

## Novel Technology

- Alternative fuels – decarbonization in rail
- Passenger and transit rail
- Joint Policy (Shared Use) projects
- High-speed rail
- Hyperloop
- Maglev

## Technology and Automation

- Machine learning (AI)
- Machine vision
- Big data analytics
- Drones
- Fiber optics sensing
- Autonomous systems
- R&D support for new tech
- Position, Navigation and Timing (PNT) communications
- Human-machine interface (ergonomics)
- Verification and validation

## Automated Track Inspection Program

ATIP Operations	2022 (Thru 11/30)
Miles Surveyed	<b>171,089</b>
Total Exceptions	<b>8,848</b>
Safety Critical Exc.	<b>2,034</b>

*(ATIP contract recompetete)*

## Washington, DC Union Station (Authority Having Jurisdiction)

- Concourse modernization
- Subbasement replacement
- Claytor Concourse
- Amtrak track 22
- Fire and life safety

*(WUS contract recompetete)*

