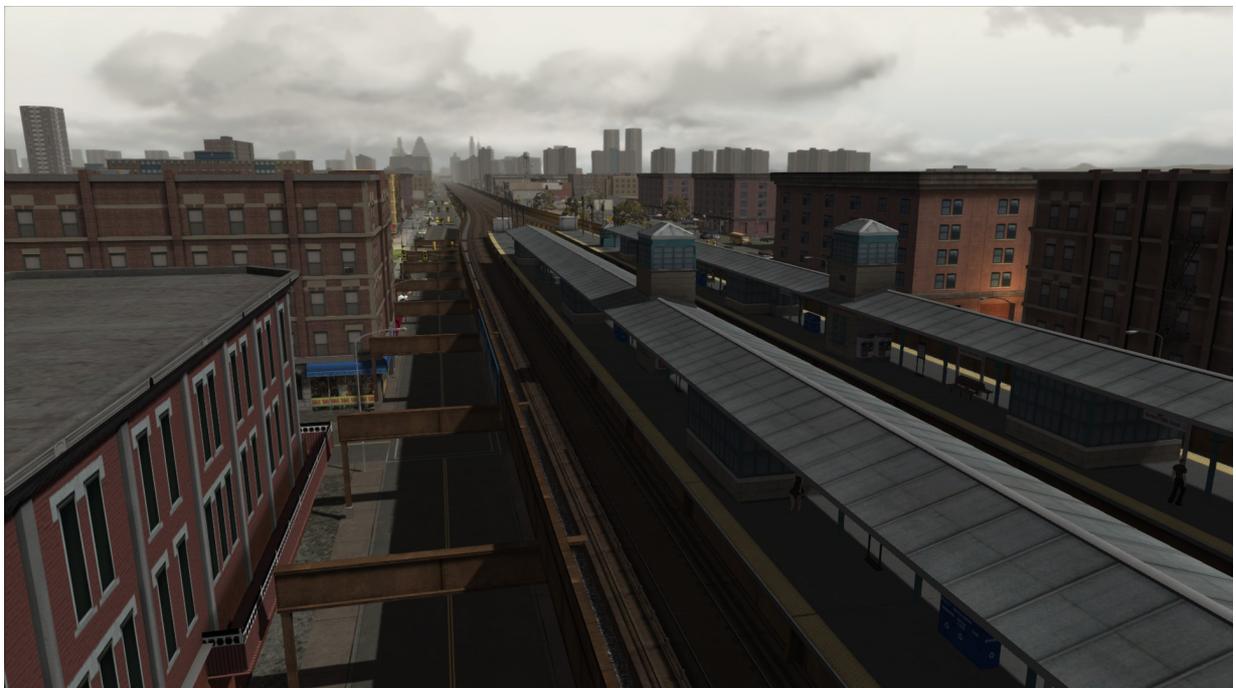




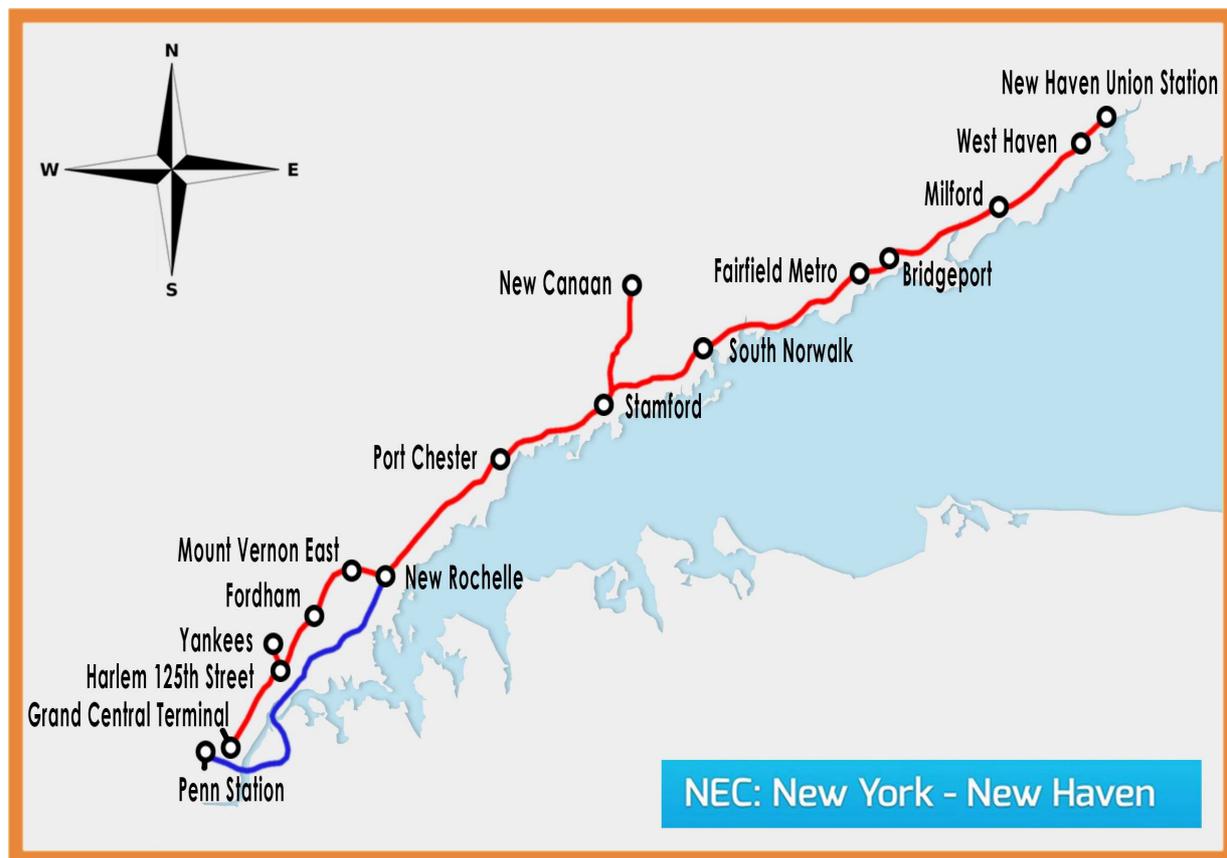
dovetail
GAMES

New York to New Haven



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1 Route Information



History

The original line from New York to New Haven was completed in 1849, and commuters started using the trains soon afterwards using steam hauled trains.

In the early twentieth century, the line was electricified and steam locomotives were replaced. The line was part of the “New York and New Haven Railroad”, and after 1872, the “New York, New Haven and Hartford Railroad”, which had trackage rights over the New York Central Railroad's “New York and Harlem Railroad” into Grand Central.

Penn Central, the Metropolitan Transportation Authority and the states of New York and Connecticut agreed on 25th November 1969, that New York would buy it's section of the line and Connecticut would lease it's section as far as New Haven. The acquisition was completed on 1st January 1971.

After Penn Central went bankrupt, the Consolidated Rail Corporation took over operations, until Metro-North was formed in 1983. Metro-North began a programme of rebuilding the railroad by upgrading rolling stock, signalling, ties, roadbeds, and tracks.

The Line Today

Metro-North Railroad's New Haven Line runs from New Haven, Connecticut, southwest to Mount Vernon, New York. There it joins the Metro-North Harlem Line, where trains continue south to Grand Central Terminal in Manhattan. The line is owned by Metro-North from Mount Vernon to the New York-Connecticut border. From the state line to New Haven, the right of way is owned by the Connecticut Department of Transportation (ConnDOT).

In addition to Metro-North trains, Amtrak operates out of New York Penn Station with services such as the Northeast Regional and the Acela Express using the line between Penn, through New Rochelle to New Haven.



The route presented here includes the lines out of both Penn and Grand Central Terminal to New Rochelle then onwards to New Haven. Also included are the spur to Yankees stadium and the New Canaan branch line which begins just east of Stamford.

2 Amtrak ACS-64

2.1 Loco Information



The Amtrak Cities Sprinter or ACS-64 is an electric powered locomotive built by Siemens for Amtrak. The ACS-64 was designed to replace Amtrak's existing fleet of AEM-7 and HHP-8 locomotives on the Northeast Corridor and Keystone Corridor. The first ACS-64, numbered 600, entered service on 7th February 2014, with 70 units ordered. Deliveries of the locomotive will last until 2015 at the rate of 3 per month.

They are able to operate from the 25 kV 60 Hz, 12.5 kV 60 Hz, and 12 kV 25 Hz power supplies used on the Northeast Corridor, and have a maximum power of 6,400 kilowatts (8,600 hp). The locomotives are capable of accelerating 18 Amfleet cars to a maximum speed of 125 mph in a little over eight minutes, with trains of eight Amfleets taking two and a half minutes to reach the same speed. ACS-64s have advanced safety systems, such as specialized couplers designed to keep trains from rolling over or derailing during a collision.

2.2 Design & Specification

Builder	Siemens
Locomotive Weight	215,537lb (97.766 t)
Vehicle Length	66ft 8in (20.32m)
Total Built	70
Vehicle Power	8,600 Hp (Maximum), 6,700 Hp (Continuous)
Top Speed	125 MPH

3 Additional Rolling Stock

3.1 CSX SD40-2



Introduced between 1972 and 1986, General Motors Electro-Motive Diesel (EMD) produced the SD40-2 as a 3,000 horsepower model as an upgrade from the SD40. Although not as powerful as some rival locomotives in the same Class, the SD40-2 features modular electronic control systems, making it significantly more reliable and economical than its competitors.

With almost 4,000 units built for 29 Railroad companies, the SD40-2 is one of the best selling locomotives of all time. The British Class 59 is even derived from the processes and experience learned from the SD40-2.

The SD40-2 shares the same basic superstructure as the SD38-2as it uses the same 16-645E3 engine (with turbo charging modifications). The Dash 2's (-2) also have longer front and rear 'porches' than other models, making for distinguishing features when comparing locomotives. Another alteration from previous designs is the three radiator grilles mounted on the roof, where previously there were only two.

4 Driving the ACS-64

4.1 Cab Controls



Train Simulator – New York to New Haven

1	Cab Light	12	Sander
2	Desk \ Console Light	13	Headlights
3	Pantograph control	14	Ditch lights
4	Acknowledge	15	Bell
5	Combined throttle/brake	16	Horn
6	Reverser		
7	Information Screen		
8	Cab signal system		
9	Auto brake handle		
10	Independent brake handle		
11	Wipers		

5 Scenarios

The following scenarios are provided as part of the New York to New Haven Pack:

5.1 Tutorial Scenarios:

Training: ACS-64 – Expert Controls

Learn to drive the ACS-64 using expert controls.

Training: ACS-64 – Simple Controls

Learn to drive the ACS-64 using simple controls.

5.2 Career Scenarios:

1. 66 Northeast Regional to New Haven: Part 1

Enjoy the first part of a full length run on this route. Don't worry, the lines are quiet and you are clear all the way to Stamford. Don't forget to try the second part afterwards.

2. 66 Northeast Regional to New Haven: Part 2

Now that you have arrived at Stamford and had your break, it's time to continue the journey to New Haven. The lines are starting to get a bit busier too.

3. 55 Vermonter to Bridgeport

Work a short trip from New Haven to Bridgeport to keep services on time.

4. 55 Vermonter to Stamford

You join a southbound service for New York, but worsening weather is becoming a concern.

5. Sunnyside Balloon

A train from Washington has terminated here. In preparation for the return journey turn the train to head south by running around the Sunnyside Balloon track and returning to Penn Station.

6. Vermonter to New York Penn

You are driving the Vermonter service to New York Penn, stopping at New Rochelle. Snow has caused delays and you have been held at a signal near Rye. Hopefully you won't be delayed for much longer.

5.3 Quick Drive:

In addition, the New York – New Haven route is set up to use Quick Drive, where you have the freedom to pick a start and end location, time and season and drive any compatible train you own.

6 In-Cab Signalling and Alerts

Locomotives on the New York to New Haven route feature in-cab signalling systems. The image below shows the in-cab display for the ACS-64. Visually the display may vary for other locomotives but the principle remains the same.

Alerter - Alerts the user to react if they don't touch controls for 60 seconds. Cancel the alarm by pressing Q or the "!" icon on the HUD.



Cab Signal Aspect: The aspect of the section you are in now.

Maximum Authorised Speed: You should drive according to the maximum allowed speed displayed on the cab signalling display. This takes in to account the current track speed and any restrictions imposed by the signalling and shows the lowest speed as your maximum.

Time to Penalty: Time to react until emergency brake application.

If you enter a new block and it has a reduced aspect (e.g. going from Normal to Limited) then the following happens and must be done by the engineer:

1. An alarm will go off in the cab
2. The cab signalling will update to reflect the new maximum allowed speed limit and confirm what the new aspect is.
3. If the train is within the MAS (Maximum Allowed Speed) then the engineer must simply press the ACKNOWLEDGE button (Q key) within 8 seconds.
4. If the train is above MAS then the engineer must zero the throttle, move the brakes to the SUPPRESSION notch and then press ACKNOWLEDGE within 8 seconds.

(Note: It is not required to be within the speed limit during the 8 seconds, it is only required that the engineer has confirmed to the ATC system that they acknowledge the reduction in aspect and have taken appropriate action to comply with it.)

If the engineer moves the brake back out of suppression while still being above MAS then the alarm will sound again and the same procedure must be followed.

Failure to acknowledge correctly within 8 seconds means the brakes will go to full service application - however, the engineer can apply the same procedure as above and they will be able to regain control of the train without having to stop.

Once the train is under the new MAS the engineer can simply release the brakes and apply throttle as required.

Speed increase alert - This alarm is a small audio ping as a notification that your signal speed limit has increased. Note - this only applies to SIGNAL speed limits, not track speed limits. Currently you can only see this working if you have the control state dialog visible, there's nothing on the cab to indicate it.

The maximum speed allowed indicator on the in-cab signal panel shows whatever the fastest you're allowed to go at the moment is - so if you're in a "limited" signal restriction then it will show 45mph even if the track speed is 70mph. Once that limited signal restriction is lifted up to a normal, it will then show track speed of 70mph. You can reliably use the "Maximum Authorised Speed" value to see what your maximum permitted speed is at any given time.

Disabling the Alerts –

If the player does not want ALERTER functionality, they can press CTRL-F to toggle ACSES Cut-out, this will actually toggle the alerter. This was used as there is UI on the cab signalling to remind the user what the setting is.

If the player does not want ALERTER OR ATC alarm and penalty brake functionality then they can press CTRL-D to toggle ATC Cut-out. In this case the cab signalling will still function, it just won't pester you with alarms or brake applications.

To quickly get to the SUPPRESSION notch on the brakes, the engineer can press SHIFT-'

SD40-2 In- Cab Signalling and Alerts -

The in-cab signalling and alerts is similar to the ACS-64 with the following small differences:

The cab signalling only displays the aspect, it does not display the speed limit, the engineer is expected to know this information. Cab signalling is displayed on a pillar at the top of the front panel in the center of the cab.

Because freight trains are less tolerant of penalty brake applications, ATC and Alerter functionality on them is used to alert the engineer but will not apply penalty brakes.

For the ATC, if the train is over the MAS then an alarm will sound - follow the procedure above and it will clear the alarm. The alarm will continue to be sounded no matter what you do unless you are braking correctly or under the MAS.

Additional:

The SD40-2 has the updated air brake functionality that was debuted on the Canadian Pacific route and must be driven accordingly.

The SD40-2 also implements flashing ditch lights that are triggered by sounding the horn, they remain flashing for 30 seconds after the last horn usage.

7 Wayside Signalling

The following wayside signals are used on the Amtrak (New York Penn to New Rochelle) section of the route:

Signal Name	Wayside Signal	Description
CLEAR		Proceed not exceeding line speed.
CAB SPEED		Proceed not exceeding indicated cab speed. If cab speed indication is not available do not exceed 60mph.
APPROACH LIMITED		Slow to 45mph.
LIMITED CLEAR		Proceed not exceeding 45mph, until rear of train clears interlocking.
APPROACH MEDIUM		Slow to 30mph.
ADVANCE APPROACH		Slow to 45mph. Be prepared to stop at the signal after next.
MEDIUM CLEAR		Proceed not exceeding 30mph, until rear of train clears interlocking.
APPROACH SLOW		Slow to 30mph. Be prepared for restricting at the next signal.

Signal Name	Wayside Signal	Description
APPROACH		Slow to 30mph. Be prepared to stop at the next signal.
MEDIUM APPROACH		Proceed not exceeding 30mph. Be prepared to stop at the signal after next.
SLOW APPROACH		Proceed not exceeding 30mph. Be prepared to stop at the next signal.
RESTRICTING		Slow to 20mph, or 15mph for yard entry, until rear of train clears interlocking.
STOP AND PROCEED		Stop, Then proceed not exceeding 20mph. Be prepared to stop for any obstruction.
STOP		Stop.

Metro-North Wayside Signals:

Grand Central Terminal to New Haven via New Rochelle is Metro North signalling. These signals either show two red lights on solid - which means STOP do not proceed, or they show a single flashing green light. The latter means follow the cab signalling.

There are far fewer visible signals in the Metro North area, however there are many signal blocks present between these visible signals. The visible signals generally protect interlockings such as junctions and are the ONLY way to instruct the train to stop - the cab signalling can only reduce the train to 15mph - even if there is a train in the section ahead.

It is important to note that if the engineer finds themselves reduced to a 15mph Restricting aspect then they are expected to a) comply with that speed restriction, but also b) to proceed carefully observing visually the state of the line in front of them and be prepared to stop before any obstruction (such as another train).

8 Acknowledgements

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