



T&E COMMITTEE #3
February 7, 2019

MEMORANDUM

February 6, 2019

TO: Transportation and Environment Committee

FROM:  Glenn Orlin, Deputy Director
 Keith Levchenko, Senior Legislative Analyst

SUBJECT: Road salt usage (updated)

PURPOSE: Receive briefing from Departments of Transportation and Environmental Protection

T&E Chair Hucker has requested that the Departments of Transportation (DOT) and Environmental Protection (DEP) update the Committee on the environmental effects of using road salt, and to explain how road salt fits in its current strategy for handling snow and ice events.¹ The Committee had an initial briefing on this subject on March 15, 2018.

DEP and DOT prepared a PowerPoint presentation for this update (attached). The staff who will lead the briefing are:

Adam Ortiz, Director, DEP
Al Roshdieh, Director, DOT
Amy Stevens, Chief, Watershed Planning and Monitoring Section, DEP
Richard Dorsey, Chief, Division of Highway Services, DOT

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¹ #MoCoRoadSalt. Other key search terms: snow removal, Department of Transportation, roadways, Department of Environmental Protection.



DEPARTMENT OF
**ENVIRONMENTAL
PROTECTION**
MONTGOMERY COUNTY • MARYLAND

Montgomery County Road Salt Management

Transportation and Environment Committee

February 7, 2019 2:00 PM

Why We Use Salt

- Safety is our number one concern
- A Marquette University study examined collisions during snow and ice storms and found that road salt reduced:
 - ✓ Crashes by 88%
 - ✓ Injuries by 85%
 - ✓ Accident costs by 85%
- FHWA survey showed over a 10-year period there were:
 - ✓ 1,258,978 crashes due to winter conditions
 - ✓ 445,303 people injured in accidents due to winter conditions
 - ✓ 5,897 people killed in accidents due to winter conditions
- Salt/salt brine prevent snow and ice from bonding to pavement



Changes Since Last Year (DOT)

- MCDOT continually looks for ways to reduce salt use
- Since the March 2018 T&E Hearing
 - ✓ MCDOT has increased the salt brine capacity (110,000 gallons stored & ready Countywide)
 - ✓ MCDOT has increased salt brine application from 900 miles to 1,600 miles
 - ✓ MCDOT is piloting rubber blades on plows which will allow for quicker plowing and less salt usage
 - ✓ MCDOT has developed a comprehensive salt management plan



Salt Management

- Managing salt use during winter storms is a balancing act
 - ✓ Treat roads adequately to ensure public safety
 - ✓ Minimize salt use to reduce environmental impacts
- Finding the proper balance is an issue regionally and throughout the nation
- Continued MCDOT and DEP partnering to implement the best solutions



Growing Expectations

- Population has significantly increased
- Miles of maintained roads has grown
- Increased amount of impervious surface
- Treating sidewalks and bus stops
- Expectations for snow removal have changed
 - ✓ Demand for clearing curb to curb
 - ✓ Economic impact
 - ✓ Resident expectations vs. reality
 - ✓ Environmentally conscious



Responding to Storms

- Road treatment decisions are based on a variety of factors
- Timing of salt application is critical to its effectiveness
- Each storm is unique and requires a customized response
 - ✓ Snow
 - ✓ Ice
 - ✓ Sleet
 - ✓ Freezing Rain
 - ✓ Black Ice



Responding to Storms

➤ Various factors drive whether to use salt or salt brine and number of plows needed:

✓ Weather forecast (immediate and extended):

- Use four weather services to target start time
- Determine type of precipitation
- Overall storm profile
- Probable air/surface temperatures

✓ Pavement condition forecast

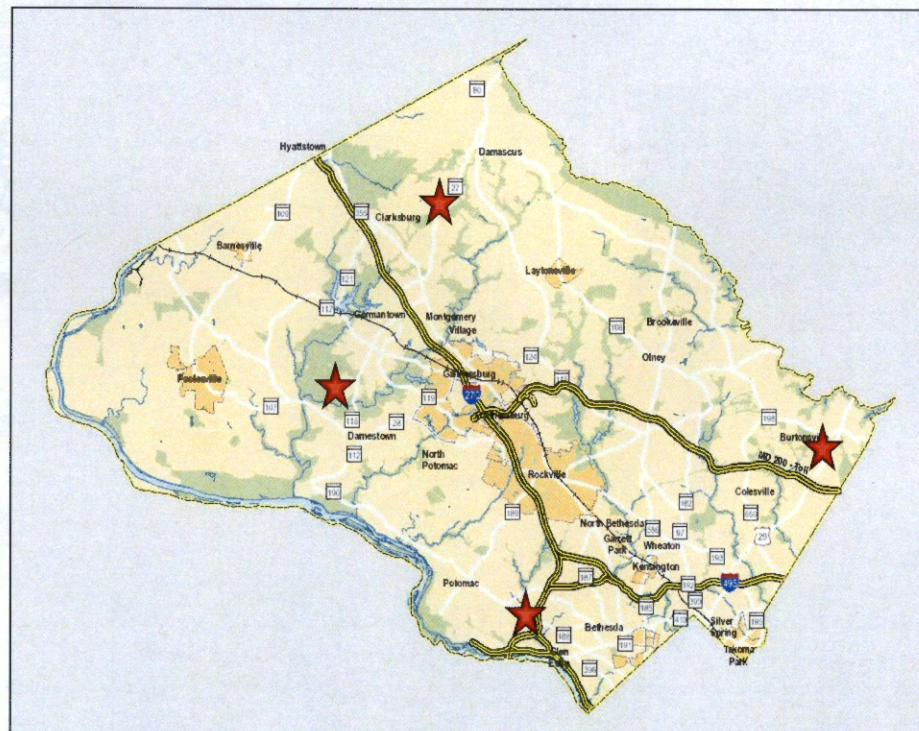
✓ RWIS station information

✓ Salting operations tailored to different County microclimates.

✓ Timing of event

➤ MCDOT adjusts its salt usage based on evaluations following each individual storm

RWIS Station Locations



Responding to Storms



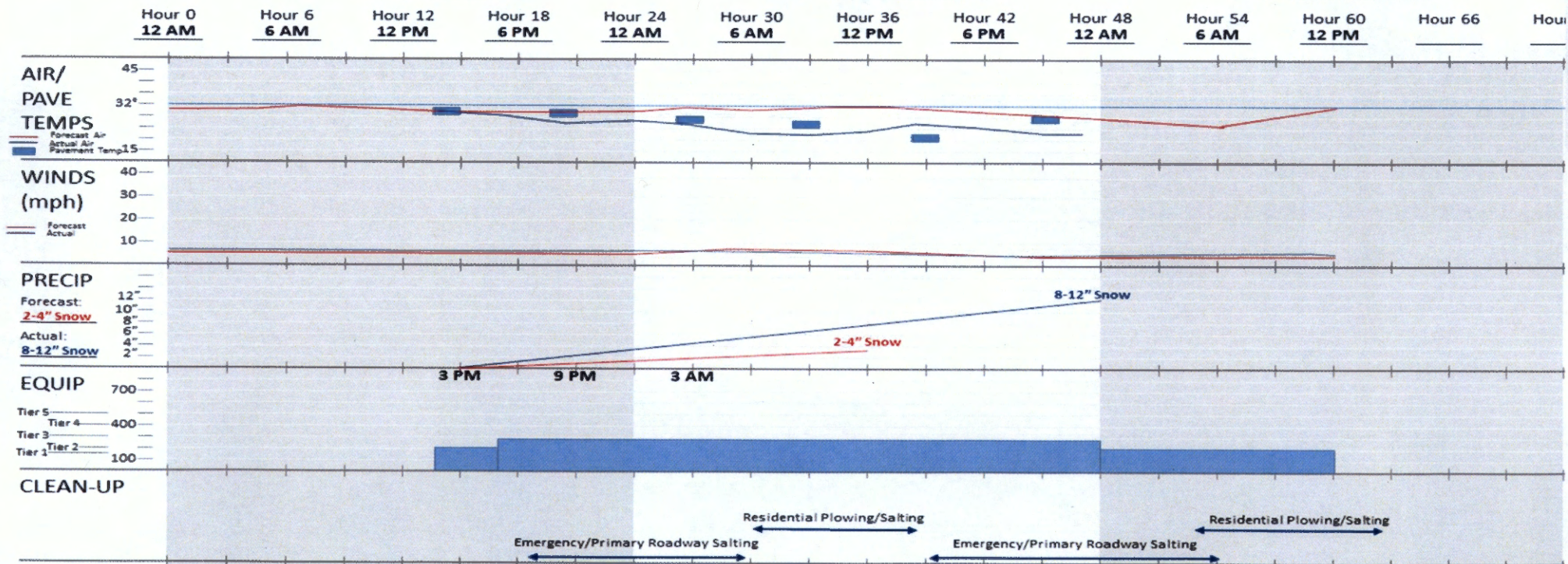
MONTGOMERY COUNTY, MARYLAND
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAY SERVICES

STORM No. 539

DAY 1 January 12, 2018

DAY 2 January 13, 2019

DAY 3 January 14, 2019



Who Uses Salt in Addition to County

- State Highway
- Municipalities
- MCPS and College
- M-NCPPC
- Homeowner associations
- Contractors treating commercial properties, parking lots and sidewalks
- Property owners treating driveways and sidewalks

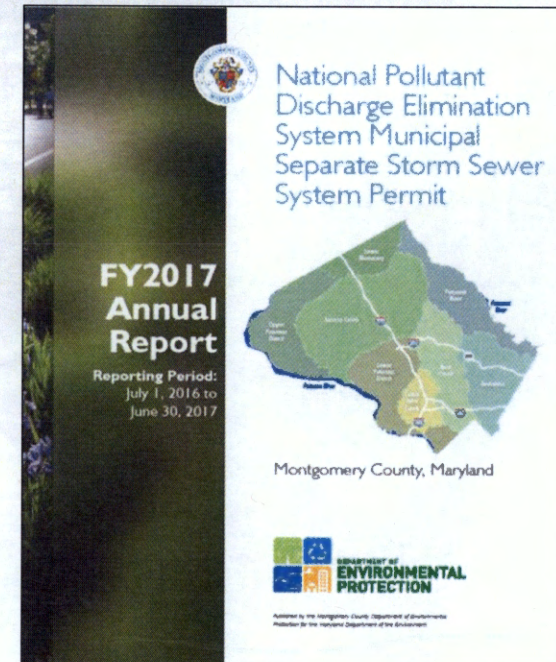


DEP and DOT Partnerships

- Provide data for MS4 permit reporting
- Drafted Salt Management Plan – currently under review
- Salt storage site inspections
- Staff and contractor training
- Equipment inspections and maintenance
- Good housekeeping practices
- Sweeping/cleanup of residue
- Responding to residential concerns

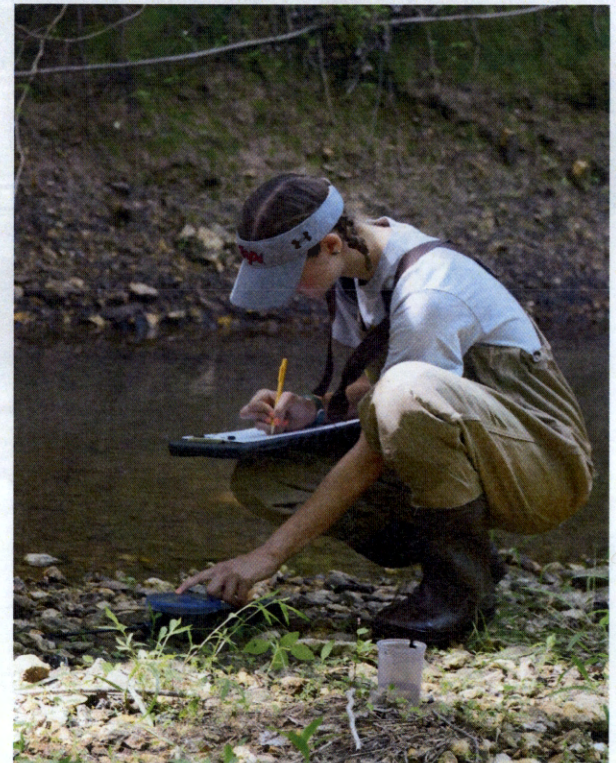
What We Are Doing – MS4 Permit Current Requirements

- Road Maintenance: “Control the overuse, and to the [maximum extent practicable], reduce use of winter weather deicing materials through continual testing and improvement of materials, equipment calibration, employee training, and effective decision-making.”
 - ✓ DOT follows Maryland State Highway Administration Salt Management Plan
 - All application equipment is calibrated annually
 - Online system to track status and progress of roadway treatment and plowing and salt used per route during winter weather events
 - Pre-treatment of roadways using salt brine (water and salt mixture)
 - ✓ Follow best practices from the Federal Highway Administration
 - ✓ Follow National Salt Institute Guidelines



What We Are Doing – MS4 Permit Future Requirements

- Property Management and Maintenance: “Reduce the use of winter weather deicing and anti-icing materials by developing a Salt Management Plan (SMP) [...] based on [...] Maryland Statewide Salt Management Plan, October 2017. The SMP shall include, but not be limited to:
 - ✓ An anticipated schedule of equipment replacement [...]
 - ✓ Training and outreach
 - ✓ Tracking and reporting”
- Jurisdiction-Wide Trend Monitoring: “Chloride assessments through hourly conductivity monitoring at two locations”
- “Report annually on the changes in its Property Management and Maintenance programs and the overall pollutant reductions resulting from these programs”



What We Are Doing

- Instantaneous Conductivity measurements during routine biological monitoring for 20+ years
 - ✓ Used as screening tool and viewing long term trends
 - ✓ We are seeing increasing trends over time, and hot spots near major roadways and dense urban areas
- Continuous Conductivity Monitoring in Ten Mile Creek Watershed
 - ✓ Data will provide short interval readings (e.g. every 5 minutes) for entire year (Started Aug 2018)



Changes Since Last Year (DEP)

- Preparing for next MS4 Permit.
 - Delays with state schedule on next permit release
 - Expecting a Draft Permit in June 2019
 - Final Permit in December 2019
- Working with other County agencies and partners to bring awareness to salt use and pollution prevention
- Developing outreach and education tips for residents and businesses
- Partnering with WSSC on outreach and education about salt and affect on drinking water
- Encouraging the State to develop regional salt management plans

Conclusion

- Salt usage is a balancing act between public safety and environmental impact
- Will continue to enhance/adjust salt usage practices
- Adoption of finalized Salt Management Plan in the near future
- Remain committed to protecting regional watersheds and ecosystems
- Continued coordination between agencies