



February 27, 2013 Winter Storm Event Transit Services Department



**Transit Commission
March 25, 2013**



Winter Storm

(Reference: General Manager of Public Works Memo to Council)

- Challenging winter weather event
- Morning precipitation started as rain/wet snow
- Rain eventually switched over to ice pellets then snow at approximately 10 a.m.
- As snow intensified the salt material could not keep ahead of accumulation and slushy conditions started to form on the road surface
- By mid-afternoon the conditions changed significantly when the snow storm stalled out over the Ottawa Valley
- Instead of passing through the area, the system stayed in place and the intensity of snow fall increased dramatically just ahead of afternoon peak traffic hours
- Forecasts had anticipated a steady accumulation of 2-3 cm/hr during that time period so it was expected that the afternoon commute would be a challenge

Winter Storm (Con't)

(Reference: General Manager of Public Works Memo to Council)

- For a 2 hour period from 2:30 to 4:30 that intensity increased to anywhere from 5 to 7.5 cm per hour according to the radar images
- This rate of snowfall was of extreme intensity and, when coupled with the fact that it came in the form of heavy wet snow, became hard packed and bonded to the pavement surface as traffic drove over it
- As vehicles travelled over the fresh wet snow on the road surface it was compressed and compacted onto the road. This resulted in thick snow packed driving conditions with rutting and ridges in the tire paths and wash boarding affects at intersections and acceleration points. The packed on conditions are very difficult to plow off the road and rush hour congestion further complicated the situation
- An accumulation of 20 cm of wet heavy snow.

Winter Storm (*Con't*)

- Other contributors affecting OC Transpo:
 - Downed hydro wires
 - Impact to O-Train signals, resulting in service delays
 - Water issue (Bank Street)
 - Tree clearing (O-Train corridor)
- Severed fibre optic cable impacting our GPS systems

Service Delivery

- Thousands of customers arrived to their destination safely
- Impact to service: 60 – 90 minutes delays / Conventional and Para Transpo
- No major accidents and no reported injuries
- No major impacts to Transitway
- Many reported “stuck buses” were delayed as a result of being blocked by other buses or other types of vehicles and / or were able to return to service without any assistance

Customer Feedback

- Numerous commendations received as of March 19th
- “My hockey team’s manager broke her leg last week and is on crutches. Your bus driver (#6) carried her over the snow bank this morning to get her on the bus. All passengers were obviously impressed and cheered...”
- “Thank you. I took the first 261 express bus home today in the snow storm and I just want to say thanks to the driver. He got us home safe and sound.”
- “#62 driver of bus 6686 excellent driving today. Very cautious as required by conditions yet got us going the best he could.”

Preparation

- Traffic Incident Management Group (TIMG) initiated
- Additional resources secured:
Buses and Bus operators, Maintenance and Facilities
Maintenance staff, Customer Service and Public
Information, on-street and transit control Supervisors
and Special Constables
- Additional towing capacity
- Supplemental trips added where possible
- Public Information and Customer Service hours
extended until 11p.m.

Bus Types

- 345 - 40 foot buses = 36%
- 359 - 60 foot Buses = 38%
- 177 - 40 foot Hybrid buses = 18%
- 75 - 42 foot Double Deckers = 8%

Total Fleet: 956 = 100%

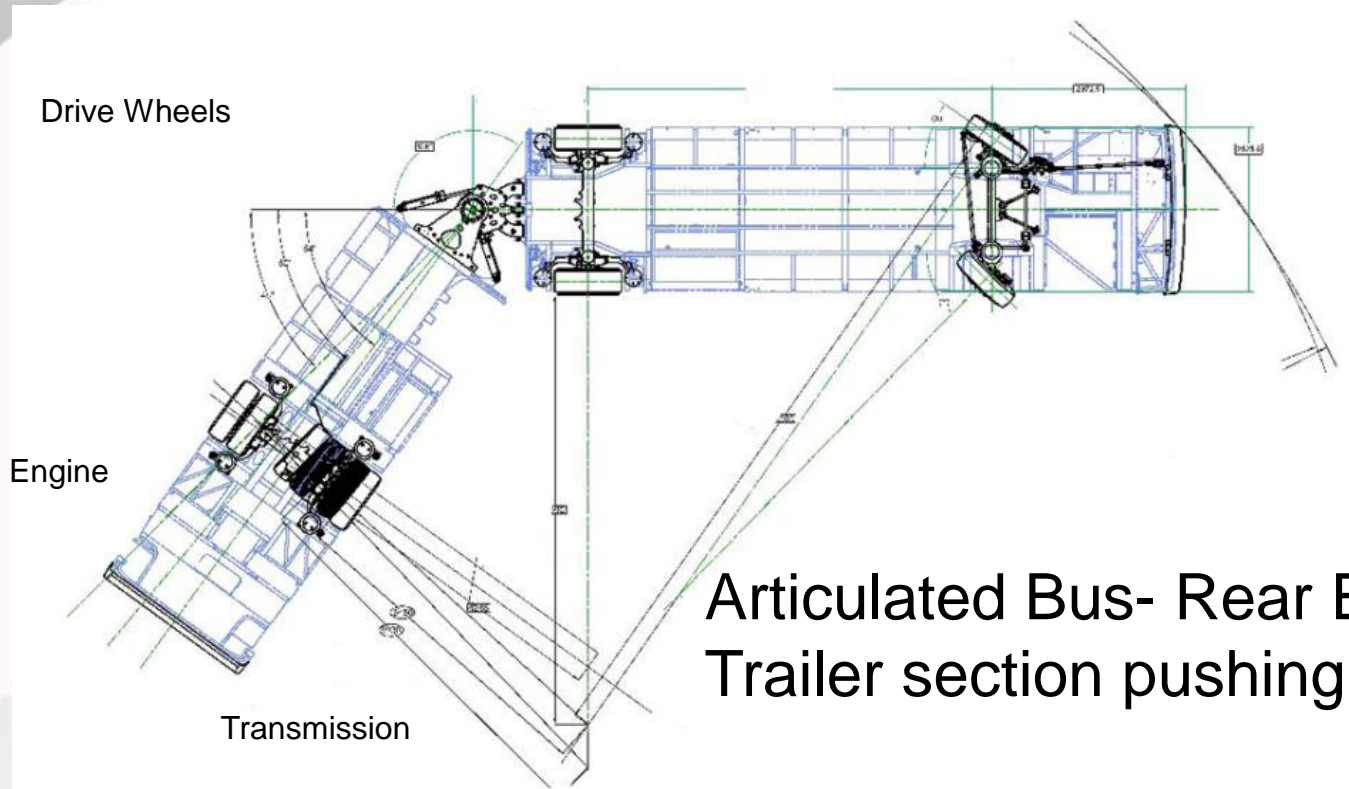
Articulated Buses

- High capacity vehicles - “workhorses of the fleet”
- The articulated buses transport thousands of customers safely on a daily basis
- Reducing/modifying or removing from service during weather events will greatly impact the number of customers we can serve
- In extreme weather conditions such as February 27th, all buses and vehicles experience difficulties.

Articulated Buses

- Articulated buses are assigned to routes requiring high capacity vehicles.
- All the logistics and processes impacted with a weather event scheduling change would introduce uncertainty and possibility of error. Examples include:
 - Ensuring customers are aware of the service changes, routes, etc.
 - Changing operator reporting locations and working times
 - Different trip patterns for operating staff
 - Reducing route frequency and / or altering bus routes
 - Re-distribution of buses amongst garages
 - Postponing planned maintenance activities.

Articulated Bus Operation



Articulated Bus- Rear Engine, Pusher Trailer section pushing the Bus

It's like having your camper push your car



Bus Tires



2

Tires

- Fuel economy
- Overall tire performance
- Tire tread life
- Price
- Noise reduction
- OC Transpo strives to continuously look for the best performing tire
- We are presently conducting our own internal test with tire manufactures to meet our current mandate
- Purchase 7,000 tires annually

NRC Report

- Following a similar 2005 snowstorm that impacted OC Transpo service, the Transportation Committee directed staff to undertake a study on the feasibility of winter tires
- Fleet Services tested three tires of varying thread patterns and depths for use in the winter of 2006/2007
- A 2007 report to Transportation Committee concluded there were no winter tires available to fit either low-floor or high-floor buses in operations in the City of Ottawa
- *The 2007 report stated there would not be significant winter performance improvement with other tire types than currently in use for standard and articulated buses in the OC Transpo fleet*
- OC Transpo's engineering team is currently reviewing the 2007 report to determine if anything has changed
- There is currently no available winter tire compound for transit vehicles anywhere in North America.

Winter Tires

- We have confirmed with other major transit authorities that they are not using winter tires
- We have confirmed with bus manufacturers that they are not aware of any transit authorities using winter tires
- We have confirmed with our tire vendors that winter tires for transit applications do not exist
- Most transit authorities are using similar tires to OC Transpo
- Winter tires are available in Europe but have not been used in Canadian transit applications
- Sizing issues, different standards, testing protocols, etc.

OC Transpo Tires Tested



Firestone CTR



Bridgestone R192



Michelin XZU2



Michelin XDS



Bandag Re Tread BRM



Michelin XDN2



Bridgestone Bandag BDR-HG



Bridgestone Bandag BDR-W

Post Storm Operations

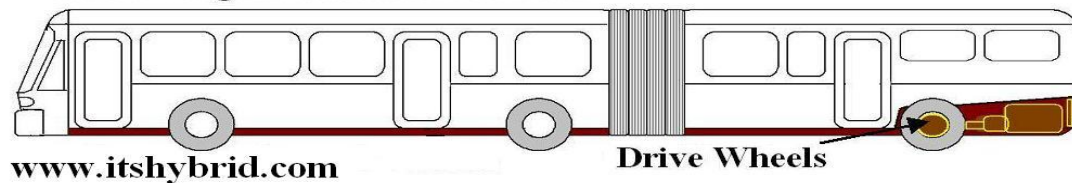
- On Thursday, February 28 following the storm, the morning service was running well, given the weather conditions
- At 8:30 a.m Thursday, 55 per cent of buses were running on time, with the remainder in the 10-15 minute delay range; and Para Transpo service was running well
- There were a small number of cancelled trips during Thursday's morning commute
- Real-time bus arrival information on 560560 and transit apps were back in service for the Thursday morning commute. The outage was caused by a construction company cutting a fibre optic cable.

Innovations / New Ideas

- OC Transpo has been made aware of new Technology: **Innovative Transport Solutions Ltd**, based out of Australia
- Engineering to review
- Current Articulated Bus fleet has a 5 year maintenance agreement with New Flyer
- Manufacture would have to agree
- No known bus proto types

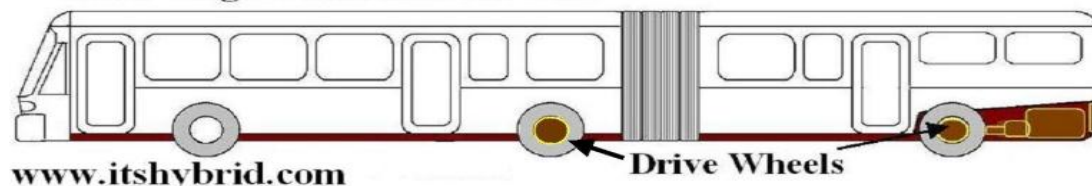
Hydraulic Traction Drive

Rear Engine Articulated Bus.



Before

Rear Engine Articulated Bus. 6X4



After conversion

Next Steps

- Continue to work with city partners including Public Works, OPS and Traffic Operations
- Continued participation with the Traffic Incident Management Group
- On-going consultations with ATU 279, ATU 1760 and CUPE 5500
- Finalize tire tests
- Continue to work with tire manufacturer on tire improvements and practices

Questions?

2