

# Wireless Event Recorder Information System

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## How WERIS works:

- Norfolk Southern has equipped 96.5% of its locomotives with a Quantum **C**ommunications **M**anagement **U**nit, which is linked to the locomotive event recorder.
- The Quantum **CMU** (*with **G**lobal **P**ositioning **S**ystem location based data*) automatically uploads locomotive event recorder data wirelessly to more than 60 **W**ireless **A**ccess **P**oints across the system. One or more **WAPs** exist at most terminals or locomotive servicing facilities. The **CMU** can retain up to 3.2 years worth of data onboard the locomotive.
- The **WAPs** automatically upload locomotive event recorder data received from the **CMU** to central servers for review at the “WERIS Desk,” staffed with Road Foreman of Engines.
- Quantum software scans data from locomotive event recorders automatically, looking for pre-defined “Exceptions,” generating **“operational alerts”** for review at the “WERIS Desk.”
  - Some examples of **“Operational Alerts:”**
    - Excessive speed
    - Power braking
    - Independent brake use
    - Traction motor short time ratings
    - **Etc.**
- “Exceptions & Operational Alerts” are forwarded from the “WERIS Desk” to the District or Division Road Foremen of Engines for additional review, handling, coaching, & education.

## Benefits of WERIS:

- Promotes competition, Drives professionalism, Improves train handling, Enhances locomotive troubleshooting, Backup data for grade crossing accidents, Generates fuel consumption data for specific train ID costing, Streamlines engineer qualification training, & **Reduces costs.**
  - Some examples of **Reduced costs:**
    - Traction motor over current
    - Flat spots
    - Rail burn
    - Train separations
    - Train derailments
    - Reduced fuel consumption

## Summary of WERIS:

- Methodical automatic wireless retrieval of locomotive event recorder data feeds in to Auto Scan /Query software that scans thousands of hours of locomotive event recorder data automatically & spotlights “Exception Events,” generating “Operational Alerts,” for further review. Data is associated with specific trains /crews by district.