

Winter Maintenance Activities
Senate Transportation Committee Hearing

Good morning. My name is George McAuley, PennDOT Deputy Secretary for Highway Administration. On behalf of the Secretary of Transportation Leslie Richards, I appreciate the opportunity to comment on the status of winter operations.

Winter road maintenance is very important to the Department and a key element in our total maintenance activities. \$205 million dollars were budgeted this year to perform winter maintenance activities on all 40,000 miles of state highways comprising over 94,000 snow lane miles –more snow lane miles than all New England states combined. Pennsylvania has the fifth largest State-maintained highway system in the nation. The winter climate that Pennsylvania endures produces all types of winter weather conditions ranging from ice storms to lake-effect snow squalls or several inches of dry snow.

Winter maintenance is a year round activity involving pre-winter planning, training, winter maintenance operations and post-winter review. PennDOT's Central Office manages statewide winter activities and preparedness with a dedicated Winter Operations unit. This group is responsible for monitoring proper levels of staffing, budget, equipment and materials. Additionally, they oversee the contracting of winter traffic services through private and municipal partners as well as weather forecasting services. They work directly with our Engineering Districts and Maintenance staff to provide training, review policies, monitor resource allocation and coordinate interactions between Maintenance Districts in order to attain the proper response level to winter storms.

Our maintenance personnel mobilize to full capacity for all types of forecasted winter weather to ensure all of PennDOT's highways are maintained, whether forecasts indicate a coating or several inches of snow or ice. PennDOT utilizes 2,254 department plow trucks during the winter to maintain the highway system. In urbanized areas with more miles of highway and greater traffic volumes, we utilize an additional 293 contracted plow trucks to supplement our fleet. 4,800 equipment operators are required to perform snow and ice removal activities during the winter to maintain our highway system. Our compliment of full time staffing is approximately 3,900 operators with an additional 900 temporary winter operators to fill gaps and ensure adequate staffing for 24-hour operations. PennDOT's staffing also includes 509 mechanics to keep our fleet operable, and respond to emergency repair needs.

With these resources, PennDOT services over 2,300 assigned snow routes that have an average length of about 40 snow lane miles and a 3-4 hour cycle time during the average snowstorm. We use salt brine for pre-treating road surfaces as part of our proactive approach to managing winter weather events. Our practices ensure we

are prepared in advance of winter weather and respond proactively, not waiting until conditions have become problematic to treat roads.

During last year's winter season, we used 528,000 tons of salt. While last winter was a mild season, our 5-year average salt use is 848,000 tons per year. We work directly with the Department of General Services to secure the best possible contracted salt pricing and the proper facilities to store our salt. So far this winter, we have needed to respond to varying types of events at a frequency much greater than last winter. With the Great Lakes remaining unfrozen, lake-effect storms have been frequent, and are anticipated to continue to present challenges.

PennDOT constantly reviews and analyzes new technologies for potential implementation in our operations through FHWA research programs, pooled-fund studies and networking with other states. We are currently evaluating new winter materials, plow types and various weather-monitoring technologies.

Beginning in the late summer months, PennDOT employees prepare for winter by attending our Snow Academy training seminars. We also provide our municipal partners with winter maintenance training materials through the Local Technical Assistance Program (LTAP). The leaders of our Engineering Districts meet with Central Office staff and discuss strategies and improvements through our Winter Leadership meetings in early Fall. We also meet with our state agency partners in PSP and PEMA. Through these interactions, we review and strengthen our policies and procedures for winter services.

When winter storms are forecasted, PennDOT manages the event at all levels of response. Our Central Office holds a pre-event conference call to include all of our Engineering Districts and state partners in winter operations. During those pre-event calls, our contract meteorologist provides a detailed forecast of the event, which leads to open discussion of maintenance strategies. We also have an opportunity to discuss the need to relocate or reposition our winter assets, implement an Incident Command, the potential need for speed or vehicle restrictions, and coordinate our overall response. At the conclusion of the conference call, this information is shared with our state agency and municipal partners.

Throughout winter weather events, we are able to monitor weather conditions and our field operations through various technologies to ensure that we are able to provide the planned level of service for the various route types. One such technology is our recently renewed Road Weather Information System (RWIS), which is a network of 55 sites that provide real-time weather data and road surface conditions to our managers and supervisors. This system provides data such as air temperature, wind speed, precipitation information and road

surface temperatures to assist managers in their operational decision-making. Additionally, this data can be combined with other information to aid in reviewing performance after events are over.

Another technology is the Automated Vehicle Location (AVL) system, deployed in 100% of our fleet and most of our contracted rental units this season. This system allows our staff to verify equipment locations, material applications, air temperature and road surface temperature during an event. All of the data is collected in a central location so that managers can review snow route coverage and material applications to ensure that we are utilizing our resources in an efficient and cost effective manner.

AVL data is displayed on our 511 system for public viewers to better understand our operations and recognize our presence where it might not always be apparent. The 511 website also provides traffic flow conditions and alerts to help the public make travel plans. When severe weather conditions have potential to cause sudden accidents, we will implement speed limit and vehicle restrictions where it is necessary and utilize the 511 system and ITS devices to inform the public in such instances. Our ultimate goal is to provide awareness for travelers through the 511 system so they may plan and prepare accordingly.

As part of our commitment to ensuring safe travel of the general public, we have partnered with the Pennsylvania Turnpike and PEMA to launch the 511PAConnect system in order to provide updates to travelers through wireless providers. In the event that an incident results in a highway closure for an extended time and travelers are impeded for several hours, we can use this technology to provide updates to those involved by cell phone messages through reopening of the highway. This also makes our partner agencies and us aware of the needs of impacted travelers, while acknowledging to them that they are accounted for and giving them a sense of reassurance. To our knowledge, this is the first such tool with two-way communication capability in the nation.

Post winter, our activities include After Action Reviews of how events unfolded and the effectiveness of our response. PennDOT County organizations, Districts and the Winter Operations unit analyze our AVL and RWIS data to identify material and manpower efficiencies in operations and develop new training plans for our crews. We review winter performance metrics and work with our academic partners on research of new technologies in the treatment of our road systems. All of our combined efforts aim to continuously improve the delivery of winter services efficiently and safely to the motoring public.

We would like to thank you for your interest in this topic. At this time, I am available to take any questions you may have. Thank you.