Sun 4pm	106	Dry	0	---	---	102	Dry	0	---	---	83	53	35	WNW	15	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 4pm
Sun 5pm	103	Dry	0	---	---	99	Dry	0	---	---	83	53	35	WNW	16	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 5pm
Sun 6pm	99	Dry	0	---	---	97	Dry	0	---	---	83	53	35	W	16	22	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 6pm
Sun 7pm	92	Dry	0	---	---	91	Dry	0	---	---	81	52	37	W	14	21	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 7pm
Sun 8pm	85	Dry	0	---	---	85	Dry	0	---	---	79	53	40	W	12	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 8pm
Sun 9pm	79	Dry	0	---	---	80	Dry	0	---	---	75	54	48	W	11	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 9pm
Sun 10pm	76	Dry	0	---	---	78	Dry	0	---	---	74	54	49	WSW	11	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 10pm
Sun 11pm	74	Dry	0	---	---	75	Dry	0	---	---	71	55	56	W	9	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Sun 11pm
Mon 12am	72	Dry	0	---	---	73	Dry	0	---	---	68	55	64	WNW	7	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Mon 12am
Mon 1am	70	Dry	0	---	---	71	Dry	0	---	---	67	56	67	WNW	7	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Mon 1am
Mon 2am	68	Dry	0	---	---	69	Dry	0	---	---	65	55	71	NW	7	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Mon 2am
Mon 3am	66	Dry	0	---	---	67	Dry	0	---	---	63	55	75	NW	6	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		5.00	HAZE	Mon 3am
Mon 4am	64	Dry	0	---	---	65	Dry	0	---	---	62	55	79	WNW	6	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		5.00	HAZE	Mon 4am
Mon 5am	63	Dry	0	---	---	63	Dry	0	---	---	60	53	79	WNW	6	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		5.00	HAZE	Mon 5am
Mon 6am	62	Dry	0	---	---	61	Dry	0	---	---	59	52	78	W	7	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		5.00	HAZE	Mon 6am
Mon 7am	65	Dry	0	---	---	65	Dry	0	---	---	62	53	73	W	7	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Mon 7am
Mon 8am	73	Dry	0	---	---	72	Dry	0	---	---	67	55	65	W	9	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Mon 8am
Mon 9am	83	Dry	0	---	---	80	Dry	0	---	---	71	54	54	WNW	11	---	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Mon 9am
Mon 10am	91	Dry	0	---	---	88	Dry	0	---	---	75	52	45	WNW	16	23	---	---	0	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Mon 10am
Mon 11am	98	Dry	0	---	---	94	Dry	0	---	---	77	51	40	WNW	15	23	---	RA	10	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Mon 11am
Mon 12pm	104	Dry	0	---	---	98	Dry	0	---	---	78	49	36	WNW	16	25	---	RA	10	0.00	0.00	0.00	0.00	0.00	0.0		10.00	---	Mon 12pm

Utilizing Traffic Cameras



Birdseye View Using Traffic Cameras

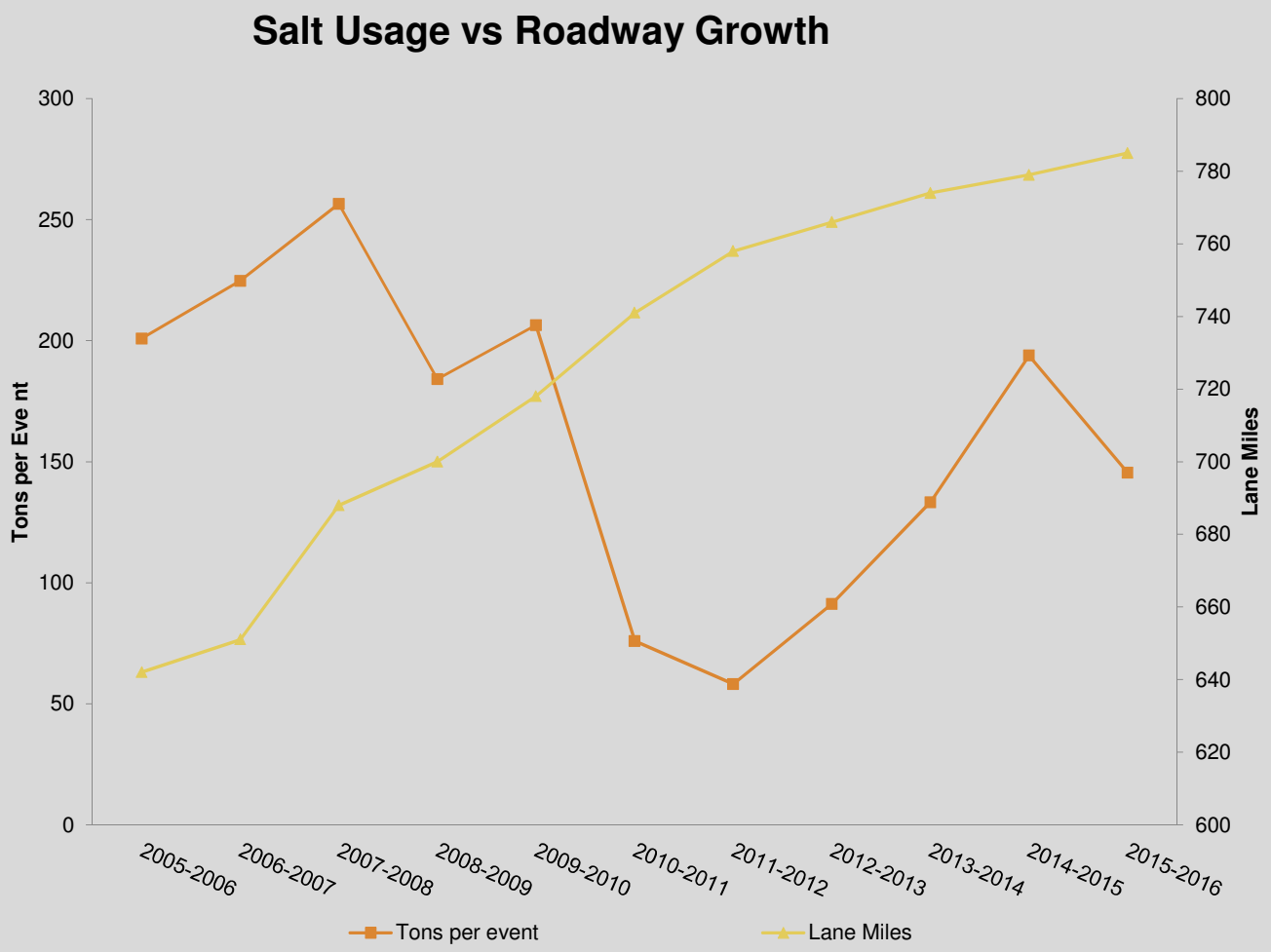


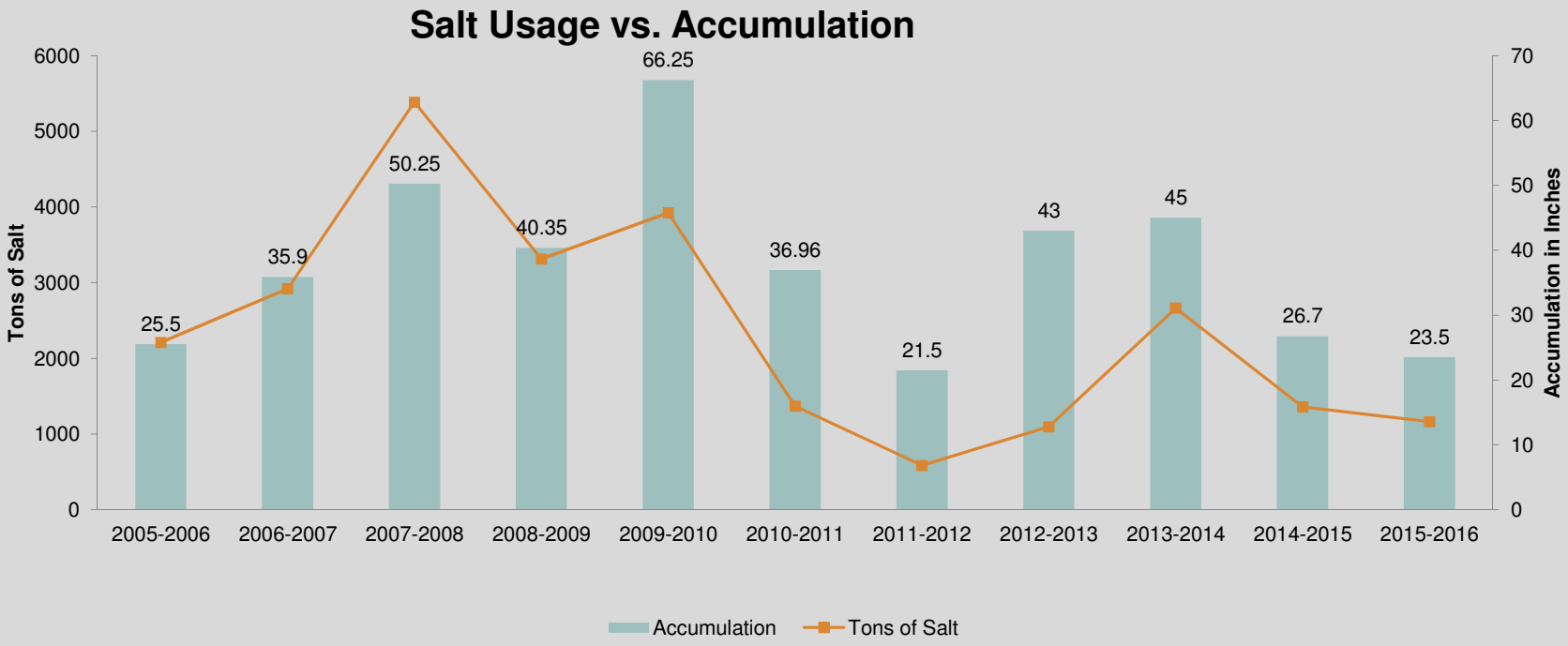
Automated Blending System

Latest Brine Maker

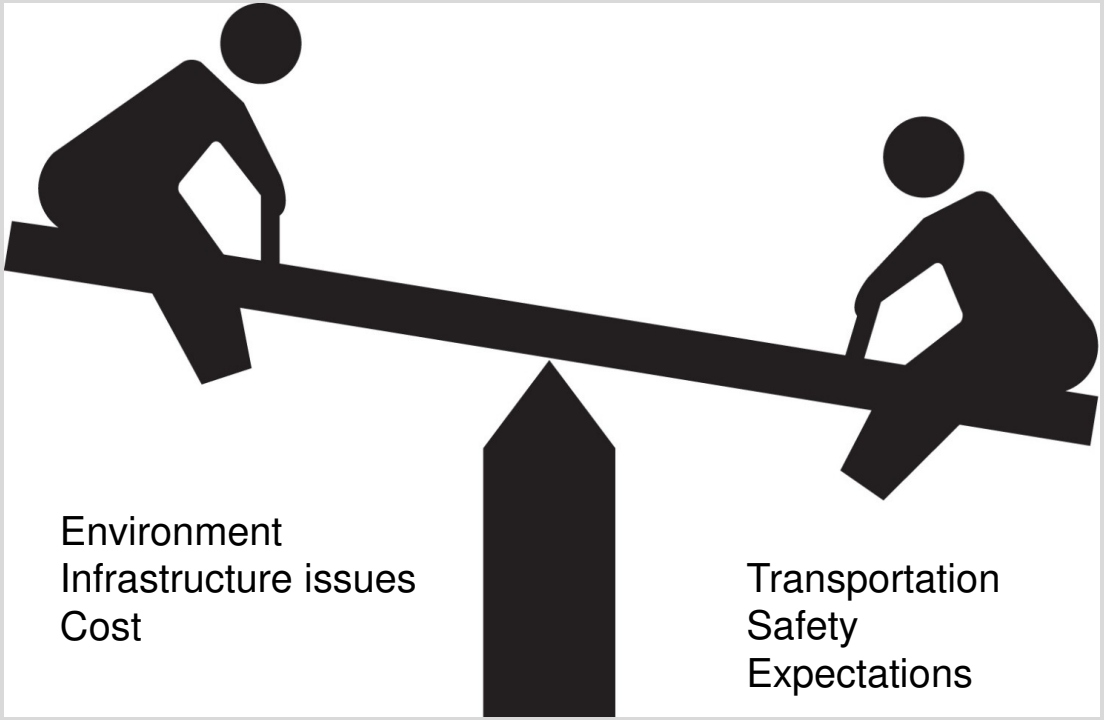
Results of our Efforts

- Maintained Staffing Levels
- Maintained LOS
- Decreased Salt Use
- Buy in from Employees

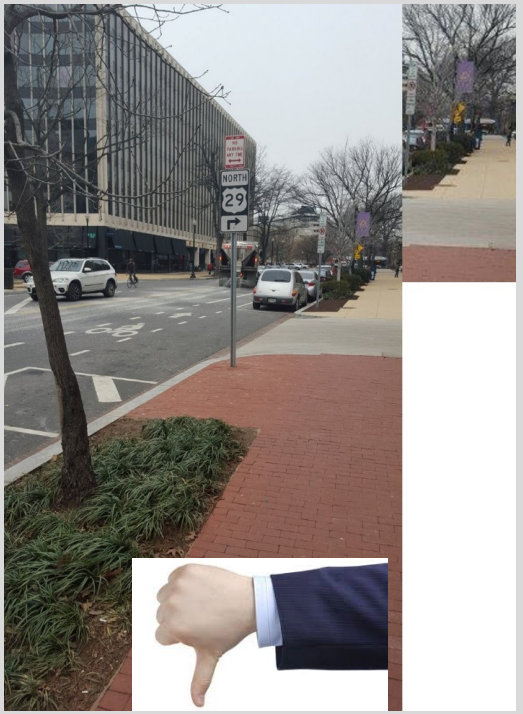

Salt Usage vs Roadway Growth
Tons per Eve nt
Lane Miles
300
250
200
150
100
50
0
800
780
760
740
720
700
680
660
640
620
600
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
Tons per event
Lane Miles


Salt Usage vs. Accumulation
Tons of Salt
Accumulation in Inches
6000
5000
4000
3000
2000
1000
0
70
60
50
40
30
20
10
0
25.5
35.9
50.25
40.35
66.25
36.96
21.5
43
45
26.7
23.5
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
2012-2013
2013-2014
2014-2015
2015-2016
Accumulation
Tons of Salt

Balancing Act



Educated Choices



THANK YOU!

Kevin Hensley

City of West Des Moines

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