

FrontRunner Rail Safety



FRONTRUNNER RAIL SAFETY OVERVIEW

Board of Trustees

April 26, 2023



PRESENTERS

- **Safety (Introduction)**

- Sheldon Shaw, Director of Safety and Security

- **Positive Train Control**

- Jared Scarbrough, Director of Capital Construction

- **Vehicle Maintenance and Operations**

- Zach Thomas, Acting Commuter Rail General Manager

- **Maintenance of Way/Inspections**

- Kevin Anderson, Director of Maintenance Support



UTA'S POSITIVE TRAIN CONTROL (PTC) E-ATC

What is ATC

- **ATC: Automatic Train Control**

- A system arranged so that its operation will automatically result in the following:

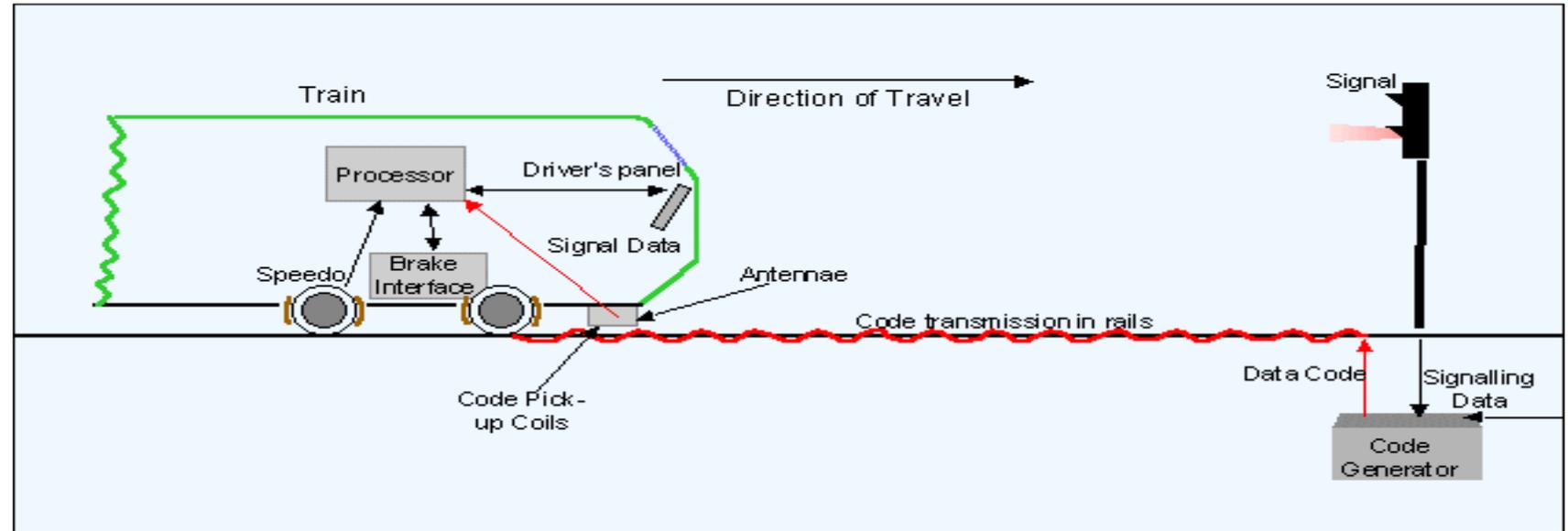
- a) Train will initiate a full-service application of the brakes, when requested by the ATC system, and will continue either until the train is brought to a stop, or, under the control of the operator, its speed is reduced at a predetermined rate.

- b) When operating under a speed restriction, an application of the brakes, requested by the ATC system, when the speed of the train exceeds the predetermined rate and which will continue until the speed is reduced to that rate. (ie train is not braking “fast enough”)



AUTOMATIC TRAIN CONTROL OVERVIEW

ATC System

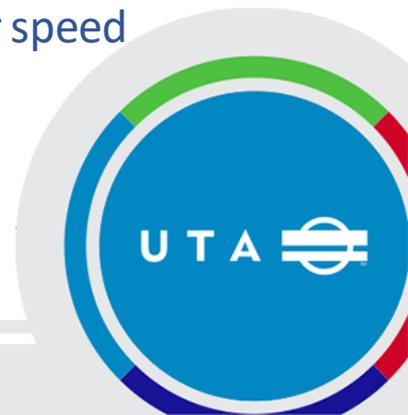


Wayside (Interlockings, Cut-Sections, and Grade Crossings)

- Wayside Segment sends speed/signal information out via rails

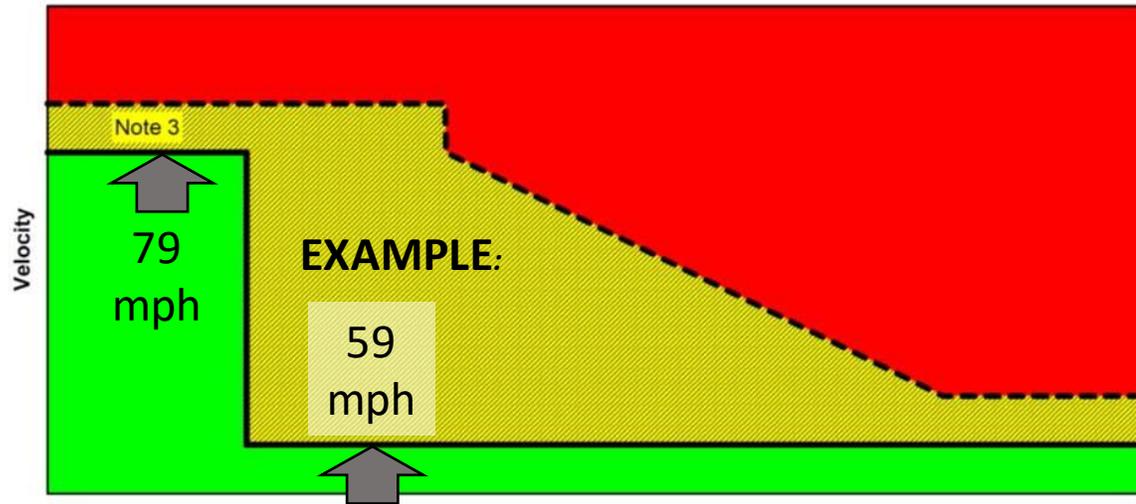
Onboard (Locomotive and Cab Car)

- Onboard system interprets speed codes from rail and determines whether train is adhering to proper speed
- If train is over the speed as governed by wayside logic, warning is given to operator
 - If warning is not heeded within allowable timeframe, train shuts down, safely comes to stop



AUTOMATIC TRAIN CONTROL OVERVIEW

UTA's ATC PENALTY CURVE



Note 1 EMV de-energized.
Overspeed Bars lit.
Audible Alarm silent.

Note 2 EMV energized.
Overspeed Bars lit
Overspeed audible alarm sounds.

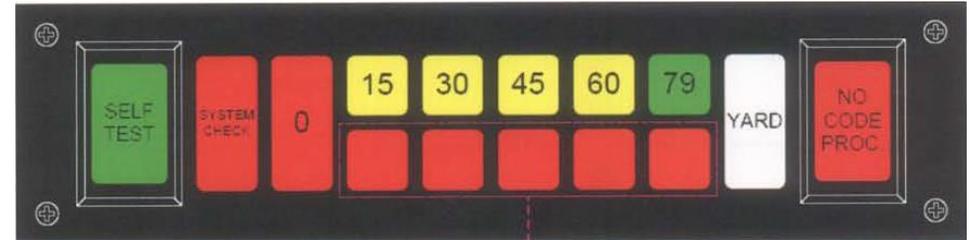
Note 3 EMV energized.
Overspeed Bars dark.
Audible alarm silent.

— Speed Limit
- - - Penalty Curve

Notes

1. Penalty Brake is irrevocable.
2. Overspeed audible alarm cadence increases as train approaches Penalty Curve.
3. Overspeed tolerance is 2 mph for all speed limits except 15 mph, which has an overspeed tolerance of .5 mph.

OPERATOR'S ASPECT DISPLAY UNIT (ADU)



ENHANCED- Automatic Train Control (E-ATC)

UTA's COMPLIANCE BEFORE PTC (ATC):

- **Automatic Train Control (ATC) Cab Signaling PTC Requirements met already**
 - Red signal enforcement- preventing Train to Train collisions (Existing ATC system met PTC Requirement)
 - Speed enforcement with cab signaling (Partially met PTC Requirement)
 - Switch Position in proper position (Existing ATC system met the PTC Requirement)
 - Broken Rail Detection

UTA'S ADDITIONAL COMPLIANCE AFTER PTC (E-ATC):

- **Enhanced Automatic Train Control (E-ATC) Cab Signaling**
 - Permanent Speed Enforcement
 - Civil Engineering speeds enforced by E-ATC (129 FRN Curves & 146 FRS Curves Analyzed for PTC)
 - Temporary Speed Restriction (TSR)
 - Work Zones, areas with restricted track speed conditions, etc.
 - Mandatory Directive Enforcement
 - Credible report of a highway-rail grade crossing warning system failure-> mandatory directive will be issued
 - 0 Speed or 15mph speed MD available at UTA, enforced in both directions



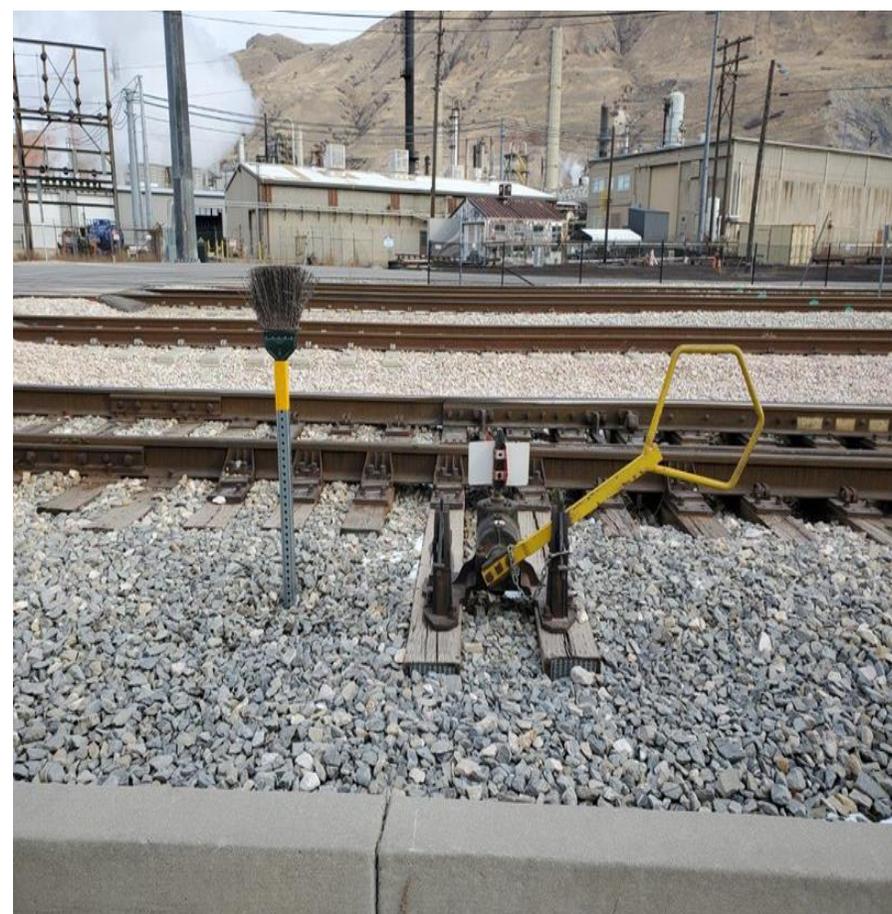
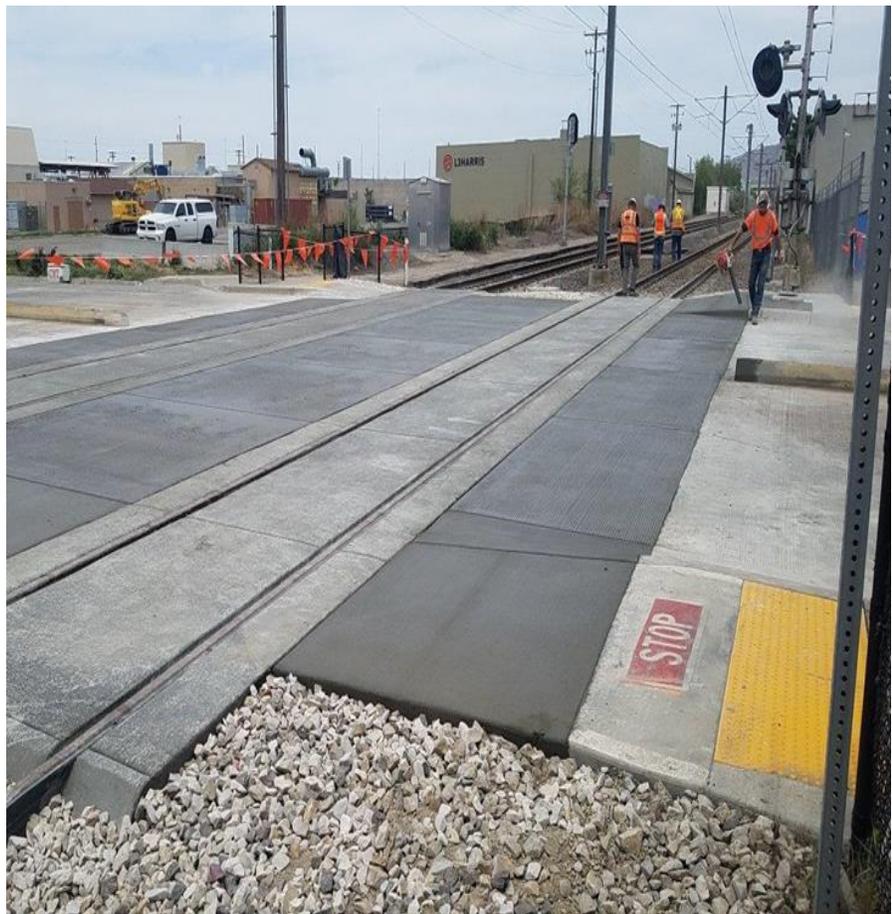
Maintenance of Way Systems Compliance Department

- **Code of Federal Regulations**
- UTA's System Compliance Department is dedicated to inspecting all rail functions. These inspections include crossings, signals, and switches, along with the actual rail. UTA follows the Code of Federal Regulations for all rail system inspections



Monthly Inspections

- 62 Crossings
- 86 Switches
- 121 Signals
- Rail within Entire Alignment
- Cab Signals and Wayside Signals



FRA Quarterly Records and System Spot Checks

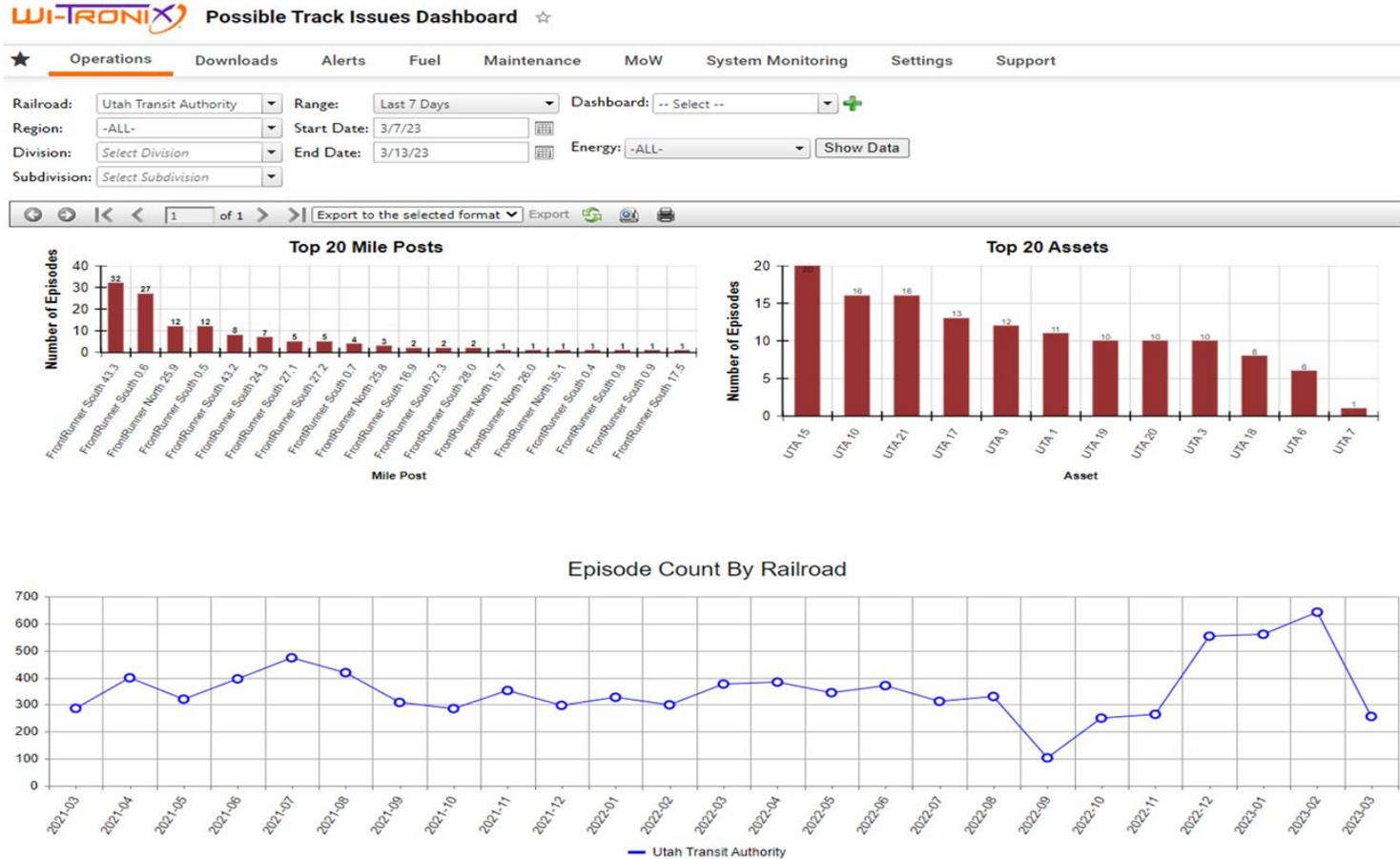


Annual Inspections

- Herzog Ultrasound
- UTA Track Geometry



Wi-Tronix Daily Review



Commuter Rail Vehicle Maintenance

■ Inspections:

- Each train is inspected every calendar day that it is in operation.
 - Brake valves and air lines
 - Brake shoes
 - Wheels, axles and bearings
- Brake Tests
 - Class 1 and IA air brake tests are done each day prior to service.
 - Class 2 and Running brakes tests are done at the EOL prior to each trip
- Preventative Maintenance
 - 92, 184, 276 and Annual PM Inspections
 - Inspections include SCAT tests, wheels, brakes, engines, cars, HVACs, etc.
 - Annual Inspections build on each other to include more each time
 - Federal Standard vs UTA Standard
- Employee Reporting
 - All operator reported issues are tracked and relayed to the maintenance team



Commuter Rail Operations

- Dispatch:
 - Control Room is staffed 24/7/365
 - Able to enforce stop signals and speed restrictions
 - Camera visibility at each station and many crossings throughout the entire alignment
 - Can monitor each grade crossing for health issues
 - Freight only crosses our tracks to service industry
 - Direct phone line to UP dispatch center and Signal Operation Center



Questions?

