

## Public Works Council - 2013 Ice Storm Reflection Meeting Notes

The NCTCOG Public Works Council and the regional transportation agencies held a special meeting on January 27, 2014, to discuss the ice storm of November 2013, and the public works and transportation provider's experiences, partnerships, and lessons learned. Below are a list of questions used to start the conversation.

1. If you could go back to the Monday before the ice storm, having until the Thursday evening before to prepare, what would you do differently (i.e. – were you stocked with adequate supplies & manpower)?
  - Order chains earlier
  - Stage in strategic locations sooner
  - Serrated blades for equipment were good to have
  - DCTA would have moved some busses to Lewisville for staging
  - Generator testing under colder conditions
  - Order snow plow
  - Would be on list for “Heads-up” from emergency preparedness folks and [mark.fox@noaa.gov](mailto:mark.fox@noaa.gov)
  - 79% preparation was adequate/21% would have prepared a little more
  - TxDOT would have staged personnel and equipment sooner if they had known the storm would be that bad. Serrated blades on motor graders worked the best on ice removal.
  
2. What interactions with other agencies resulted from the storm (i.e. TxDOT, NTTA, railroad, P.W. Emergency Response Team agreements)?
  - TxDOT Dallas District Emergency Operations Center (EOC) phone number: 214-320-6249 (also 6293 & 6277)
  - TxDOT Fort Worth District EOC number: 817-370-6746
  - Highway Conditions Reporting System (HCRS): [www.drivetexas.org](http://www.drivetexas.org) for checking status of various TxDOT roadway systems in the region
  - TxDOT – 37%, County – 16%, Oncor – 16%, Other – 21%, None – 10%
  
3. What materials were used by the various cities (i.e. – sand, chemical deicer, combo)?
  - TxDOT Dallas – small backed clay rather than sand + salt (from brine makers) + ice melt; have 10 blades + 85 dump trucks
  - NTTA – all of the above + Asalt; NCHRP reports are available for a list of chemicals and their appropriateness
  - Sand – 69%, Salt – 30%, Deicer/ice melt – 61%, Sand/salt mixture – 22%
  - All depended on timing and weather conditions
  - NTTA and TxDOT mentioned that all types of materials were used during this event. In addition, NTTA mentioned that there is a NCHRP report that discusses the types of materials for different types of weather.
  - For this event, TxDOT mentioned that the blade was the most effective tool, getting it off the roadway. This did cause thermoplastic to get scraped off to the roadside on both TxDOT and NTTA facilities.

4. What methods of outreach for public awareness were used to set the expectations of public services available for residents?
- Social Media, website was the most common sources
  - NTTA scheduled designated times for Public Information Officers (PIOs) to call in to the EOC (2:00 and 10:00); the news media wanted detailed information that they had, such as pavement temperature sensor information, how many tons of salt used, how many man hours on plows, etc.
  - TxDOT Dallas District had the PIO in the EOC for a set time frame, had scheduled PIO briefings, and tweeted pictures of equipment, etc.
  - NTTA brought in the PIO early so that they could put together their “stock footage” before the problems really hit and demanded more of their time.
  - Keller used twitter, facebook, and their website, and also sent out daily reports.
  - Plano had live road closure reports for the weather events on their website.
  - Regular schedule PIO calls to EOC, designate a time for media to call the EOC. NTTA used 2 am, 10 am and 2 pm.
  - Media was interested in number of miles cleared, amount of salt used, and number of pieces of equipment used.
  - TxDOT also mentioned that they allow the media into the EOC and TMC ahead of time to get footage. This will avoid the media needing footage after the weather has arrived. They can just request updates of the status.
5. Did you experience any utility problems/outages at the same time as the roadway issues (i.e. – sewer & water distribution, storm drainage systems, pump stations, lift station, signals)?
- Power outages - Yes – 69%, No – 31%
6. For those that also had coincidental power outages; was your backup generation adequate, how did you handle signals, was maintaining enough generator fuel an issue?
- Some and prolonged outages leading to using contract resources for sanitary sewer lift stations. Most had back-up generator resources. Signals were either run on generator or stop signs deployed.
  - TxDOT Fort Worth had no power outages at their facilities during the event.
  - NTTA had a front door Maglock on the state trooper building that wouldn’t lock. They have fixed the wiring issue.
  - DCTA had constant power; if they hadn’t, the signals would have gone down and shut down their whole system.
  - Coppell had a pump station down for 16 hours, with battery backup that was good for 6 hours. Their SCADA system went down and was repaired by a \$15 part from Fry’s.
  - Mesquite had a major pump station down with good backup generation, same with the lift stations. Traffic signals went down, but they had lots of temporary stop signs.
  - Plano had 20 traffic signals that went down. The major ones were supported by generation, the minor ones they used stop signs. They had a sanitary sewer overflow because both of the electrical feeds went down.
  - Rowlett had 14 lift stations go down, but the private sector helped them out. 8 of their signals went down and they used stop signs.

- DART worked closely with Oncor and Garland. They had 7 generators at key passenger locations. They are on a different priority level with Oncor.
  - Flower Mound had Sterling dump trucks with Caterpillar motors that were purchased in 2009 that had a problem with the governor, and could only go at about 10 mph at times. Fort Worth had a similar issue with the same equipment, plus the diesel exhaust filter causes problems. They had a regeneration switch installed for \$900 at Rush Trucks near Irving Blvd. and the ECM was taken up to 4000 rpm.
7. What classifications of roadways did you treat with sand or chemicals (i.e. – arterials, collectors, local, rural)?
- TxDOT Fort Worth treated bridges, interstates, state highways, etc. They tried to pretreat bridges then intersections
  - Duncanville treated major thoroughfares, bridges, and hills.
  - Coppell focused on major roadways and bridges.
  - Plano focused on hilly areas and around hospitals.
  - Major Arterials – 78%, Minor arterials – 69%, Bridges – 77%, Collectors – 61%, Residential – 31%
8. Are there any long or short term maintenance issues resulting from the storm (i.e. many potholes)?
- Nothing major. Some pavement markings as expected and more thermo damage than normal due to multiple scraping with plows.
  - NTTA and TxDOT will need to repair pavement markings, lane markings and any buttons.
9. Has restocking supplies been an issue?
- NTTA has a good supplier in Edmonton, LA
  - Not an issue – 83%      Minor issue – 17%
10. Did the counties have any special issues, different from the cities?
- Tarrant learned to break the ice first, then apply the deicer.
  - Debris was an issue
  - Unknown – 91%      No – 9%
11. What would you do differently during the storm event itself, if there was a do-over opportunity?
- The City of Fort Worth put in a request with Tarrant County and TxDOT Fort Worth District for an Ice Plan Task Force. DPS and Arlington also participated and it was a really effective solution that should be repeated, per Fort Worth.

## General Comments

### Jim Cline-Denton County Transit Authority (DCTA)

#### Observations

- Very different levels of ice and the time for clearance as a function of latitude even within Denton County. Denton was worse than Lewisville for a longer time. One note on the train service. Our contractor had the engineers and conductors stay in a hotel close to the rail yard to guarantee they would be present at work the morning effected by the ice event. A technique we hope to repeat.
- While we did not have issues with electrical power (our trains are diesel-electric), the loss of power would have dramatically affected our train control and signal system. We may not have been able to operate if we had fully lost power. In a holistic view, the resumption of the electrical service may be more significant to the public health and safety than solely focusing on the resumption of transit service (it may actually be a precursor).
- Consider the approach in Beaumont during an ice storm in the 90's – I-10 is a completely elevated structure for several miles within the City Limits of Beaumont. When the TxDOT crews' clearance capacity become overcome by events, the decision was made by law enforcement to close all of the ramps and force the traffic onto the frontage roads. Highly inconvenient, but effective. Had the main lanes not been closed, I think they would have been effectively closed by the crashes.

#### DCTA Lessons Learned

- Preposition Transit Vehicles in Advance of the Storm: The condition of the roads in Denton would not have supported the operation of buses, but we might have been able to start service in Lewisville before Denton. We were not able to consider this since all of our buses were in Denton and unable to move to Lewisville for service. Next time, we will try to position a portion of the fleet in Lewisville to allow a separate discussion of service provision independent of the road conditions in Denton.
- Consider a Reduced Service Schedule: While the the A-train was able to complete scheduled service during the storm, the ridership was extremely low. This was due to a number of factors including the curtailment of bus service, inability of drivers to access the park/ride lots, and the replacement of DART LRT with a bus bridge. We could have run a holiday/Saturday service reduced schedule and freed up funds for removal of ice from platforms, etc. Consideration of a reduced bus schedule, if they can run, is also a consideration.
- Consider Clearing Some Ice (or managing customer expectations): It is possible to consider some limited ice clearance by transit agencies. Probably more focused on the immediate needs within station areas and parking lots as the clearance of many miles of bus routes is outside the capability of the Cities, let alone the transit agencies. When the entire trip is considered (door to door) the limitation on transit service may not be the transit fleet issues, but one of accessing the services (icy sidewalks, differing conditions with partner agencies, etc.). There will be some circumstances where the cost of doing business will far outweigh the benefits of operating in the worst of the conditions.

## Jack Tidwell-North Central Texas Council of Governments (NCTCOG)

- Ice Chains mentioned in passing. (Were they used to any extent?)
- Supply coordination was very important —deicer, sand etc.
- Speaker expressed need for better and timely weather forecasts.
- Serrated blades for graders worked better than straight blades on cobblestone ice and needed to be replaced less often.
- Speaker mentioned that the cobblestone effect was relatively rare event.
- Several mentioned that they would have like to been better prepared and more proactive in positioning resources and staff.
- Jim Cline had interesting comments on train DCTA operations. Diesel trains were not impacted by overhead power line icing. However some computer control systems were or could have been impacted by power outages.
- After action reviews should be done by local governments (—perhaps share results?)
- Managing expectations of residents/businesses. Educating citizens in advance so they have a better level of understanding of what priorities are reasonable or not. E.g. clearing alleys of ice is not a priority during heavy ice or snow event.
- Coppell is buying a snowplow due to the event.
- Checking generator operations in bad conditions. Some will always start in good weather but not in extreme cold. Embarrassing to find out the hard way!
- Need to think out personal protective equipment like shoe spikes, car/light truck tire chains, small dose ice melt, etc.
- Shift labor issues, some local government staff and crews could not leave their neighborhoods and get to work.
- Ice melt chemicals vs sand performance.
- Lesson from Plano was the number of city departments that had to get involved for tree clearing. That coordination needs advanced planning.
- Permanently mounted generators performed well. Pony mounted equipment took time to attach.
- Integrated warning team workshop... is there a need/opportunity for this?
- NWS warning and “heads up” Email list prior to storm events. [Mark.fox@noaa.gov](mailto:Mark.fox@noaa.gov)
- Need to distribute emergency coordinator roster and improve communication.
- Interaction with other government agencies.
- Brine maker recipes
- TXDOT response plans
- Question about IH20 and Ranger Hill. Folks in Weatherford thought TXDOT shut it down but TXDOT corrected them saying the traffic was from diesel/gas fuel delays at truck stops.
- Interdepartmental conference calls with EOC are important. Timing should be set ahead of time.
- Check out drivetexas.org
- Issue about corrosiveness of chemicals—all are reactive – not one magic bullet.
- Thermoplastic / RPM raised pavement markers
- Media outreach—designated times for interaction and conference calls proved to be better—helped prevent “feeding frenzies” and jammed telephone lines. PIOs interacting at a specific schedule of 2a, 10a, and 2p seemed to cover news cycle needs.
- News people were most interested in basic information to repeat in newscasts, surface temps, amount of product used, lane miles impacted, etc.
- EEOC numbers for TXDOT: 214/320-6249 (Need to verify these numbers)

214/320-6293

214/320-6277

- Pictures and b-roll collection. Let news people take video at specific set-up time so they can do so more safely and are not in way of operations.
- Twitter feeds with information and pictures were very popular with general public and media.
- Several cities put up status reports on roads and road closure information on city websites to provide information for roads not being reported on by TXDOT
- Pump station power backup was an issue for control/monitoring systems. Some instance of power being provided to pumps but none to the control box for that pump
- SCADA systems need to be supported with backup generation. Testing is important and under different conditions. (Mesquite and Coppell)
- Plans for Temporary Stop sign installations is important. Mesquite has set up their intersections with devices to accept stop signs and other signage in case of emergency.
- Regional water systems (including NTMWD) had some problems with operations, one noted a sewer system overflow (SSO)
- Rowlett had lift station problems with backup power and traffic signals.
- DART carried out a Severe Weather Action Plan and pre-positioned resources and manpower to respond. They did have concerns about how DART stop location elevators and “inclinators” systems would operate.
- Performance of power-take-off (PTO) equipment was examined. Some worked well but other had performance issues, most associated with revving limits both high rev and low rev.
- Sterling and Caterpillar motors had different performance issues. Some mentioned that Rush Truck center was able to address issues relatively cheaply.
- When asked specifically about what road classification got what attention. The reply was that bridges and intersections got the most attention and then the highest traffic level facilities were addressed working their way down. Some discussion was aimed at TXDOT and their lower priority areas and if those areas were higher priority for local governments and if they could help out on them. Hospitals and Emergency Preparedness plans were noted as examples
- Comment made about the low amount of road damage being seen from the event. (Will this show up later?)
- No pothole problem yet but need attention for raised pavement markers (RPMs) and traffic buttons.
- Restocking is going well. Calcium Chloride and magnesium chloride coming from north US and Canada. Purchasing Department process were sometimes problematic
- Counties applications were typically limited to sand, few had any other chemical to use.
- A Deicing task Force was created in Tarrant County – we need to follow their progress.
- Freezing and re-freezing posed difficult problems for sanding and chemical application typically designed for a single event application. Strategies to mix applications to optimize performance are needed.
- The temps were too low for some of the treatments to be effective. Some of the deicers not effective in extended periods of time under 20 degrees.
- Do Over ideas... none mentioned by audience. But Molly mentioned a better system of collecting data from around the region for federal/state disaster declaration. That is a very good idea—for all disaster types, cold weather, floods, wind, etc.

Danny Stevens, City of Carrollton, PW Manager

Additional Comments/Lessons learned:

Coppell – purchase of a snow plow is on the City Council agenda for approval tonight. Could have done better on notifying the public and setting expectations on level of service. They use straight ice melt, no sand.

National Weather Service – stated that notifications go out to the emergency managers of all the various jurisdictions, so if you're not receiving them check with your emergency manager or contact NWS at [mark.fox@noaa.gov](mailto:mark.fox@noaa.gov)

NTTA – said they learned some things from Paris, Tx., and would be changing some of their methods. They are looking at purchasing brine makers like those used in Paris. They use a variety of materials and again it depends upon the circumstances and when you apply them or you can waste a lot of material and money. They feel the A salt is a very effective product. They said they have seen good success with the plows when you can catch it before it refreezes.

TxDOT (Dallas) – they use a light weight aggregate, salt and liquid deicer.

EOC – 214-320-6249 or 6293 or 6277

Driving conditions web site – [www.drivetexas.org](http://www.drivetexas.org)

Both NTTA and TxDOT said their liquid deicer units are herbicide sprayer trucks they change over during winter months.

Flower Mound – having trouble with hydraulics shutting down when rpm's reach 1500 on spreader trucks. A couple of other agencies offered solutions to this issue, as they had experienced the same problem previously.

Natalie Bettger, NCTCOG Transportation Department

TxDOT was fully stocked; if TxDOT would have known there was going to be 4 inches of ice they would have brought in more motor graders. Had to bring these in from other Districts after the weather hit.

DCTA buses were stationed in Denton and needed them for service in Lewisville. In the future will look for opportunity to station buses in Lewisville if icing will occur so they don't have to get from Denton to Lewisville to begin service. The trains ran full service, but there were only a small number of passengers.

Coppell – The City has been working on after action activity, this includes buying a snow plow. What worked best for them was plowing between melting and re-freezing. Communication with TxDOT was not adequate, little communication. Generators worked differently in 15 degree weather versus 75 degree weather.

Plano – Needed to get other Departments involved sooner. Tree pick-up was an issue because tree pick-up personnel have Friday's off.

Duncanville – They would budget more for generators due to the power failures and still need to operate systems.

NCTCOG Emergency Preparedness – Integrated Warning Team was mentioned and wanted to better understand what information people need and asked where agencies get weather information.

National Weather Service – Mark Fox provided his email address to sign-up for weather announcements. [Mark.foz@noaa.gov](mailto:Mark.foz@noaa.gov)

NTTA – had interactions with Cities and participated in a peer exchange with the Paris TxDOT District.

Lancaster – Coordination with TxDOT needed to be improved. Waited to get approval from TxDOT to plow roadway, TxDOT didn't respond. Need to coordinate better in future.

TxDOT – provided TMC and EOC numbers to individuals so they can get ahold of the right people to help during major weather or other major incident events.

Need to consider gas stations and closures of Ranger Hill; some trucks and vehicles ran out of gas when Ranger Hill was closed. How can better notification be provided when Ranger Hill is shut down?

Traffic Signals battery back-ups were a problem in areas where electricity was out. Traffic signals were down for 16 hours, battery back-ups last 6 hours. Some agencies had to keep deploying generators to help run signals.

Mesquite placed temporary stop signs at intersection that had run out of power and signal back-ups were drained.

Plano had about 20 traffic signals go down as well as the SCATA.

Rowlett had 14 lift stations go down and had to back-up with generators. In addition, 8 traffic signals went down and temporary stop signs were installed.

DART had a severe weather action plan, they worked with Oncor on rolling outages to minimize impact.

Cities and Counties learned that materials did not work with ice.

Consider developing/organizing a Deicing Task Force.