TRB 2016 Winter Maintenance and Surface Transportation Weather

Focus on Emerging Issues

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Issues Outline

• What counts as emerging? An example...
• Some of the issues that arose yesterday
• Next steps for the issues
Estimated Global Installed Base Of Cars With Self-Driving Features

All Levels

Five-Year (2015-2020) CAGR 134%
Training Details

• How do we know if our training is effective?
• One way is to tie your training to key performance indicators (KPIs)
  – For example if you have problems with wing plows, then the KPI might be how many hours over the season your wing plows were not operational
  – Training would then address proper use of wing plows
  – Hoped for result is a reduction in the non-operational hours – the KPI improves
Simulation

• Using a detailed model of operations to be able to predict the results if level of service is changed
• What If tool – what if we have to lose 15% of our employees?
• How will our costs change? How will mobility and safety be impacted?
• Part way developed but additional work is needed to bring simulation to maturity.
Fixed RWIS is a Dinosaur?

• With all those mobile sensors out there why would we need the fixed sites?
• Value of fixed sites is that they provide a ground truthing process for your mobile sensors.
• Costs and maintenance for fixed sites can be very high compared to mobile sensors.
• But, during the worst storm situations, everyone sensible is staying home, so no data because no mobile platforms are out there.
Privatization of Weather Information

• How do we create incentives to privatize?
• How far can the process go?
• What might be put at risk by privatization?
• What might we gain by it?
Big Data Issues

• How do we ensure the quality of mobile data?
• How do we handle the volume of data that might be created with connected vehicles?
• There is the old BIBO problem...
• How will we access the data – the canbus, or some other method?
• What about privacy concerns, FOIA, etc.?
• Can we create standards about how long images should be stored, for example?
Climate and Resilience

• We expect to be dealing with more extreme and intense events – and we are not prepared for them – can we use emergency management protocols in novel ways to address this gap?

• What about when one weather problem creates another? Intense rain storm needs pumps, but the lightning strikes take out the power...

• Infrastructure impacts – right now inadequate infrastructure is only replaced when it fails, which is not perhaps the best solution...
Decision Support Systems 2

• How valuable is the very detailed data that we could get by using mobile sensors? What is the value and how do we make the most effective use of these new sensor systems?

• Increasingly seeing sensors being used directly for performance measures (e.g. Idaho) – how can we model the benefits of this so that any agency can consider such approaches and determine whether they will help the agency?
And Finally, and Most Importantly

- What do you all see as the emerging trends?
- And, let’s talk about potential next steps...