Higher @-@ speed rail

Higher @-@ speed rail (HrSR) , also known as high @-@ performance rail , higher @-@ performance rail , or almost @-@ high @-@ speed rail , is a jargon used to describe inter @-@ city passenger rail services that have top speeds of more than conventional rail but are not high enough to be called high @-@ speed rail services . The term is also used by planners to identify the incremental rail improvements to increase train speeds and reduce travel time as alternatives to larger efforts to create or expand the high @-@ speed rail networks . Some countries use the term medium @-@ speed rail , or semi @-@ high speed rail instead .

Definitions

As with the definitions of high @-@ speed rail , there is no universal definition of higher @-@ speed rail either . The term has been used by government agencies , government officials , transportation planners , academia , the rail industry , and the media , but sometime with overlaps in the speed definitions . Some countries with an established definition of higher @-@ speed rail include :

In Canada , according to the Surface Transportation Policy , Department of Transport , the speed range for higher @-@ speed rail is between 160 and 240 km / h (99 and 149 mph) .

In India , according to the Minister of Railways , the speed range for India 's higher @-@ speed rail will be between 160 and 200 km / h (99 and 124 mph) .

In Indonesia , the government is considering higher @-@ speed rail options , referred to as medium @-@ speed railway . The speed range is between 200 and 250 km / h (120 and 160 mph)

In the United Kingdom , the term higher @-@ speed rail is used for upgraded tracks with train speeds up to 125 mph (201 km / h)

In the United States , the term " higher @-@ speed rail " , as opposed to " high @-@ speed rail " , is used by regional planners in many U.S. states to describe inter @-@ city passenger rail services with top speeds of between 90 mph (140 km / h) and 110 mph (180 km / h) . This is the equivalent of the definition of " Emerging High @-@ Speed Rail " as defined by the Federal Railroad Administration . However , the Congressional Research Service defines " Higher Speed Rail " as rail services with speeds up to 150 mph (240 km / h) and defines rail services on dedicated tracks with speeds over 150 mph (240 km / h) as " Very High Speed Rail " .

State @-@ level departments of transportation and council of governments may use different definitions . Below is the list of known definitions of higher @-@ speed rail which use some of the 5 speed levels , 80 mph (130 km / h) , 90 mph (140 km / h) , 110 mph (180 km / h) , 125 mph (200 km / h) and 150 mph (240 km / h) :

In Thailand , higher @-@ speed rail , which is called medium @-@ speed rail there , has top speeds of up to 250 km / h (160 mph) .

Speed limits

In Canada , the assumption about grade crossing is that operating higher @-@ speed rail services between 160 and 200 km / h (99 and 124 mph) would require " improved levels of protection in acceptable areas " .

In the United States , railroad tracks are largely used for freight with at @-@ grade crossings . Passenger trains in many corridors run on shared tracks with freight trains . Most trains are limited to top speeds of 79 mph (127 km / h) unless they are equipped with an automatic cab signal , automatic train stop , automatic train control or positive train control system approved by the Federal Railroad Administration (FRA) . In developing higher @-@ speed rail services , one of those safety systems must be used .

Additionally , the FRA establishes classification of track quality which regulates the speed limits of the trains with Class 5 , Class 6 , Class 7 and Class 8 for top speeds of 90 mph (140 km / h) , 110 mph (180 km / h) , 125 mph (200 km / h) and 160 mph (260 km / h) , respectively . The FRA also regulates passenger train design and safety standards to ensure trains that operate at speeds of 80 mph (130 km / h) up to 125 mph (200 km / h) comply with its Tier I standard and trains that operate at speeds up to 150 mph (240 km / h) comply with its Tier II standard .

Another limitation is the safety of grade crossings which limits how fast the trains can go . FRA regulations set speed limits for tracks with grade crossings as follows :

For 110 mph (180 km / h) or less : Grade crossings are permitted . States and railroads cooperate to determine the needed warning devices , including passive crossbucks , flashing lights , two quadrant gates (close only ' entering ' lanes of road) , long gate arms , median barriers , and various combinations . Lights and / or gates are activated by circuits wired to the track (track circuits) .

For 110 to 125 mph (180 to 200 km / h) : The FRA permits crossings only if an " impenetrable barrier " blocks highway traffic when a train approaches .

Above 125 mph (200 km / h) : No crossings will be permitted .

In Europe , the limit is often 160 km / h (99 mph) over grade crossings . In Sweden there is a special rule permitting 200 km / h (120 mph) if there are barriers and automatic detection of road vehicles standing on the track . In Russia 250 km / h (160 mph) is permitted over grade crossings .

With the above limitations , many regional transportation planners focus on rail improvements to have the top speeds up to 110 mph when proposing a new higher @-@ speed rail service .

= = Similar categories = =

In countries where there had been rail improvement projects in the later part of the 20th century and into the 2000s , there are inter @-@ city rail services with comparable speed ranges of higher @-@ speed rail , but they are not specifically called " higher @-@ speed rail " . Below are some examples of such services that are still in operation .

Europe : The InterCity services in many European countries have top speeds of mostly up to 160 km / h (99 mph) , but it can go up to 200 km / h (120 mph) Intercity trains that cross international borders are usually designated as Eurocity and reach similar speeds where tracks allow it .

Japan : The Mini @-@ shinkansen in Japan are upgraded lines from narrow gauge to allow Shinkansen to pass through with top speeds of 130 km / h (81 mph) . However , the International Union of Railways recognizes the Mini @-@ shinkansen lines as high @-@ speed rail .

Spain : Many inter @-@ city rail services operated by Renfe Operadora , the state @-@ owned company , are not classified as high @-@ speed rail . Those services are Alaris , Altaria , Arco and Talgo (from Talgo III to Talgo VII) with top speeds of 160 and 200 km / h (99 and 124 mph)

In Norway , there is sometimes talked about høy hastighet , which may be compared to higher @-@ speed rail as used here ? and høyhastighet , high @-@ speed rail . Most of the rail network is old , with sharp curves , and speeds at only 70 ? 130 km / h . The lines around Oslo are upgraded or renewed , or are planned to be so . Some of the sections , like Follobanen (Oslo ? Ski , 22 km) , are built or planned for 250 km / h ? though others to høy hastighet , i.e. 160 or 200 km / h . By the same token , the Norwegian FLIRT trains and the El 18 locomotives have a top speed at 200 km / h . Gardermobanen is called a high @-@ speed line , and the GMB Class 71 and NSB Class 73 are often called high @-@ speed trains ? with 210 km / t top speed . However , the limits are blurry . Sometimes , e.g. the FLIRTs are called high @-@ speed trains .

Sweden : SJ (Swedish Railways) operates inter @-@ city rail services using X 2000 trains in major routes across the country with top speeds of 200 km / h (120 mph) . The operator brands it as high @-@ speed rail services ; however , the International Union of Railways only recognizes the 300 km / h (190 mph) line from Stockholm to Malmö and Göteborg as the only high @-@ speed rail line in Sweden which is still in the planning stage .

In Germany regional trains along the Munich @-@ Nuremberg high speed line which was built for 300 km / h run at 200 km / h without being specially designated . Those trains use locomotives that are used for Intercity trains elsewhere and the higher speed was chosen mainly to increase capacity .

= = Rail improvement strategies = =

There are many types of train that can support higher @-@ speed rail operation . Usually , the rail infrastructure needs to be upgraded prior to such operation . However , the requirements to the infrastructure (signalling systems , curve radii , etc .) increase much with higher speeds , so an upgrade to a higher @-@ speed standard is often much simpler and less expensive than building new high @-@ speed lines . But an upgrade to existing track currently in use , with busy traffic in some segments , makes challenges associated with the construction work that could potentially disrupt the train services . The followings are some strategies used by regional transportation planners and rail track owners for their rail improvement projects in order to start the higher @-@ speed rail services .

= = = Signal upgrades = = =

In Australia , the increased top speeds from 130 to 160 km / h (81 to 99 mph) in the Regional Fast Rail project required a change to the signalling system to account for increased braking distance . Prior to the project , the system comprised a mixture of equipment from pre @-@ WWI mechanical signalling to the remote control systems of the 1980s . In some cases , operators needed to telephone the local operators to manually control the signal boxes . With the new speeds , the signalling needed to be computerized . The project employed the Solid State Interlocking with the newly laid fiber @-@ optic communication between the components to use three computer systems to control the signals . When the output of one computer differs from the other two , the system will fail that computer and continue the signal operations as long as the outputs from the other two computers are consistent . The project deployed the Train Protection & Warning System which allows the system to automatically applies the brakes at a sufficient distance to stop the train if the driver does not control the speeds adequately . The project also incorporated Train Control and Monitoring System to allow real @-@ time monitoring of the position of trains .

In the United States , the first step to increase top speeds from 79 mph (127 km / h) is to install a new signal system that incorporates FRA @-@ approved positive train control (PTC) system that is compatible with higher @-@ speed rail operation . There are both transponder @-@ based and GPS @-@ based PTC systems currently in use in the United States . By a mandate , a significant portion of the railroads in the United States will be covered by PTC by the end of 2015 .

= = = Track improvements = = =

To support trains that run regularly at higher speeds , the rails need to be reliable . Most freight tracks have wooden ties which cause rails to become slightly misaligned over time due to wood rot , splitting and spike @-@ pull (where the spike is gradually loosened from the tie) . The concrete ties used to replace them are intended to make the track more stable , particularly with changes in temperature . Rail joints are also an issue , since most conventional rail lines use bolts and fishplates to join two sections of the rail together . This causes the joint to become slightly misaligned over time due to loosening bolts . To make for a smoother ride at higher speeds , the lengths of rail may be welded together to form continuous welded rail (CWR) . However , the continuous welded rails are vulnerable to stress due to changes in temperature .

In Australia , the track condition before the Regional Fast Rail project could only support trains up to speeds of 130 km / h (81 mph) . The tracks are with mixture of wooden and concrete ties . The rail weight varies but with majority being 47 kg / m (95 lb / yd) . The track upgrade in the project included changing to use concrete ties and to use new standard of rail weight at 60 kg / m (121 lb / yd) in order to support the new top speeds of 160 km / h (99 mph) .

There may be restriction in maximum operating speeds due to track geometry of existing line , especially on curves . Straightening the route , where possible , will reduce the travel time by increasing the allowable speeds and by reducing the length of track . When straight routes are not possible , reducing the number of curves and lowering the degree of curvature would result in higher allowable speeds on those curves . An example is the elimination of three consecutive reverse curves in favor of one larger curve . Raising superelevation may be considered for sharp curves which significantly limit speed . The higher speeds on those modified curves , together with the higher superelevation , will require track modification to have transition spirals to and from those curves to be longer .

Old turnouts may need replacement to allow trains to run through the turnouts at higher speeds . In the United States , some old turnouts have speed limit of 20 mph (32 km / h) . Even with newer turnouts (rated # 20) , the diverging speed limit is still at 45 mph (72 km / h) which would significantly slow down the higher @-@ speed train passing through those sections . High @-@ speed turnouts (rated # 32 @.@ 7) are capable of handling maximum diverging speeds of 80 mph (130 km / h) .

In order to minimize the downtime to upgrade tracks , a track renewal train (TRT) can automate much of the process , replacing rails , ties , and ballast at the rate of 2 miles per day . In the United States , a TRT is used by Union Pacific Railroad on the track shared with future higher @-@ speed rail service in Illinois area .

For electrified track , the old catenary may need to be replaced . The fixed @-@ tension catenary which is acceptable for low speeds may not be suitable for regular higher @-@ speed rail services , where a constant tension is automatically maintained when temperature changes cause the length of the wire to expand or contract .

= = = Crossing improvements = = =

With trains running at higher speeds throughout the route , safety at all at @-@ grade crossings needs to be considered .

In Australia , the levels of upgrade of the crossing in the rail improvements project were based on the risk analysis . The improvements included flashing light protection , automatic full barriers protection , and pedestrian gates crossings . The project also introduced the use of rubber panels at the crossings .

In the United States , the FRA limits train speeds to 110 mph (180 km / h) without an " impenetrable barrier " at each crossing . Even with that top speed , the grade crossings must have adequate means to prevent collisions . Another option is grade separation , but it could be cost @-@ prohibitive and the planners may opt for at @-@ grade crossing improvements instead .

The safety improvements at crossings can be done using combination of techniques . This includes passive devices such as upgraded signage and pavement markings . Another low @-@ cost passive device is median separators which are installed along the center line of roadways , extending approximately 70 to 100 feet from the crossing , to discourage drivers from running around the crossing gates . More active devices include the four @-@ quadrant gate , which blocks both sides of each traffic lane . Longer gate arms can cover 3 / 4 of the roadway . Video cameras can also be installed to catch the violators . A signal monitoring system can also be installed to alert the crews when the crossing equipment has malfunctioned .

In Norway , grade crossings are not permitted at speeds above 160 km / h .

= = = Rerouting and passing sidings = = =

In areas where there is frequent interference between freight and passenger trains due to congestion which causes the passenger trains to slow down , more extensive improvements may be needed . Certain segments of the line in congested areas may need to be rerouted . New track may need to be laid to avoid many curves which slow down the trains . In stretches of heavy freight train traffic , adding passing sidings along the segment should be considered . Sometimes certain stations may need to be bypassed .

= = = Electrification = = =

Another consideration is electrification . Electrifying a railway line entails a major upgrade to the rail infrastructure and equipment . On the infrastructure side , it requires catenary lines to be built above the tracks . New transmission lines are needed to carry power from the power plants . Substations are required for each of the 40 @-@ mile (64 km) lengths to reduce severe voltage losses . There is also a need to consider the required amount of power supply and new power plants may be required . For locomotives , new electric locomotives are needed or existing diesel @-@ electric locomotives can be retrofitted into all @-@ electric locomotives , but it is a complicated task . These factors cause electrification to have high initial investment costs . The advantages of all @-@ electric locomotives are that they provide quieter , cleaner and more reliable operations than the diesel @-@ electric counterpart . The fuel consumption , locomotive maintenance costs and track wear of all all @-@ electric locomotives are also lower . Furthermore , electric traction makes the operator more independent of oil price fluctuations and imports , as electricity can be generated from domestic resources or renewable energy . This was a major consideration in the electrification of the GDR network , as lignite (and therefore electricity) was cheap and plentiful domestically whereas oil had to be imported at world market prices .

An alternative to catenary lines is to use a third rail system which has a semi @-@ continuous rigid conductor placed alongside or between the rails of a railway track . However the operating speeds of this type of systems cannot be greater than 100 mph (160 km / h) due to its limitation of the power supply gaps at turnouts and grade crossings . Therefore , the third rail system is not generally used for higher @-@ speed rail .

One example in the United States that does involve electrification is the Keystone Improvement Project to provide higher @-@ speed rail service along the Harrisburg @-@ Pittsburgh segment of the Keystone Corridor in Pennsylvania . The plan includes additional track , a new signal system and electrification . If completed as planned , this would allow Amtrak to utilize electric power continuously on service from Philadelphia to Pittsburgh . The first segment (" Main Line ") has already been using electric locomotives with a top speed of 110 mph (180 km / h) .

= = In operation = =

= = = Australia = = =

In 1999 , the concept of Regional Fast Rail project was initiated by the State Government of Victoria with a goal to provide express higher @-@ speed rail services between 4 main regional centres of Victoria (Geelong , Ballarat , Bendigo and the Latrobe Valley) and Melbourne . The initiative included a key component to upgrade rail infrastructure to have top speeds up to 160 km / h (99 mph) . The development phase of initiative was between 2000 and 2002 . Finally , the services on four lines began between 2005 and 2006 with top speeds of 160 km / h using VLocity trains . Additionally , Queensland Rail 's Tilt Train and Transwa Prospector are considered to be higher @-@ speed rail .

= = = China = = =

In China , the higher @-@ speed railways are the railways that are not officially categorised as high @-@ speed rail , but capable to have CRH EMUs run on it with top speed ranging from 140 km / h (for shorter distance regional rail lines) to 250 km / h (for long @-@ haul lines) . The higher @-@ speed trains have the identifiers starting with D (for long @-@ distance trains) , or C (for regional rail trains) , while high @-@ speed rail trains have identifiers starting with G (which is the first letter for high @-@ speed rail in Chinese)

= = = Greece = = =

Since 1997 , ongoing construction to upgrade and built higher @-@ speed lines capable of speeds of up to 200 km / h (120 mph) is conducted . The P.A.Th.E. Plan (Patras @-@ Athens @-@

Thessaloniki @-@ Evzonoi) , as it is called aims at reduced journey times between Greece 's main cities (Athens , Thessaloniki and Patra) as well as an improved rail connection between Greece and the Former Yugoslav Republic of Macedonia . Currently , only the modernized lines of Domokos ? Thessaloniki , Athens Airport ? Kiato , and Thessaloniki ? Strymonas are in operation at maximum speeds of 160 km / h (99 mph) .

= = = United States = = =

This is the list of the current higher @-@ speed rail services from the East Coast to the West Coast :

Brightline is a Florida @-@ based company building a higher @-@ speed rail line that will connect Orlando and Miami by the end of 2017 . It will have stops in Fort Lauderdale and West Palm Beach with speeds up to 125 mph . When completed it will be the first Inter @-@ city rail not handled by Amtrak in the U.S. since 1983 when the Denver and Rio Grande Western Railroad discontinued its Rio Grande Zephyr .

= = Earlier attempts = =

= = = Canada = = =

There have been several different attempts at higher speed rail in the Windsor @-@ Quebec City Corridor , and several high speed rail attempts as well .

= = = Hong Kong = = =

The East Rail , the Tung Chung Line and the West Rail , which connect satellite cities in the New Territories with the city centres in Kowloon and Hong Kong , along with the Ma On Shan Line which branches off from the East Rail , are all equipped with train @-@ sets which are capable to run at 140 km / h (90 mph) .

= = = Ireland = = =

In 2010 , there was a report commissioned by the Chartered Institute of Logistics and Transport as a mid @-@ term review of Transport 21 , an Irish infrastructure plan announced in 2005 . The report recommended , among other things , a development of national rail to provide higher @-@ speed rail services . However , there have been no progress toward the recommendation .

= = = United States = = =

There have been long @-@ range visions to establish high / higher @-@ speed rail networks in different regions of the United States but without adequate funding . During the American Recovery and Reinvestment Act of 2009 , there was a surge of interest to apply for grants from the federal government to start those projects . However , many proposals have been put on hold or cancelled after failing to secure funding or support from the public or key local politicians .

= = = = Amtrak Cascades = = = =

Amtrak Cascades , a 467 @-@ mile (747 km) intercity rail service , stretches from Eugene , Oregon , through the State of Washington to Vancouver , British Columbia , in Canada . As of 2010 , the long @-@ term goal of this corridor was to have the top speeds of the segment of Eugene , Oregon , to Blaine , Washington , with top speeds in the 90 to 120 mph (140 to 190 km / h) range , and eventually 150 mph (240 km / h) on a dedicated track . However , as of 2012 , the Washington

State Department of Transportation plans for its 300 @-@ mile (480 km) stretch to have top speeds of only 79 mph (127 km / h) , and the plan in Oregon is to limit the speeds to 79 mph as well , with safety and other freight service concerns voiced by the track owner , Union Pacific Railroad . This essentially halts the plan to provide a higher @-@ speed rail service on this corridor in the near future .

= = = = Minnesota = = = =

The Northern Lights Express project , in the planning stages and proposed to begin construction in 2017 , would upgrade the BNSF trackage between Minneapolis and Duluth to support service up to 90 mph (140 km / h) .

Other higher @-@ speed rail proposals are periodically considered , but would need to pass through neighboring states , which have thus far not agreed to cooperate . Minnesota transportation planners proposed a higher @-@ speed rail service called the River Route , with top speeds of 110 mph (180 km / h) , between Minneapolis ? Saint Paul , Minnesota , and Chicago , Illinois , via Milwaukee , Wisconsin , which follows the Empire Builder route . There is no current progress with the River Route project due to the cancellation of the funding in Wisconsin .

Another alternative that has been discussed is to have a new route that heads south to Iowa to join the rail link from Iowa to Chicago . There was a report in 2011 that Iowa would halt its involvement in high / higher @-@ speed rail projects . However , the Iowa Department of Transportation and Illinois Department of Transportation continue to pursue the study of rail link between Chicago and Omaha , Nebraska , through Iowa with top speeds of 110 mph (180 km / h) . Therefore , the status of the proposal to link Minneapolis ? Saint Paul with Chicago via Iowa is unknown .

= = = = New York = = = =

In 1998 , New York State initiated a $ 185 million program in partnership with Amtrak to increase the speeds of the Empire Service to 125 mph (200 km / h) by reconstructing all seven gas @-@ turbine Turboliner trainsets , originally built in 1976 ? 1977 , to the new RTL @-@ III specification . The reconstructed trains , coupled with track improvements , would cut the travel time between New York City and Albany by 20 minutes . However , the project ran into many problems including issues with the trains and the unsuccessful implementation of required track improvements . New York ended the rehabilitation program in 2005 after spending $ 70 @.@ 3 million . Fallout over the program led to litigation between New York and Amtrak ; Amtrak would eventually pay New York $ 20 million and commit to funding $ 10 million in track improvements . New York auctioned off its surplus Turboliners in 2012 for $ 420 @,@ 000 .

= = = = Ohio = = = =

The Ohio Hub , a rail improvement project proposed by the Ohio Department of Transportation , is aimed at revitalizing passenger rail service in the Ohio region . The proposal was to increase the top speeds to 110 mph (180 km / h) in the network connecting Cleveland , Columbus , and Cincinnati ? commonly referred as the 3 @-@ C corridor . The project is currently in an unknown state after the U.S. government rescinded the federal funding from Ohio and redirected it to other states .

= = = = Wisconsin = = = =

In October 2009 , the Wisconsin Department of Transportation adopted the Connections 2030 plan which is the long @-@ range plan for state transportation needs . The plan includes Wisconsin Rail Plan 2030 , the twenty @-@ year plan to improve the state railroad system by 2030 . In the rail plan , there is a multi @-@ phase project to upgrade the rail service from Chicago , Illinois , to Milwaukee and Madison , Wisconsin , with top speeds of 110 mph (180 km / h) . The latter phases of the project will expand the same service to Minneapolis ? Saint Paul in Minnesota and another route to

Green Bay , Wisconsin . There was a reaction against the project in 2010 , and the $ 810 million grant the state originally received for the project from the federal government was rescinded . As of 2012 , the rail plan is postponed indefinitely .

Current efforts

Baltic states

The three Baltic states have been working with the European Union as part of the Trans @-@ European Transport Networks (TEN @-@ T) initiative on a study to build a higher @-@ speed rail line in the Rail Baltica corridor to connect Warsaw , in Poland , and Tallinn , in Estonia .

Canada

For a rail route to connect Windsor , Ontario to Detroit , Michigan in the United States , a higher @-@ speed rail plan was proposed as an alternative after a study on the Windsor to Quebec City route in Canada was to consider only high @-@ speed rail with top speeds of 200 km / h (124 mph) or more . Politicians in Windsor area proposed in 2012 that having higher @-@ speed rail connection between Windsor and Detroit must be part of the consideration .

Another feasibility study is ongoing as part of the Northern New England Intercity Rail Initiative to connect between Boston and Montreal trains at top speeds of 90 mph (140 km / h) .

Greece

A project to modernize railway network in Greece is ongoing . A new 106 km (66 mi) alignment between Tithorea and Domokos is designed to avoid the mountainous part . The new line will have speeds of 160 and 200 km / h (99 and 124 mph) .

India

In October 2013 , the Minister of Railways announced at the two @-@ day international technical conference on High Speed Rail Travel ; Low Cost Solution that the focus of India 's rail improvement is to implement a lower cost solution to meet the immediate needs by providing higher @-@ speed rail services as an incremental step before the dedicated track high @-@ speed rail can be achieved . India 's higher @-@ speed rail will be in the range of 160 and 200 km / h (99 and 124 mph) . On 3 July 2014 , a trail run with the new top speeds of 160 km / h (99 mph) was successfully completed on a journey of 200 km (120 mi) between Delhi and Agra . The new service , to be in operation in March 2016 , will cut the travel time from 126 minutes by the current trains with top speeds of 160 km / h (99 mph) down to 99 minutes .

Indonesia

Before September 2015 , Indonesia had a plan to build its first high @-@ speed rail between Jakarta and Bandung . There were biddings from China and Japan to build the new rail line . However , on September 4 , 2015 , the government of Indonesia announced the cancellation of the project . The Coordinating Minister for the Economy gave the reason that the distant between the two cities is only 150 km (93 mi) . The short distant would make it hard to sustain the top speeds of 300 km / h (190 mph) which would not justify the high construction cost to build a high @-@ speed rail line . The government now has a focus on medium @-@ speed railway between the two cities which will be in the range of 200 and 250 km / h (120 and 160 mph) .

Thailand

The Government of Thailand considers a plan to build out its high @-@ speed rail corridors . As an alternative to the high @-@ speed trains , the government also considers medium @-@ speed trains with top speeds of 250 km / h (160 mph) .

= = = United States = = =

This is a partial list of ongoing higher @-@ speed rail projects from the East Coast to the West Coast .
* The study includes higher @-@ speed rail alternatives with top speeds of 90 (options A and B) , 110 and 125 mph . It also has high @-@ speed rail options with top speeds of 160 and 220 mph . As of March 2012 , the Tier 1 EIS has eliminated the high @-@ speed rail options . The only 4 build alternatives are in higher @-@ speed rail range . The numbers on the table represent the 125 mph alternative . The other alternatives are for non @-@ electrified track with average speeds of 57 mph (for 90A option) , 61 (for 90B option) , and 63 (for 110 option) .
* * The study includes two main alternatives for higher @-@ speed rail . The first alternative is called Shared Use with top speeds of 90 @-@ 110 mph . The second alternative is called Hybrid High Performance with top speeds of 130 mph . There are also high @-@ speed rail alternatives in the same study with top speeds of 180 @-@ 220 + mph . The numbers on the table represent the first two higher @-@ speed rail alternatives .
* * * The study includes higher @-@ speed rail up to 110 mph and high @-@ speed rail of 150 + mph options .

= = = = Proposed routes = = = =

In addition to ongoing projects , there are proposed routes that have not reached the feasibility study stage yet . In Pennsylvania , a rail advocacy group started fund raising efforts in 2014 to obtain $ 25 @,@ 000 for a preliminary study and additional $ 100 @,@ 000 for feasibility study of the route from Erie to Pittsburgh . The proposal is for 110 mph (180 km / h) express train services to directly link the two cities . An alternative is to have intermediate stops in Ohio cities including Ashtabula , Warren , and Youngstown before heading back to New Castle , Pennsylvania .
In Ohio , a rail advocacy group works with local political leaders in Ohio , Indiana and Illinois to consider a higher @-@ speed rail line from Cincinnati to Chicago . This is in response to another advocacy group in Indiana that gained funding for the Columbus , Ohio ? Fort Wayne ? Chicago route that is already in feasibility study stage . The group persuaded the Hamilton County government in Ohio to advocate for the study . The county commissioners unanimously voted in September 2014 to pursue a feasibility study . As a possible route that goes through the states of Kentucky and Indiana , the county expects that Ohio @-@ Kentucky @-@ Indiana Regional Council of Governments will help fund a feasibility study .
In Michigan , a feasibility study sponsored by an environmental group is in progress for a new rail line between Detroit and Grand Rapids . The proposal is to have trains running at speeds between 79 and 110 mph (127 and 177 km / h) . The state transportation department is interested in the study but is not ready to move beyond this study .
In Texas , the East Texas Corridor Council proposed a higher @-@ speed rail route between Longview and Dallas . The trains will operate at speeds of 80 mph (130 km / h) and 110 mph (180 km / h) .