

**Opening Remarks  
Winter Storm Operations  
Commissioner James S. Simpson  
Assembly Transportation, Public Works and  
Independent Authorities Committee  
January 24, 2011**

Mr. Chairman, and the members of this Committee, thank you for the opportunity to appear before you today regarding the State's winter storm operations, and, in particular, the Blizzard of 2010 that began on Sunday, December 26, 2010.

First and foremost, I would like to take the opportunity to thank and acknowledge the hard work and efforts of the many thousands of snowfighters and other employees of the NJDOT, the N.J. Turnpike Authority, the South Jersey Transportation Authority, NJ TRANSIT, and the N.J. State Police. They, and the contractors who assisted us, deserve our thanks and gratitude.

In particular, I would like to recognize and thank the following people: Colonel Rick Fuentes, Superintendent of the NJ State Police, Lt. Colonel Jerome Hatfield, Major Ed Cetnar, and Major Dennis McNulty of the NJ State Police. I would also like to thank Bill Carter, Assistant Commissioner for NJDOT Operations, Lisa Webber, NJDOT's Emergency Management Coordinator, John O'Hern, Deputy Executive Director of the NJ Turnpike Authority, and John Cifelli, Turnpike Director of Maintenance. These people are the finest public servants I have had the privilege to work with throughout my career.

Since this Administration took office, we have dealt with 19 winter storm events in the past 12 months, with the worst being the Blizzard of 2010 that began on December 26, 2010.

In fact, in the past 26 days, we have dealt with 9 snow events, which amounts to one every three days.

Obviously, New Jersey DOT and its partners have a great deal of experience and expertise in managing winter storm events.

We view every snow/ice event as an emergency because the consequence of a slippery roadway can be a matter of life and death.

In assessing New Jersey's ability to deal with significant snow, I think benchmarking our response with our neighbors is a good comparison. For example, if you recall, the February 10<sup>th</sup>, 2010 snowstorm was a major event for the region, and all of New Jersey's roadways remained open and safe. Our neighboring state of Pennsylvania, however, closed I-81 from the Maryland line to I-80, I-78 from NJ line to I-81, and I-83 from the Maryland line to I-81.

The most challenging of these events was the Blizzard of 2010 that began on December 26, 2010. This event required the collective efforts and skills of so many in order to keep 95 percent of the State Highway System open to traffic during this Blizzard.

At the height of this storm, state transportation agencies had 2,600 pieces of equipment in use to clear roads and bridges, and we received over 11,000 phone calls at the Statewide Traffic Management Center (STMC) in Woodbridge regarding road conditions.

Our personnel did an outstanding job given the nightmarish conditions that Mother Nature handed us. This storm tested the limits of our physical assets, but it did not test the limits of the ingenuity and endurance of our people. We learned a lot from this storm and we have already applied these lessons to our

storm protocols and procedures, which I will discuss later in my testimony.

I spent six straight days and nights, from Sunday, December 26 to Friday, December 31 overseeing our storm response, and can attest to what these personnel accomplished.

With respect to physical assets, George Crombie, who is the President of the American Public Works Association, and has 28 years of experience in managing snow and ice removal, recently wrote in the APWA Reporter that “In most cases, you will not be able to design your snow plan around that winter storm that comes once every decade.” In fact, to provide perspective, the N.J. State Climatologist ranked this storm in the top 10 to hit New Jersey in the past 100 years!

And while this may be true, we at DOT and our sister agencies do, in fact, build snow plans to the fullest extent humanly possible to handle the rare and severe storms

As we do every year, the planning for winter storm operations begins in the spring. This is about getting equipment in the best possible condition, training crews, ordering salt and other materials, and signing up contractors. You can never start this process too early, and the staff at NJDOT can tell you that it is as automatic as sunrise and sunset.

Preparations included readiness exercises (Operation Checkout) to practice strategic deployment, and equipment preparedness and management of weather stations and emergency operations centers.

NJDOT’s 511 Traveler Alert Phone and internet system, the Statewide Traffic Management Center (STMC) in Woodbridge,

and 37 remote weather stations are available and active to help motorists navigate winter weather.

We began this winter with the following resources at our disposal. I will give this to you by agency.

### **NJDOT**

- 671 NJDOT personnel
- 846 trained volunteers drawn from other DOT divisions and other state agencies.
- 1204 contractor plowing trucks
- 127 contractor salt spreading trucks
- 40 Safety Service Patrol Trucks
- 427 trucks
- 89 loaders
- 18 graders
- 139,000 ton of rock salt
- 548,000 gallons of liquid calcium
- 116,000 of salt brine solution (pretreatment)

### **NJTA**

- Operates the Turnpike and Parkway
- 271 trucks
- 49,000 tons of salt
- 280 contractor plows

### **SJTA**

- 61 trucks
- 3,500 tons of salt
- 9,000 gallons of liquid calcium
- 30,000 gallons of brine solution

## **NJ TRANSIT**

- NJ TRANSIT has winterized hundred of rail cars and 2,100 buses
- 750 switches and switch heaters, overhead wire systems, 12 moveable bridges and wayside power at storage yards and terminals were inspected.
- Snow plows for diesel locomotive were checked and two snow blowers powered by jet engines were readied to clear snow and ice from tracks and switches.

## **Operational Procedures**

As the Spanish writer Cervantes once observed – “Forewarned and forearmed; to be prepared is half the victory!”

When we receive notification from our weather services that a storm is imminent – these are called “Storm Alerts”, which come 24 hours before the event is to reach us, we begin a set of procedures.

A winter storm event is defined as when the NJDOT has to call up six or more crews within a specific geographic area of the state to respond to ice or snow.

A very important item we undertake is “pre-treating” roadways with a brine solution that helps to prevent icing and snow binding to the roadway. We pre-treat before every storm as long as it is not forecasted to begin as rain.

After the storm alert is received, DOT Operations personnel meet in order to discuss the approach to the storm.

At this conference, a decision is made on when to activate our three Regional Emergency Operations Centers (REOCs), which are located in North, Central and South Jersey, and our main emergency operations center located at the Regional Operations and Intelligence Center (ROIC) in Mercer County.

When a regional center opens, crews report to their assigned yards approximately one hour following that activation.

The trucks are loaded with salt and liquid calcium and proceed to assigned locations on the state highway system. You may see these crews parked on the side of the road ready for work as snow begins to fall.

When the roads become wet, we begin salt spreading. It is important that moisture is on the roads to ensure that the salt and liquid mix with this moisture to prevent icing.

When approximately two inches of snow is on the road surface, we begin plowing. We also will plow with less than two inches if conditions warrant it. We plow to a depth of approximately a half inch. We do not try to get down to “blacktop” because you need some snow to prevent black ice conditions and to retain the salt on the roadway from spreading operations. Crews will plow and spread in shifts of 12 hours.

First we tackle our interstates and freeways – the higher volume roadways. Next are state arterials highways – examples of these are roadways like Route 130 or Route 9. We focus on keeping travel lanes open, then getting to the ramps, and when we are ahead of things -- it's then a matter of pushing snow off shoulders to provide the fullest use of a roadway.

Furthermore, in the event of a State of Emergency, where conditions would make it difficult or impossible for citizens to receive essential necessities, and where services at the State, County and Local level are severely impacted, we have established the following two parameters of priority:

1. Greatest public health and safety, and system user safety.
2. Greatest Economical Risk.

### **The Blizzard of 2010**

Beginning on Sunday, December 26, 2010, one of the worst snow storms to hit New Jersey began.

It is also important to set this storm apart from other storms given that it began the day after Christmas. While on snow patrol, I saw the malls and stores on Route 1 jammed with shoppers. People were also returning home from the Holiday Weekend.

Against this backdrop of a busy post Christmas transportation system, blizzard conditions rapidly began to occur with wind gusts of 50 mph. Visibility dropped in some areas to near zero. The strongest winds, which reached up to 80 mph, missed us to the east as the low pressure bottomed out at 961 millibars of pressure. This is equivalent to a Category 3 hurricane.

The Emergency Coordinator for Monmouth County, where the snow hit the hardest and heaviest, called this storm the worst to hit this region in over 30 years.

In a 12-hour time span, 9 to 30 inches of snow fell with blizzard conditions, zero visibility and sustainable winds of 40 to 50 mph. The rate of snowfall was 3 inches per hour, which is an extremely high rate even for severe storms. Experienced Operations personnel will tell you that 1.5 inches of snow per hour is what can be handled typically in order to keep roadways passable.

So you have all of these weather conditions rapidly occurring, and you also have too many vehicles still out on the highways. The wind was blowing so fiercely that literally right after a plow did a pass, the snow was blown back onto the travel lanes.

When we think of snow, we think of it falling vertically. But we had more than that to contend with – the wind created snow blowing horizontally – sweeping across roadways like a tsunami.

During the height of the storm, as DOT crews attempted to keep roads safe and passable, a major incident occurred on I-280 in the Oranges. Because of heavy traffic combined with weather conditions, 300 vehicles were stranded.

In fact, around 9:00 PM on Sunday, I received a call on my cell phone from Deputy Assembly Speaker Grace Spencer that she was stuck on I-280 westbound in the Oranges. And speaking of phone calls, at this point, the Statewide Traffic Management Center (STMC) was flooded with calls.

The road had become impassable. I-280 in the area has among the steepest grades for an interstate roadway in New Jersey. Vehicles could not get past these grades.



## Two footnotes to this:

One: When I-280 was built in the 1960s, engineers even then realized that the grades could pose a problem, especially in the winter, and proposed wiring the pavement with electrical coils to provide heat to keep it from freezing. It was deemed impractical back then, but gives you an idea of what they clearly foresaw the grades on that roadway could cause. We do pay special attention to it with our pre-treating routine. By the way, the type of pavement on this section of I-280 reduces highway noise, but the “crevices” in this type of pavement we recently discovered, has the tendency of reducing the effectiveness of salt. It is something we are looking into at the Department.

Second footnote: Deputy Speaker Spencer and I exchanged several phone calls, and she was able to turn her vehicle around and exit at on the nearest ramp.

After our first winter storm in early 2010, the Department was praised by Senator Codey for the special attention we gave to I-280 and that continues to this day for the reasons I just cited.

Back to Sunday evening, at approximately 11:30 PM, I received a call from Colonel Fuentes that a serious problem was developing on I-280 westbound in the Oranges. We drove to the scene and Colonel Fuentes and I assessed the situation.

To me, it was akin to being on the Donner Pass in the Sierra Nevada's, and not Orange, New Jersey. It's not something you expect or can truly prepare yourself for. The wind was blowing so hard it could knock you down. We had white-out conditions and it was freezing cold. Cars and 18 wheelers were stranded, and motorists were confused and did not know what to do. I would add that even experienced truck drivers were overwhelmed.

During that time, DOT/NJSP evacuated over 200 individuals and towed over 100 vehicles and assisted 200 vehicles in getting off the highway. Numerous assets were redeployed to respond to this situation.

On the westbound roadway, Colonel Fuentes and State Police Search and Rescue personnel handled the westerly portion of the jam, and Assistant Commissioner Carter, NJDOT personnel and I handled the back end – the easterly portion.

To give you some perspective of the difficulties we faced, when the winter storm hit Pennsylvania in February of 2007, approximately 150 miles of interstate highways were blocked, motorists were stranded for up to 20 hours, and conditions became so bad that sections of I-78, I-80 and I-81 were officially closed by PENNDOT.

When Colonel Fuentes and I reached I-280, our first thought was what happened in Pennsylvania was happening to us. I believe the hands on management by the State Police and DOT working tirelessly against time and the elements contained the situation.

But, to make matters worse, we received word at 3:00 or 4:00 AM that a similar situation was developing on the Parkway in Holmdel NJ, at Telegraph Hill, and on I-195 where it meets Route 138 in Wall Township.

And given what occurred in New Jersey during the Blizzard of 2010, I think some additional perspective from around the nation about the impacts of this weather system will be helpful:

- Snow and ice closed Interstates 40 and 17 in Arizona. Motorists were stranded in their vehicles for nearly a day.

- Parts of Interstates 94 and 29 in North Dakota were closed due to blizzard conditions.
- South Dakota was forced to close 130 miles of Interstate 29 due to blizzard conditions.
- Snow forced California to close 30 miles of Interstate 15.
- Our neighbor, New York City, was paralyzed by the storm.

I think it is also important to point out that the subsequent storm that hit on January 7, 2011, did not cause serious problems in New Jersey, but it clearly did elsewhere:

- North Dakota closed Interstate 94 from Bismarck to Fargo and Interstate 29 from the South Dakota to the Canadian border.
- Minnesota closed Interstate 94 from Moorhead to Alexandria, Highway 10 from Moorhead to Detroit Lakes, Highway 28 from Browns Valley to Westport and Highway 210 from Breckenridge to Fergus Falls.
- In Connecticut, Interstate 84 was closed from Newtown to Danbury leaving hundreds of drivers stranded for hours.
- Interstate 93 was closed in Canterbury, New Hampshire after a 40-car pileup caused by snow and ice.

Getting back to the night of December 26<sup>th</sup>, as the events unfolded on I-280, I received a phone call advising me that on the Garden State Parkway northbound in the vicinity of Holmdel and

Telegraph Hill, over 100 vehicles and numerous buses had become stuck as a result of accidents.

This required 100 people to be evacuated to a shelter and then approximately 100 vehicles had to be towed off the road. We had to redeploy assets – and rapidly. I believe that our rapid and coordinated response under the leadership of John O’Hern and John Cifelli, along with the State Police, contained this event.

On the Transit front, NJT Rail service continued to operate throughout the storm, albeit with some delays. There was an Amtrak signal problem that caused a 2.5 hour suspension in rail service between Newark and New York only on Monday, December 27, between 4 p.m. and 6:30 p.m. Rail service operated on an enhanced weekend schedule on Monday and Tuesday, allowing crews additional time to prepare rail cars, locomotives and infrastructure.

NJT Bus service was suspended due to extreme weather conditions from 8 p.m. Sunday through 12:01 a.m. Tuesday.

NJ TRANSIT crews, working around the clock since the storm began, brought the system back to a relatively normal operating status very quickly. Since the first inch of snow fell, bus maintenance crews worked to keep buses moving across the state.

### **Monmouth County**

Early Tuesday morning, December 28, it became apparent that we had another problem in the vicinity of I-195, Route 138, Route 34 and Route 18.

In terms of snow amounts, high wind, snow rate, and extremely hazardous road conditions, Monmouth County represented the “Epicenter” of this blizzard. This Epicenter extended from a line from Freehold northeast to Long Branch and south to Point Pleasant and from Point Pleasant west to Lakewood.

Route 18 had become impassable as accidents and stranded vehicles impeded snow plow equipment, which then required heavy-duty front-end loaders to free the stuck snow plows. Crews then had to remove the stranded vehicles to enable equipment to be deployed for snow removal.

To give a picture of the challenges presented by this blizzard, tow trucks became mired in the snow and needed other tow trucks to free them. Even front-end loaders got stuck. On Route 18, nine DOT snowplows became trapped and needed to be dug out by front-end loaders

Because of the blinding snow, four DOT plows had run off the road and were stuck in ditches.

All entrance/exit ramps were blocked by numerous disabled vehicles. This created a domino effect on approximately 11 miles of Route 18.

Because of the terrible blizzard conditions and heavy drifts, only front end loaders, rather than standard plows, could actually remove the snow. This not only affects the mainline roadway, but you’re also dealing with the need to open up 40 access ramps in this 11 mile segment of Route 18.

We set up a Command Center at the Wall Township Police Department, and from there we directed our response to getting all roadways cleared of snow.

I was on site from early Tuesday afternoon to 6:00 AM Wednesday morning directing our efforts to get roadways cleared.

When I left the Command Center in Wall, Route 18 was clear, but about half the access ramps were still clogged.

We deployed additional DOT, Turnpike and Monmouth County assets to the region.

A reasonable comparison to what occurred in Monmouth can be ascertained by looking at what happened during the Blizzard of 1996. This January 1996 winter storm dumped several feet of snow on our state, causing State government to be shut down for two days, with every state highway closed to traffic. The NJ Turnpike, for the first time, was shut down.

The track of this storm hit the eastern part of our state the hardest, something that does not happen too often. Monmouth and Ocean were among the hardest hit, with two foot snow fall totals commonplace.

That storm, in my view, and I believe it is shared by New Jersey State's Climatologist, and others who lived through it, hit us with what the Blizzard of 2010 did: high winds, heavy snow rates, deep accumulations.

In fact, the State Climatologist said this storm bore a close resemblance to the Blizzard of 1947, which also fell on December 26. He went on to state that there probably have not been five storms greater than this in terms of snowfall totals.

For the 1996 Blizzard, Edison and Elizabeth had the highest accumulations – 32 inches. A record 27.8 inches was set for Newark.

For the Blizzard of 2010, we saw strikingly similar numbers – the towns of Lincoln Park and Lyndhurst saw 29 inches of snow. Gale forces winds of 59 and 52 mph were records in West Cape May and Sandy Hook, respectively.

Furthermore, the highest snow accumulation recorded during the Blizzard is identical to the highest accumulation recorded during the 1996 storm – 32 inches. It was only two inches less than the greatest accumulation ever recorded in New Jersey – 34 inches during the Blizzard of 1899. In other words, New Jersey was buried under the most snow recorded in 111 years. At its height, snow fell at a rate of four inches per hour. Monmouth County received so much snow that two sections of the wood truss roof at Wall High School were severely damaged.

But the difference is, and I believe this to be significant, is we kept 95 percent of the State Highway System functioning during the height of the 2010 Blizzard, which allowed doctors, first responders and other emergency personnel to get to work and perform their jobs.

During the time frame of the storm, there were over 900 vehicular accidents and emergency personnel responded to and performed nearly 4,000 “vehicle assists.”

### **Lessons Learned and Moving Forward**

Major events like the Blizzard of 2010 test the limits of the personnel, communications, resources and response of any organization. Each event, especially this blizzard, serves as a learning experience for improving upon the performance for future events.

Immediately upon cessation of blizzard operations, DOT began an ongoing, intensive process of after-action discussions to evaluate all of our agencies' performance.

Through this process, we applied lessons learned. Simultaneously, senior leadership at DOT participated in a regular exercise that the NJSP implements after a major event, which is called a "Hot Wash."

One of the challenges, which we have addressed, is the need for accurate, real time information. We have front line forces – our crews – but the reporting of conditions can be subjective.

To address that, condition reports will be made on the even hours (two hours apart) and will contain observed weather conditions and roadway surface conditions using standardized terminology:

- Dry
- Wet
- Snow on Shoulders\*
- Some Snow in Traveled Lanes\*
- Snow Covered\*
- Only Wheel Paths Clear
- Traveled Lanes Padded (*means the snow has become bonded to the road surface creating a hardpack* )
- Partial Padding
- Slushy
- Black Ice/Icing Conditions
- Flooded

\*Must include estimated depth of snow.

We have also improved our equipment tracking by utilizing magnetic boards in addition to our computer program to know



exactly where our crews are at any time and can redirect those assets where needed.

In fact, by this summer, we expect to have new radios installed in all of our trucks. These radios will provide enhanced communications and global positioning capacity.

We have also added over 100 contractors, and are making an effort to add more. Furthermore, we are recruiting contractors with heavy equipment to help us better fight storms of extended durations and higher snowfall.

We have also increased our coordination with the NJSP, and now have troopers to travel pre-determined routes to report roadway conditions and perform incident management.

NJDOT Operations is broken into three regions: north, central and south, with headquarters for each in Mount Arlington, Freehold, and Cherry Hill. At these locations, we have what we call REOCs – Regional Emergency Operations Centers. These facilities control the deployment and operations of our personnel and contractors during winter storms.

We have moved staff manning our central REOC in Freehold to STMC in Woodbridge, as part of a pilot program to improve communication with Traffic Operations personnel, Turnpike personnel, Safety Service Patrols, and the New Jersey State Police. In the future, we may relocate the other regions as well.

We have converted the STMC conference room to a fully integrated “Transportation Situation Room” in order to better coordinate our emergency response.

The Transportation Situation Room allows for multi-agency communication, coordination and the sharing of best practices.

We can learn from each other, and build upon our respective strengths.

In my view, this fully integrated management center creates a mental attitude that is focused on “unity of effort.” With so many different agencies involved in snow fighting, what I call a “silo environment” can occur. The change we have made will help us achieve a single purpose especially when various agencies have separate responsibilities.

We have also moved senior DOT leadership to STMC for emergency events, and now include additional senior leadership of NJDOT to the Regional Operations and Intelligence Center in Mercer County, where they rotate on 12 hour shifts and work side by side with the State Police.

We are cross-training transportation senior leadership into operational roles to give additional bench strength to the organization.

Working with the N.J. State Police’s Office of Emergency Management, we have had training for Incident Command System (ICS) for senior DOT leadership. ICS is a standardized, on-scene, all hazards incident management concept. It allows users to adopt an integrated organizational structure to match the complexities and demands of single or multiple incidents.

We are deploying additional NJDOT employees, as conditions warrant, to travel assigned routes to report conditions. NJDOT has also identified every Four Wheel Drive vehicle (93) in its fleet along with a driver ready, willing and able to assist in a major snow event. It could be for driver assistance, rescue operations or snow spotting of conditions. Our partners at the N.J. Turnpike Authority, NJ TRANSIT, and the South Jersey Transportation

Authority are undertaking a similar effort with their own employees and equipment.

Mr. Chairman and the members of this Committee, I submit to you that this was as difficult a storm as any of our state agencies have ever faced.

Given what we experienced, and the fact that there were no fatalities on our highways caused by this blizzard, we can thank the brave personnel at all these agencies for their combined diligence, hard work and rock-solid commitment to the safety of our citizens.

I will reiterate that in my view, given the conditions we faced, we performed well. As General MacArthur once said, there is no substitute for victory. I view our front line people as victorious in the battle to keep our citizens safe during one of the worst blizzards on record.

Mr. Chairman, if you or any member of this Committee, have any thoughts on how the agencies involved in snowfighting could perform at a higher level, I certainly welcome those recommendations.

Now I would be pleased to take your questions.

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