

NCDOT Rail Division

# The Rail Report



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August 2017

## Locomotives Rebuilt as part of the Piedmont Improvement Program now in Service



Locomotives 1984 - City of Kannapolis and 1871 - Town of Cary stand ready for service at Capital Yard Maintenance Facility

The rebuild of the 1871 – Town of Cary and the 1984 – City of Kannapolis locomotives is now complete. These units, originally built in 1990 for GO Transit in Toronto, Canada, were acquired by NCDOT in 2014. The locomotives were purchased for approximately \$300,000 and rebuilt at a cost of \$1.85 million each. At a total cost of \$2.15 million per locomotive, compared to \$6-7 million for a new unit, rebuilding locomotives has proven to be a more cost effective solution to address the need for additional motor power as *Piedmont* service frequencies are scheduled to expand.

The locomotives were rebuilt at the Norfolk Southern Juniata Shops in Altoona, PA. Among the new features, these locomotives now have upgraded traction motors, new head end power control cabinets, automatic engine start-stop control, conversion from mechanically injected engine to electronically injected, and a new computer control system which provides various locomotive and engine operating parameters on a computer screen in the cab.

As a part of its emissions improvement program, the Rail Division also received a grant from the NC Clean Energy Technology Center to equip both locomotives with a new Tier 3 compliant Head End Power engine. These locomotive upgrades will prove beneficial in the near future by allowing the Rail Division to further improve emissions through upcoming advanced emissions projects. Both locomotives were rebuilt in compliance with FRA Buy America requirements.

Locomotive 1984 entered into *Piedmont* service in mid June for its 30-day acceptance testing period. Locomotive 1871 entered *Piedmont* service and began acceptance testing mid July. Both units will operate in *Piedmont* service for 10 years before reaching their next life cycle rebuild point.

### August Railroad Trivia Question

Where is the longest tangent track found in the United States? (See answer on page 5)



## Positive Train Control Equipment Installation Underway on Piedmont Locomotive

Positive train control (PTC) is a computerized braking technology designed to prevent trains from having collisions. PTC uses GPS to track the position of locomotives in a given area and ensure safe space between them. It can sense an accident before it occurs – namely a situation where two trains are headed toward each other on the same track and alert the engineer to stop the train in sufficient time to prevent the accident. If the engineer fails to act in time, the PTC system will send an electric signal to the locomotive's brakes to automatically stop the train and prevent the accident.

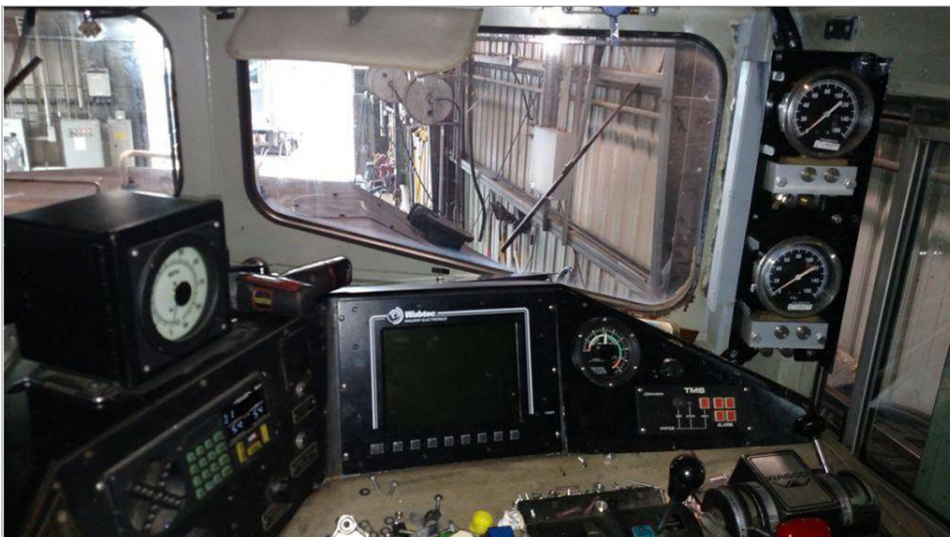
PTC is managed by the dispatching railroad in a given territory – Norfolk Southern for NCDOT's *Piedmont* service. The department's responsibility for PTC compliance consists of installing the PTC system hardware onto its locomotives. The main components of the PTC system are the Wi-Fi antennas, wheel speed sensor, air brake manifold, control rack, and cab display unit. PTC components are supplied by Wabtec Corp and are being installed onto NCDOT's locomotives by RailPlan mechanical personnel. Wabtec is providing on-site supervision of the installation process and Capital Yard Engineering personnel are responsible for project management.



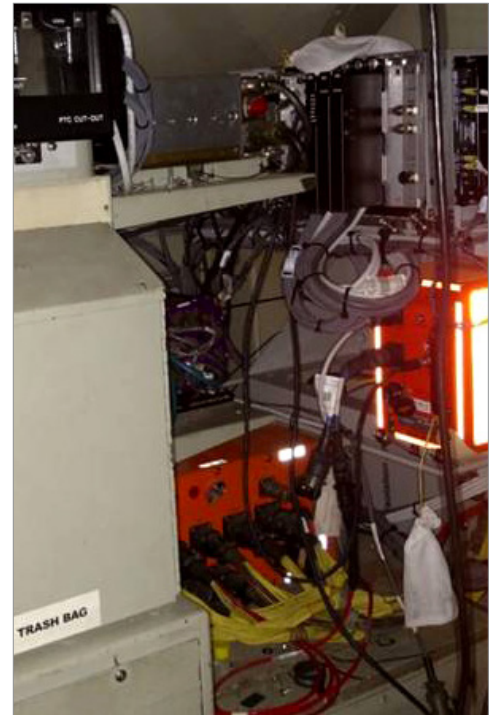
*A Wi-Fi antenna is mounted on top of a locomotive cab to send and receive communications.*



*Interior of locomotive cab before installation of PTC components*



*Interior of locomotive cab after PTC component installation*



*PTC control rack*

*Federal law requires that all rail agencies in the United States install PTC systems on their locomotives by the year 2020. NCDOT is among the first rail agencies to begin PTC installation on its locomotives. To date NCDOT has completed installation on two of its locomotives and expects to have its full fleet equipped by early 2018.*



## NCDOT and Yadkin Valley Railroad Make Safety Improvements at Crossings in Surry and Stokes Counties

The NCDOT Rail Division, along with Highway Division 11 and the Yadkin Valley Railroad, teamed up to complete a crossing improvement on Siloam Road in Surry County, NC. This project consisted of replacing a two-track asphalt crossing with concrete tub surfaces in both tracks. The asphalt in this crossing was in poor condition, creating a rough crossing for motorists. The tub crossing now offers a smooth surface for motorists, and low maintenance for the railroad.

The Yadkin Valley Railroad contributed the labor for the installation, while NCDOT Division 11 contributed the asphalt and traffic control. The Rail Division provided \$83,960 in FRRCSI funding for materials. The second crossing project was also with the Yadkin Valley Railroad. This project closed a crossing at Goff Road in King, NC and replaced it with a new crossing located .15 miles north at Fulk Road. This project was requested by the Stokes County Board of Education due to numerous accidents involving students at the Goff Road/Old 52 intersection. Division 9 contributed the asphalt and traffic control. The Rail Division contributed \$67,368 in FRRCSI funding.



*Siloam Road before improvements*



*Siloam Road after improvements*



*The crossing at Goff Road has now been closed.*



*The new, safer crossing at Fulk Road replaced the Goff Road crossing.*

### Ridership & Revenue on NC By Train Service – \*May 2017 vs. 2016

	RIDERSHIP			REVENUE		
	2017	2016	% +/-	2017	2016	% +/-
<b>Piedmont</b>	10,540	11,979	-12%	\$225,396	\$252,368	-11%
<b>Carolinian</b>	23,371	25,278	-8%	\$1,509,577	\$1,574,435	-4%

**902**



Hours Volunteered by N.C. Train Hosts in May, supporting NC By Train onboard and at events

**May 2017** service modifications impacted 30 *Piedmont* and seven *Carolinian* trains. From May 1 to May 10, Trains 74 and 75 were cancelled Mondays through Thursdays due to Piedmont Improvement Program (PIP) track work, accounting for 14 cancellations; on May 1 and May 8, Trains 73 and 76 were also cancelled due to PIP track work, accounting for four additional cancellations. On May 2 and 3, Trains 79 and 80 operated between Charlotte and Raleigh only due to CSX track work. On May 15, Trains 73, 73 and 75 operated between Kannapolis and Raleigh only and Train 76 originated in Kannapolis due to PIP track work, but service was terminated east of Greensboro following a trespasser strike. On May 17, Trains 74, 75, 79 and 80 were cancelled due to PIP track work. On May 22, Trains 73, 73, 75 and 76 operated between Salisbury and Raleigh only, and Train 79 operated between Salisbury and New York only due to PIP track work. On May 27, Train 75 was terminated at Greensboro due to engine problems, which also resulted in the cancellation of Train 76. Disruptions for PIP project work will continue to occur as necessary through completion of the project, but PIP track outages are anticipated to significantly decrease after July 2017. Average gasoline prices remained low in May 2017 but were 9¢ per gallon higher than May 2016.





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### Enjoy August Adventures with \$5 Kids Fare

Families looking for last minute summer adventures can enjoy a special \$5 kids fare to travel the rails in North Carolina.

Through Aug. 31, customers can use discount code V626 when booking at NCBYTrain.org to take advantage of the one-way \$5 fare for up to two children ages 2-12 with the purchase of a regularly priced adult ticket. This offer is valid for travel on Tuesdays, Wednesdays, Thursdays and Saturdays. Terms and conditions apply.

Families can hop on board at any of the cities below when traveling NC By Train:

**Charlotte, Kannapolis, Salisbury, High Point,  
Greensboro, Burlington, Durham, Cary, Raleigh,  
Selma, Wilson, Rocky Mount**

NC By Train's *Piedmont* and *Carolinian* trains provide daily service from Raleigh to Charlotte, plus seven additional stops in between.

### Raleigh Union Station Construction Photos



View of north elevation



View of south elevation and installation of glazing



Raleigh Union Station Construction Photos continued...



View of south elevation, with concrete passenger concourse and footings for platform and canopy in foreground



View of north and west elevations

**August Railroad Trivia Answer:** The longest tangent in the U.S. is on CSXT's Wilmington Subdivision between Laurinburg and Wilmington. The total length is 78.86 miles long.

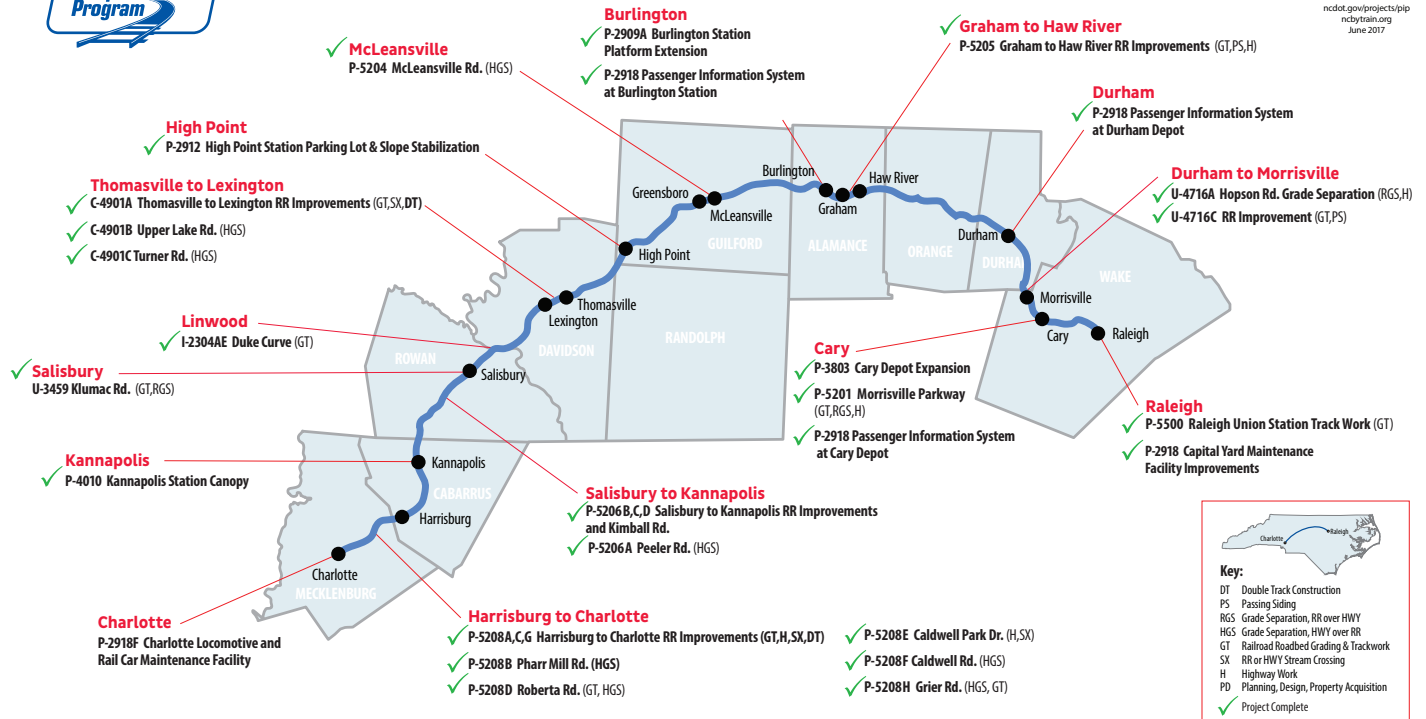




## Piedmont Improvement Program Update – June 2017



ncdot.gov/projects/pip  
ncbytrain.org  
June 2017



NC By Train – Piedmont Equipment ✓ 5 Locomotives ✓ 2 Cab Control Units ✓ 12 Railcars

2 Additional Cab Control Units from non-ABRA funding\*



One of the first trains across the new Coddle Creek bridge

### Piedmont Improvement Program Milestone

**Harrisburg** – The last portion of the 26 total miles of double track constructed under PIP was placed into service on June 26, marking a historic moment by creating a fully double tracked corridor between Greensboro and Charlotte. This last 1.5-mile link of the Haydock to Junker project was completed in Harrisburg and involved an army of railroad personnel and track contractors. With this last piece of track construction complete, NCDOT contractors are anticipated to finish the final clean-up grading work by August.

### Spent to Date of \$520M (effective 6/30/2017)

Component	Expenditure
PD&A/ROW	\$58,258,973
Equipment Procurement & Rebuild	\$32,165,707
Stations & Facilities	\$67,761,008
Track & Structures	\$334,229,865
CRISP	\$2,180,376
<b>Program Totals</b>	<b>\$494,595,929</b>

Seven new contracts totaling \$5,557,300 were issued in June.



## Piedmont Improvement Program Track and Structures – Project Photos (June 2017)



P-2918 Charlotte Locomotive & Railcar Maintenance Facility Administration Building construction



P-2918 Charlotte Locomotive & Railcar Maintenance Facility rail yard construction



P-5208 Haydock to Junker track cut in



P-5208 Haydock to Junker track construction, seen from Pharr Mill Road bridge



P-5208 Haydock to Junker track construction



P-5208 Haydock to Junker track construction