GPS/AVL at ODOT

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Global Positioning System / Automatic Vehicle Location Systems

• Background Information
• GPS/AVL Developed with ODOT
• Abilities of GPS/AVL Systems:
  • Resource and Asset Management
  • Automated Resource Reporting
  • Vehicle Tracking and Route Optimization
  • Real Time LOS and Regain Time
  • Historical Records of Locations and Usage
Background Information
GPS/AVL System

(References: www.kidsplaycolor.com & www.freepik.com)
Various Tiers of Systems

- **Tier 1**: Truck Tracking (GPS/AVL) - Required Equipment: Modem, Antenna
- **Tier 2**: Road Conditions - Required Equipment: Camera
- **Tier 3**: Hydraulic Data - Required Equipment: Cable (Some Require Additional Part)
- **Tier 4**: Additional Data - Required Equipment: Cables and Parts

Cost (Capital, Cellular, and Maintenance including Calibration) vs Technology vs Data Collected (Required, Optional)
GPS/AVL Developed with ODOT

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Phase One to Phase Two/Three

22 Trucks

185 Trucks

Phase 1
- No Modems
- Pilot Counties

Phase 2
- No Modems
- Full Install
- Partial Install
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ODOT Users

- Central Office
- District
- County
- Garage

All Have Different Needs from GPS/AVL Data

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Equipment Tested

- Modem – Sierra Wireless
- IP Cameras
- Hydraulic Data
Equipment Tested

Recording System

Road Temperature

Plow On/Off Sensor

Wired Plow Up/Down Sensor
End User Interface - Website Development

Website Features

- Real-Time Data
  - Truck Location
  - Pictures of Road Conditions
  - Traffic Data
  - Weather Data

- Historical Data
  - Turn-by-turn Reports
  - Pictures of Road Conditions
  - Maps

- Management Data
  - Health Check of System
  - Alerts
Installation and Ease of Using of System
ODOT’s GPS/AVL System’s Abilities – Currently and Future
Resource and Asset Management

- Truck Location
- Salt Usage
- Plow Usage
Automated Resource Reporting

- Location
- Road Condition
  - Pictures
- Plow Usage
- Salt Usage

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Vehicle Tracking and Route Optimization

• Based on number of trucks and location of storm, sending routes to drivers in real-time.

• Highest Tier
  • Current not sending data to the truck, only receiving data from the truck.
Real Time LOS and Regain Time

Road Conditions through IP Camera and Speed Data
Real Time LOS and Regain Time - Live Video

- Enabled Recording for RNC.
- Testing on-board recording to save data cost.
Historical Records of Locations and Usage

• Helpful for Training
• Legal Disputes
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Thank You