



A Hudson Line train speeds along the Hudson River at Dobbs Ferry, New York, with the New York City skyline twenty miles distant.

The Meteoric Rise of Metro-North

BY OTTO M. VONDRAK/PHOTOS BY THE AUTHOR EXCEPT AS NOTED

WITH A STAGGERING SCHEDULE of 732 trains carrying more than 280,000 commuters daily, today's MTA Metro-North Railroad stretches more than 765 miles serving commuters on three main lines running out of Grand Central Terminal in New York City and two lines originating at Hoboken Terminal in New Jersey. The longest route by mileage is the 95-mile Port Jervis Line, the former Erie Railroad route from Hoboken to Port Jervis. The shortest route also originates in Hoboken, the 30-mile Pascack Valley Line to Spring Valley. Both are operated in cooperation with NJ Transit. Three routes are operated out of Grand Central, including the 74-mile Hudson Line to Poughkeepsie, the 82-mile Harlem Line to Wassaic, and the 72-mile New Haven Line to New Haven, Connecticut (in addition to the New Canaan, Danbury, and Waterbury branches).

After three decades of steady growth and improvement, Metro-North has surpassed sibling Long Island Rail Road as the busiest commuter carrier

in the nation. This success did not come overnight, however, as the railroad worked not only to repair its infrastructure, but also its relationship with the customers they serve. Today's Metro-North builds upon a long tradition of carrying commuters that dates back to the early 19th century.

New York's Oldest Railroads

The earliest roots of today's modern Metro-North system can be traced back to the New York & Harlem, New York City's first railroad chartered in 1831. Originally constructed as a horsecar tram line to connect bustling lower Manhattan with the bucolic farming village of Harlem, by the 1840s the railroad had switched to steam power and extended north into the Bronx and rural Westchester County. In 1848, the New York & New Haven Railroad negotiated trackage rights over the NY&H for entry into New York City from Connecticut. By 1852 the NY&H had continued to push further north to a connection with the Boston & Albany. The Hudson River Railroad began con-

structing its route along its namesake waterway in 1846, reaching New York City in 1851. Cornelius Vanderbilt gained entry into the railroad industry with his purchase of the New York & Harlem in 1864. In 1867, he merged several of his holdings to form what would become the New York Central.

With the railroads providing cheap and easy transportation for goods and people, commuting patterns into New York City had been set by the turn of the century with New York Central's Hudson and Harlem Divisions as well as the New Haven's trains all funneling traffic into Grand Central.

Only the Great Depression halted the growth of the suburbs, while wartime traffic boom and bust took its toll on the railroads. As Americans turned to the automobile and a new network of highways, ridership declined as operating costs continued to increase. The railroads appealed to state and local governments for assistance in the form of subsidy, but many attempts were blocked by powerful pro-highway lobbying efforts.

The Path to Public Ownership

Entering its final bankruptcy in 1961, the New Haven petitioned the Interstate Commerce Commission to discontinue all passenger trains system wide in 1965 and again in 1967, but to no avail. This action prompted local authorities to begin looking into subsidy programs for the commuter trains. As the financial outlook for the railroads continued to worsen, New York Central merged with its archrival Pennsylvania Railroad in 1968 to form Penn Central (which a year later was force-fed the New Haven). Commuter operations continued to deteriorate as equipment and stations fell into disrepair.

The Metropolitan Transportation Authority (MTA) was created by New York State in 1968 in part to oversee an unprecedented \$1 billion bond issue to rebuild and unify the region's mass-transit system. In 1971, the MTA and CDOT acquired title to the former New Haven main line between Woodlawn, New York, and New Haven, Connecticut (the New Rochelle to New Haven segment remains the only portion of

the Northeast Corridor not owned or operated by Amtrak). In 1972, the MTA worked out a long-term lease of the Hudson and Harlem Lines, which Penn Central combined with the New Haven Line as the Metropolitan Region. A subsidy agreement was also made with NJDOT and Erie Lackawanna to fund the portion of the Port Jervis and Pascack Valley lines operating in New York State around 1974.

As part of the new agreement, MTA took over the commuter fleet. Penn Central green was soon replaced by the MTA's gray and blue as the state agency began assuming greater control over commuter operations. New paint wasn't enough to reverse the fortunes of the ailing Penn Central, however.

Conrail was formed by the federal government to take over the operations of six bankrupt northeastern railroads, including the Penn Central and the Erie Lackawanna. On April 1, 1976, Conrail found itself to be the second-busiest passenger carrier in the nation, inheriting commuter operations in Boston, suburban New York and New

Jersey, Philadelphia, Chicago, and Cleveland. Tasked with rebuilding the freight network in the northeast, Conrail asked for relief from the burden of operating these myriad commuter services, subsidy or not.

Setting the Stage for Metro-North

With the Staggers Act of 1980 deregulating the industry, Conrail was finally taking its first steps towards profitability. To further guarantee its success, Congress passed the Northeast Rail Service Act in 1981 directing that all commuter operations operated by Conrail be transferred to a local operating authority by the end of 1982. For the lines operating out of Grand Central Terminal, that meant the MTA was moving from being a funding body to taking on the role of direct operation.

The MTA had a little more than 18 months to set up the new railroad. It was around this time that many old labor issues started to come up to the surface. It was clear that the MTA was going to demand a reduction in crew sizes in an effort to reduce costs in the wake



TOP: Two FL9s lead an afternoon Harlem Line train north along the Muscoot Reservoir at Katonah on June 25, 1983. The consist includes former NYC coaches as well as refurbished D&H cars on loan from NYSDOT. ABOVE: An Alco C420 borrowed from sister agency Long Island Rail Road hauls a ballast train through Katonah in 1983. Note the supports waiting for third rail. RIGHT: At Brewster shop, FL9 5039 is typical of the neglect prevalent by 1979. PHOTOS BY ART DEEKS



of shrinking transit budgets. Differences were temporarily set aside, and on January 1, 1983, nearly 4800 former Conrail workers moved over to the new Metro-North Commuter Railroad.

Still, the issues remained and the employees went on strike on March 1. During that time, management was called upon as a skeleton crew to keep the railroad open for Conrail and Amtrak operations. With no Metro-North trains running, extra bus service was set up to feed commuters into Subway terminals in the Bronx. It was a miserable experience at best. The strike lasted for nearly 45 days until workers were forced to arbitration on April 18. It was an inauspicious start for the new railroad, to be sure.

Rebuilding the Railroad

On that first day of 1983, Metro-North had inherited their grandfather's railroad complete with jointed

rail, low-level platforms (in diesel territory), manned towers, wayside signals, and train orders... With their grandfather's trains still plying the rails! While a delight for the railfans, the entire railroad was in need of serious rebuilding if it was to overcome years of neglect and deterioration.

Metro-North continued the project to extend the third-rail electrification of the Harlem Line from North White Plains to Brewster. Begun during the Conrail era in 1982, the extension was completed in 1984, and included the construction of eight new high-level platform stations. Completion of the project allowed for faster schedules and more frequent trains, and freed up conventional diesel-hauled equipment for use elsewhere in the system.

A major route change took place on the Port Jervis Line in 1984 when Conrail abandoned the former Erie "Main Line" between Harriman and Middle-

town, in favor of the recently rebuilt Graham Line. Stations were relocated to this former freight-only line often many miles from the nearest town. While unhappy with the move, the MTA had little choice in the matter.

Antiquated shop facilities dating to the turn of the century hampered rebuilding efforts. New shops were opened at Brewster in 1987, and at North White Plains in 1991. The project to replace the railroad's sprawling complex at Croton-Harmon began in 2001, and will continue through 2020. On the Connecticut side, facilities were improved and upgraded at Stamford and New Haven by CDOT.

The Park Avenue Tunnel runs from Grand Central more than fifty blocks north to 96th Street and carries the four tracks that funnel all of the trains into and out of the terminal. Reconstruction began in 1987, taking one track out of service at a time. Once completed, a



ABOVE LEFT: A train of New York Central ACMU's (air conditioned, multiple unit) cars passes a former New Haven FL9, both decorated in modern Metro-North colors at 125th Street Station in June 1989. LOU GERARD PHOTO. ABOVE RIGHT: A difference of decades illustrates the evolution of the Metro-North locomotive roster at Danbury, Connecticut. FL9 2016 (built in 1957) meets successor P32 228 (built in 1998), while F10 410 (built in 1946, rebuilt 1979) compares notes with P32 206 (built in 1995). PHOTOS BY OTTO M. VONDRAK

four year restoration began on the Park Avenue Viaduct in 1995. The viaduct is a vital elevated structure that runs from the mouth of the tunnel at 96th Street all the way up to the Harlem River lift bridge at 135th Street.

New substations were built along the Hudson and Harlem Lines to improve electric service along those routes in the 1980s. Systems were also beefed up to handle longer, more frequent trains. When Metro-North took over in 1983,

the New Haven Line was still largely dependent on the ancient 1906 Cos Cob power plant to energize the overhead wire from New Haven to Woodlawn. The railroad switched over to a commercial power supply in 1988 allowing



for its merciful retirement.

Metro-North and CDOT began a program to systematically replace the overhead wire catenary system on the New Haven Line in 1993. The catenary system was originally designed and installed by the New Haven between 1907-1914, and was a pioneering example of main line electrification using high-voltage alternating current. Over the years, the wires were prone to occasional failure from various stresses on the system, from weather extremes to high traffic volume. Today's modern catenary uses a complex system of hangers and counterweights to keep the lines tensioned, reducing the opportunity for failure. The design is based on a system in use by British Railways on their high-speed intercity lines. CDOT expects to complete the final

phase of this project by 2014.

In 1994, the railroad dropped "Commuter" from its name to be known simply as MTA Metro-North Railroad. By the mid-1990s, new high-level platforms were installed throughout diesel territory to reduce dwell times by allowing for faster loading and unloading of diesel trains. Only the Waterbury Branch retains its low-level platforms. Metro-North added some mileage in 1995 with the purchase of the Beacon Line from the Housatonic Railroad. This former New Haven trackage connects the Hudson Line at Beacon, the Harlem Line at Dykemens, and the Danbury Branch at Danbury. This route is used for occasional equipment moves and training purposes.

The MTA negotiated a new lease with Penn Central successor American

Premiere Underwriters for the stewardship of historic Grand Central Terminal in 1994. This move allowed for the MTA to plan and execute a full restoration and rebuilding in 1996. The \$197 million renovation project was completed in 1998 and included the addition of new retail and exhibition space throughout the terminal.

Evolution of the Fleet

The commuter fleet resembled a museum collection when Metro-North took over in 1983. Passenger equipment at the time ranged from conventional pre-war streamlined steam-heated coaches to the latest in electric multiple-unit cars. A bond issue helped purchase new m.u. cars from Budd between 1971-'73 so the last of the old heavyweights could be retired. While the majority of



ABOVE: This signage from a Harlem Line station indicates the name change from Brewster North to Southeast and the northern extension beyond Dover Plains to Wassaic. LEFT: A train of M7s glides to a stop at Scarsdale on the Harlem Line. While this section is double track, the forward-thinking New York Central designed the right of way to accommodate extra tracks should the need ever arise in the future. BELOW LEFT: This three-way meet at Stamford, Connecticut, helps illustrate the number of operators that share the New Haven Line. From left to right, an Amtrak Acela, a Metro-North Danbury Branch train, and a CDOT Shore Line East train all arrive on May 31, 2007.



ABOVE: Metro-North removed "commuter" from their name in 1994. RIGHT: A BL20GH and a rebuilt GP35 team up on a concrete tie train near Cos Cob, Connecticut, on April 2, 2010. The BL20's were designed for use on work trains as well as branch line commuter runs. BELOW: As the old New Haven main line follows the coast of Connecticut, there are many movable spans throughout the system, such as this swing bridge over the Norwalk River at South Norwalk, Connecticut, which dates from 1895.



maintain service, so additional second-hand coaches were acquired until new cars could be ordered. The Detroit commuter service operated by SEMTA had been discontinued in 1983, making their fleet of rebuilt former Pennsy and Union Pacific coaches available. A set of ex-Reading *Wallstreeter* coaches was purchased by CDOT from SEPTA for use on the Danbury Branch. Cast-off Budd coaches and RDC's were also acquired from Amtrak.

The Budd RDC's were retired in 1990, though their operation continued on the Port Jervis Line until 1993. The MTA and CDOT had also invested in Budd's next-generation "Self-Propelled Vehicle" but constant failures kept these cars in the shop. Most of the Budd RDC's were either scrapped or sold off by the mid-1990s, while the SPV's languished in the bone yard until 2005 when they finally left the property. The remaining New York Central-era 1100-series ACMU (air conditioned multiple unit) cars were retired in 2004.

The venerable FL9 fleet met its match when the first GE P32AC-DM dual-mode diesels arrived in 1995. By 2001 the remaining F-units were relegated to branch line and shuttle duty where third rail capability was not needed. In 2008, Metro-North announced the acquisition of new diesels from Brookville Equipment Corp. to replace the remaining elderly cab units. The new BL20GH hood units would not only be used on branch line and shuttle trains, but were also meant to replace



locomotive-hauled coaches were inherited from the New York Central and the New Haven, additional second-hand purchases were made to supplement the fleet. One highlight was a complete set of Delaware & Hudson cars that NYSDOT refurbished for Amtrak's *Adirondack* service and later transferred to New York City and used in daily commuter service in 1978.

Orders were placed with Bombardier for new coaches to create a standardized fleet of HEP-compatible cars. Based on Pullman-Standard's old "Comet" design created earlier for NJDOT and EL, these "Shoreliner" coaches allowed Metro-North to retire the worst of the fleet. Subsequent coach orders would add a center door for faster loading.

When Metro-North inherited their fleet of 34 former New Haven dual-mode FL9s they were in horrible shape

and barely operable, yet a full schedule of service had to be maintained. It was not uncommon to find ex-Conrail B23-7 work engines or leased Amtrak E8s hauling trains into Grand Central (ignoring the electric rule by necessity). These oddball assignments continued as the FL9s were cycled through the shops for rebuilding. Title to four units was transferred to CDOT, and they returned from Chrome Crankshaft rebuilt with HEP and emerged wearing classic New Haven paint once again. Six more units would later join the CDOT fleet and receive the same treatment. Subsequently all Metro-North FL9s would be rebuilt with HEP generators. In 1991 four F10s (ex-GM&O F3s rebuilt by Paducah in 1979) were purchased from Boston's MBTA for use on branch line and shuttle trains.

The arrival of 54 new "Shoreliner" coaches in 1984 was not enough to



the small fleet of EMD GP35R's off work train duty. The first units arrived at the end of 2008, and by February 2009 the last FL9 had rolled its final miles in revenue service. As they approach their second decade of service, the P32s are being cycled through GE's shop in Erie, Pa., for rebuilding.

Metro-North's electric m.u. fleet has been augmented by periodic deliveries of new cars over the years. The first new M-1 "Metropolitan" cars were delivered by Budd in 1971 for the Hudson and Harlem Lines, while new "Cosmopolitan" M-2's arrived for the New Haven Line in 1972. The arrival of this new equipment required new high-level platforms be constructed throughout electric territory. With the extension of third rail to Brewster North (now Southeast), new M-3 cars were delivered in 1983. Nearly 20 years had elapsed between the debut of M-3 cars and the introduction of new Bombardier M-7 cars in 2004 (An M-5 series was designed and proposed years earlier, but no further action was taken). Arrival of the new M-7s led to the retirement of the aging M-1s, as well as the 1960s-era former New York Central ACMU's.

New Budd/GE M-4 series cars arrived for the New Haven Line in 1988, the first new equipment since the M-2s were introduced in 1972. This was followed by the delivery of new M-6 cars built by Morrison Knudsen in 1994, which operate in triplet sets. After years of delay due to political posturing in Connecticut, new Kawasaki M-8 cars were finally delivered for the New Haven Line that allowed the partial retirement of the M-2 cars in 2011. It is expected the order will be complete in 2014, the last of which will include new



TOP: A Metro-North F40PH leads a train of Comet V coaches past the old Erie Railroad depot in Port Jervis, New York. The Port Jervis line is the longest route, operated in cooperation with NJ Transit. **LEFT:** Two Hudson Line trains pass each other above Croton-Harmon. **OTTO VONDRAK PHOTOS** **BELOW:** A southbound train of M-7s passes under the Henry Hudson Bridge at Spuyten Duyvil station in the Bronx. The swingbridge in the background allows Amtrak trains to travel down the Empire Connection to reach Penn Station. **EMILY MOSER**



bar/café cars, replacing the M-2 bar car fleet. It is interesting to note that Metro-North is the only remaining operator of purpose-built commuter bar cars in America.

Emerging as a Regional Railroad

When Metro-North took over in 1983, ridership was around 41 million and falling. This figured climbed to

more than 52 million just five years later as service improvements continued during the rebuilding.

In 1991, one-seat through service was restored on the Harlem Line in the diesel territory beyond Brewster, concurrent with the growth of the northern suburbs. Through service was also expanded on the Hudson and New Haven Lines, reducing the need for shuttle



connections for travel south to New York City.

Metro-North opened the Wassaic Extension of the Harlem Line in 2000, which involved rebuilding the roadbed north of Dover Plains, and replacing six miles of track. A new station was established at Wassaic complete with a 500-space parking lot. Don't let the remote location of this new terminal fool you, as the lot is completely filled nearly every day (and many of the license plates are from nearby Connecticut and Massachusetts).

A third main track was added to the Harlem Line between Mount Vernon West and Crestwood in 2004, which helped increase rush hour capacity on this busy route. The generous right of way designed by the New York Central allowed for this four-mile upgrade to be completed with relative ease.

Improvements continued on the "West of Hudson" operations, as Port Jervis Line service was expanded to keep pace with the growth of the suburbs in Orange County. In 2003, Metro-North purchased 65 Alstom Comet V coaches to supplement the equipment

TOP: Brookville BL20GH-2s bumped the remaining FL9s off the roster by 2009, as seen on this Waterbury Branch train arriving at Ansonia, Connecticut. **LEFT:** Two Hudson Line trains pass each other above Croton-Harmon. **OTTO VONDRAK PHOTOS** **BELOW:** A southbound train of M-7s passes under the Henry Hudson Bridge at Spuyten Duyvil station in the Bronx. The swingbridge in the background allows Amtrak trains to travel down the Empire Connection to reach Penn Station. **EMILY MOSER**

pooled with NJ Transit. In 2004, NJ Transit opened the new Secaucus Junction allowing passengers on the Port Jervis and Pascack Valley Lines easy connections for direct service to New York Penn Station. For the first time since World War II, weekend and off-peak service was added to the Pascack Valley Line in 2007.

Reverse and off-peak commuting overtook traditional ridership to New York City for the first time in 2007. Many commuters now travel from New York to corporate centers in Yonkers, White Plains, Stamford, Bridgeport, and New Haven. Concurrent with the opening of the new Yankee Stadium in the Bronx, the new Yankees-153rd Street station opened on the Hudson Line, which introduced special game day trains from all three lines. Another new service for sports fans is direct game day service to the Meadowlands Sports Complex in New Jersey for all

New York Giants and New York Jets home football games. The trains operate via the New Haven Line, detouring over the Hell Gate Bridge and running through Penn Station to the Meadowlands using NJ Transit equipment and Metro-North crews.

Metro-North entered into a long-term lease of the Port Jervis Line tracks in New York State with Norfolk Southern in 2003, with an option to purchase it outright sometime in the future. On August 27, 2011, the Port Jervis Line was devastated by the ef-

fects of Hurricane Irene, destroying many miles of main line. Partial train service was restored by mid-September, with full service restored by the end of November.

Plans for the Future

The new East Side Access (ESA) project will connect the Long Island Rail Road through a tunnel under the East River from Queens to a separate new terminal being constructed under Grand Central Terminal (see page 28). Expected to be completed in 2019, the



RIGHT: A Metro-North BL20GH leads a southbound Danbury Branch train past Umpawaug Pond near Redding, Connecticut, on October 10, 2011. All Metro-North equipment operates as a pool that can be found running on lines in New York or Connecticut regardless of owner. **BELOW:** The density of the morning rush hour is illustrated with northbound and southbound trains passing each other at MP 4 near 125th Street. PATRICK YOUGH



ABOVE: A Meadowlands Football Special deadheads through Bridgeport, Connecticut, on its way to New Haven on September 20, 2009. The special through service is operated with NJT equipment and Metro-North crews. **LEFT:** A brand new set of CDOT M-8 cars rounds the bend past the old Life Savers candy plant in Port Chester, New York, on their first day of service on March 1, 2011. **BOTTOM:** A P32 hustles a Hudson Line train north out of Breakneck Tunnel along the Hudson River near Cold Spring, New York, amidst blazing fall colors on October 28, 2004. PATRICK YOUGH

ESA project is expected to shorten the commute for LIRR passengers destined for midtown Manhattan, as well as increase the railroad's overall capacity.

Metro-North is also studying the possibility of reinstating service in the East Bronx and running some New Haven Line trains over Hell Gate Bridge into Penn Station. Similar proposals have been made to add stops on the West Side of Manhattan, having Hudson Line trains use Amtrak's Empire Connection (the remnants of New York Central's West Side Freight Line) for access to Penn Station.

In the last 30 years, Metro-North has evolved from a transportation crisis into a vital resource that has been internationally recognized for its innovations. Thanks to intensive capital investment and a focus on customer service, Metro-North is truly a New York success story. ■

The author wishes to thank the following people for their assistance in preparing this article: John Alderucci, Lew Catone, Art Deeks, John Scala, Josh Weis, Ron Yee, Pat Yough, Walt Zullig, and all of the men and women of Metro-North Railroad who contributed to its success.

