



# IMO in MNDOT

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# Challenges faced during IMO 1.0

- MNDOT management had only recently decided to pursue statewide implementation of MDSS/AVL
- Maintenance personnel had negative attitudes from previous AVL attempts
- Project got off to a late start and experienced many issues with hardware, software and data.





# Adjustments made for IMO 1.0

- Changed project structure to reduce response time and increase accountability
- Used regional model with “Embedded” employees to increase presence in Districts
- Hired additional staff to support expansion





## Goals met in IMO 1.0

- Operator acceptance and attitude improved dramatically
- Increased MNDOT's total number of active AVL units from 78 to 225
- MNDOT was able to use mobile data to produce an "End of Shift" report detailing chemical usage
- MNDOT was able to establish CAN interfaces using both J1939 and J1979 protocols





# IMO 2.0 One project - diverging goals

## FHWA

- Collect data to feed, test, and enhance NCAR's VDT
- Application development & testing
- Demonstrate the value and uses of mobile data in DOT operations
- Collect and utilize data from vehicle's CAN bus

## MNDOT

- Deploy AVL in entire fleet
- Use mobile data to automate updates to MDSS
- Use mobile data to automate record keeping processes
- Better manage our fleet
- Increase cost effectiveness of services





# Challenges

- Balance research needs of the FHWA IMO project with need for consistency and reliability in MNDOT's deployment effort
  - Personnel can't be expected to relearn entire process each time a new twist is added.
- Increased project size and resulting data volume highlighted shortcomings in many areas
  - Data collection and processing (in trucks)
  - Store and forward process (truck to data center)
  - Recurring costs and ability of cell connection handle data in timely manner (truck to data center)
  - Transfer and storage (data center to other users)





# Mitigation



- IMO 2.0 will be tracked using project management software
- Any changes to data collection and/or frequency will be carefully planned and tested before implementing system-wide
- Focus will shift from “what/how often can we get it” to “what is really necessary to solve a current or future problem”
- More consideration will be given to maintaining enthusiasm of current users
- “Don’t sweat the details” has been replaced with “Don’t underestimate the consequences of poor planning”





# Progress

- IMO proposal set AVL goal at 225 snowplows
  - MNDOT now has AVL in over 300 snowplows
  - MNDOT will increase this to 400 by spring of 2014
- Expand use of AVL in Light Duty trucks
  - 20 with AT-500 & 40 with AT-400
  - 18 AT-500's installed now, 12 with OBD2
- Working to provide mechanics remote access to trucks diagnostic system
- Developing Interface with Equip. Management Software
- Test and expand (V to I) communications.





# Success stories

- Field personnel are asking for this technology – not trying to hide from it...
- Increased use of both AVL and MDSS is helping to quickly identify and solve issues
- “End of Shift Reports” are being used by operators to improve material use reporting
- Confidence in MDSS recommendations is growing - encouraging operators to take “Intelligent Risks”





*Thank you*

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