



# LifeMark<sup>®</sup>-75 Automated Layout System

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# What Is a LifeMark<sup>®</sup>-75 system?

- The LifeMark<sup>®</sup>-75 system is a complete pavement marking layout location and paint system
- It records existing markings locations via GPS
- The raw location data is processed and improved by LimnTech
- The system is able to layout the new markings following the GPS recorded data
- It is available for Single Man operation Pickup Truck or Full Size Striping Trucks

# System Components

- Front interior cab mounted Control Box Monitor
- Front Fixed Laser Pointer
- Rear Carriage Smart Cylinder
- Rear Carriage hydraulic valve control box
- GPS with RTK, INS, Antennas and Receivers
- Computer Enclosure Box



# Front Cab Control Box

- Used for input and Driver Guidance
- Large, color, anti-reflective touchscreen
- Designed with simple large buttons
- Adjustable mount designed to be floor mounted and set below driver's road view



# Rear Carriage Components

- Hydraulic Smart Cylinder accurate within  $\pm 1/4$ "
- Green Laser cross hair pointer system if required
- Hydraulic Valve Control moves Smart cylinder according to computer
- All sub systems mount onto any standard brand or style carriage
- Carriage can still operate in manual mode at all times on full size strippers
- Right side carriage optional



# Smart Cylinder Carriage Position and Movement

- Positions and Measures extension of carriage
- Accurate  $\pm 1/4$ "
- Weathertight
- Durable
- Custom unit replaces hydraulic ram on full size trucks



# Cross Hair Laser Pointer

- Used to record Roadway mark position on larger striper trucks
- Ruggedized for harsh environment
- Mounted onto carriage
- Part of Calibration Set up
- Daylight Visible Lasers
- Cross-hair is GPS Calibrated



# Fixed Front Mount Laser Pointer

- Used for Single man operation
- Used to record Roadway mark position
- Ruggedized for harsh environment
- Mounted onto front roof of Pickup or van
- Part of Calibration Set up
- Daylight Visible Laser is GPS Calibrated

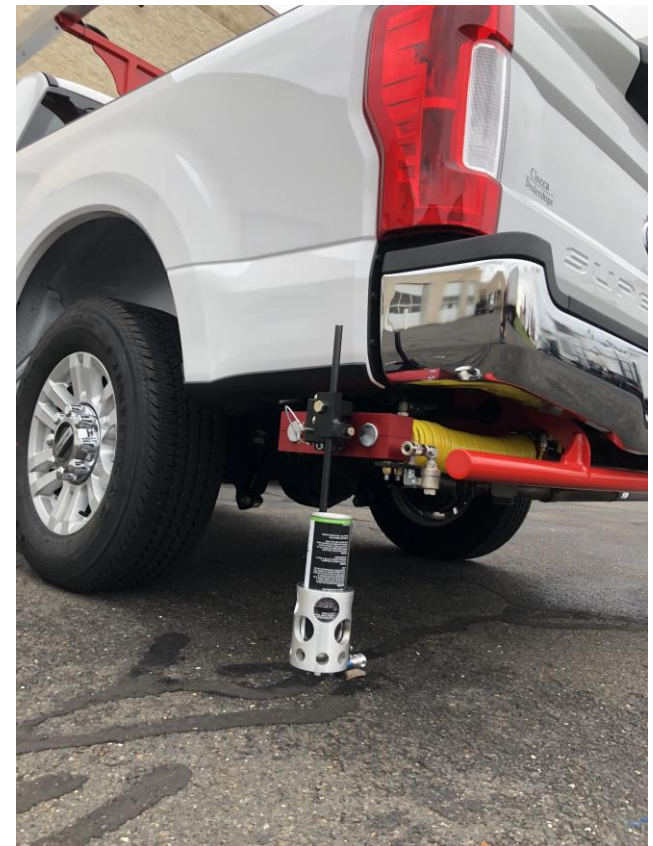




# Rear Carriage Movement

## The Electro-Hydraulic Valve

- Moves the carriage instead of the rear operator
- Controlled by the CPU
- Valve box is waterproof
- Moves quickly and smoothly
- Operator can take control anytime



# GPS Antennas

- 2 antennas
- Mounted at highest point on truck
- GPS/RTK system accurate +/- 2 inch
- INS (Inertial Navigation System) ensures data integrity even when GPS signal is lost



# GPS Antennas





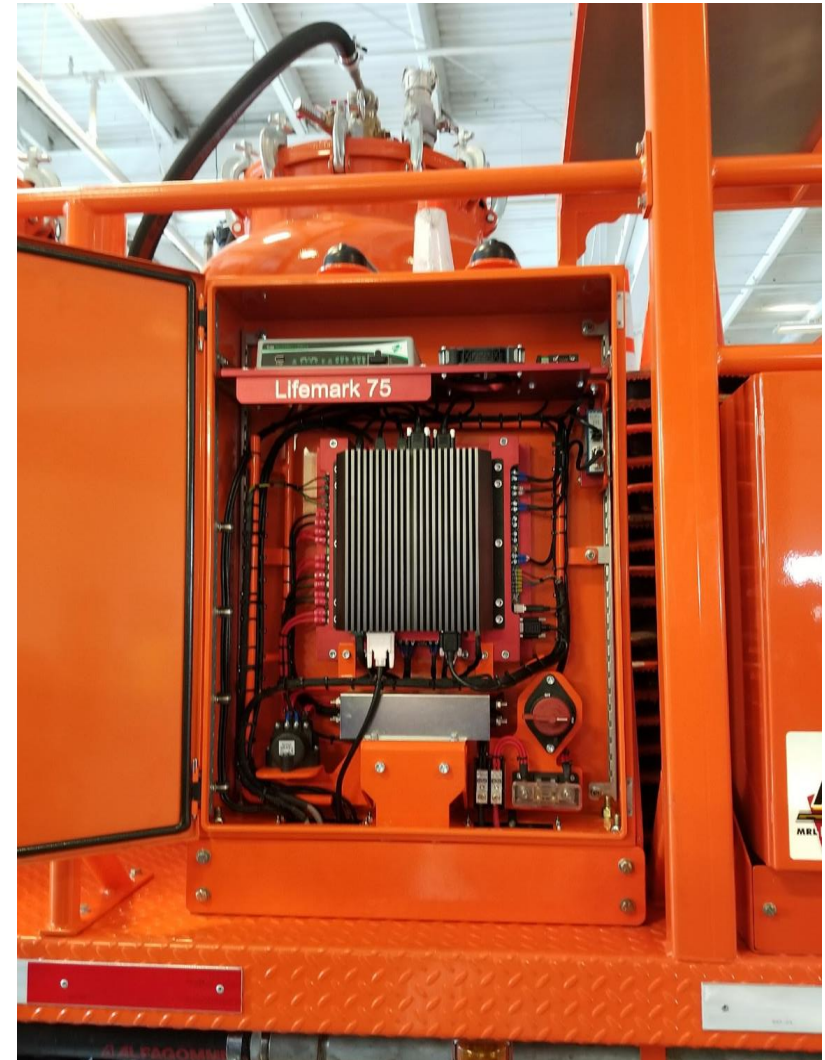
# INS – Inertial Navigation System

- System ensures navigation when GPS is compromised by overpasses or trees
- Temperature calibrated accelerometers, gyroscopes, pressure and other sensors
- Allows accurate use when GPS is limited
- Extends range accuracy of +/- 2 inches



# Electronics Enclosure Box - CPU

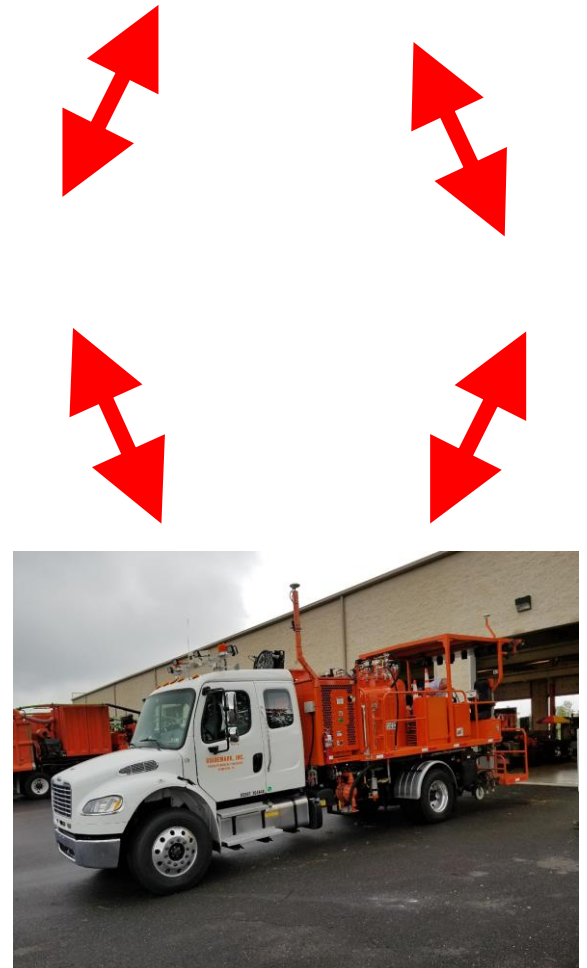
- NEMA waterproof rating
- Contains and protects computers, network hardware, mother board, fuses
- Box size = 24 w x 36 h x 12 d



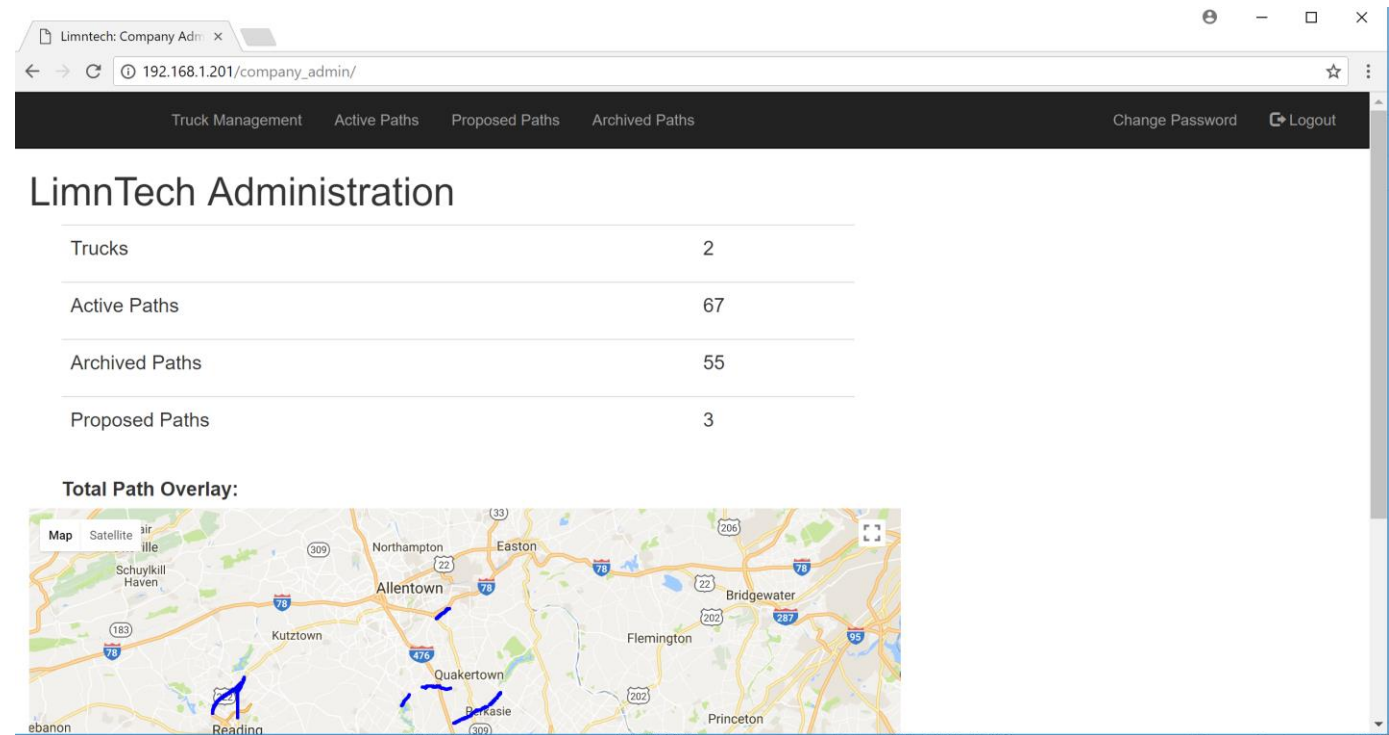
# Data Processing Steps?

- Collect accurate GPS roadway marking location data and store on truck
- Wireless transfer of encrypted data to and from the cloud via cellular or WiFi
- Robotically apply layout markings later from the truck

Cloud  
LimnTech's Server



# LimnTech Administration Screens will allow for planning field work in the office



View completed recorded roads in a Map format

Admin Page is visible on cellphones or tablets that have Internet access



# Viewing Recorded Map Files

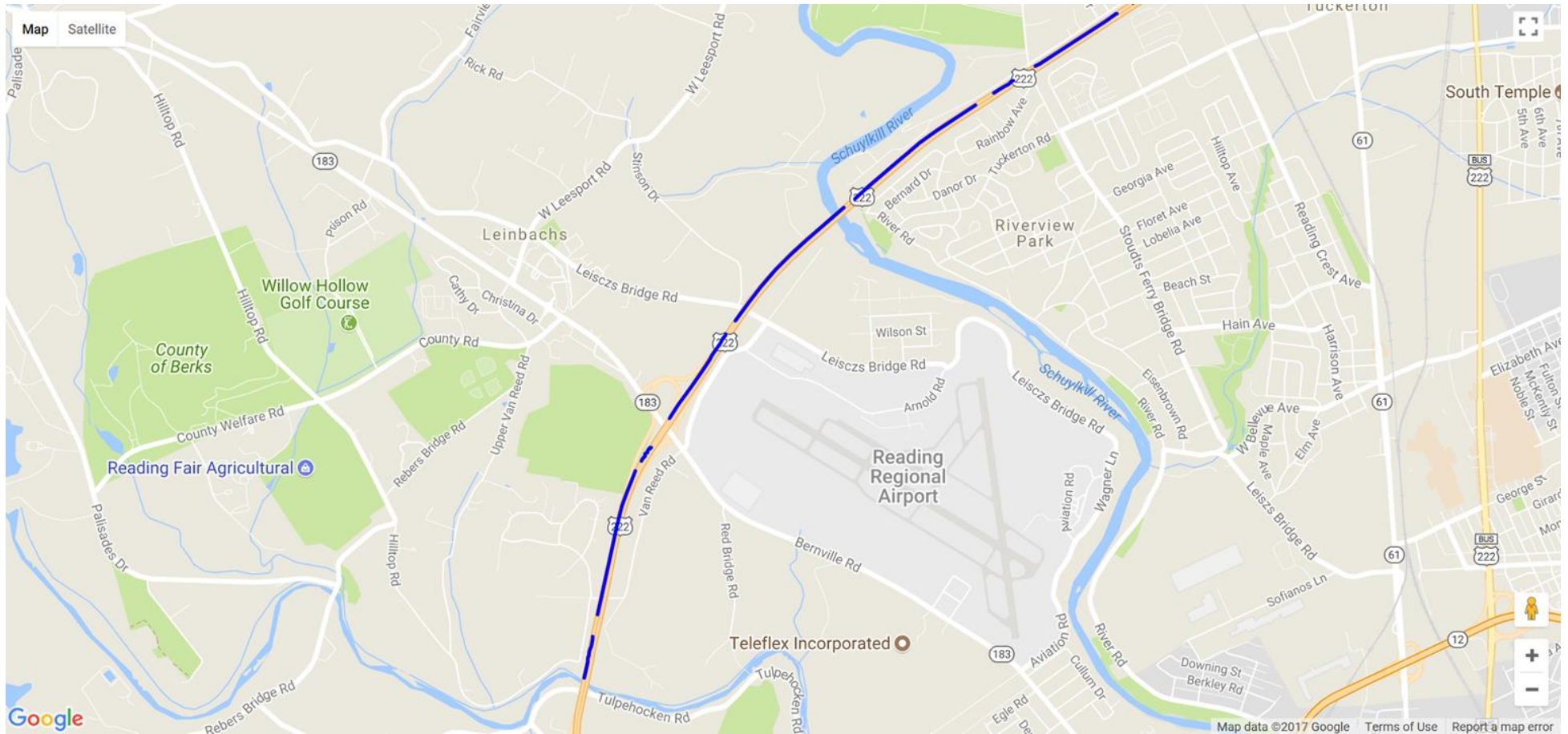
This allows management to view recorded roads and layout requirements for efficient planning of work.

Poorly or incorrectly recorded roads can be viewed in the office.

If a conventional layout crew is needed, you will know in advance.



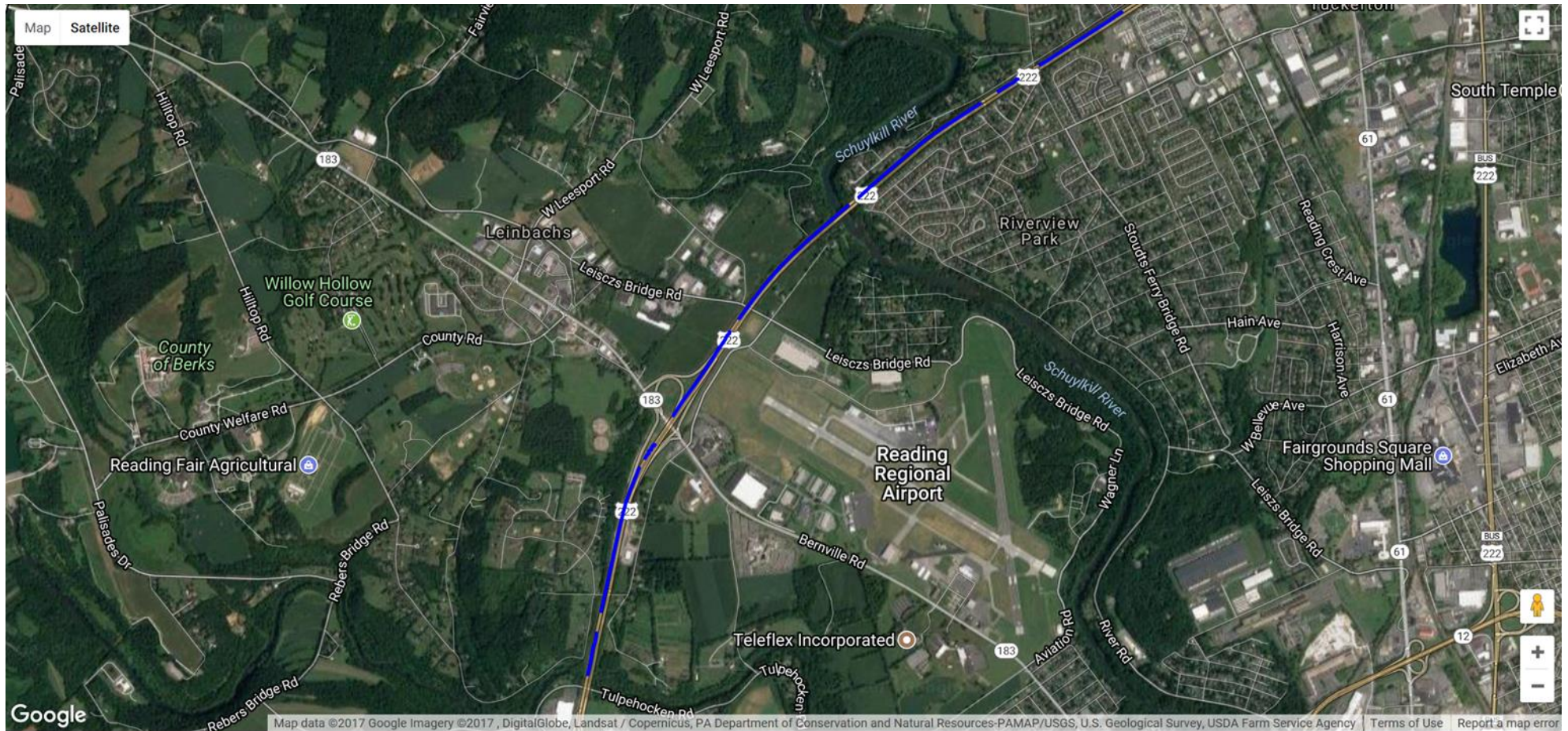
# Google Overlay Map



The Blue Line is the overlay of the recorded path onto a Google Map



# Google Earth Overlay Map

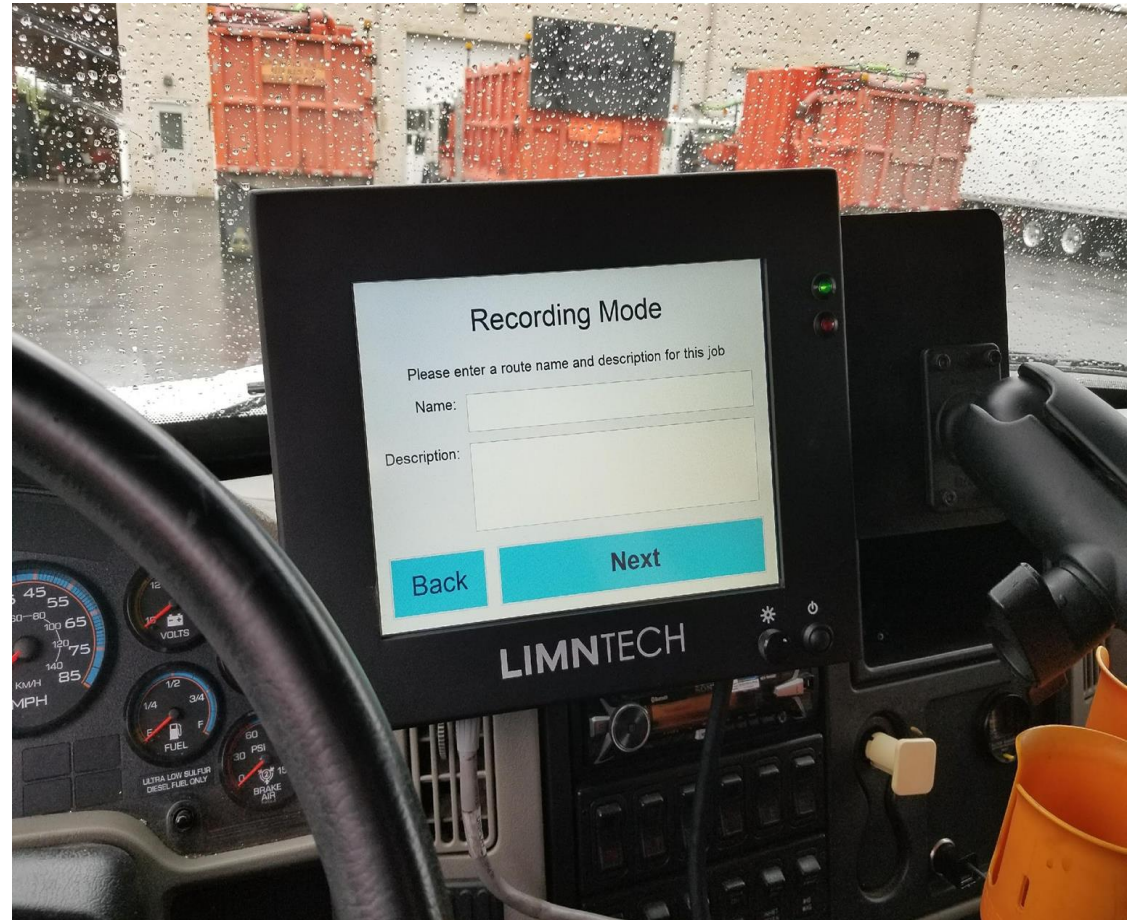


The Blue Line is the overlay of the recorded path onto a Google Map



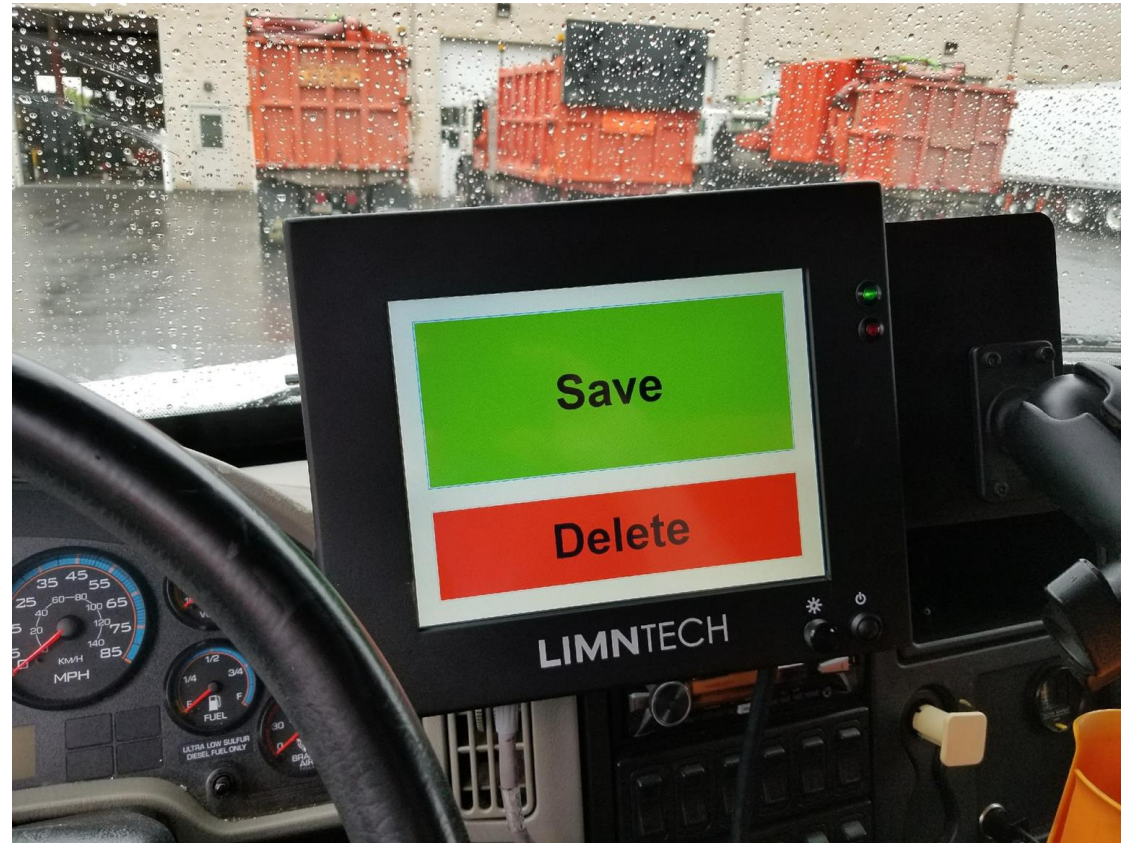
# Recording a Road

- Type in road info using touchscreen
- Choose road name from preloaded names



# After Recording a Road

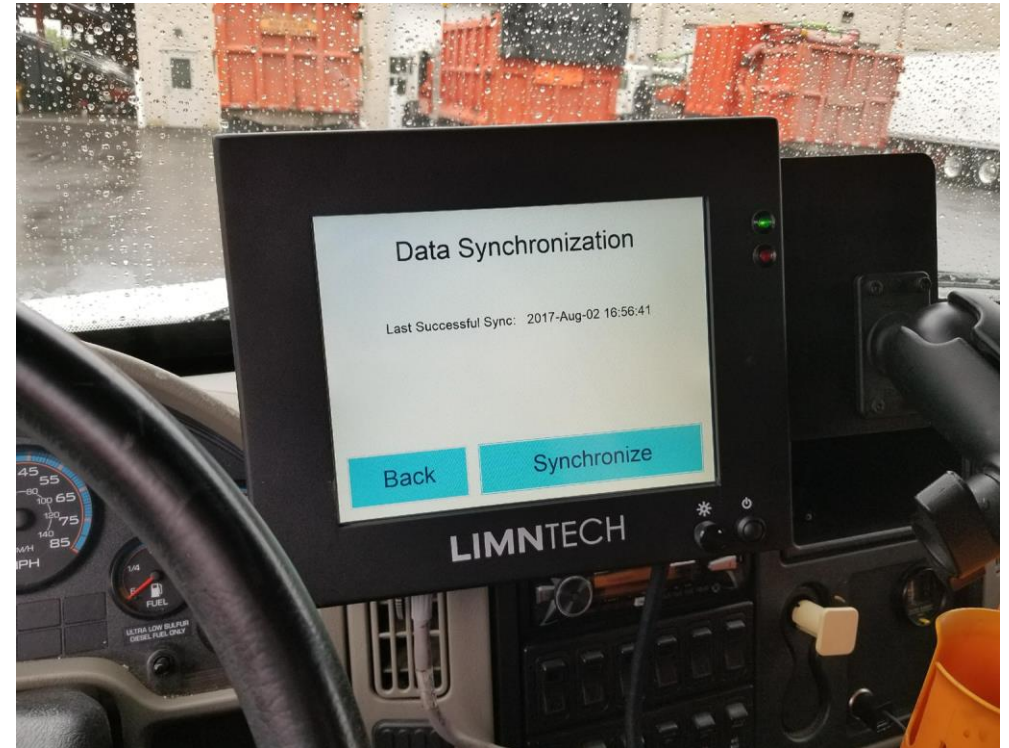
- Driver can Save or Delete files after recording





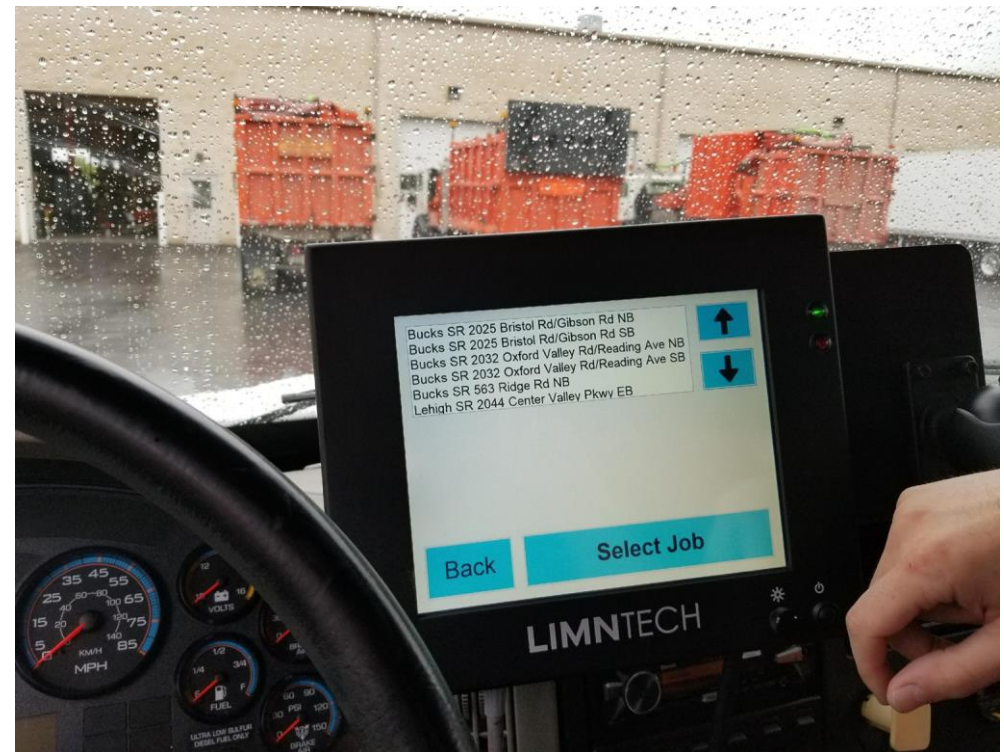
# Upload Road Data to LimnTech

- Synchronize data
- Ensures integrity
- Via cellular or Wifi



# Steps to Layout a Road

- Simply choose the file from the list of pre-recorded road paths
- Select Job
- Drive truck close to red line on screen
- LifeMark<sup>®</sup> -75 system takes over guiding carriage



# Front Cab – Drivers view



The Front Cab Monitor Virtual Red Line guides the driver during Layout. The carriage travel allows the driver up to four feet of leeway.