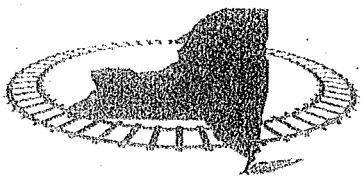
Connecting New York's Future



January 4, 2006

Dear Senator Bruno and Task Force Members,

On June 29, 2005 we were challenged to "develop an adequate high speed rail system that can effectively move people and products between cities in New York State and the nation's economic centers in order to grow businesses and create jobs and opportunities." The action plan was to be completed in six months or less.

While the task was formidable, the potential rewards of accomplishment were compelling and in the public interest. The accompaniment of our report with this letter is the result of a collaborative effort between private sector and public officials. Working from temporary offices at the Albany-Rensselaer Railroad Station, the group was joined with many part time transportation professionals as well as representatives of a cross section of railroad officials.

As a result of this harmonious assembly of industry experts many hours were productively spent in examining existing conditions, agreements and overall governance to determine options for both short and long term improvement.

I am proud of the enthusiasm, professionalism and commitment of this group and on their behalf I thank you for your confidence. We are available for further discussion or follow through on implementation of our recommendations.

John C. Egan

John C. Egan, Executive Director

Executive Summary

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Executive Summary

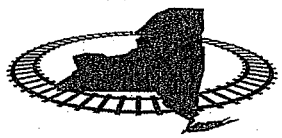
Preface

First class connections between the metropolitan areas of New York State have been key to its economic success for over 200 years. Past investments in the Erie Canal, railroads, the New York State Thruway, and airports have had major roles in the growth and prosperity of the state. In each case, New York State was a leader in recognizing the role of transportation in the state's economy.

New York has been planning to improve its intercity rail service along the 460-mile-long Empire Corridor from New York City to Buffalo/Niagara Falls for more than 30 years. Dozens of public and private studies have been completed. For a variety of reasons, including the uncertain future of Amtrak and pending federal intercity rail legislation, improvements to the New York State intercity rail system have not kept pace with other modes. The equipment is old, additional track and signal upgrades are needed, and passenger amenities and parking are limited. In fact, both the public and the New York State leadership know that the service is getting worse, and there is no plan or strategy for improvement. are only limited plans

In recent years, New York has invested very modestly in one of its most important and potentially beneficial industries. The provision of intercity passenger rail services—and the equipment, facilities, new development, jobs, and community revitalization that are a direct result—are statewide benefits. Substantial new investment is needed to keep the corridor in a state of good repair, improve customer service and reliability, realize the state's strategic rail transportation advantages, and remain competitive in the world economy.

The benefits of increased state investment are obvious. New York has invested heavily in the Metropolitan Transportation Authority (MTA) and its commuter rail systems on a consistent basis. The result is the best run and most reliable commuter rail system in the U.S. New York City is the heart of the Northeast Corridor rail line. Current state investments for improvements at New York's Penn Station will provide future intercity service for passengers from Boston to Washington, D.C., along with the continued growth and prosperity of Manhattan and the New York City region. Improved Empire Corridor rail service with access to points on the Northeast Corridor will extend these benefits to the Capital District and other upstate cities. and beyond, Chicago - Montreal



The situation is urgent, but the timing for an action program is right. Here's why:

First, the future of intercity passenger rail services nationally and New York State's Empire Corridor service is uncertain. Amtrak is in serious financial difficulty, its rail network and management are being restructured, and new federal intercity rail legislation is pending. New York can take the lead in demonstrating its commitment to a long- and short-range rail agenda. The state can position itself to take charge of future Empire Corridor intercity rail passenger service in conjunction with federal proposals.

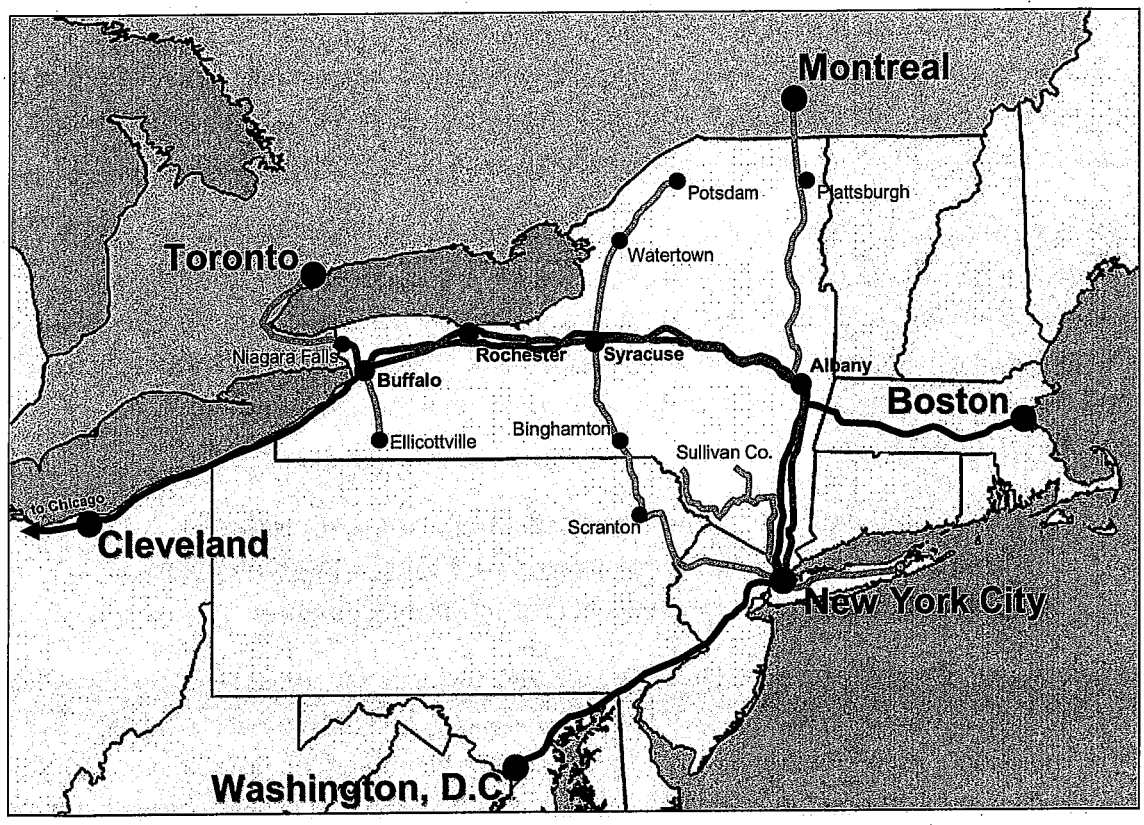
Second, without state intervention, Empire Corridor rail service in the short term will continue to get worse before it gets better. Intercity passenger rail reliability is low, service infrequent, and travel time excessive, especially across upstate New York where freight traffic is increasing. On the other hand, rail passenger and freight demand is up and growing while auto and air transportation options are increasingly limited, congested, and costly.

> **Now is the time for New York State, in partnership with the federal government, private sector, and local communities, to take control of its statewide rail transportation destiny.**

An Integrated Rail Network Vision

The Task Force recommends a bold new initiative for reversing the decline in passenger rail service and assuring a sustainable passenger and freight rail system that will support economic development across the state. In the long term (11 to 20+ years), this initiative envisions a statewide integrated rail network, including construction of a new high speed ground transportation (HSGT) fixed guideway route (see Figure A). In the short term (1 to 3 years) and mid-term (4 to 10 years), the state should immediately begin to make incremental service and capital improvements, along with new operational and institutional arrangements in the Empire Corridor. The State Multimodal Transportation Master Plan for 2025, scheduled for release in early 2006, should be amended to accommodate this recommendation along with the corridor-based rail improvement action program identified in this report.

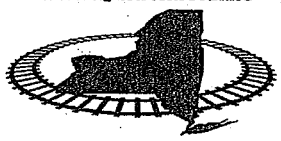
Figure A: New York State Strategic Integrated Rail Network



Existing Empire Corridor
Possible extensions from existing corridor
New high speed fixed guideway route
Possible extensions from new high speed fixed guideway route

Assuring a New High Speed Rail Corridor

The 1994 High-Speed Surface Transportation Study and this report project high future demand for a new high speed intercity service on a new route. In the interim, available capacity in the existing Empire Corridor will be stretched by growing demand for commuter, intercity, and freight services. Ultimately, a new HSGT fixed-guideway route will be implemented between New York City and Buffalo/Niagara Falls to meet emerging demand for the movement of people and goods. This line will use new very high speed rail or maglev technology, will become the regional service of choice for distances between 300 and 500 miles, and will be part of a statewide integrated rail network.



The Task Force recommends that steps be taken immediately to reserve the right-of-way for this route, including a future Hudson River crossing, and to determine and secure rights to a terminal location in New York City. Strategic planning for the project should be initiated, including public and private sector participation in its design, construction, operation, and financing. **The goal is to achieve a travel time between New York City and Buffalo of between two and three hours**, depending on the technology, number and location of stops, and the location of the New York City terminal.

Revitalizing the Existing Empire Corridor

Successful revitalization of the Empire Corridor is key to a new high speed fixed-guideway route and a balanced, competitive rail system. The Empire Corridor will increasingly provide a viable transportation choice for distances between 100 and 300 miles, particularly at stations that serve substantial passenger loads.

The goals are to:

> **Put the customer first and move more people and goods by rail in the most reliable, efficient, and convenient manner.**
>
> **Provide two-hour or less Express Service between Albany and New York City.**
>
> **Significantly improve reliability and service between Albany and Buffalo/Niagara Falls.**

The Task Force proposes a market-based partnership strategy to achieve these goals. The strategy will dramatically increase ridership by focusing incremental rail service improvements on more reliable and frequent service with reduced travel time and improved passenger amenities. In the future, the market will determine the most appropriate type of improvements and service operator.

A more efficient and productive Empire Corridor service will be achieved through improved equipment utilization (e.g., turning trains around faster) and dispatching (e.g., letting Empire Corridor passenger trains go first), and consolidation of equipment maintenance at the underutilized Rensselaer facility.

Beginning immediately and over the next three to ten years, New York State will assume increased responsibility and greater control of the Empire Corridor. This will include

financial partnership with the federal government, private sector, and local areas to maintain the infrastructure and revitalize rail service along the entire route.

Figure B: Rail Corridor Concepts

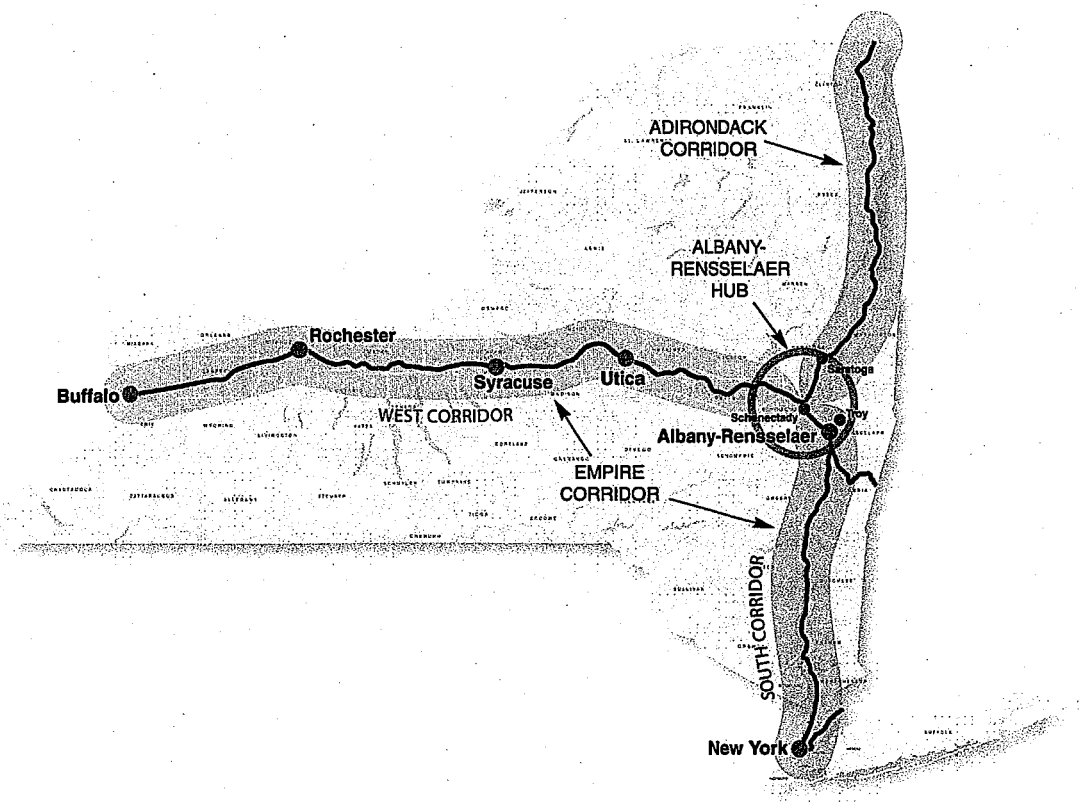
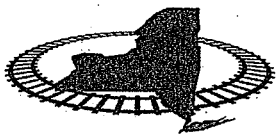


Figure B shows New York's intercity passenger rail corridors: the Empire Corridor and the Adirondack Corridor. These corridors are served by interstate and international through trains to Chicago, Toronto, and Montreal, and by intrastate trains that operate entirely within New York State. The Empire Corridor rail service is, in effect, two corridors. The Capital District-New York City **(South Corridor)** is a commuter and business service for time-sensitive travelers and tourists. The Capital District-Buffalo/Niagara Falls **(West Corridor)** is primarily for price-sensitive travelers.

Travel market data support the concept of "two Empire Corridor railroads," serving relatively separate travel markets. In 2004, 78 percent of the Empire Corridor's 1.14 million riders traveled between stations entirely within the south corridor, 5 percent



between stations within the west corridor, and 17 percent between stations in both these corridors. The predominant destination from both corridors is New York City.

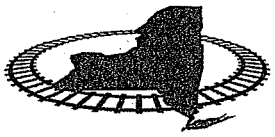
In the south corridor, rail dominates air and competes well with auto because of the relatively short distance (140 miles) and competitive service. In 320-mile west corridor, neither air nor rail is a major competitor to auto. Passenger volumes on air and rail are low, and both offer lower quality service compared to travel by automobile.

The "two railroads" strategy for the Empire Corridor will balance service delivery and investment programs among upstate and downstate areas with Albany-Rensselaer as the hub (see Figure B). Each corridor will meet defined goals with short- and long-term performance objectives. System-wide improvement programs include the procurement of new rolling stock designed for enhanced customer service; coordinated marketing; and a strategic initiative to development "multimodal centers" along each corridor with improved connections to other modes, access to major activity centers, and station area development.

> **Due to the urgency of the current situation and the enormity of the task at hand, the Task Force recommends that the creation of a New York State Rail Authority be considered.**
>
> **As an interim measure, an "Empire Corridor Demonstration Project" should be established as a temporary entity with the mandate to negotiate with all owners and operators, both passenger and freight, as well as federal and state agencies and authorities, to reach binding agreements and other arrangements.**

Capital District to New York City (South Corridor)

Immediately conduct a risk assessment and begin negotiations with CSXT freight railroad to purchase its rail territory between Schenectady and Poughkeepsie, and to transfer Amtrak property between Spuyten Duyvil (a station in the Bronx) and Penn Station, as well as the Amtrak maintenance facility at Rensselaer and the stations between these endpoints. Experience since the Conrail takeover demonstrates that no first class intercity passenger rail service is possible in this corridor without unified end-to-end control. This means unity of ownership and operations, including responsibility for



Do - that where we should reference highways as an analogy - Toll rail ??

the railroad right-of-way, stations, the Rensselaer maintenance facility, dispatching, and performance. It does not mean that the track owner has to be the service operator.

Within six months, reach an agreement with Amtrak's new management on a package of service, facility, and performance improvements and the funding arrangements to support these improvements. This will include initiation of a new "Empire Corridor Express" service between New York City and Albany-Rensselaer, utilization of additional Amtrak equipment, and the incremental capital improvements recommended in this report.

Explore the extension of Metro North service from Poughkeepsie to the Capital District, and the initiation of a new Hudson Line intercity operations plan, by 2012 or sooner. There are institutional challenges inherent in this proposal, including granting the power to provide that service and paying for it. A number of options have been identified. However, since Metro North has successfully concluded agreements to operate trains in Connecticut, and to establish a basis for joint operations west of the Hudson River with NJ Transit, it should be possible to find a way to advance similar initiatives within New York State.

Capital District to Buffalo/Niagara Falls (West Corridor)

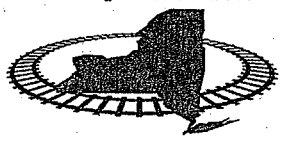
Immediately begin negotiations with CSXT and Canadian Pacific Railway (CP) to establish a new public-private partnership arrangement for continuing passenger and freight service from Schenectady to Buffalo and Schenectady to Saratoga Springs, modeled after similar successful arrangements in other states.

Within six months, reach agreement with CSXT and Amtrak on immediate actions and short-term improvements that will measurably increase the performance and reliability of passenger and freight trains in the west corridor. Develop a scope of work for a long-term capacity improvement strategy for the west corridor.

Explore the provision of additional passenger train service in the corridor, based on schedules that accommodate round-trip business travel to and from western New York, and opportunities identified in this report (e.g., special event services).

Combination Corridors

Immediately begin discussions with CSXT, CP, and Amtrak regarding the provision of inter-regional service between Syracuse and Albany, Saratoga Springs and Albany, and continuing service from these upstate cities to New York City.



Within six months, conclude agreements with CSXT regarding the provision of a second track from Albany to Hoffmans (a train control point between Schenectady and Amsterdam) and the long-term future of the Livingston Avenue Bridge over the Hudson River in Albany.

Explore the possibility of new inter-regional services between Buffalo, Rochester, Syracuse, and the Capital District.

Northeast Corridor (NEC)

The Empire Corridor is an essential market for the Northeast Corridor and the gateway to Albany, Upstate New York, and international connections to Canada. New York State should secure the right to run trains operating on the Empire Corridor through to points on the Northeast Corridor, and to receive federal grants to bring the south corridor into "a state of good repair."

Immediately take steps to reserve future capacity for Empire Corridor Service in New York's Penn Station and Grand Central Terminal.

Explore the possibility of Empire Corridor trains through-running onto the Northeast Corridor at Penn Station, as well as to points on the Long Island Rail Road.

Corridor Extensions

Explore the long-range feasibility of a number of Empire Corridor feeder services and secondary corridor proposals serving interior areas of the state that have been studied or proposed. These include the possibility of intermodal connections via bus; regional rail service from Buffalo to Ellicottville recreational center; and secondary rail corridors from Syracuse north to Potsdam and south to Binghamton, possibly continuing to Scranton (Pennsylvania) and New York City. The connection with OnTrack at Syracuse is moving forward, and a rail connection from New York City to the Catskills will continue to be evaluated.

New York State should formalize and accelerate its discussions with neighboring states and Canada regarding mutually beneficial rail extensions and arrangements between Buffalo and Cleveland/Toronto, Albany and Montreal/Boston, and New York City and Philadelphia/Washington, D.C. The Ohio-Cleveland-HUB Rail Plan and the Canadian "Fast Train" proposal are examples.

National System

This report assumes continuation of current long distance Amtrak service between New York's Penn Station, upstate, and Chicago. The Task Force supports continuing connections between the Empire Corridor and points outside of New York State (e.g., Boston, Montreal, Toronto, and Cleveland).

Benefits to New York

The simultaneous development of a new high speed fixed-guideway route and revitalization of the Empire Corridor offers enormous benefits for New York State. Some of these are:

Moving More People and Goods

New York City area transportation facilities (roadways, bridges, tunnels, and airports) are at or nearing capacity. The transport of people and goods by rail is one of the few remaining viable options. Commuter rail ridership is increasing, and the decline in intercity rail ridership has stabilized, at least temporarily, despite comparatively poor service quality. Rail freight volumes on CSXT and CP recently reached an all-time high, and are projected to increase.

The improvements in this report will accelerate the movement of people and goods by rail. With improved service reliability, frequency, and reduced travel time, new ridership markets are anticipated that will directly benefit upstate universities, technical centers, and tourist destinations. For example, a major rail travel market is the more than 150,000 students and faculty located at colleges and universities along the Empire Corridor. More freight can be moved "just in time," rather than "as scheduled," providing a competitive edge for New York State businesses and manufacturing.

Creating a Catalyst for Business, Jobs, and Economic Growth

New York State was once the center of rail transportation technology, innovation, and manufacturing, and remains important today. There are currently five major businesses statewide tied to passenger rail manufacturing. These industries are a mix of advanced and traditional technology, blue and white collar. In order to provide the capital improvements, equipment, and services proposed for the Empire Corridor in this report, 6,390 person-years of employment would be generated by the incremental improvement program.

If a "New York State Car" were procured and manufactured in New York, an estimated 110 jobs would be created at predominantly upstate locations for a period of between two and three years. Marketing and sales of this car to other states would increase the job total. This estimate does not include the "spin-off jobs" created at suppliers, which could be twice the number of manufacturing jobs.

The Empire Corridor improvements would increase state economic output by nearly $4 billion and increase income to New York State households by more than $1 billion over 20 years.

Conservative estimates indicate that a new high speed rail fixed-guideway initiative on a new route would create an additional 12,000 construction jobs, additional income of more than $584 million, and increase New York State's economic output by almost $2 billion.

Being Competitive in National and International Markets

New York State actively promotes trade and commerce with Canada and other states, which are developing their own high speed rail networks and strategic extensions. When completely built out, the New York State integrated rail network will potentially encompass more than 1,500 miles of track. The network will provide reliable, fast, and frequent passenger service in three major multimodal corridors and additional secondary corridors, and greatly expand capacity for moving more freight by rail. It will connect to major international businesses and airports in Toronto and Montreal, as well as the planned Cleveland-Ohio-HUB Rail System, and the Multimodal High Speed Rail Corridor from Albany to Boston.

Importantly, the action program will improve the Empire Corridor business climate, including a reduction in business-related costs and general increased attractiveness of upstate urban regions for business development.

Saving Energy and Improving Air Quality and Safety

Rail improvements have potential energy and air quality benefits over car and air travel, now the predominant modes of intercity travel. Rail passengers who shift from auto and air to Empire Corridor Service and a new high speed route will reduce the volume of travel on interstate highways by nearly two million trips annually, helping to alleviate congestion and improve air quality. More than five million gallons of gasoline would be saved annually. Reduction in accidents would save almost $9 million dollars per year.

If electrification of the Empire Corridor north of Croton-Harmon to Albany is determined to be a worthwhile investment, it would result in a substantial reduction in energy use and air pollution emissions.

Intercity rail will not solve the congestion and vehicle-induced environmental problems in New York State, but it will have a positive impact. It will provide a more environmentally friendly and efficient travel choice, benefiting an increasing number of people who want to make that choice, and will contribute to the overall quality of life in New York State.

Revitalizing Communities

The Task Force proposal to link intercity rail improvements to designated intermodal centers, station area development, and intermodal access to local economic activity centers is a breakthrough initiative. It will support the development of strong communities, and goes beyond the aim of efficient transportation to direct involvement in station-related development. The impact of this investment, just on the basis of currently available land in the vicinity of high volume stations, could be substantial. Nine Empire Corridor stations are located within Empire Economic Development Zones. These stations have an estimated 15 to 20 acres of vacant land located within one-quarter-mile of the station.

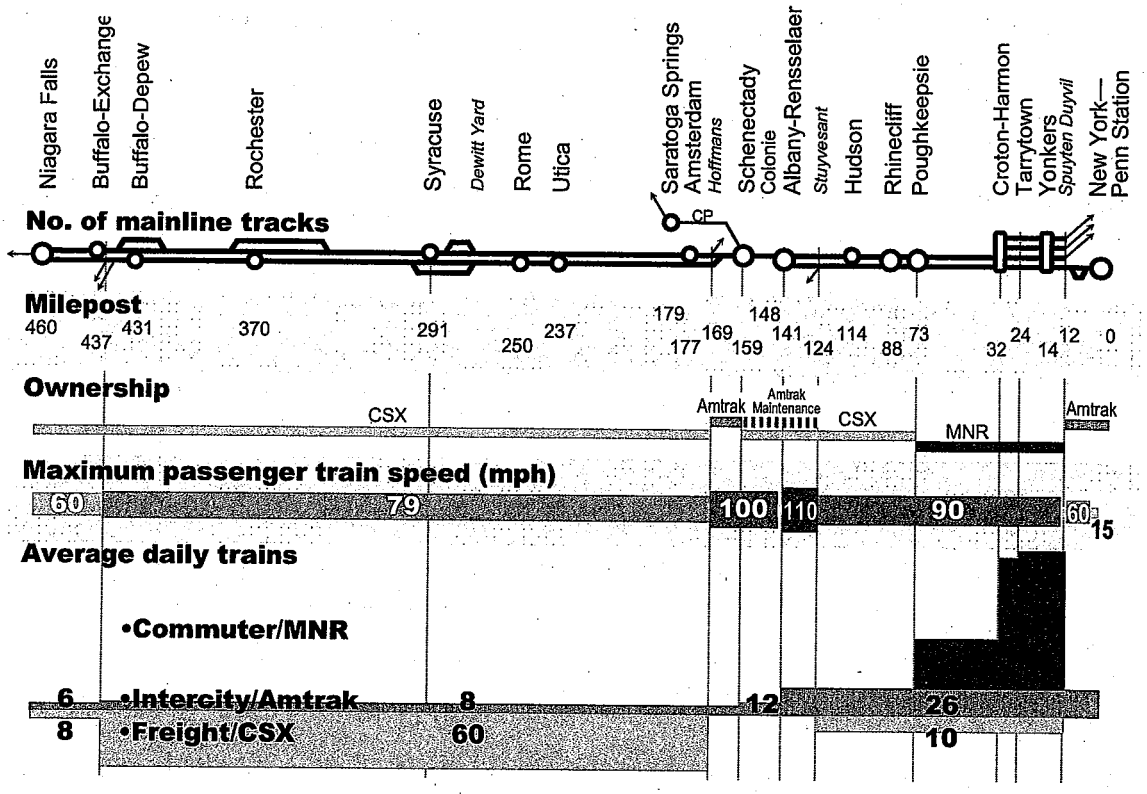
Preserving the Environment

The short- and long-range rail improvement programs in this report will be built largely within existing transportation rights-of-way or as part of other multimodal projects, and will have minor impacts on the environment. The station area development initiative will concentrate people and activities at higher densities and in closer proximity to multimodal transportation centers, thus preserving land and reducing travel by auto. Grade crossing improvements will prevent accidents and will improve access to the Hudson River south of Albany.

The Case for Greater State Control and Investment

What is now the Empire Corridor was once a single, unified railroad operation under the New York Central Railroad. The evolution of that railroad from Penn Central bankruptcy to the establishment of Amtrak, formation of Conrail and Metro North, and acquisition of Conrail by CSXT and Norfolk Southern is complex. The result is a patchwork of ownership, allowable train speeds, train volumes, maintenance and dispatching responsibilities, and liabilities along the 460-mile Empire Corridor (see Figure C).

Figure C: Empire Corridor Profile



Source: Parsons Brinckerhoff

The Empire Corridor remains as important a route for passengers and freight today as it was in the days of the Vanderbilts, but with more trains and no unified control. The "Chicago Line" between Buffalo and Albany is the major east-west "land bridge" route for CSXT freight from west coast ports to the eastern seaboard. The lower portion of the south corridor (the lower Hudson Line), operated by Metro North, is one of the most important commuter lines in the nation. Amtrak service, consisting of 26 trains per day, depends on the provisions and enforcement of operating agreements with CSXT, Metro North, and CP. These owners and operators have conflicting goals and priorities, which impact operations and planning for the corridor. They make largely independent decisions on how they operate and if, when, where, and how much available capital to invest.

Amtrak is the Lowest Priority Service in the Empire Corridor

Between New York City and Poughkeepsie, Metro North is predominant, operating almost 200 trains per day on track it owns, maintains, and controls between Grand Central Terminal and Poughkeepsie. From Poughkeepsie to Buffalo is CSXT territory, except for a short section near Schenectady. Amtrak trains are dispatched by Metro North and CSXT when operating in their respective territories. West of Albany, Amtrak must compete against growing freight traffic, upstate air service, and the New York State Thruway.

How much attention Amtrak gives the Empire Corridor is an issue in light of its own competing priorities—namely its survival, the highly used Northeast Corridor, new revenue generating corridors such as California, and long distance trains.

New York Rail Ridership is Stagnant

Total Empire Corridor ridership peaked in 2000 at over 1.26 million, but dropped sharply to 1.09 million riders in 2001 due to the introduction of jetBlue air service from Buffalo. Ridership continued to decrease in the following year to a low point of 1.04 million in 2002, but then increased slightly to 1.08 million riders in 2003 and 1.14 million riders in 2004.

Historically, the Empire Corridor was second only to the Northeast Corridor in intercity rail ridership. While the state remains unsurpassed in the area of commuter rail, it has fallen behind California in intercity ridership, passenger improvements, and services. California, Washington, Pennsylvania, and others have formulated, funded, and implemented rail passenger improvement programs and operations in cooperation with Amtrak and rail freight carriers. The substantial investment made by these states has moved them to the top of Amtrak's priority list.

The most recent passenger data bear this out. In 2000, Amtrak's Empire Corridor service between New York City and Albany was second only to the Northeast Corridor in terms of ridership. Today, it has fallen to fourth place behind:

1. the Northeast Corridor;
2. the Los Angeles/San Diego Pacific Surfliner Corridor; and
3. California's Capital Corridor.

Deterioration of Service Quality is Unacceptable

Amtrak's overall reliability (percentage of trains that arrive on time) in the Empire Corridor is 60 percent. That means that on average, four out of every ten trains arrive

more than 10 to 20 minutes late at their final destinations. This compares to an on time performance of 96 percent for Metro North Hudson Line service, although direct comparison of commuter and intercity rail service is difficult. Amtrak's reliability is better on the south corridor (89 percent) than on the west corridor (50 percent). The biggest reliability issue is the high volume of trains on heavily utilized track sections—intercity passenger, commuter, and freight trains, and restrictions and procedures regarding priority of movement. Other contributing factors are CSXT track work, speed restrictions at specific locations, signal delays, and equipment failures.

In addition, investments by CSXT in track, sidings, and signals west and south of Albany have not kept pace with service levels. Facilities such as the Livingston Avenue Bridge are not in a "state of good repair." The uncertainty regarding Amtrak management, funding, and restructuring puts improved Empire Corridor performance in doubt. In reality, improved service quality will require a coordinated effort to address all of the above factors, and neither New York State nor the owners and operators currently has the required span of control, responsibility, and resources to meet performance objectives.

Equipment is Old and Lacks Amenities

The existing Amtrak fleet was built in the 1970s and is now more than 30 years old. While safe, many of the Empire Corridor fleet cars need overhaul work. The greatest deficiency appears to be the condition of the "half club" cars used for cafe and/or business class service. Seat upholstery in some of the cars is badly soiled and in need of replacement. Rest rooms are in need of repair, including toilet seats, doors, and wall panels.

Amtrak is committed to a systematic overhaul of its rolling stock at its Bear, Delaware, facility, but the rate and schedule for such work is subject to funding availability and to the physical and manpower limitations of its facility.

Increasing Ridership Will Depend on Reliability and Frequency

Market assessment based on Empire Corridor data indicates that ridership depends on a variety of service characteristics, not just a high top train speed. These include train running time, service frequency, and reliability (delay). Table A shows that a 25 percent travel time improvement with a 50 percent improvement in frequency and delay would result in a 122 percent increase in ridership. This pattern holds for total corridor ridership as well as for the two Empire Corridors, resulting in a key finding:

Combinations of service improvements in the existing Empire Corridor, such as those proposed in this report, can have a ridership impact greater than that of more costly investments in higher speeds.

Table A: Sensitivity of Empire Corridor Ridership to Service Improvements

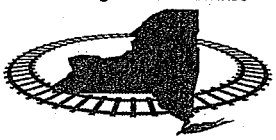
Service Improvement			Ridership increase
Reduction in total travel time	Increase in train frequency	Reduction in delay	
		-50%	30%
	+50%		36%
-25%			37%
	+50%	-50%	70%
-25%		-50%	74%
-25%	+50%		79%
-25%	+50%	-50%	122%
-50%			88%

Source: CRA International

These data, along with engineering studies conducted by the New York State Department of Transportation (NYSDOT), have long-term implications for rail corridor investment. First, a more uniform track speed of 110 mph can fill trains in the south corridor. Second, a track speed of 79 to 90 mph along with improved reliability, frequency, and reasonable fares will meet ridership demand in the west corridor. Third, above these 110 to 90-mph corridor speed thresholds, a separate passenger rail right-of-way may be a more cost effective investment.

New York has Under-Invested in Intercity Rail

New York has continued to invest in rail passenger and freight improvements, and has granted tax relief to freight operators, but at modest levels. New York State recently created a five-year, $100 million program to help freight railroads, including $8.6 million over two years to subsidize Amtrak's Adirondack service between Rensselaer and Montreal. This is in addition to the $2.9 billion 2005 Transportation Bond Act which allocates $5.5 million to advance four projects in the Empire Corridor.



New York State does not contribute a subsidy to Amtrak's Empire Corridor annual operating deficit. However, a major multi-million dollar joint Amtrak/New York State investment program was initiated in the late 1990s, including plans for refurbishing the Turboliner trains. This program was not completed. Other states, such as California and Washington, have reached agreements with Amtrak and freight railroads and have made substantial investments in new passenger rail infrastructure and equipment, and a financial commitment to the operation of service primarily with state money.

The Situation is Urgent, the Opportunities are Ripe

> **In the short term, the Task Force supports the continuation of Amtrak, recognizing that its future is uncertain. New York should take a proactive position in the current Amtrak legislative fight to reverse the decline in Empire Corridor service, deferred investment, and to bring the corridor into "a state of good repair."**

Intercity rail service has traditionally been a federal responsibility paid for by tax dollars. While the state has benefited by this approach, New York State taxpayers are funding Amtrak without the state having control over fares, services, operations, and equipment.

Pending federal legislative proposals call for increased state financial and other responsibilities for intercity and interregional passenger rail over time. These proposals offer significant short-term incentives covering both capital and operating funding. However, acceptance of this policy depends on increased state control in financial partnership with the federal government. States that position themselves to take advantage of these proposals, and who take the initiative, will likely be able to obtain the best deal in terms of funding, financing, and service options.

Rail Improvement Program Options, Benefits, and Costs

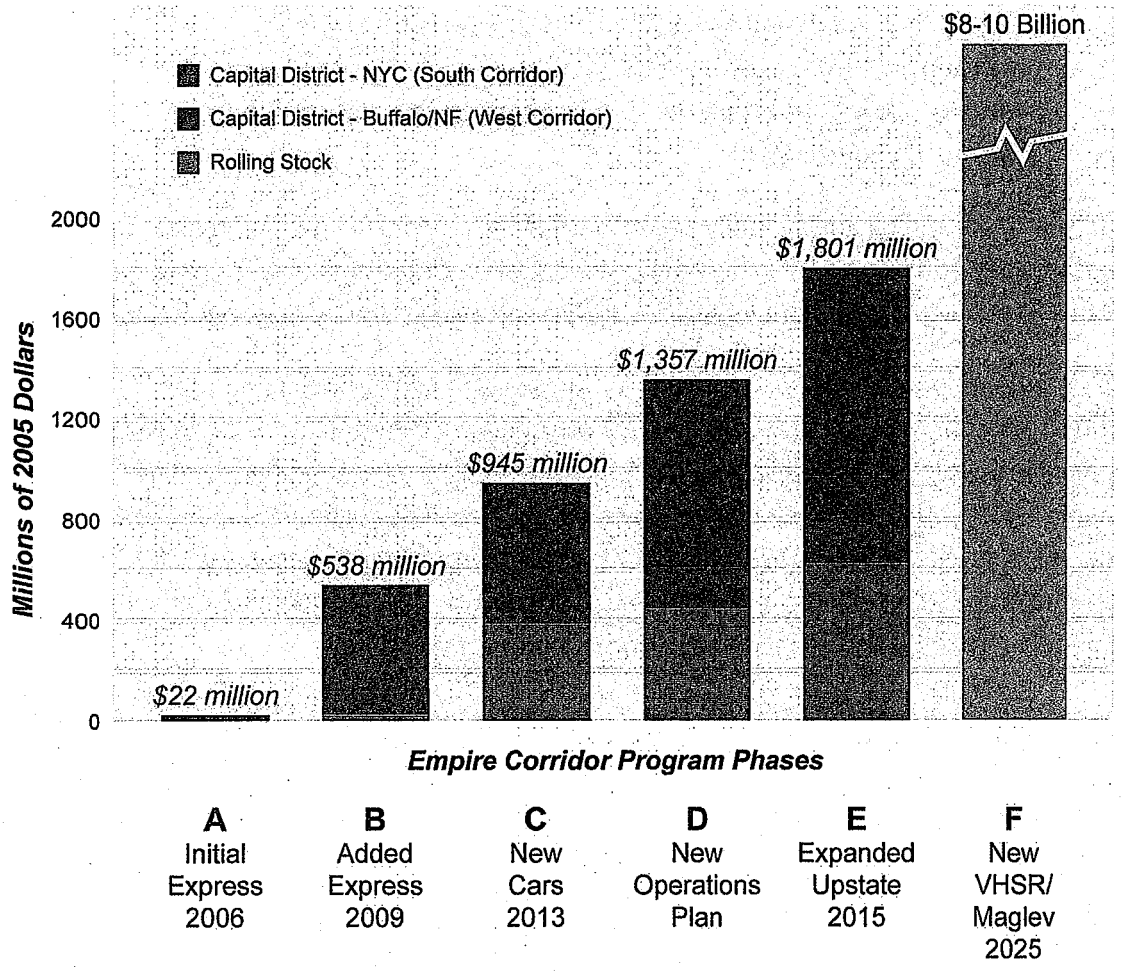
Short-term (by 2008) and Mid-term (by 2015) Empire Corridor Programs

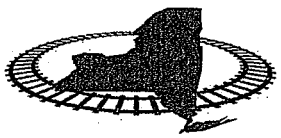
The Task Force has investigated a range of options for improving service in both the south and west corridors. These options focus on improving quality of service to the customer by reducing travel time, increasing reliability and frequency of service incrementally, and attracting more people to intercity rail.

The options (shown in Figure D and Attachment A) consist of five improvement phases (A-E) for incremental implementation over a 10-year period, and a new HSGT fixed-guideway/maglev system (F) within 20 years.

- The total cumulative action program cost for the Empire Corridor is $1.8 billion, or $180 million per year over 10 years.
- This cost is balanced between the south corridor (70 percent) and the west corridor (30 percent).

Figure D: Capital Investment by Equipment and Corridor Location





- 35 percent of the investment ($625 million) will be in new rolling stock and improved passenger amenities on existing equipment. Investment in a "New York State Car" will directly benefit New York State equipment manufacturers.

- The investment would add 2.8 million riders annually to current ridership levels of about 1.14 million, for a total of 3.94 million.

- The most dramatic ridership increases in percentage terms occur in the west corridor, where current ridership today is low relative to the south corridor.

- The ridership forecasts assume current fare levels, but fare strategies will be important in the Empire Corridor. The data indicate that moderate changes in fares have a large effect on ridership (+11 percent) and in turn on user benefits, but only a small effect on revenues (-2 percent).

In addition to increased ridership, the action program will dramatically improve service quality in both corridors, compared to current service levels:

- In the south corridor, the goal of two-hour express service will be achieved within 1 to 3 years. Average on time performance will increase dramatically over 10 years to levels (95 percent) approaching that of Metro North commuter service. For trains originating in New York City, 90 percent on time performance should be possible within three years.

- In the west corridor where freight service is dominant and growing, gradual reductions in passenger train travel time will occur over a 10-year service improvement period. New negotiated arrangements with CSXT can begin to improve on time performance immediately, and eventually achieve a 90 percent on time performance, or only 1 out of 10 trains late per day, compared to 4 out of 10 today.

- In both corridors, increases in service frequency (number of trains per day) will depend on the ability to obtain additional existing equipment modified for push-pull operations, and to procure new equipment on an expedited basis.

The structure of the action program allows for implementation of the improvement phases consistent with the pace of investment as determined by available funding. In other words, changing the number and type of projects in each phase would result in a different set of benefits, costs, and ridership, depending on state priorities and resources.

The Task Force recommends that the action program be implemented and the service and reliability benefits achieved as quickly as the infrastructure can be provided, the equipment can be made available, and the institutional arrangements can be made with the owners and operators.

Long-Range Program (2015 to 2025 and beyond)

The long-range HSGT fixed-guideway program will require a new route along the New York State Thruway from New York City to Buffalo, including a Hudson River crossing.

This new technology system will be a "quantum leap" from the Empire Corridor improvement program in terms of costs and benefits. Based on the feasibility concept developed in 1994, the estimated cost will be $8 to $10 billion, with ridership forecasted at more than 10 million annual passenger trips.

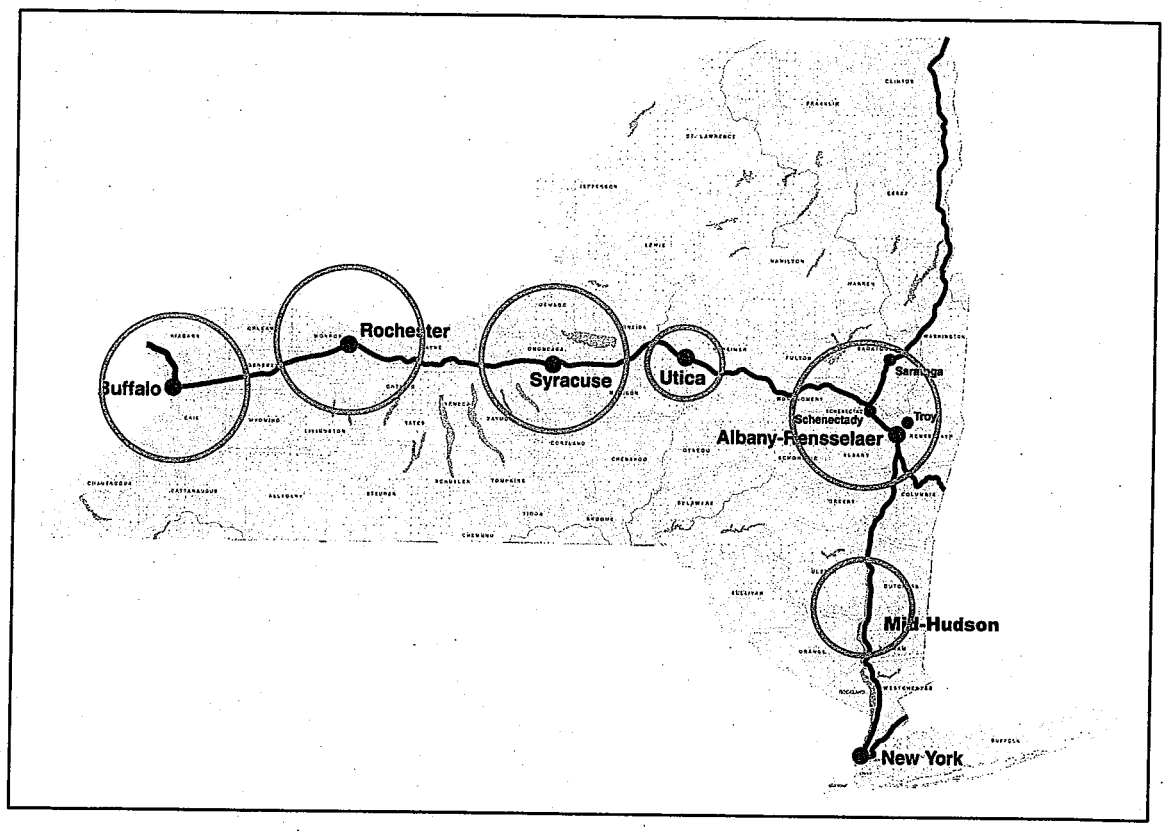
Other potential costs include a program of multimodal center stations, which has been recommended as an existing Empire Corridor initiative. This program will require development before cost estimates can be made.

Local Communities - Multimodal Centers Initiative

The Task Force believes that a visionary and successful rail improvement program must include consideration of the people and places affected by its operations. This means making investments that support the development of strong communities, growth, and revitalization along the corridor. This approach starts with the provision of adequate amenities, parking, and intermodal connections to area activity centers at all stations. It then focuses on the highest volume existing or new stations in terms of local economic development priorities and station area development potential.

The goal is to make these Empire Corridor Multimodal Center stations an integral part of the local community and its transportation access network, as well as part of the rail system (see Figure E**).**

Figure E: Possible Multimodal Rail Centers



Develop and Initiate a Multimodal Centers Program

Coordination was initiated with local planning officials, but the Task Force has made no decisions regarding the designation of multimodal center stations. In the short term, the state should make cosmetic, basic customer service-related, and parking improvements at all stations. Over the mid-term and in cooperation with local officials and planning bodies, the state should:

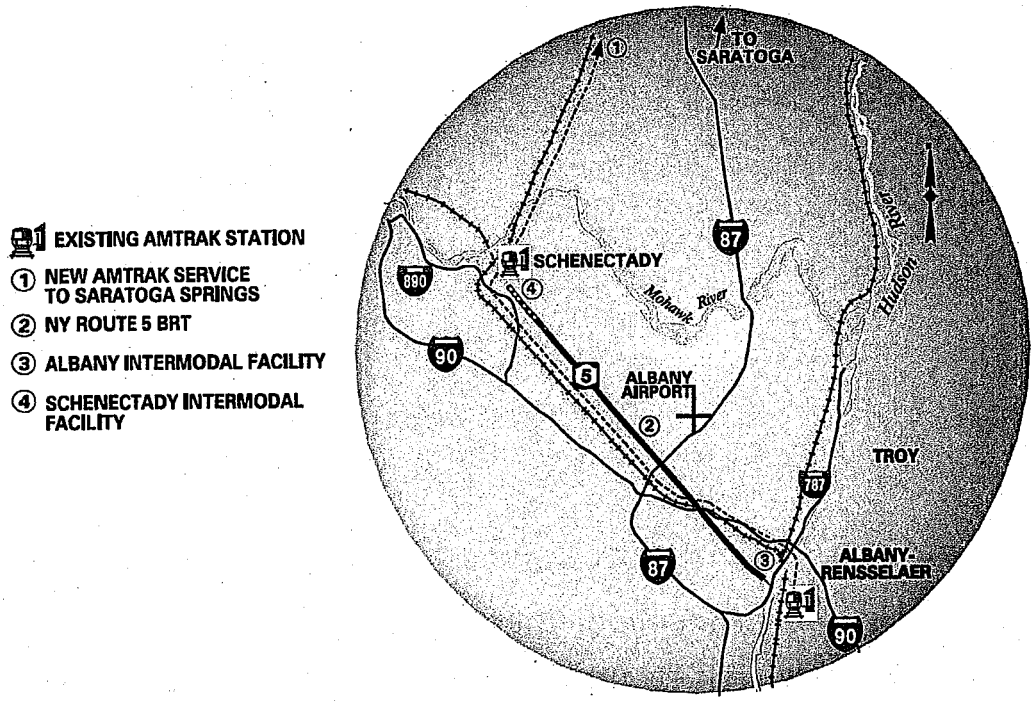
1. determine the number and locations of multimodal center stations based on passenger demand, intermodal access, and economic development potential; and
2. implement this program based on an assessment of costs, benefits, and economic development priorities.

Albany-Rensselaer "Hub Station" Demonstration Project

The Task Force believes that the Albany-Rensselaer Station and its yards and maintenance facility will be the hub of future Empire Corridor rail operations. Given the level of investment already made, the commitment of the local transit agency (Capital

District Transit Authority), the availability of vacant land, and the number of proposed development projects in the immediate vicinity of the station, it should be targeted as a demonstration multimodal center station. Figure F shows the station location and the intermodal opportunities in the vicinity.

Figure F: Capital District

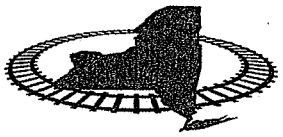


Source: CME

Implementation

Funding and Financing

The Task Force recommends that the state consider a long-term commitment to a higher level of investment in intercity passenger rail in a financial partnership with federal, state, local, and private stakeholders, commensurate with increased state control and responsibility for the Empire Corridor.



If the state elects to do nothing, it stands to lose the contribution that Amtrak makes to Empire Corridor service, currently estimated at $45 million annually, including all interstate, intrastate, and international service. If it elects to move forward with the Empire Corridor Action Program, it will have a financial commitment, but greater control over the performance of intercity rail service, investments in the rail network, and the best use of taxpayers' and customers' money. This proactive approach will also support a strong negotiating position with respect to federal intercity rail legislation and Empire Corridor owners and operators.

Assuming the full action program investments, the south corridor will generate an average farebox collection ratio of 82 percent, well above the national average of 60 percent, while the west corridor ratio will be 53 percent. This finding supports the notion that a leveraged program of federal and state resources can be effective in closing the action program funding gap, particularly if supported by positive net benefits from public investment that the action program demonstrates. This gap, under the worst case scenario, would be the full capital cost of $1.8 billion plus the annual operating cost. The projected increases in ridership and revenues are expected to cover the annual operating costs within 20 years.

The Task Force recommends that the state consider the following financial partnership arrangement in order to reduce both the capital and operating costs:

Capital Investment:

- 80 percent federal and 20 percent state to address deferred maintenance and bring the Empire Corridor into a state of good repair; and
- 50 percent federal and 50 percent state for continuing capacity and reliability improvements needed to increase service levels.

Operating Cost:

- Amtrak will continue to cover the operating cost of existing and future interstate and international train service, and New York State will be responsible for intrastate service costs for trains operating between New York City and Buffalo/Niagara Falls.

Under this partnership strategy, the total capital cost to the state will be $800 million, or 44 percent of the total action program cost of $1.8 billion. The state's annual operating cost over time will be $30.3 million today, reducing to an operating surplus by year 2025. Within the context of the $1.2 billion New York State annual operating assistance program for public transit (95 percent of which goes to the MTA), this intercity passenger rail annual operating cost appears reasonable. A number of options have been proposed

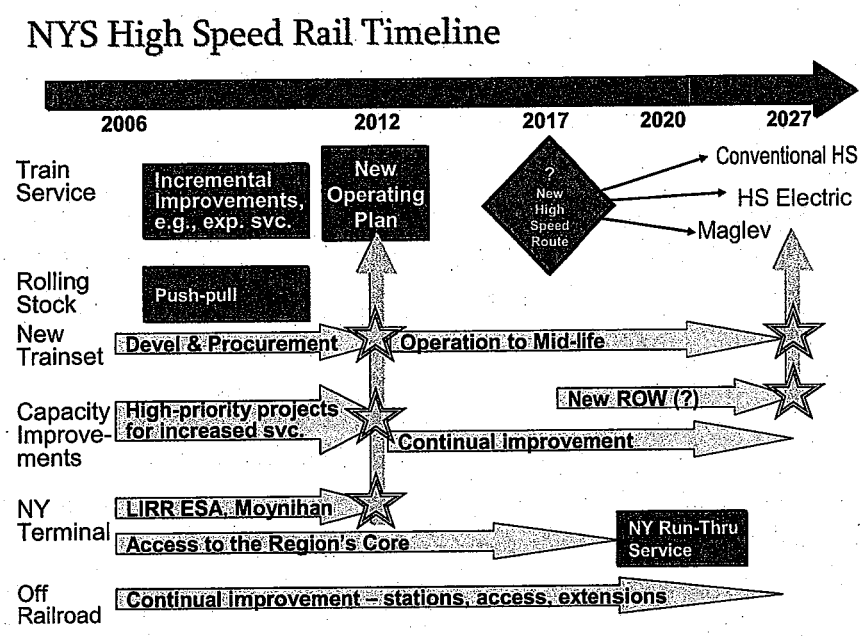
in this report that could be used to fund and/or finance these capital and operating amounts.

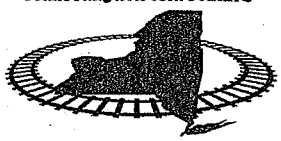
Phased Program Schedule

Figure G illustrates how action program improvements will be phased to meet major milestones. Incremental service improvements will begin immediately, including an Empire Express between the Capital District and New York City, using refurbished equipment. At the same time, high priority improvements to increase service reliability will be made and new equipment procured. Future capacity will be assured along the rail mainline and at New York City terminals, as well as right-of-way for a new high speed fixed-guideway route. A program to improve passenger amenities, stations, and access will be initiated.

Within six years, a new corridor operations plan will be put into place and new equipment will be gradually deployed along the entire route, resulting in additional service, improved reliability, and reduced travel times. Additional service on the west corridor will be initiated. Within 10 to 15 years, commitments for a new high speed route and system will be made. Empire Corridor service extensions, including through-running to points on the Northeast Corridor and the Long Island Rail Road, will expand the market area. By 2025, New York rail customers and the economy will have the full benefits of a statewide integrated rail network.

Figure G: Phased Program Schedule





Action Agenda

Immediately:

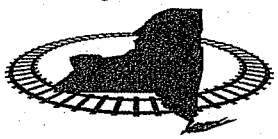
- Begin negotiations with CSXT and Amtrak for purchase, and with Amtrak for transfer, of property from Schenectady to Penn Station, and begin a risk assessment of the proposed action.
- Put into place an "Empire Corridor Demonstration Project" as a temporary, interim mechanism that will continue to build momentum for change, begin implementation of the improvement programs, and meet designated milestones.
- Initiate short-term service improvements, including "Empire Corridor Express Service" between the Capital District and New York City to demonstrate a two-hour travel time, demand, and revenue potential.
- Initiate discussions with Amtrak and MTA on New York City terminal capacity and access issues.
- Initiate an Empire Corridor Equipment Procurement Program to provide existing and new equipment to meet improved levels of service and increased ridership.
- Explore new service improvements in the west corridor, including initiation of an investment-grade train dispatching simulation to affirm specific improvements.
- Establish an "Empire Corridor Owners and Operators Service Improvement Group" that will meet monthly to "red flag" service problems and customer complaints and implement procedural, administrative, and management changes that immediately result in service improvements.

Within Six Months:

- Identify and secure action program funding commitment from the New York State Legislature and support the New York State congressional delegation regarding federal intercity rail legislation.
- Reach preliminary agreements with Amtrak, CSXT, and Metro North on property, service, and facility improvements.
- Reach agreement with Metro North on a service extension strategy, timetable, and costs.
- Identify New York State Thruway Authority requirements for reservation of right-of-way for a new high speed fixed-guideway route.
- Reach Memoranda of Understanding with CSXT and Amtrak on a new public-private partnership arrangement for the west corridor.

Attachment A: Action Program Benefits and Costs

Description	Implementation Period						
	Existing	Immediate	Short-term	Mid-term			Long-term
	0 year	1 year	2-3 yrs	4-10 yrs			11-20 yrs
	2004	2006	2009	2013		2015	2025+
Program Phase	-	A Initial Express	B Added Express	C New Cars	D New Operations Plan	E Expanded Upstate	F New VHSR/ Maglev
South Corridor - Capital District to New York City							
Reduced Travel time							
-Regular run time	2hrs 25m	-	-	-	-	-	
-Express run time	-	2hrs 5m	1hr 59m	1hr 55m	1hr 55m	1hr 48m	1hr
Frequency							
-Daily trains	13	14	15	15	18	23	
-Daily express trains	-	2	2	2	3	5	-
On-time Performance	70%	75%	80%	85%	85%	95%	99%
Annual Ridership 2025 (millions)	-	1.80	1.96	2.12	2.55	2.99	6.71
Capital Investment (millions 2005 $)	-	$20	$428	$202	$364	$174	-
West Corridor - Capital District to Buffalo/Niagara Falls							
Reduced Travel time	5hrs 45m	5hrs 45m	5hrs 45m	5hrs30m	5hrs 30m	5hrs	2-3hrs
Frequency							
-Daily trains	4	4	4	5	5	6	-
On-time Performance	60%	65%	70%	80%	85%	90%	99%
Annual Ridership 2025 (millions)	-	.28	.33	.71	.71	.96	3.47
Capital Investment (millions 2005 $)	-	$2	$88	$205	$48	$270	-
Complete Empire Corridor – Buffalo/Niagara Falls to New York City							
Total Capital Investment (millions 2005 $)							
-Phase	-	$22	$516	$407	$412	$444	$8-10
-Cumulative	-	0	$538	$945	$1,357	$1,801	Billion
Avg. Cost over 10 years (millions 2005 $)	-	$2	$54	$95	$136	$180	-
Total Annual Ridership (millions)							
-2025	-	2.08	2.29	2.83	3.26	3.95	10.18
-Yr of Improvement	1.14	1.14	1.33	1.90	2.47	2.96	-
Annual Operating Cost per Rider (at points over 20 yrs 2005 $)		$-33.83	$-23.02	$-6.71	$-7.51	**$+1.72**	-



Attachment B: Summary of Recommendations

	Recommendations
1	**Implement the Empire Corridor Action Program** and achieve service and reliability benefits as quickly as the infrastructure can be provided, the equipment made available, and the institutional arrangements can be made with the owners and operators.
2	**Establish an Empire Corridor Owners and Operators Service Improvement Group** to meet monthly to "red flag" service problems and customer complaints, and implement procedural, administrative, and management changes that immediately result in service improvements.
3	**Establish an "Empire Corridor Demonstration Project"** as a temporary entity to negotiate, reach agreements, and establish other arrangements.
4	**Commit to a higher level of investment in intercity passenger rail** in financial partnership with federal, state, local, and private stakeholders, commensurate with increased state control and responsibility for the Empire Corridor.
5	**Seek improvements in Amtrak intercity service in the Empire Corridor.**
6	**Develop the rail corridor goals and performance objectives in consultation with NYSDOT and railroad owners and operators.**
7	**Amend the Statewide Transportation Master Plan** scheduled for release in early 2006 to accommodate the vision and corridor-based rail improvement programs identified in this report.
8	**Change the state policy used to allocate funds among modes to sustain a statewide integrated rail network**, based on an independent study of costs, benefits, and efficiency of moving people and goods in New York State's multimodal corridors.
9	**Provide unity of ownership and operations** from the Capital District to New York City through an existing or new state entity.
10	**Negotiate the purchase of CSXT right-of-way** and transfer Amtrak right-of-way, stations, and maintenance facilities from Schenectady to Penn Station.
11	**Consider the creation of a New York State Rail Authority.**
12	**New York State should secure the right to run trains** operating on the Empire Corridor through to points on the Northeast Corridor, and to receive federal grants to bring the Capital District to New York City Corridor into a "state of good repair."
13	**Create and implement a public-private partnership** agreement with the owners and operators in the Capital District to Buffalo/Niagara Falls corridor, resulting in benefits for both freight and passenger services.

#	Recommendations
14	**Develop the specification and initiate the procurement of a "New York State Car"** that will meet future requirements of the Empire Corridor, access to New York City terminals, and operations on the Long Island Rail Road and the Northeast Corridor.
15	**Develop and initiate a "Multimodal Centers" program along the Empire Corridor with Albany-Rensselaer as the Demonstration "Hub" station.**
16	**Evaluate the advantages and disadvantages of a recommendation on the inclusion of the NYS Empire Corridor in the Northeast Corridor.**
17	**Provide Empire Corridor train through-run service** to points on the Long Island Rail Road at New York's Penn Station.
18	**Provide Empire Corridor trains sufficient capacity** (train slots) and presence at Penn Station ("Moynihan Station") and Grand Central Terminal to meet future demand.
19	**Conduct a New York State Energy Research and Development Authority (NYSERDA) study**, with participation by the rail owners and operators, on the costs and benefits of electrification of the Empire Corridor from New York to Albany with possible extension to western New York.
20	**Provide a federal or multi-state entity to continue to be responsible for off-corridor interstate and international trains as they exist today.**
21	**Extend Metro North service to the Capital District by 2012**, or sooner, based on a new Capital District to New York City operations plan and resolution of any legal, MTA district, and funding issues.
22	**Initiate strategic planning for a new high speed fixed-guideway system** on a new route with public and private sector participation.
23	**Reserve alternative passenger rail routes in the Rochester to Buffalo area.**
24	**Reserve future right-of-way for a new high speed fixed-guideway system** within the New York State Thruway and on a new Hudson River crossing.
25	**Consider implementation of a new high speed fixed-guideway system** on a new route by a public-private consortium, where the state contributes the right-of-way and the private sector designs, builds, operates, maintains, and finances the project.

1. Introduction

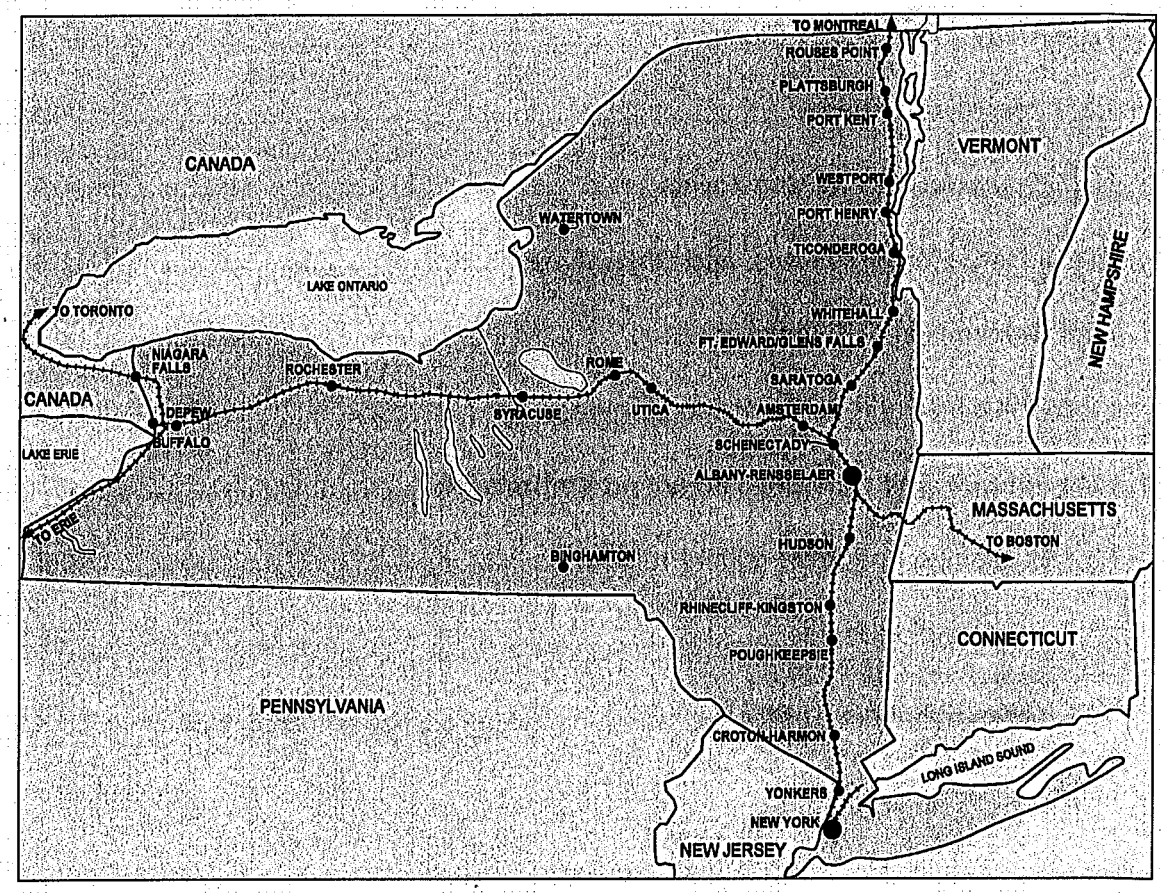
Section Contents

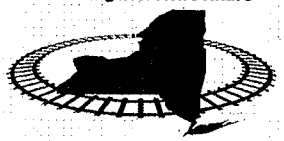
1. Introduction

1.1 Background

In 1994, New York State was poised to develop the world's most advanced intercity transport system. This vision included building a new maglev system and upgrading the existing Empire Corridor rail service. Goals were set and an implementation plan and schedule were established. Now in 2005, this vision is still in place, alive and well. But circumstances have changed at both the federal and state levels, and other events have intervened, necessitating a new beginning. How New York State will respond to current realities and achieve its intercity transport vision over the short-term (1-3 years), mid-term (10 years), and long-term (20 years) is the central concern of this report.

Figure 1-A: New York State Passenger Rail Network





1.1.1 Current Service Situation

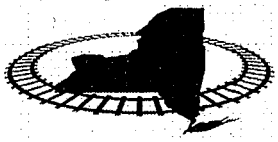
The current intercity rail service operated by Amtrak along the 460-mile Empire Corridor from New York City to Buffalo/Niagara Falls is deteriorating. On time performance (OTP), as measured by the percent of trains arriving late during 2005, is unacceptable, as the illustrative data in Table 1-A indicates. While there are differences in the standard for OTP between intercity rail and commuter rail, Metro North regularly achieves 95-96 percent OTP during peak periods. Freight train service performs around 90 percent in models that have been done on the Hudson Line south of Albany. The most active freight territory between the Capital District and Buffalo has not been modeled. In any event, the rail freight industry uses a different performance measure than OTP, called "velocity."

Table 1-A: Estimated Amtrak Empire Corridor On Time Performance FY 2005

Territory	Percent Trains Arriving On Time At Last Stop
Capital District-NYC:	
Average	70%
Best	89% (Early weekday trains 240, 242, 246)
Worst	65%-73% (Westbound 259, 265, 267)
Capital District-Buffalo/Niagara Falls:	
Average	50%
Best	69%
Worst	22% (Train 64 from Toronto)
Empire Corridor Average	60%

Source: Amtrak Operating Data

Amtrak's overall reliability (percent of trains that arrive on time) in the Empire Corridor is 60 percent for FY 2005, down 6.6 percent from FY 2004. That means four out of every ten trains arrive late at their final destinations. In 2005, CSXT track work in western New York negatively impacted OTP, but will help to improve performance in subsequent years. Amtrak's data do not reflect how late trains were. For example, an 11-minute-late train into Albany causes less customer dissatisfaction than a two-hour late train coming from Buffalo.



The biggest reliability issue is "who goes first" on heavily utilized track sections—intercity passenger, commuter, or freight trains. Generally, the line owner controls the train dispatching, and the train dispatcher is the person who decides who goes first. All the Metro North operating territory on the Hudson Line is controlled and dispatched by Metro North. Between Poughkeepsie and Buffalo CSXT provides dispatching service.

The priority of intercity passenger trains operating in freight territory is regulated by the Interstate Commerce Commission (ICC). Starting in 1974, Amtrak began writing incentive contracts with the freight railroads that paid a reward for on time performance on a sliding scale on a monthly basis. The better the passenger train performance, the better the payment. Because these were negotiated contracts, there were more exceptions and delay forgiveness than under a strict ICC calculation, but the idea and methodology was essentially the same. Since then, the performance agreements have been changed, renewed, and modified. CSXT has an incentive contract in place for maintaining Empire Corridor passenger service.

In addition to dispatching preference and train routing delays, other contributing factors to current Empire Corridor OTP performance are speed restrictions at specific locations, signal delays, and equipment failures. Investments in track,

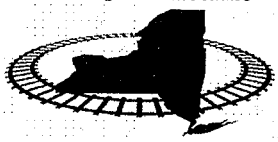
What does it mean?

On Time Performance OTP is the standard used by passenger railroads to compare scheduled train performance against actual performance. It is measured in terms of the percentage of trains that arrive at their end destinations on time and the delayed time of late trains by standards appropriate to that type of service. Regional and intercity services generally have a less restrictive on time standard than commuter rail, given commuters shorter trip lengths and greater time sensitivity.

Intercity Passenger OTP - The Interstate Commerce Commission (ICC) issued a standard set of on time tolerances based on the distance between the endpoints of the train's operation. Basically, five minutes were allocated per 100 miles or fraction of the endpoint mileage to a maximum of 30 minutes for trips over 500 miles. In the Empire Corridor that means that the south corridor trains receive a 10-minute tolerance, while the west corridor trains receive a 25-minute tolerance at endpoint.

Commuter OTP - While there are differences in the definition and standard for OTP between intercity rail and commuter rail, Metro North generally uses a 10-minute tolerance and regularly achieves 95-96 percent OTP during peak periods.

Freight Performance - CSXT uses "velocity" as a performance measure rather than OTP. Velocity is defined as the average speed over a territory based on past performance. Freight train performance is measured in terms of "just-in-time" freight deliveries. The controlling factor is whether or not the shipment got to its destination in time, which is defined by both the shipper and customer as on time. Freight schedules are not written as much by the clock as they are by standard trip times.



sidings, and signals west and south of Albany have not kept pace with service levels, and facilities such as the Livingston Avenue Bridge are not in a "state of good repair." Amtrak's equipment is aging and the pace of fleet modernization is dependent on available federal funding.

Amtrak has struggled to preserve existing service within Congressional funding levels during its entire 30-year history. However, it is now on the brink of financial insolvency and has an uncertain future. Other uncertainties include the timing and provisions of pending federal intercity rail legislation and the resolution of the current lawsuit between New York State and Amtrak regarding the Turbotrain program. The recent change in Amtrak management and proposed restructuring provide no indication that Amtrak performance in the Empire Corridor will improve. Given this situation, there is an urgent need for the state to act promptly just to maintain the current level of Empire Corridor service and have a reliable system.

1.1.2 Future Prospects

Despite these uncertainties, other states have responded by advancing new intercity rail programs without federal support. California, Washington, North Carolina, and others have seized the initiative and implemented new rail service based on new state arrangements and negotiated agreements with Amtrak and rail freight operators. Commuter services operated by Metro North are thriving and expanding in Connecticut, the Harlem Valley, and West of Hudson/New Jersey. New York State is making large investments in New York City rail terminals at Penn Station and Grand Central Terminal to accommodate future Northeast Corridor and regional rail demand. New York State has continued to invest in its existing intercity rail network, but not at sufficient levels to reverse the continuing decline.

Market studies and work conducted for this report indicate that there are two distinct intercity travel corridors in New York State—from the Capital District to New York City (the "south corridor") and from the Capital District to Buffalo/Niagara Falls (the "west corridor")—with different operational, market, and service characteristics. Within both corridors, the data indicate that customers respond to improvements in reliability and frequency of service in greater proportion than to increases in speed. Engineering studies conducted by the New York State Department of Transportation (NYSDOT) and this study indicate that speed improvements (above 110 mph) in the south corridor are limited by a constrained right-of-way, the need for capacity improvements, the current operations plan, lack of unified control and high cost. In the west corridor, freight train

operations are increasing to such an extent that higher speeds (above 79-90 mph) are unrealistic on the existing CSXT-owned track.

In both existing corridors, the short-term goal is improved service and a revitalized "high efficiency" railroad that responds to emerging markets, increases ridership, and generates economic opportunities, rather than focusing on high speed.

Truly high speed rail service (above 150 mph) that is competitive with other modes is only possible on a new right-of-way using new very high speed rail (VHSR) or maglev technology. This will require strong state commitment to a long-term rail vision, strategy, and planning, a 15- to 20-year lead time, and immediate actions to reserve the right-of-way, including a Hudson River crossing to access New York City from western New York.

What does it mean?

Commuter Rail – Metro North operates commuter rail on the Hudson Line using electric powered equipment as far as Croton Harmon at speeds of up to 90 mph.

Intercity/Interstate Rail – Amtrak operates various types of equipment throughout the Empire Corridor at speeds of up to 110 mph.

High Speed Rail – The Amtrak Acela trains operating between Boston and Washington D.C. have tilt capability on curves that permits a maximum speed of 125-150 mph on upgraded conventional rights-of-way such as the Northeast Corridor.

Very High Speed Rail – Requires tilt capability on curves and a separate exclusive track in order to achieve maximum speeds of up to 200 mph.

Maglev – Can be accommodated on Interstate Highway rights-of-way such as the New York State Thruway, operating on a fixed-guideway at speeds of up to 300 mph.

1.1.3 A Program Investment Strategy

It will be expensive to create and maintain a high efficiency rail passenger system along the entire Empire Corridor. However, the benefits in terms of improved reliability, additional frequency of service, and new ridership markets will be substantial. They will provide the backbone for a more competitive New York State economy and a new multimodal centers initiative to improve station access and help revitalize urban areas. Importantly, public preference polls indicate that New York voters will support statewide rail service improvements. A new high speed rail system on a new route will involve a quantum leap in cost, but result in corresponding benefits.

This report brings together for the first time in one document input from all previous studies and consideration of the entire Empire Corridor in the short-, mid- and long-term. It uses data, market forecasting, and operations simulation tools acceptable to Amtrak and CSXT, the predominant owners and operators. For the first time, New York State will have a logical program of improvements to meet short-term (1-3 years) and mid-term

(10-year) passenger service reliability goals, which will also benefit freight service. These programs are tailored to different corridors, markets, and railroad operating conditions. Innovative ideas for increasing train utilization and productivity were identified. The program costs and benefits were determined. At the full investment level, the incremental investments will have an increasing benefit to cost relationship over time.

How much will it cost, who will pay, and how will the action program be implemented? These questions are addressed in Sections 2, 3, and 4 of this report. The urgency of the situation and the task at hand are so great that the creation of a New York State Rail Authority should be considered, along with unified state control of the south corridor. Beyond this, a partnership strategy is needed to implement the proposed action program, bring the Empire Corridor back into a state of good repair, and make needed improvements that will increase ridership and improve performance.

An investment and funding strategy is proposed that will minimize operating subsidies from the state and maximize opportunities to leverage federal funding and other funding sources, based on assumptions about the future of Amtrak and pending federal intercity passenger rail legislation. The structure of the action program allows for implementation of the improvements consistent with the pace of investment as determined by available funding.

1.1.4 Purpose and Approach

The purpose of the New York State Senate High Speed Rail Task force is to:

- Identify New York State's rail options.
- Identify the cost and benefits of these options.
- Recommend a set of improvements.

The purpose of the Task Force Feasibility Study is to develop an action program consisting of short-, mid- and long-range rail improvements, assess the impacts of these programs, and propose an implementation strategy. The study uses a market- and performance-based approach designed to meet the three-month study schedule and to achieve the Task Force purposes.

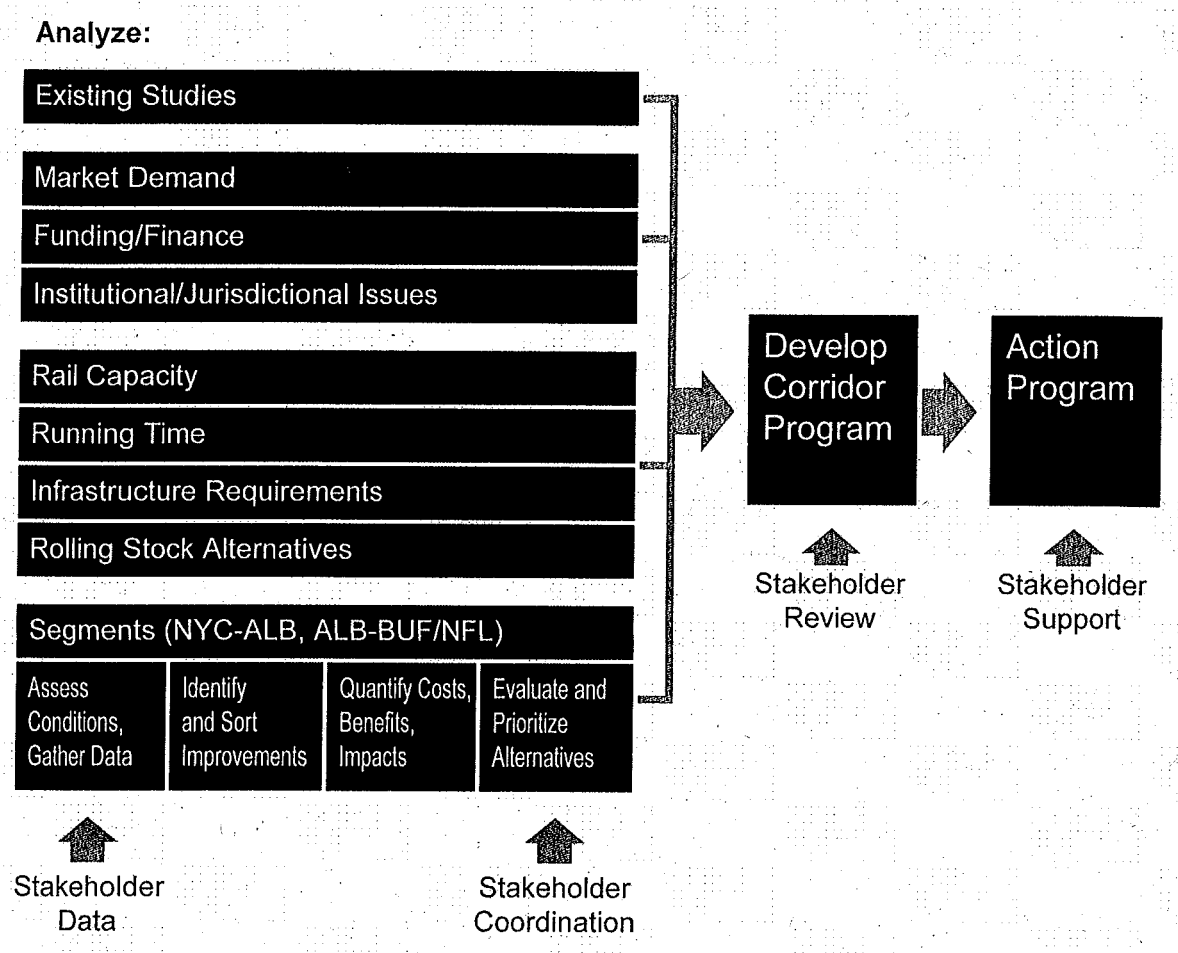
The Statewide Transportation Master Plan for 2025 is scheduled for release in early 2006. The Task Force intercity rail action program is consistent with key policy elements

of that plan, including a focus on the customer, concentration on the highest priority passenger and goods movement rail corridors, and consideration of both existing and new upstate rail stations and intermodal centers in high volume locations. Meeting the needs of the busiest passenger rail corridor between the Capital District and New York City is emphasized. At the same time, a statewide balance of rail investments is achieved.

The Master Plan emphasizes multimodal analysis and providing competitive transportation choices. The Task Force action program is based on market assessment of air, highway, and other transit modes compared to intercity rail, and the service and cost factors that drive customers to choose one mode over another. A more detailed examination of the most efficient and cost-effective way to move people and goods in the Empire Corridor (and other multimodal corridors) in a post 9/11 environment is recommended in this report.

The overall program development approach is depicted in Figure 1-B. The figure illustrates the major pieces of analysis, the iterative relation among elements of work, and the chronological sequence of activity.

Figure 1-B: Program Development Approach



The study relied on existing information, plans, and proposals, and initially involved compilation of a consolidated list of all previously identified rail improvements. This comprehensive list was used to develop packages of improvements that will achieve the best performing ridership and service options. The work relied on the application of sophisticated transportation demand forecasting and simulation tools. These tools included:

- An operational, tested, and benchmarked ridership demand forecasting model using Amtrak data for the Northeast Corridor.
- The Train Performance Calculator module of the Rail Traffic Controller (RTC) operations simulation model that both Amtrak and CSXT accept for validating improvements to their systems.

The methodology focused on assessment of more than 100 options to determine what type and combinations of station pairs, service plans, and improvements resulted in the greatest ridership and public benefits at the lowest cost. The improvements were primarily to service, operations, facilities, and equipment. The public benefits were increased ridership, reduced travel time, increased reliability, more frequent service, and reasonable but competitive fares.

The results of this program development and optimization process were scrutinized in terms of economic impacts, procedural and institutional changes needed to implement improvements, and the funding and financing required. Finally, specific recommendations were made covering all aspects of the proposed programs and their implementation.

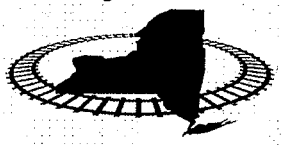
The approach and methodology result in improvement programs that can be supported by owners, operators, and stakeholders, and used to support implementation and funding proposals by the New York State Legislature and other entities. However, the programs, costs, and benefits are not at the level of detail required to secure commitment from financial institutions. This will require performing an investment-grade train dispatching simulation to affirm the specific improvements needed to support service enhancements west of Schenectady.

During the three-month study, meetings were held with passenger and freight railroad owners and operators, New York State agencies and authorities, and other key stakeholders. Four Task Force workshops were held to review the interim work. A public "Listening Session" was held in Syracuse on November 17, 2005, and input was obtained from participating stakeholder groups.

1.1.5 Thirty Years of Rail Planning

Over the past 30 years, many public and private studies have considered improvements to the passenger rail system and services in New York State. These plans have addressed the market for improved rail passenger services, the deficiencies in facilities and operations, and the potential for new regional and statewide services, including conventional rail upgrading, new very high speed rail lines and maglev on new routes. Table 1-B identifies 16 publicly-funded rail passenger studies conducted in New York State that were inventoried and reviewed by the Task Force.

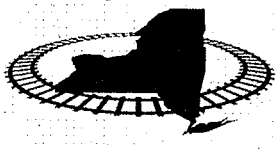
A comprehensive list of the proposals and improvements from these planning studies was compiled and used in this report. Most of these studies included recommendations and potential benefits. Some were officially reviewed by responsible public agencies, a



few were endorsed by public officials and rail owners and operators, but most have no official status or designation in either state or regional plans or programs. The studies that recommend new lines and extensions should be evaluated further within the framework of Empire Corridor market and ridership forecasts and a future integrated statewide rail network.

Table 1-B: Previous Studies List

Study Name	Date	Author
Concept Study: High Speed Rail Service in New York State	1970	New York State Department of Transportation (NYSDOT)
Very High Speed Rail Service between Montreal and New York	1984	Gaston de Courtois and Roland Courjault-Rade
HORIZONS Rail Passenger Demand Forecasting Project	1989	Cole Sherman
New York State Technical & Economic Maglev Evaluation	1991	Grumman Space and Electronics Division with Parsons Brinckerhoff, General Electric, Intermagnetics General Corp, and Brookhaven Lab
Maglev Demonstration Project Site Location Study	1992	Berger, Lehman Associates, P.C.
High Speed Ground Transportation Study NY State Line to Boston, MA	1993	VHB
New York State High Speed Surface Transportation Study Final Report	1994	Parsons Brinckerhoff with CRA and Arthur D. Little, Inc.
Massachusetts/New York High Speed Surface Transportation Study	1995	Raytheon with Bruce Campbell & Assoc., Cambridge Systematic, Harvard Design & Mapping, Price Waterhouse, STV, and Transmode
High Speed Ground Transportation for America	1997	Volpe National Transportation Systems Center, Argonne National Laboratory, CRA, DeLeuw Cather, Parsons Brinckerhoff
NYS Intercity Passenger Rail Plan	2000	NYSDOT
NY State HSR Intercity Passenger Rail Program Empire Corridor Report	2000	Federal Highway Administration (FHWA) and NYSDOT
Statewide Conference on High Speed Rail - Critical to New York State's Economic Future Proceedings	2001	Empire Corridor Rail Task Force and Syracuse Metropolitan Transportation Council
Binghamton Based Intercity Rail Passenger Service Feasibility Study	2003	Clough, Harbour & Associates, LLP with Transportation Economics & Management Systems, Inc. and Shumaker Consulting Engineers & Land Surveyors, P.C.
Catskill Rail Feasibility Study Final Report	2003	Edwards and Kelcey
I-87 Multimodal Corridor Study	2004	Parsons Transportation Group - Clough Harbour & Associates
Hudson Line Railroad Corridor Transportation Plan Final Report	2004	Systra Engineering with ZETA-TECH Associates, RPI



The most important of these public studies are:

- *New York State High-Speed Surface Transportation Study, August 1994*, which determined that a new fixed guideway route using new technology will be needed to achieve speeds in excess of 125 mph, including a new Hudson River rail crossing and new access to New York City.
- *2000 New York State Intercity Passenger Rail Plan, NYSDOT, February 2000,* which presented a vision, goals, and planned facility, equipment, and service improvements for the Empire Corridor, implementing a 1998 Memorandum of Understanding between Amtrak and NYSDOT.
- *I-87 Multimodal Corridor Study, New York City to Montreal,* which took a multi-modal view of transportation improvements between Albany and Montreal in the Adirondack Corridor, including passenger rail service up to 125 mph.
- *Hudson Line Railroad Corridor Transportation Plan, Presentation of Study Findings, October 2005,* which identified capacity improvements to the Hudson Line for implementation over a 15-year period. The improvements were endorsed by Amtrak, Metro North, and CSXT, the principal owners and operators of the line.

Numerous rail-related studies and proposals have also been conducted by public and private organizations. Of these, the Task Force has paid particular attention to:

- *High Speed Rail – Critical to New York State's Economic Future*, Conference Proceedings, March 7, 2001.
- *Hudson River East Shore Access Plan,* NYSDOT, September 2002.
- *2004 Vision for Passenger Rail and Public Transportation in New York State 2004-2008*, Empire State Passenger Association, March 2004.
- *Review of Rail Infrastructure and Services, Schenectady to Montreal,* Canadian Pacific Railway, December 2004.
- *Amtrak Strategic Reform Initiatives FY06 Grant Request*, April 2005.
- *CSXT Short- Range Improvements List*, November 2005.

As a result of the exceptional cooperation among NYSDOT, Amtrak, and Metro North, the Task Force was provided access to or briefed on several unpublished, proprietary and not publicly released documents and data that were extremely helpful in formulating and supporting programmatic recommendations.

1.1.6 Lessons Learned

What has been learned from 30 years of New York State planning studies and the recent experience of other states?

- **The importance of high speed has evolved.** Customers have said that reliability and frequency are more important than higher speed. Achieving top speeds in the Empire Corridor is one of many ways to reduce trip times, but may not be the most cost-effective way.

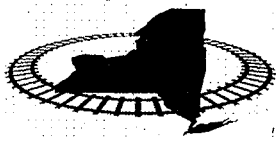
- **The importance of the customer and employees is paramount.** Almost all previous studies paid far too little attention to passenger markets, passenger amenities, and the rail system employees. The human factor is very important in terms of attracting and retaining rail customers, as well as those who operate, maintain, and manage the rail systems.

- **An integrated multimodal approach is key to success.** Integration with other modes at passenger stations, especially public transit, will increase ridership and help alleviate existing and future parking constraints.

- **Institutional and procedural issues are very important to service quality.** The Empire Corridor is a complex arrangement of numerous owners and operators, each with its own rules, procedures, and priorities. The level of communication required to meet each party's needs has not been sufficient to resolve all real-time train performance issues.

- **The focus on procuring equipment is correct.** Almost all of the existing equipment is over 30 years old, and no spare engines or rail cars are available to meet rising demand for service.

- **Performance goals are unenforceable without control and political accountability.** Passenger service priority is required by law. Even with Amtrak financial incentives, passenger priority in freight territory is unenforceable without control and accountability.



- **Other states' experience is helpful, but not always applicable to New York State.** Recent successful rail initiatives in other states, notably California and Washington, involve new institutional arrangements, state funding, and service agreements that are instructive for New York State. However, the comparative costs, relative to New York State commuter and intercity rail services, need to be scrutinized.

1.1.7 Opportunities and Constraints

New York State has the opportunity to reassert its leadership in intercity and interregional rail. However, it must position and organize itself to take advantage of the rapidly changing passenger rail and freight environment.

The opportunities are:

- New York City and the Empire Corridor remain the largest rail passenger market in the United States and are critical to the continued success of the Northeast Corridor.
- Amtrak restructuring will provide a one-time opportunity to reconfigure service and make fundamental institutional changes regarding control, operations, and maintenance.
- The timing is right. High gas prices and other factors have increased public demand for rail travel and support for rail investment.
- The rail owners and operators in the Empire Corridor are willing to cooperate, despite major differences.

The constraints are:

- Turboliner litigation is a fundamental stumbling block to progress.
- Maintaining the status quo is no longer an option due to possible service cuts, fare increases, and unacceptable performance.
- The New York State reluctance to provide direct financial support for intercity passenger rail operations.
- Lack of control and the ability to act in a coordinated, consistent, and sustained manner.
- Lack of a broad-based statewide constituency of rail passengers and non-users grounded in demonstrable benefits, performance, and economic development.

1.2 Task Force Vision, Goals and Objectives

The Task Force vision for passenger rail is two-fold:

> **Long-term:** Develop a Statewide Integrated Rail Network that will benefit all New York State residents.
>
> **Short-term:** Make immediate and interim improvements in the Empire Corridor that will increase ridership by providing quality service to the customer.

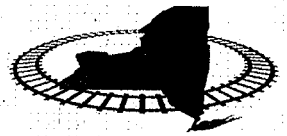
The centerpiece of the long-term vision is a new fixed-guideway route from New York City to Buffalo and points beyond. This route will follow the New York State Thruway, use maglev or other very high speed systems, make limited stops, achieve a two- to three-hour travel time between New York City and Buffalo (depending on number of stops), and help secure the future economic competitiveness of New York State.

When will this new system be in place and operational? The answer depends upon how aggressively New York State addresses the following:

- First, new institutional changes are required to implement a broader, phased improvement program to ensure a sustainable rail future for both passenger and freight in the Empire Corridor.
- Second, a fully-integrated Empire Corridor rail network needs to be developed, including a new fixed-guideway route and future extensions of the Empire Corridor, especially to cities in the Northeast Corridor.

The trade-off between incremental improvements in the Empire Corridor and a new very high speed route will become clear as the above improvements and changes are implemented. At some threshold level of ridership and public benefit, the cost of increasing capacity to accommodate demand on the south corridor will be greater than the benefit of building a new very high speed system guideway on a new route. Because of the lead times involved, development of this new route should begin in parallel with implementation of the Empire Corridor improvement action program.

What we already know is that high speed alone is not the most important factor for increasing ridership. Service reliability, frequency, and fares, along with total trip time and amenities—especially in combination—are more important than high speed. Integration of rail with other modes at stations, especially automobile parking, also



supports higher ridership. If the right combination of these improvements is made, major increases in ridership on the Capital District to New York City corridor can be achieved without train speeds higher than 110 mph.

In the Albany to Buffalo Corridor, increasing freight traffic, greater travel distances, and variable operating and track conditions are the major constraints. Over the long term, freight service and a quality passenger service cannot coexist on the same tracks at speeds above 90 mph. Empire Corridor rail service will not compete successfully with air travel for trips between Buffalo and New York City without a new dedicated passenger rail guideway.

In the Albany to Montreal Corridor, passenger service levels are low, while high speed rail improvements are attainable at high cost. A major improvement in reliability is possible by improving border crossing protocol. The single-track New York section of the route has increasing levels of freight service and access to important tourism venues. Selective incremental improvements are the correct strategy in this corridor north of Saratoga Springs.

What does it mean?

Trip Time is the time required to travel from origin to destination, including all intermediate stops and modes of transportation to and from the station.

Travel time is the time required for trains to travel between key stations, including running time and dwell time at intermediate stations.

Reliability is how passengers and freight customers judge how dependable and consistent the rail service is compared to published schedules and other modes of travel and goods movement [see earlier definition of on time performance (OTP)].

Frequency reflects both the number of trains operated in each direction each day, and the convenience of trip times and the ease with which customers might use the schedule.

1.2.1 Empire Corridor Goals

All of the current rail owners and operators have their own strategic business plans, goals, and priorities. These are sometimes compatible, but are often conflicting and competing with detrimental effects on service, improvements, and maintenance.

What are New York State's goals for intercity passenger and rail freight in the Empire Corridor?

Ideally, rail system goals should be developed and presented within the broader context of a multimodal statewide transportation master plan, such that the rail vision is part of and consistent with the overall transportation system. The rail vision, goals, objectives, and performance measures would be a subset of a larger transportation context and investment decision process. For example, the public benefit of a rail investment versus

a highway investment could be determined and compared. This has not been done as part of the three-month Task Force study. The transportation benefits of the proposed rail improvement programs have been identified, compared to goals identified for the purposes of this study, and presented in Section 3 of this report.

However, NYSDOT has articulated a number of service, economic, and safety goals in its *Intercity Passenger Rail Plan,* February 2000. These were reiterated and expanded in the Empire State Passenger Association's vision statement of March 2004. The Task Force has considered these and other goals. In our view, the goals that will best transform and sustain the Empire Rail Corridor into the future are:

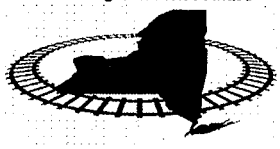
1. Increase ridership by providing reliable and efficient service that customers want.
2. Ensure operations and sufficient capacity and equipment to meet demand.
3. Maximize transportation benefits and economic development.

For both existing and new rail corridors, safety must always be maintained to the required standards. In the post-9/11 world, security is also a priority concern of passengers, federal, and state government. Improving access to the Hudson River is one of the goals of the Hudson River Estuary Program. The Task Force has met with NYSDOT to discuss corridor safety, with the Department of Homeland Security to discuss security issues, and with a representative of the Hudson River Estuary Program to make certain that rail improvement programs incorporate these priorities. NYSDOT has already taken the lead in all of these areas, particularly with regard to implementing advanced communication signal and control systems and a grade crossing program that also increases public access to waterfront areas.

1.2.2 Objectives and Performance Targets

Each of the three goals is further defined by several objectives that will contribute to achieving the goal over time. The Task Force proposes 14 objectives with individual performance targets. The short-term targets are ambitious, but achievable within a three-year time period. The longer-term targets require significant lead time and a sustained level of coordination and investment over a 3- to 10-year period, or longer.

Each objective involves trade-offs. For example, the objective of rationalized fares recognizes that there is a trade-off in fare policy between encouraging ridership and



providing a subsidy, within the context of a fare policy that is equitable to all customers and regions. Detailed ridership and revenue forecasting will be required to determine the optimal fare for the service, at a level that maximizes both revenue and public benefit as measured by ridership on the system.

Table 1-C presents the objectives and performance targets for the south corridor.

Table 1-C: Empire Corridor Goals, Objectives, and Targets—South Corridor

Goals & Objectives	Current Condition	Performance Targets	
		Short-Term (1-3 years)	Mid-Term (3-10 years)
Goal 1: Increase ridership			
Reduce travel time	2hrs 25min	Near 2 hrs	Under 2 hrs
Improve Reliability (on-time %)	70%	80% better for selected trains	90+%, comparable to Metro North
Increase Frequency	12 weekday Roundtrips	Clockface schedule	+50% in order to maintain comfortable load factors
Rationalize Fares	Maximize revenue	Maximize revenue/public benefit	Maximize revenue/public benefit
Provide customer amenities	Limited	At stations	On board
Facilitate integration with other modes	Limited	Fully coordinate with existing modes, car sharing.	Parking, access to Albany and Stewart Airports
Goal 2: Ensure operations, capacity, and equipment			
Take responsibility for rail network and performance	Owners & operators	Increased cooperation & state responsibility	Permanent institutional mechanism
Provide equipment to meet demand	None available	Turbos & reconstructed push-pulls	New fleet with "New York Car"
Provide adequate, reliable, consistent funding	Limited	Negotiated agreements	Permanent funding mechanism
Facilitate additions to the passenger rail network	Existing proposals	Network expansion strategy & ROW reservation	Implementation program
Goal 3: Maximize transportation benefits and economic development			
Promote station area development	None	Rensselaer station area development initiative	New intermodal center stations
Develop marketing, information & education program	Limited	Target markets for restructured service plan	Fully integrated NYS, Amtrak, Metro North marketing
Support the growth of rail freight	Limited	State control of ROW and Maintenance	Improvements to West of Hudson line
Solicit public and private proposals	Limited	Station vendors, Special event trains	Public and private service operators

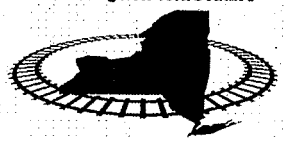
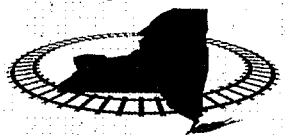


Table 1-D presents the objectives and performance targets for the west corridor. Compared with the south corridor, the west corridor is longer, has more variable conditions and operations, and therefore, reliability standards are lower. Importantly, because the service frequency is lower and Amtrak is the only existing service, proposed frequency improvements are far more ambitious than for the south corridor, where Metro North provides a high frequency of service in the most heavily-traveled portion of the corridor.

Table 1-D: Empire Corridor Goals, Objectives, and Targets—West Corridor

Goals & Objectives	Current Condition	Performance Targets	
		Short-Term (1-3 years)	Mid-Term (3-10 years)
Goal 1: Increase ridership			
Reduce travel time	5 hrs 45 min	5 hrs 30 min	Near 5 hrs
Improve Reliability (on-time %)	60%	70% better for selected trains	Near 90%
Increase Frequency	4 Weekday round trips	Add 1 train if equipment is available	Add 2 trains to attract new riders
Rationalize Fares	Maximize revenue	Increase ridership	Maximize revenue/ public benefit
Provide customer amenities	Limited	At stations	On board
Facilitate integration with other modes	Limited	Parking & timed bus transfers	Parking
Goal 2: Ensure operations, capacity, and equipment			
Take responsibility for rail network and performance	Owners & operators	Increased cooperation	Permanent institutional mechanism
Provide equipment to meet demand	None available	Turbos & reconstructed push-pulls	New fleet with "New York Car"
Provide adequate, reliable, consistent funding	Limited	Negotiated agreements	Permanent funding mechanism
Facilitate additions to the passenger rail network	Existing proposals	Network expansion strategy & ROW reservation	Other states, international markets
Goal 3: Maximize transportation benefits and economic development			
Promote station area development	None	Target stations	Implement program
Develop marketing, information, & education program	Limited	Target markets for restructured service plan	Fully integrated NYS and Amtrak
Support the growth of rail freight	Limited	Selective Improvements to CSXT Chicago line	Additional freight capacity
Solicit public and private proposals	Limited	Station vendors, Special event trains	Public and private service operators



1.3 The Empire Rail Corridor Today and Tomorrow

1.3.1 Passenger and Rail Freight Profile

The Empire Rail Corridor stretches 460 miles from New York City to Niagara Falls, NY, linking Niagara Falls, Buffalo, Rochester, Syracuse, Albany, and New York City. Today, this rail corridor is one of the busiest mixed use (intercity passenger, freight, and commuter) rail lines in the U.S. because geography favors the line as the key link between the Mid-Atlantic States and Chicago. Built in the 19th century, the line formed the backbone of Cornelius Vanderbilt's New York Central Railroad which was noted for fast, efficient freight service and the nation's best passenger trains, such as the Twentieth Century Limited. Through mergers, bankruptcies, reorganizations, and legislation, the former single-owner Empire Corridor has been fragmented into multiple ownership.

The Empire Corridor today remains as important a route for passengers and freight as it was in the days of the Vanderbilts, now with greater volumes. In 1959, the New York Central Railroad ran 10 passenger trains a day in each direction between Albany and New York City (not counting through trains that simply stopped in Albany to change crews in the middle of the night). Today, Amtrak operates 13 trains in each direction. Since the Conrail acquisition by CSX, Vanderbilt's main line has become the major east-west route for CSXT freight and an essential part of the land bridge for container traffic traversing the U.S. from West Coast ports to the eastern seaboard, either for delivery or for further shipment.

What is different about the Empire Corridor today is that it operates like two different railroads east and west of the Capital District in terms of the passenger-freight mix.

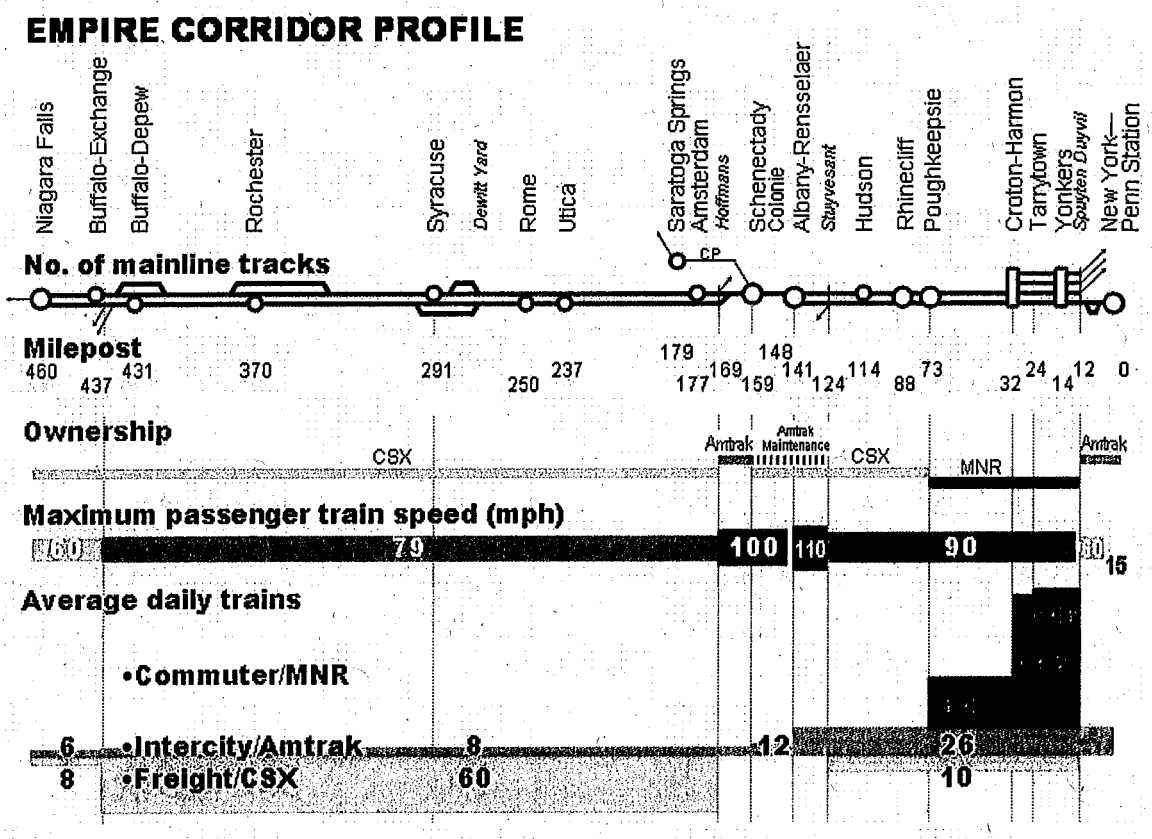
West of Albany, freight traffic is predominant, and freight service is the major stakeholder. Passenger service must compete against inexpensive air service and the New York State Thruway. Freight service is growing due to the concentration of the Port of New York facilities along the New Jersey coast and the development of Selkirk Yard (near Albany) as the East Coast's major freight classification yard.

South of Albany, passenger service dominates. Most of the freight that continues east/south of Selkirk Yard runs down the West Shore, a freight-only line west of the Hudson River, while passenger traffic dominates the Hudson Line on the east side of the river. The distinct character of these two segments is important to the various discussions of operational, marketing, infrastructure, and institutional issues.

Figure 1-C illustrates the Empire Corridor in all its complexity of multiple ownership, different operating speeds, and different passenger and freight densities. The New York-Buffalo Line is essentially a two-track line on a right-of-way that was once a four-track main line when passenger service ran more frequently. On much of the alignment, sufficient right-of-way exists to accommodate a four-track railroad.

The Metro North commuter territory between Poughkeepsie and the Empire Connection in New York City has segments that are two-, three-, and four-track. The Empire Connection is double-tracked with a single track through the Empire Tunnel at Penn Station. The small segment of single track on the Amtrak-owned portion west of Albany is a major choke point for passenger trains.

Figure 1-C: Empire Corridor Profile

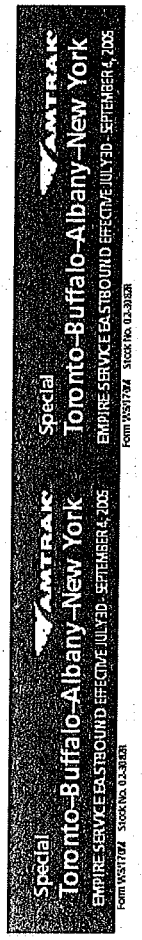


1.3.2 The Corridor Users

Passenger Service

Both Amtrak and Metro North provide passenger service in the Empire Rail Corridor. Amtrak operates 13 trains in each direction on an average weekday between Albany and New York. Three of these round trips go to Buffalo and Niagara Falls (one continuing to Toronto), and nine go to Albany (with one continuing to Montreal and one to Rutland). In addition, Amtrak's Lake Shore Limited provides long distance service from New York (and Boston) to Chicago with western transcontinental connections. Amtrak's schedule of service in New York is shown in Figure 1-D and Figure 1-E. Approximately one million people per year use Amtrak service in the Empire Corridor. It is the most-used non-state-supported service outside the Northeast Corridor and has been maintained at a relatively consistent level since Amtrak's inception in 1971.

Figure 1-D: Amtrak Empire Corridor Service (Eastbound)



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Train Number ►	240	238	242	246	244	248	294	254	284	280	256	48	292	272
Normal Days of Operation ►	Mo-Fr	SaSu	Mo-Fr	Mo-Fr	Sa	Daily	Tu-Fr	SaSuMo	Mo-Fr	Sa	Su-Fr	Daily	Mo	Sa
Will Also Operate ►		95			94					94				94
Will Not Operate ►	95		95	95					95		94			
Toronto, ON (ET)	Dp											From		
Niagara Falls, NY									4 15A	5 45A		Chicago		
Buffalo-Exchange St., NY									5 20A	6 20A				
Buffalo-Depew, NY									5 35A	6 35A		) 7 10A		
Rochester, NY									6 32A	7 32A		8 08A		
Syracuse, NY									7 50A	8 50A		9 25A		
Rome, NY							From		8 20A	9 20A			From	
Utica, NY							Rutland		8 48A	9 48A		10 12A	Rutland	
Amsterdam, NY									9 44A					
R. Edward Quinn Fda. NY (ET)													12 16P	
Saratoga Springs, NY							8 43A						12 37P	
Schenectady, NY							9 23A		10 05A	11 05A		11 24A	1 03P	
Albany-Rensselaer, NY	Ar						9 50A		10 50A	11 50A		12 00N	1 30P	
	Dp	5 10A	6 00A	6 20A	6 55A	7 00A	8 10A	10 00A	11 00A	12 00N	12 00N	3 D 12 30P	2 00P	2 00P
Hudson, NY		5 36A	6 25A	6 45A	7 20A	7 25A	8 35A	10 25A	11 25A	12 25P	12 25P		2 29P	2 25P
Rhinecliff-Kingston, NY		5 52A	6 40A	7 00A	7 41A	7 46A	8 56A	10 46A	11 46A	12 46P	12 46P		2 46P	2 46P
Poughkeepsie, NY (T)			7 01A			8 01A	9 11A	11 01A	12 01P	1 01P	1 01P		3 01P	3 01P
Croton-Harmon, NY (T)		6 25A	7 38A	8 01A		8 38A	9 48A	11 38A	12 38P	1 38P	1 38P	D 2 36P	3 36P	3 36P
Yonkers, NY (T)			7 57A			8 57A	10 07A		12 57P	1 57P	1 57P			
New York, NY-Penn Sta. (ET)	Ar	7 30A	8 25A	8 45A	9 15A	9 25A	10 25A	12 25P	12 25P	1 25P	2 25P	2 25P	4 25P	4 25P

Toronto • Buffalo • Rochester • Syracuse • Albany • New York

Reservations are required for travel to or from stations shaded in the train column.

Train Number ►	260	282	286	262	68	268	64	296	288
Normal Days of Operation ►	Tu-Fr	Su	Mo-Sa	Su-Fr	Daily	Su	Daily	SaSu	Su
Will Also Operate ►		95	94			95		94	95
Will Not Operate ►		94	95			94			94
Toronto, ON (ET)	Dp								
Niagara Falls, NY		7 55A	8 55A				8 30A		3 00P
Buffalo-Exchange St., NY		8 30A	9 30A				1 10P		3 35P
Buffalo-Depew, NY		8 45A	9 45A				1 25P		3 50P
Rochester, NY		9 42A	10 42A				2 22P		4 47P
Syracuse, NY		11 00A	12 00N				3 45P		6 05P
Rome, NY		11 30A	12 30P		From		4 21P	From	6 41P
Utica, NY		11 58A	12 58P		Montreal		4 41P	Rutland	7 03P
Amsterdam, NY		12 54P	(T)				5 37P		7 59P
R. Edward Quinn Fda. NY (ET)					2 15P			6 45P	
Saratoga Springs, NY					3 38P			7 07P	
Schenectady, NY		1 15P	2 12P		4 29P		5 56P	7 36P	8 20P
Albany-Rensselaer, NY	Ar	2 00P	3 00P		5 05P		6 45P	8 05P	9 05P
	Dp 2 00P	2 15P	3 15P	4 15P	5 15P	6 15P	7 15P	8 15P	9 15P
Hudson, NY	2 25P	2 40P	3 40P	4 40P	5 40P	6 40P	7 40P	8 40P	9 40P
Rhinecliff-Kingston, NY	2 46P	3 01P	4 01P	5 01P	6 01P	7 01P	8 01P	9 01P	10 01P
Poughkeepsie, NY (T)	3 01P	3 16P	4 16P	5 16P	6 16P	7 16P	8 16P	9 16P	10 16P
Croton-Harmon, NY (T)	3 38P	3 52P	4 52P	5 53P	6 53P	7 53P	8 53P	9 53P	10 53P
Yonkers, NY (T)			5 12P	6 12P	7 12P	8 12P	9 12P	10 12P	
New York, NY-Penn Sta. (ET)	Ar 4 25P	4 40P	5 55P	6 40P	7 40P	8 40P	9 45P	10 45P	11 45P

For reservations and information, call 1-800-USA-RAIL or your travel agent.

Services on Empire Service Trains

All Empire Service Trains offer sandwiches, snacks and beverages; Some trains offer Railfone • On-board Telephone Service. Dining car and sleeping car services are available on Trains 48 and 49. Business class service is available on all 200-series trains and Train 63 and 64.

- Smoking is prohibited entirely on these trains. Note—No local passengers carried between Yonkers, Croton-Harmon or Poughkeepsie. Frequent local service is available on Metro-North Railroad.

Symbols and Reference Marks

- A Time Symbol for A.M.
- D Stops only to discharge passengers.
- P Time Symbol for P.M.
- Checked Baggage Service.
- Customs and Immigration check point. Train is subject to delay.
- (T) No local passengers carried between Yonkers, Croton-Harmon, or Poughkeepsie. Frequent local service is available on Metro-North Railroad.
- (S) Stops on Saturday only at 11:58 p.m.
- (ET) This station is operated by VIA Rail Canada. Trains between Niagara Falls, ON and Toronto are operated by VIA Rail Canada in cooperation with Amtrak®. Through fares/ticketing available.
- (ET) Via CP route.

Schedules subject to change without notice.

Amtrak is a registered service mark of the National Railroad Passenger Corp.

Figure 1-E: Amtrak Empire Corridor Service (Westbound)

AMTRAK Special New York–Albany–Buffalo–Toronto
EMPIRE SERVICE WESTBOUND EFFECTIVE JULY 30–SEPTEMBER 4, 2005
Form W3117/04 Stock No. 02-3183R

New York • Albany • Syracuse • Rochester • Buffalo • Toronto

Reservations are required for travel to or from stations shaded in the train column.

For reservations and information, call 1-800-USA-RAIL or your travel agent. Also visit www.amtrak.com on the Internet.

Train Number ►		63	71	69	287	281	279	251	283	291	255	257	49	259	265	293
Normal Days of Operation ►		Daily	SaSu	Mo-Fr	SaSu	Mo-Fr	SaSu	Mo-Fr	Daily	Su-Th,Sa	Fr	Mo-Fr	Daily	Mo-Fr	Su-Th,Sa	Fr
Will Also Operate ►			95		95		95									
Will Not Operate ►				95		95		95		95		95		95		
New York, NY–Penn Sta. (ET)	Dp	7 15A	7 45A	8 15A	9 45A	10 45A	11 45A	12 45P	1 45P	2 45P	2 45P	3 45P	3 50P	4 35P	5 45P	5 45P
Yonkers, NY [1]		7 32A				11 03A	12 05P	1 00P	2 09P	3 09P	3 00P					
Croton-Harmon, NY [1]		7 53A	8 26A	8 56A	10 26A	11 29A	12 25P	1 20P	2 29P	3 20P	3 20P	4 26P	R 4 23P		6 26P	6 26P
Poughkeepsie, NY [1]		8 37A	9 06A	9 35A	11 06A	12 07P	1 07P	2 07P	3 07P	4 07P	4 07P	5 05P			7 10P	7 10P
Rhinecliff-Kingston, NY		8 53A	9 20A	9 50A	11 20A	12 22P	L 1 22P	2 22P	3 22P	4 22P	4 22P	5 20P	[13] 5 26P	L 6 05P	7 25P	7 25P
Hudson, NY		9 15A	9 42A	10 13A	11 43A	12 45P	L 1 45P	2 45P	3 45P	4 45P	4 45P	5 42P	[13] 5 50P	L 6 28P	7 48P	7 48P
Albany-Rensselaer, NY	Ar	9 45A	10 16A	10 40A	12 15P	1 15P	2 15P	3 15P	4 15P	5 15P	5 15P	6 15P		6 55P	8 15P	8 15P
	Dp	10 03A	10 25A	10 55A	12 25P	1 25P			4 25P	5 25P			R 6 50P			8 25P
Schenectady, NY		10 21A	10 48A	11 10A	12 48P	1 48P			4 48P	5 40P			7 16P			8 40P
Saratoga Springs, NY			11 16A	11 47A						6 17P						9 17P
Ft. Edward-Glens Falls, NY [1]			11 37A	12 09P						6 38P						9 38P
Amsterdam, NY		10 40A			2 02P	2 05P			5 05P							
Utica, NY		11 30A	To	To		3 04P			6 04P	To			8 25P			To
Rome, NY		11 53A	Montreal	Montreal		3 18P			6 18P	Rutland						Rutland
Syracuse, NY		12 40P			3 00P	4 05P			7 05P				9 26P			
Rochester, NY		1 58P			4 20P	5 25P			8 25P				10 45P			
Buffalo-Depew, NY		2 56P			L 5 21P	L 6 26P			L 9 26P				11 55P			
Buffalo-Exchange St., NY		3 00P			L 5 34P	L 6 30P			L 9 29P							
Niagara Falls, NY		4 10P			6 45P	7 50P			10 50P				To			
Toronto, ON (ET)	Ar	7 44P											Chicago			

AMTRAK Special New York–Albany–Buffalo–Toronto
EMPIRE SERVICE WESTBOUND EFFECTIVE JULY 30–SEPTEMBER 4, 2005
Form W3117/04 Stock No. 02-3183R

New York • Albany • Syracuse • Rochester • Buffalo • Toronto

Reservations are required for travel to or from stations shaded in the train column.

Train Number ►		267	269	271	275	273	277
Normal Days of Operation ►		Mo-Fr	SaSu	Mo-Fr	SaSu	Mo-Th	Fr-Su
Will Also Operate ►			95		95		95
Will Not Operate ►		95		95		95	
New York, NY–Penn Sta. (ET)	Dp	7 10P	7 45P	8 20P	9 45P	10 45P	11 45P
Yonkers, NY [1]		7 31P	8 00P	8 41P	10 02P		
Croton-Harmon, NY [1]		7 52P	8 28P	9 02P	10 28P	11 26P	12 23A
Poughkeepsie, NY [1]		8 32P	9 07P	9 42P	11 07P	12 05A	1 05A
Rhinecliff-Kingston, NY		L 8 47P	L 9 22P	L 9 57P	L 11 22P	L 12 20A	L 1 20A
Hudson, NY		L 9 10P	L 9 45P	L 10 20P	L 11 45P	L 12 42A	L 1 42A
Albany-Rensselaer, NY	Ar / Dp	9 40P	10 15P	10 50P	12 15A	1 15A	2 15A
Schenectady, NY							
Saratoga Springs, NY							
Ft. Edward-Glens Falls, NY [1]							
Amsterdam, NY							
Utica, NY							
Rome, NY							
Syracuse, NY							
Rochester, NY							
Buffalo-Depew, NY							
Buffalo-Exchange St., NY							
Niagara Falls, NY							
Toronto, ON (ET)	Ar						

For reservations and information, call 1-800-USA-RAIL or your travel agent.

Services on Empire Service Trains

All Empire Service Trains offer sandwiches, snacks and beverages. Some trains offer Railfone* On-board Telephone Service. Dining car and sleeping car services are available on Trains 48 and 49. Business class service is available on all 200-series trains and Train 63 and 64.

- Smoking is prohibited entirely on these trains. Note—No local passengers carried between Yonkers, Croton-Harmon or Poughkeepsie. Frequent local service is available on Metro-North Railroad.

Symbols and Reference Marks

- A Time Symbol for A.M.
- D Stops only to discharge passengers.
- L Stops primarily to discharge passengers; train may leave before the time shown.
- P Time Symbol for P.M.
- ✩ Checked Baggage Service.
- Customs and Immigration check point at Niagara Falls, ON. Train is subject to delay.
- [1] No local passengers carried between Yonkers, Croton-Harmon, or Poughkeepsie. Frequent local service is available on Metro-North Railroad.
- [11] This station is operated by VIA Rail Canada. Trains between Niagara Falls, ON and Toronto are operated by VIA Rail Canada in cooperation with Amtrak. Through fares/ticketing available.
- [12] Via CP route.
- [13] On Sundays Train 49 stops to discharge passengers at Rhinecliff-Kingston and Hudson.

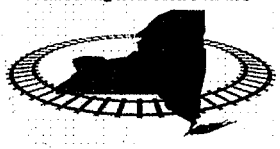
Schedules subject to change without notice.

Amtrak is a registered service mark of the National Railroad Passenger Corp.

The Empire Service trains are part of Amtrak's basic system, and generally operate without state aid. The exceptions to this are the Adirondack (Trains 68-69), financed primarily through funds made available by NYSDOT. The Ethan Allen Express (Rutland, VT-Albany-New York City) is financed primarily through funding made available by the Vermont Department of Transportation.

Amtrak is generally constrained by its own equipment and has neither a pool of equipment resources nor a procurement program in place to replace or supplement its 25-year-old equipment.

In addition to operating subsidy, the State of New York has funded capital improvements to the rail line, equipment overhauls, and station construction and renovations.



Travel time between New York and Buffalo is approximately 9 hours. Eastbound trains depart Buffalo in early morning or early afternoon and arrive in New York in the late afternoon or early evening. Westbound trains leave in the morning and arrive in the afternoon or early evening.

Travel times between Albany and New York range from 2 hours 20 minutes for the express trains to 2 hours 30 minutes for trains making all stops. Two eastbound trains from Albany arrive in New York during the morning peak period, and two westbound trains leave New York during the afternoon peak period. However, the relatively infrequent service, long travel time, and prohibitive fare (ranging from $34 - $53 in each direction for a reserved coach seat) essentially preclude its use as a commuter service.

Commuter service is the responsibility of Metro North, and current institutional arrangements keep Amtrak's "intercity" and Metro North's "commuter" services distinct. This arrangement originated when Penn Central was the owner of the line and public subsidy of commuter service was beginning.

Metro North offers essentially hourly service between Poughkeepsie and New York's Grand Central Terminal throughout the day, with greater frequency during the rush hours. From Croton-Harmon—the end of the third rail electric territory—there is additional service to supplement the Poughkeepsie trains, resulting in service every 30 minutes between Harmon and Grand Central Terminal. Metro North's Hudson Line handles approximately seven million passengers a year.

Metro North Railroad is a division of the New York Metropolitan Transportation Authority and is funded by various local, state, and federal sources (Federal Transit Administration) to provide commuter rail service in several corridors serving New York and Connecticut communities.

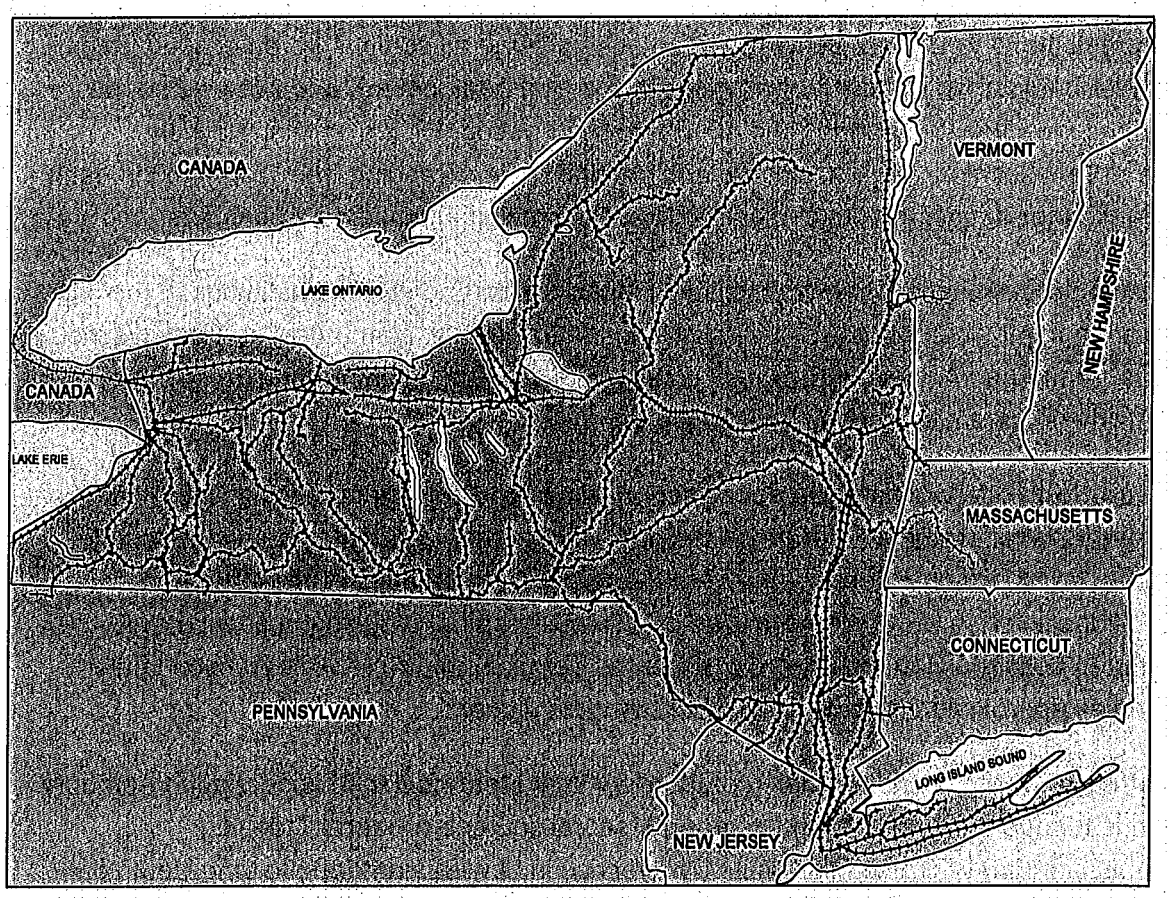
The separate New York City termini for Empire Corridor intercity and commuter trains are part of the current institutional arrangement. There is a future vision to bring some Metro North commuter trains into Penn Station and some Long Island trains and Empire Corridor trains into Grand Central Terminal. There are no arrangements for joint ticket sales or cross-honoring Metro North and Amtrak tickets.

Freight Service

Figure 1-F shows the more than 3,604 miles of freight railroad operated in New York State. Both CSX Transportation (CSXT) and Canadian Pacific Railway (CP) provide freight rail service to the Empire Rail Corridor. CSXT is the principal freight carrier in the

Empire Corridor, but CP Rail, through its convenient connections with Norfolk Southern at Binghamton and Buffalo, NY, and Allentown, PA, gives shippers a competitive alternative to CSXT.

Figure 1-F: New York State Freight Network Map



The main east-west freight route runs 250 miles from the New York-Pennsylvania state line at Ripley, NY, through Buffalo, Rochester, and Syracuse to Hoffmans. At Hoffmans, the freight line leaves the joint-use main line and goes east to Selkirk, NY. Hoffmans is located west of Albany, between Schenectady and Amsterdam (CP 169). The line carries approximately 100 million gross ton-miles annually. Between the Capital District and New York City, passenger and freight lines are split by the Hudson River, with the passenger trains (and some freight) running down the Hudson Line via Poughkeepsie and the bulk of the freight movement (no passenger) down the West Shore via West Point and Newburgh. The major commodities, in addition to intermodal and UPS traffic, are coal, automobiles, grain, and municipal waste.

CSXT has major yard facilities at Selkirk (Albany area), Buffalo, and Syracuse, with major locomotive servicing facilities in Selkirk and Buffalo. Buffalo is the site of a major car repair shop. There are intermodal terminals in Buffalo and Syracuse in addition to those facilities that serve the Port of New York. Selkirk is also the site of a Finished Automobile Distribution Center.

1.3.3 Passenger Markets and Demand

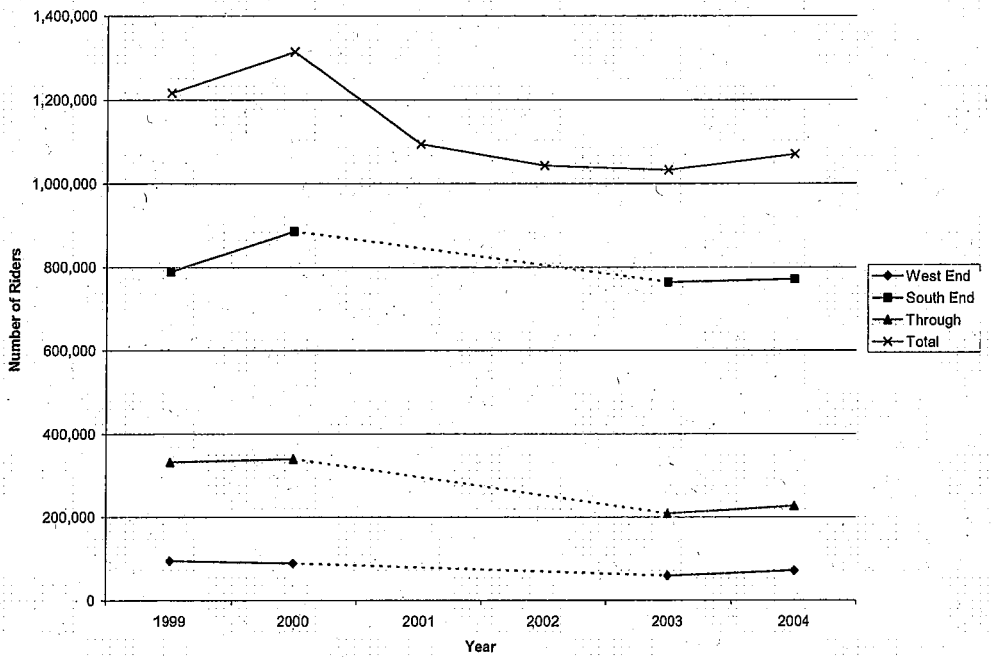
Recent History of Empire Corridor Rail Ridership

Figure 1-G shows annual Amtrak passenger ridership in the Empire Corridor from 1999 through 2004. The figure presents ridership in the entire corridor and also (for years when data is available) for three distinct corridor markets:

- West corridor trips, consisting of travel between any station pairs located between Niagara Falls (NFL) and Albany (ALB);
- South corridor trips, between any station pairs located between Albany and New York City (NYC); and
- Through trips, between a station in the west corridor and a station in the south corridor.

As shown in Figure 1-G, total corridor ridership peaked in 2000 at over 1.26 million, but dropped sharply to 1.09 million riders in 2001. Ridership further decrease to a low of 1.04 million in 2002, but then turned around and increased slightly to 1.08 million riders in 2003 and 1.14 million riders in 2004.

Figure 1-G: Empire Corridor Ridership



*Note: Individual market data not available for 2001 and 2002.

Examination of 2004 rail ridership data covering all Amtrak services on the Empire Corridor shows that most trip-making takes place completely within the south corridor. In 2004, roughly 78 percent of all Empire Corridor riders traveled between stations located in the south corridor. In the same year, slightly over five percent of Empire Corridor riders traveled between stations located in the west corridor. The remaining approximately 17 percent of corridor riders in that year traveled between a station in the west corridor and a station in the south corridor. Roughly three-quarters of current passengers with one trip end in the west corridor make through trips (travel through Albany); most of these trips go to and from New York City.

Figure 1-F shows that in percentage terms, the greatest decline in Empire Corridor rail ridership over the last six years has been in the west corridor and through-trip markets. This has been caused by two developments. First, rail service has deteriorated on the west corridor, with decreasing reliability, aging equipment, interference from CSXT freight trains, and an increasing backlog of maintenance and repairs needed to preserve service at existing levels. Second, in 2000 jetBlue Airways began serving upstate

markets (Buffalo, Rochester, and Syracuse) from New York's John F. Kennedy International Airport. This has resulted in a dramatic increase in air travel in the corridor, and a corresponding decrease in the relative percentage of rail travel.

Table 1-E shows the impact of jetBlue's new service and fares on total air travel between the upstate airports that it serves and New York City.

Table 1-E: Air Volumes and Average Fares Before and After jetBlue Airways

Origin	Destination	1999 O-D Passengers	1999 Average One-Way Fare	2004 O-D Passengers	2004 Average One-Way Fare
Buffalo (BUF)	NYC	421,249	$141	697,618	$95
Rochester (ROC)	NYC	231,707	$146	418,049	$98
Syracuse (SYR)	NYC	115,209	$153	215,289	$107

Source: U.S. DOT, DB1B data - Consumer Air Fare Report

During the five-year period from 1999 to 2004, Buffalo-New York City air traffic grew by about 65 percent, while the average fare dropped by about 30 percent. A similar 30 percent fare drop also occurred in the Rochester-New York City and Syracuse-New York City markets, with air traffic increases of 80 percent and 85 percent, respectively. These are clearly substantial increases; they show the importance of fares as well as travel times.

The Competitive Position of Empire Corridor Rail Service

It is useful to examine the current competitive position of Amtrak's rail service in important corridor markets. Table 1-F presents air, auto, and rail passenger volumes, as well as air and rail fares and distances, between major corridor cities in 2004.

The table shows the remarkably high share of rail in the travel market between Albany and New York City. Rail is already, by far, the dominant common carrier between these cities, capturing well over a third of the total travel market. This is very unusual for a major city pair in the U.S., and can be attributed in large part to the difficulty of auto travel and low auto ownership rate in the New York metropolitan area. Moreover, air is simply not competitive with rail or auto in this market, since the relatively short distance

(around 140 miles) does not give air travel's high line haul speed the competitive advantage that it typically enjoys over longer distances.

Table 1-F: Transportation in the Empire Corridor (2004)

City Pair	Distance	Air		Auto	Rail	
		Avg. Fare	Volume	Volume	Peak Fare	Volume
ALB-NYC	141	$170	22,890	719,740	$45	517,779
ALB-SYR	150	$87	3,767	425,289	$32	6,174
ALB-ROC	229	$198	5,677	200,228	$46	7,442
ALB-BUF	290	$192	17,103	256,095	$53	9,402
SYR-NYC	291	$107	215,289	8,850	$61	37,989
ROC-NYC	370	$98	418,049	9,000	$65	27,800
BUF-NYC	431	$95	697,618	14,350	$66	19,773
BUF-ROC	61	-	-	4,067,330	$16	1,271
BUF-SYR	141	-	-	1,826,394	$23	5,053
ROC-SYR	80	-	-	3,546,520	$17	1,988

Source: CRA International, 2005

On the other hand, between New York City and corridor cities farther away (Syracuse, Rochester, and Buffalo), air completely dominates rail, and in fact air even dominates auto at distances over 350 miles. Between Albany and these west corridor cities, neither air nor rail is a major competitor to auto, and volumes on both modes are quite low. Only in the Albany-Buffalo market (around 290 miles) does air's faster line haul speed overcome rail and allow it to be the dominant common carrier mode.

Existing Amtrak Rail Travel in the Empire Corridor

The following three tables present important sets of current Amtrak rail passenger data for the entire Empire Corridor.

Table 1-G shows the distribution of rail riders between New York's Penn Station (NYP) and each other rail station in the corridor. The table shows that about 16 percent of rail passengers in the corridor with one trip end in New York City have their other trip end at a west corridor station. This percentage is only slightly smaller than that of through rail trips in the corridor because most through riders are traveling to or from New York City, rather than to or from areas served by the Hudson River Valley stations south of Albany.

2004 Amtrak Rail Passenger Volumes in the Empire Corridor

Table 1-G: Rail Volume Distribution Between Niagara Falls and New York's Penn Station

Station Origin	Station Destination	% of Total Volume	Cumulative Volume %
Niagara Falls	New York Penn	1.43%	1.43%
Buffalo-Exchange St.	New York Penn	0.79%	2.21%
Buffalo-Depew	New York Penn	1.97%	4.18%
Rochester	New York Penn	2.76%	6.94%
Syracuse	New York Penn	3.78%	10.72%
Rome	New York Penn	0.37%	11.09%
Utica	New York Penn	2.31%	13.40%
Amsterdam	New York Penn	0.46%	13.86%
Schenectady	New York Penn	1.94%	15.80%
Albany-Rensselaer	New York Penn	51.49%	67.29%
Hudson	New York Penn	12.90%	80.19%
Rhinecliff	New York Penn	16.58%	96.77%
Poughkeepsie	New York Penn	2.40%	99.17%
Croton-Harmon	New York Penn	0.74%	99.91%
Yonkers	New York Penn	0.09%	100.00%

Source: Amtrak

Table 1-H shows the 20 station pairs with the highest annual volumes in the corridor. Albany-New York's Penn Station has by far the largest volume, representing a very large 44 percent of all rail trips on the Empire Corridor. The next two highest station pair volumes are between Penn Station and intermediate stations in the south corridor. The volume drops off sharply for the next station pair, Penn Station-Syracuse, which is the first through trip market pair. The 10 highest volume station pairs have New York City as one of their trip ends. The highest volume station pair entirely within the west corridor is Albany-Buffalo, with less than 2 percent of the Albany-Penn Station volume and less than 1 percent of the overall Empire Corridor volume.

2004 Amtrak Rail Passenger Volumes in the Empire Corridor

Table 1-H: Top 20 Station Pair Volumes

Station Pair	Volume
Albany-NY Penn	517,779
NY Penn – Rhinecliff	166,737
Hudson – NY Penn	129,691
NY Penn - Syracuse	37,989
NY Penn – Rochester	27,800
NY Penn - Poughkeepsie	24,117
NY Penn - Utica	23,223
Buffalo – NY Penn	19,773
NY Penn - Schenectady	19,499
Niagara Falls – NY Penn	14,344
Albany - Poughkeepsie	11,271
Albany – Croton-Harmon	10,812
Albany – Buffalo-Depew	9,402
Buffalo- Exchange St – NY Penn	7,896
Croton-Harmon – NY Penn	7,450
Albany - Rochester	7,442
Albany – Syracuse	6,174
Albany – Yonkers	5,863
Buffalo – Syracuse	5,053
Amsterdam – NY Penn	4,657

Source: Amtrak

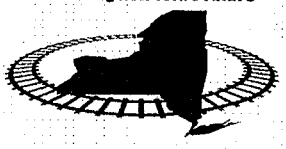


Table 1-I shows the number of annual passengers riding on each segment between adjacent stations in the corridor. The peak load point is the segment between the Rhinecliff and Poughkeepsie stations, but volumes remain high between Poughkeepsie and New York's Penn Station.

2004 Amtrak Rail Passenger Volumes in the Empire Corridor

Table 1-I: Rail Link Volumes

Link		Volume
Niagara Falls	Buffalo-Exchange St.	20,824
Buffalo-Exchange St.	Buffalo-Depew	36,974
Buffalo-Depew	Rochester	83,528
Rochester	Syracuse	132,093
Syracuse	Rome	228,963
Rome	Utica	181,496
Utica	Amsterdam	204,898
Amsterdam	Schenectady	208,451
Schenectady	Albany	220,485
Albany	Hudson	743,172
Hudson	Rhinecliff	871,609
Rhinecliff	Poughkeepsie	1,034,684
Poughkeepsie	Croton-Harmon	1,033,109
Croton-Harmon	Yonkers	1,017,536
Yonkers	NY Penn	1,005,601

Source: Amtrak

Two-Railroad Market Concept

The rail volumes presented in the preceding tables support the concept that the west and south corridors are currently relatively separate travel markets. The amount of through travel between these two parts of the corridor is relatively small. The rail volumes traveling to or from New York City, and the segment volumes along the rail line itself, both show dramatic increases starting at Albany and going south. There appears to be no significant overlap in travel between the "two railroads" apart from the Albany-Rensselaer station itself. For example, there is no significant jump in volume west of Albany, and the jump in volume south of Albany does not result from travel to or from points west of Albany.

Sensitivity of Empire Corridor Rail Demand to Service Factors

Ridership depends on a variety of service characteristics, including line haul time (train running speed), service frequency, and delay (reliability). Table 1-J shows the relationship between these characteristics based on Empire Corridor data:

- Halving the line haul time, other things equal, would produce an 88 percent increase in total Empire Corridor rail ridership.
- However, more modest improvements to service characteristics, alone or in combination, can also produce significant ridership increases.
- Individually, a 50 percent improvement in either frequency or reliability (reduction in delays), or a 25 percent improvement in line haul time, would produce ridership increases in the range of 30 to 37 percent.
- Any two of the above more modest improvements combined (for example, a 25 percent improvement in line haul time together with a 50 percent improvement in reliability/reduction in delay) would produce ridership increases in the range of 70 to 79 percent, or almost as much as the 50 percent reduction in line haul time.
- **Combining all three modest improvements would result in a 122 percent increase in ridership, considerably more than the impact of the 50 percent reduction in line haul time.**
- This shows that combinations of modest improvements in multiple service characteristics can have a ridership impact similar to or greater than that of a major (and presumably much more costly) improvement in line haul time.

Table 1-J: Sensitivity of Empire Corridor Ridership to Service Improvements

Service Improvement			Ridership Increase		
Reduction in total travel time	Increase in train frequency	Reduction in delay	West Corridor	South Corridor	Total
		-50%	140%	27%	**30%**
	+50%		286%	22%	**36%**
-25%			194%	29%	**37%**
	+50%	-50%	443%	53%	**70%**
-25%		-50%	360%	62%	**74%**
-25%	+50%		498%	56%	**79%**
-25%	+50%	-50%	681%	94%	**122%**
-50%			413%	65%	**88%**

Source: CRA International

2. Long- and Short-Range Improvement Programs

Section Contents

2. Long- and Short-Range Improvement Programs

Section 2.1 describes what an integrated statewide rail network consisting of existing and new corridors might look like in the long-term—a 10- to 20-year timeframe. The network would keep New York State economically competitive and be one of the world's most advanced intercity transport systems.

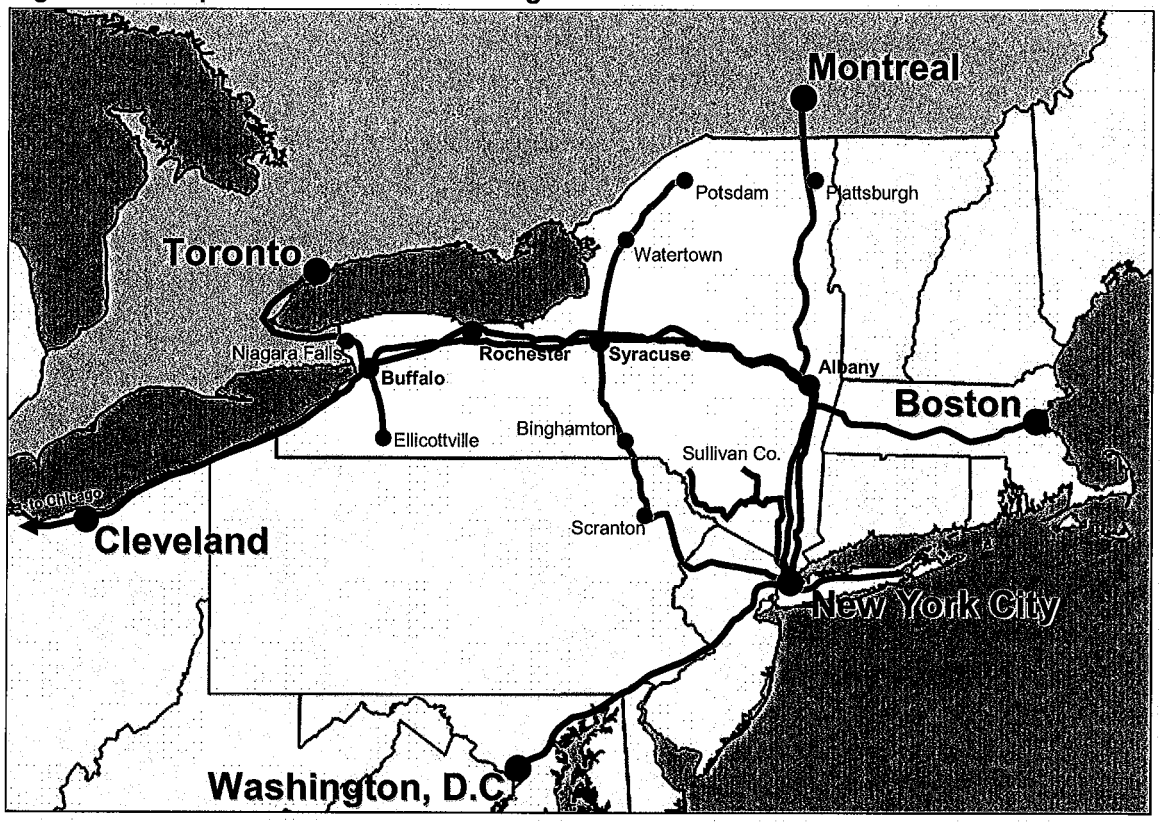
Section 2.2 highlights short-term (1- to 3-year) and mid–term (4- to 10-year) incremental improvements to the existing Empire Corridor, focusing on two major segments: New York City to the Capital District (south corridor) and the Capital District to Buffalo/Niagara Falls (west corridor). These programs are market-driven and performance based. They reflect different options for maximizing ridership through various combinations of service-related improvements. Key system-wide elements include stations, equipment procurement, and the integration of improved rail service with other modes at selected stations. Section 2.3 presents a summary of key program characteristics and costs.

2.1 A Future Integrated Statewide Rail Network

Figure 2-A shows the future integrated statewide rail network map in three dimensions:

1) The existing Empire Corridor.
2) Extensions to the Empire Corridor, generally throughout New York State.
3) A new High Speed Ground Transportation (HSGT) fixed guideway route using Very High Speed Rail (VHSR) or maglev technology along the New York State Thruway.

Figure 2-A: Proposed NYS Statewide Integrated Rail Network



Existing Empire Corridor
Possible extensions from existing corridor
New high speed fixed guideway route
Possible extensions from new high speed fixed guideway route

The network map is based on a compilation of previous passenger rail plans and proposals from 30 years of studies. It identifies for the first time, in one place, many of the physical components under consideration to meet the Task Force vision and goals presented in Section 1.2.

Creating the integration to which this network aspires will be difficult for many reasons, including:

- A new HSGT very high speed rail system or maglev guideway constructed along the New York State Thruway would utilize new technology that may be

incompatible with the existing Empire Corridor rail service. Transfers would be required to access connecting rail services.

- Each of the mainline components and extension options will be tailored to different markets, requiring different types and levels of service.
- Services, stops, and operations will need to be coordinated and rationalized in order to ensure efficiency and cost effectiveness, as well as integration.
- Overlayed on this passenger network is the New York State rail freight network. The future success of rail freight is of major importance to the New York State economy.

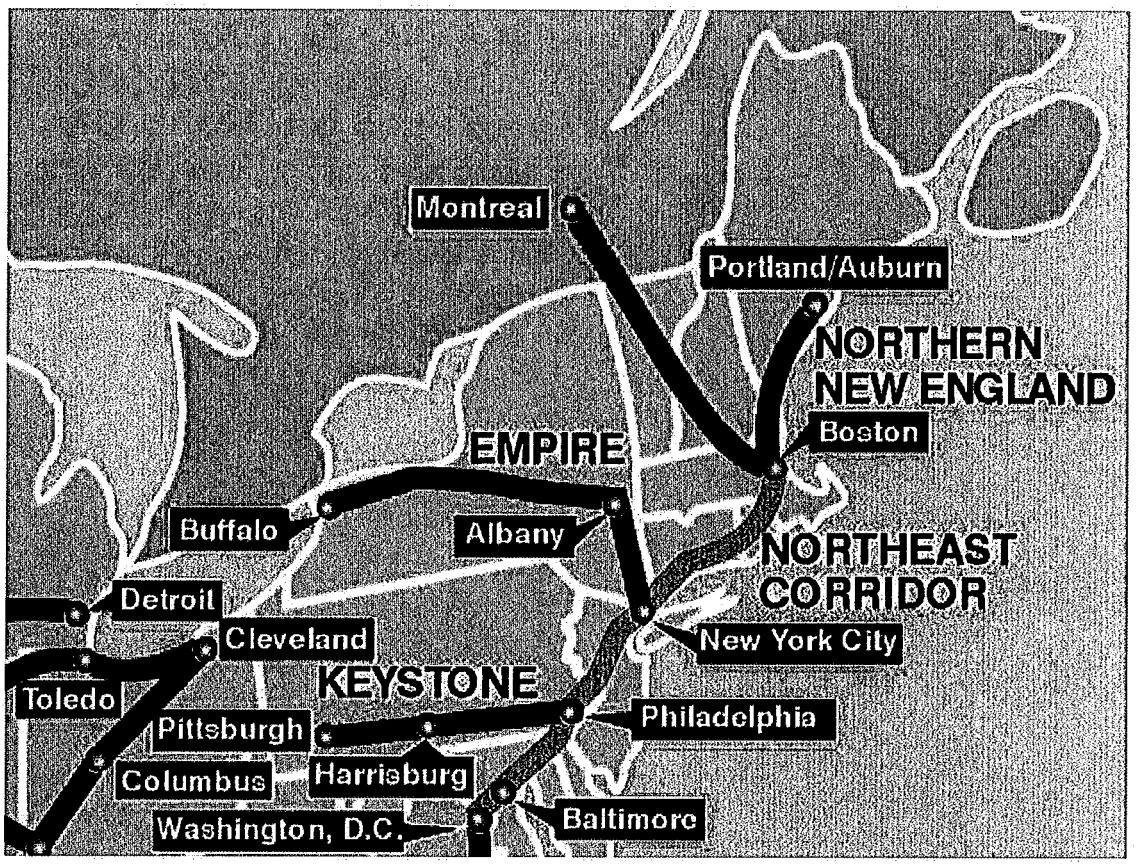
2.1.1 High Speed Ground Transportation (HSGT) Systems

HSGT refers to intercity passenger ground transportation, by steel wheel railroad or magnetic levitation (maglev), that is time-competitive with air and/or auto for travel markets in the range of 100 to 500 miles.[1] Very high speed rail (VHSR) technologies are steel wheel, grade separated, commercially available, tested and proven in the 150 to 200 mph range. Maglev is an electrically powered system that uses magnetic forces to elevate and propel vehicles operating on a fully dedicated guideway at speeds in excess of 200 mph.

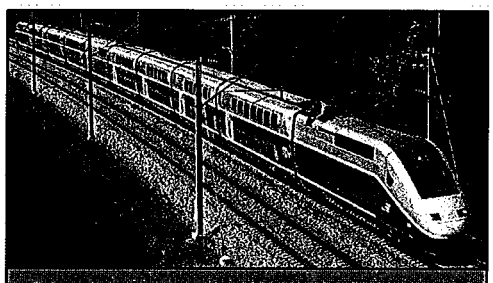
The U.S. DOT Federal Railroad Administration (FRA) has designated the Empire Corridor as one of 11 high speed corridors in the U.S. This designation allows a corridor to receive earmarked funding for a variety of high speed rail-related projects. The designated corridors within the northeastern U.S. are shown on Figure 2-B.

[1] High Speed Ground Transportation for America, U.S. DOT, Federal Railroad Administration, September 1997.

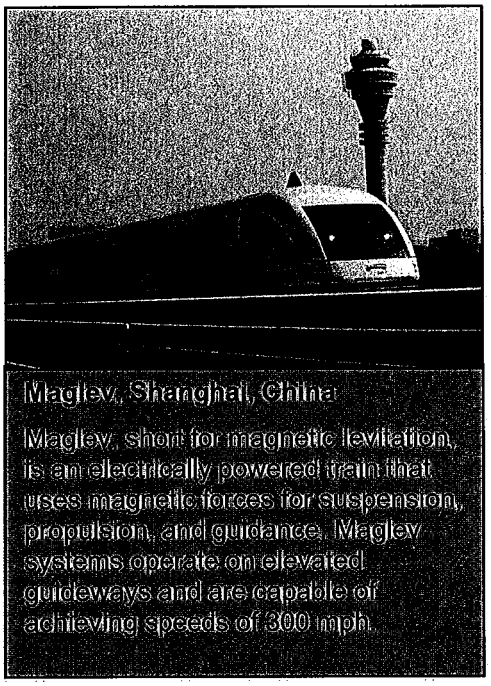
Figure 2-B: Northeast High Speed Rail Corridor Designations



New York State's future high speed ground transportation system was presented in the *New York State High-Speed Surface Transportation Study* (Parsons Brinckerhoff Quade & Douglas, Inc., August 1994). It was planned to meet New York's transportation and economic development needs for the 21st century. Operating at speeds significantly above those achievable within the Empire Corridor (above 110 mph), the system would require new technology, either maglev or VHSR. Maglev would require a new route along the New York State Thruway. VHSR would require significant deviations from the existing Empire Corridor alignment. The 1994 study initially evaluated both technologies and noted their relative advantages.



TGV Duplex, France
Very High Speed Rail (VHSR) refers to high horsepower, steel wheel, electrically powered trains operating on exclusive grade separated track at speeds up to 200 mph.

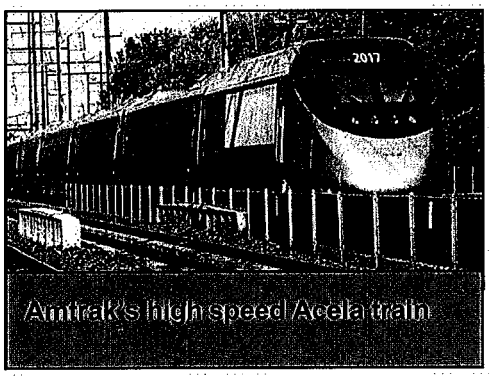


Maglev, Shanghai, China

Maglev, short for magnetic levitation, is an electrically powered train that uses magnetic forces for suspension, propulsion, and guidance. Maglev systems operate on elevated guideways and are capable of achieving speeds of 300 mph.

HSGT on the New York State Thruway route would result in a travel time between New York City and Buffalo of between two and three hours, depending on the technology, number of stops, and the location of terminal stations. The route would require a new terminal station in New York City, a new Hudson River crossing at the existing Tappan Zee Bridge or another location, reservation of right-of-way within the New York State Thruway, and the designation of a limited number of intermodal stops.

2.1.2 Maglev or VHSR System Extensions



Amtrak's high speed Acela train

Two potential extensions of New York's high speed ground transportation system have been proposed: Buffalo to Cleveland and Albany to Boston. A third route, New York City to the Boston area, was considered, but has been superceded by Amtrak's high speed Acela service, implemented on an improved Northeast Corridor alignment.

Neither of these proposed extension corridors is included in the FRA list of designated high-speed corridors under the Intermodal Surface Transportation Act of 1991 (ISTEA) or TEA-21.

The Task Force takes no immediate position on these proposed extensions or their priority. However, they should be considered within the overall vision, goals, and action program for a long-range integrated statewide rail network.

Buffalo to Cleveland

The 1994 New York State study indicated that a maglev extension from Buffalo to Cleveland, approximately 195 miles, was technically feasible. In October 2004, the Ohio

Rail Development Commission and the Ohio Department of Transportation issued the *Ohio & Lake Erie Regional Rail Ohio Hub Study*, which proposed regional rail service between Buffalo and Cleveland. These different proposals need to be reconciled. Ohio's plan is compatible with a New York State VHSR system but would require transfers to maglev vehicles.

Albany to Boston

The 1994 New York State study indicated that a maglev or VHSR extension from Albany to Boston, approximately 170 miles via I-87 and I-90, was technically feasible. At the same time, the Massachusetts Bay Transportation Authority completed a *High Speed Ground Transportation Study from the New York State Line to Boston* along the I-90 Massachusetts Turnpike and the then Conrail corridor, and recommended further operational and impact assessment. A decision is needed on this extension, including the preferred route and technology.

2.1.3 Empire Corridor Extensions

The 1994 New York State study recognized that significant improvements to the existing Empire Corridor intercity passenger rail system were possible and desirable in the short- and mid-term using current technology. This finding is as true today as it was in 1994. Empire Corridor improvement programs are proposed in Section 2.2 of this report, taking into account investments since 1994 and current realities.

Assuming these improvement programs are implemented, a number of extensions to the Empire Corridor have been proposed. These are shown on Figure 2-A and briefly discussed below.

The Task Force takes no immediate position on these proposed extensions or their priority. However, they should be considered within the overall vision, goals, and action program for a long-range integrated statewide rail network.

Binghamton to New York City

The *Binghamton Based Intercity Rail Passenger Service Feasibility Study* (Clough, Harbour and Associates, LLP, 2003) examined the potential for rail service from Binghamton to New York City. Two routes were considered: a 200-mile route via Scranton, Pennsylvania, and a 220-mile route via Port Jervis, New York. Based on this study, the Scranton route was the preferred alternative, dependent on the implementation of commuter rail service from Scranton to Hoboken, New Jersey (passengers would transfer at Hoboken for service to Manhattan). Initial upgrades to

implement service via Scranton were estimated to cost $9 million (in year 2000 dollars) with operating and maintenance costs estimated to be $2.02 to $6.75 million, depending on whether passengers would transfer at Scranton. The study assumed that this service would be implemented in 2007, concurrent with implementation of a Scranton-Hoboken commuter service. Excursion services to Utica and Syracuse and alternative sites for a new Binghamton Intermodal Transportation Center were also considered in this study. Implementation time for either of the excursion services was estimated to be two years, with capital costs estimated at $8 million for the Utica service and $5 million for the Syracuse service.

New York Metro Area to Catskills Resorts

Four alternatives for service between the New York City metropolitan area and the Catskill resort region were considered in the *Catskill Rail Feasibility Study Final Report* (Edwards and Kelcey, 2003). Three of these alternatives were rail services originating at Hoboken and operating over the Metro North Port Jervis Line to points in Sullivan County. The fourth alternative was a shuttle bus service connecting to the Port Jervis Line. The rail alternatives vary in length from approximately 100 to 150 miles. This study concluded that the shuttle service would not provide the long-term economic development benefits of the rail alternative and that further consideration should be given to two of the three alternative rail alignments. Capital costs were estimated to be $185 million (in year 2000 dollars) for a rail alternative to South Fallsburg, $92 million for a rail alternative to Narrowsburg, and $4 million for the shuttle bus alternative. A rail alternative to Monticello was eliminated due to high costs, right-of-way needs, and the location of the alignment relative to proposed casinos. The implementation timeframe would depend on the progress of casino development and the engineering study and environmental review process.

Albany to Montreal (Adirondack Corridor)

In February 2004, NYSDOT and the Ministère des Transports du Québec completed the *High Speed Rail Pre-Feasibility Study: New York City to Montreal* as part of the I-87 Multimodal Corridor Study. The study found that full high speed service has merit in the 280-mile corridor, but that an incremental approach to service improvements in the near-term would have more immediate and cost effective results. A decision is needed on a program of improvements from Saratoga Springs north to Montreal, including new arrangements to reduce the extensive delays at the U.S./Canadian border crossing.

New York City to Northeast Corridor

The 1994 New York State study indicated that a maglev or VHSR extension to the Northeast Corridor would be technically feasible and very desirable because of the large population centers and potential rail market. Subsequent implementation of the Amtrak Acela service may have precluded the maglev extension option.

However, extension of future Empire Corridor service to the Northeast Corridor is also feasible and desirable, especially if additional Hudson River tunnel capacity is added by the Access to the Region's Core and Penn Station Terminal Projects. A decision is needed on long-term access of Empire Corridor service to the Northeast Corridor and reservation of capacity at New York's Penn Station.

Buffalo to Toronto

The *Western New York Passenger Rail Opportunities Study* (National Railroad Passenger Corporation, 2003) examined the potential for service improvements in Western New York. The report recommended further study of additional service within the Cleveland-Buffalo-Toronto corridor. Improvements to the border crossing process are needed to make increased service between Buffalo and Toronto successful.

Buffalo to Southwest New York

The 2003 Western New York study also examined the feasibility of service between Buffalo and resort areas in southwestern New York State (around Ellicottville). These service options were found to require significant capital investment.

Syracuse to the North Country

The freight rail line heading north from Syracuse could provide an opportunity to offer passenger rail service to destinations in the "North Country." Fort Drum, home to the U.S. Army's 10th Mountain Division, is located north of Watertown, New York, approximately 96 miles north of Syracuse. Fort Drum has been expanding rapidly in recent years and nearby housing is in short supply, forcing many people to commute from Syracuse on Interstate 81. There is also a cluster of colleges in the Canton/Potsdam area, approximately 140 miles north of Syracuse, which could be served by a passenger rail link to Syracuse. No studies were available for this route option.

2.1.4 Airport Access

In July 2005, the U.S. Government Accountability Office (GAO) released a report on intermodal transportation connections at U.S. airports.[2] The report was produced due to concerns over the impacts of increasing numbers of air passengers on the operation of the airport access roads. One of the findings of this study was that intermodal connections can create a more efficient transportation system by allowing airlines to concentrate on long distance flights, which, at congested airports, generally have lower costs per mile than the short-haul flights. This tactic has been successful in Europe, but is more challenging to implement in the U.S. where urban centers are less dense, major cities are separated by greater distances, and automobile travel is less expensive. Since existing passenger rail lines are not generally adjacent to airports, connections between the two modes would require shuttle service, local transit service, or extensions of the passenger rail lines.

There are two scenarios in which intermodal connections between rail and air service within the Empire Corridor may be beneficial:

- In communities that have a rail station but lack a major airport, such as Hudson (to access the Albany airport) or Utica and Rome (to access the Syracuse airport). However, the transfer from the rail station to the airport will need to be convenient and inexpensive in order to compete with automobile travel directly to the airport.
- At Stewart International Airport as that airport develops into a reliever for the New York City metropolitan airports. Empire Corridor rail service or a new HSGT route could serve this airport via a number of options, some of which depend on the future of other projects, such a new Hudson River Crossing. A Mid-Hudson intermodal station should be considered for the Empire Corridor service with access to Stewart Airport.

The relationship between air and intercity rail in the Empire Corridor has historically been a competitive one. In Europe, air, rail, and bus modes have become more integrated, especially in countries where significant privatization of transportation has occurred. The potential for an integrated statewide rail network to maximize connections with other modes is discussed in Section 2.2.7 of this report.

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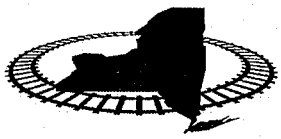
[2] GAO, *Intermodal Transportation: Potential Strategies Would Redefine Federal Role in Developing Airport Intermodal Capabilities,* GAO-05-727 (Washington, D.C.: July 2005).



2.2 Empire Corridor Incremental Improvements

The long-term vision of the Task Force is to develop a Statewide Integrated Rail Network that will benefit all New York State residents. Incremental investments in the Empire Corridor are critical to achieving this long-term vision. This will require immediate, short-term, and mid-term improvements that can be matched to available funding and that will result in steady increases in ridership and associated benefits.

Ridership is a function of travel time, train frequency, reliability of service, and fare. The ridership demand assessment in Section 1.3.3 indicated that incremental increases in ridership can be realized with incremental improvements to service, especially when provided in combinations that address specific corridor markets and conditions. Based on this result, a program of specific improvements was developed that provides the basis for making immediate and incremental investments in the south and west segments of the Empire Corridor.

The Empire Corridor Action Program includes changes to the entire spectrum of factors influencing train service, including infrastructure operations, equipment, and institutional factors. While the long-term vision for the fastest travel times will require technology beyond the steel wheel-steel rail application of conventional railroading, along with a new route, there is much that can be done with existing technology within the existing Empire Corridor.

Factors Affecting Ridership

Speed: When considering an investment in a passenger rail corridor, the primary consideration is increasing ridership. In a similar manner, the first element that is targeted for improvement is increasing the speed on the line.

The present south corridor enjoys relatively high line speeds compared to similar corridors. The speed limits on most of the track from New York to Albany are between 90 and 110 mph. This corridor has primarily passenger service, which accounts for the relatively high speed. The action program envisions improvements that will result in a more uniform high speed along the route (e.g., a more constant 110 mph train speed profile) that will reduce the travel time to less than two hours for selected express trains operating between New York City and Albany.

The west corridor is controlled principally by CSXT and has a very high concentration of freight trains operating, which has led CSXT to establish a relatively high freight train speed limit of 60 mph. As such, the passenger trains can operate at a maximum speed

of 79 mph. Further, CSXT has a system-wide policy that limits passenger train speeds to 90 mph.

The possibility of cab signals was initially explored by the Empire Corridor Rail Task Force in 1999 within the context of possible incremental passenger and freight train speed improvements. This effort did not include specific evaluation of the potential costs. The Task Force staff also considered cab signals for possible inclusion in the action program and briefly discussed the issue with CSXT.

What does it mean?

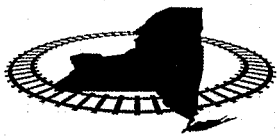
Cab signals display the trackside signal indications in the cab of each locomotive of any passenger or freight train operating on a segment of track. Federal safety standards require that a cab signal system be in place for train speeds above 79 mph. On the west corridor the maximum speed limit is 79 mph, and the opportunity to easily increase passenger speeds is limited by the requirement for cab signals.

CSXT has indicated that all costs associated with increasing the speed to 90 mph would be the responsibility of the entity requesting the increase, including equipping CSXT locomotives running on the line with cab signals. In addition, the FRA track classification would need to be increased from Class 4 (maximum speed freight/passenger 60/80 mph) to Class 5 (maximum speed freight/passenger 80/90 mph). This would require additional track and infrastructure improvements and annual maintenance costs to operate at the increased speed.

The full extent of the substantial costs involved, liabilities, and benefits to passenger service of raising the west corridor speed to 90 mph could not be determined at this time. Therefore, cab signals for the west corridor were not included in the action program. However, the cost and benefits of these improvements should be considered further in full consultation with CSXT.

Reliability: The term reliability speaks to the ability of passengers to count on a train departing and arriving on time. This is a key consideration for any train service. For the Empire Corridor the ridership model indicates that passenger use of improved rail service is more sensitive to reliability than pure speed. Therefore, the short-term plan includes elements to improve the on time performance of the trains.

There are three principal components that support reliability: a well configured infrastructure maintained in a state of good repair, a well maintained locomotive and passenger car equipment fleet, and minimal operational restraints. Examples of how each of these components has eroded on the Empire Corridor include the temporary reduction in speed caused by poor track conditions; unanticipated delays caused by an older signal that frequently defaults to a restrictive lower speed display; or equipment



that fails unexpectedly, causing delay to a running train or cancellation of the complete run of a train.

When analyzing the reliability of an existing service, each of the elements of reliability needs to be addressed. When considering improvements and expansion of that service, the evaluation of reliability becomes even greater. The primary reason is that more trains will be operating on the system. This raises the likelihood of delays being created by multiple trains needing to access the same segments of track at the same time. For example, train conflicts can occur when trains are entering or leaving stations, when trains are operating in opposite directions through the same area, and when faster passenger trains are seeking to overtake and pass slower freight trains. Resolution of these conflicts requires reconfiguring the existing system to increase capacity so that it can handle more, faster trains.

The action program is structured to respond to each of these elements of reliability. For the south corridor, the reliability projects include increasing investments in additional mainline and passing tracks, crossover tracks, track and bridge improvements, signal upgrading, grade crossing improvements, and stations improvements. For the system west of Albany, the reliability improvements include double tracking of the mainline and improving the signal system from Albany to Hoffman's, short-term repairs and subsequent replacement of the Livingston Avenue Bridge, addition of passing and overtaking tracks, station track and platform improvements, station facilities improvements, upgrading of select signal interlocking, and additional crossover tracks between Hoffman's and Buffalo.

For the overall corridor, the implementation plan calls for purchase of new trainsets. The trainsets will provide a reliable and comfortable modern fleet of vehicles to support projected system improvements.

Frequency: The third element of train service that affects ridership is frequency. Any customer-oriented transportation service needs to get people where the want to go, when they wish to travel. For example, to enable more trips between Albany and Buffalo by train instead of automobile, there needs to be better midday service. In the south corridor to New York City, the volume of riders indicates that hourly service throughout the day may eventually be needed.

To enable the number of operated trains to increase, there must to be sufficient capacity within the system to handle the desired number of trains, when they need to be operated. As capacity is also an element of reliability, the improvements for reliability

enhancements will in general support increases in frequency. Specific elements of the implementation plan related to frequency include double tracking of the single mainline from the area of Penn Station to Spuyten Duyvil and proposed station modifications to Penn Station and Rensselaer Station.

Fares: The last element that affects ridership is the fare charged for the train trip. Depending on the corridor and the market, relatively small variations in fares can have a substantial impact on predicted ridership and revenues.

Additionally, the adjustment of fares can be largely independent of the service. For example, even an operation with poor service can attract a significant numbers of riders, if the fare is set extremely low. Conversely, it is reasonable to expect that higher rates would be able to be charged for improved service. In the Empire Corridor, fare strategies will be important to both the west and the south corridors, but they have not been considered in the development of the action program.

In summary, the approach to identifying action program improvements was based on maximizing ridership-based factors exclusive of fare.

2.2.1 What Improvements are Needed?

The premise of the action program is to make continual improvements to service reliability, trip time, and frequencies in accordance with best market analysis, as quickly as the infrastructure and the availability of equipment will permit.

The action program takes shape over five phases, each with its own service pattern and operating plan. The phases are not absolutely sequential and the elements can be changed based on availability of capital funding and rolling stock. What is presented below is an organized progression culminating in fast, frequent, reliable market-driven passenger service that can be achieved by 2017 given adequate funding. It is a likely approach to a total program, but the sequential elements of the phases described below can be scheduled differently as the financial, marketing, operational, and equipment availability allow. In all cases, ridership and the market vision drive the various service plans, which in turn drive the infrastructure projects needed to implement the service plans.

For ease in identifying the various operating plans and infrastructure changes, the phases are segmented between the west corridor and the south corridor. This is in keeping with the different character and objectives of what are essentially two different rail passenger markets.

Phase A: Initial Express Service

Phase A proposes a change in the operating plan that schedules one non-stop round trip between New York and Albany—an "Empire Corridor Express" designed to take people from the Capital District to New York for a business day and bring them back at the end of the day. Skipping stops allows for reduced travel time, projected to be 2 hours, 5 minutes. Deleting station stops invariably causes a concern in the communities not being serviced by the express train. However, this condition will be temporary. As subsequent phases of the action plan are implemented, more frequent and reliable service will be provided at south corridor intermediate stations based on the travel market to be served, and a more efficient operations plan.

The present train schedules are as lengthy as they are in part because of the "recovery time" built into the schedule to ensure reliability. There is also some room for reduction in the recovery time, if there is a strong commitment by the line owners to move the Empire Corridor Express in its slot with the highest priority. Phase A will also initiate many of the reliability projects identified from previous studies that will implemented primarily in Phases B through E.

South Corridor

The goal is to reduce New York-Albany schedule time by 15 minutes, while maintaining the current level of on time performance, which is approximately 70 percent. As the capacity and reliability projects mentioned below are completed, the on time performance will rise, along with ridership.

Incremental improvements include:

- Creation of platforms on both tracks at Hudson, allowing trains to work or pass on both tracks. Americans with Disabilities Act (ADA) provisions for both platforms are envisioned.
- Add a fourth track at Rensselaer and freight bypass modification.
- Power the switches associated with the wye in Rensselaer.
- Repair the rock slope on Empire Connection, MP 8.
- Continue grade crossing elimination project as a prelude to higher speeds.

Phase A South Corridor Total Capital Investment	$20m
State of Good Repair	$3m
Capacity and Reliability	$12m
Stations, Parking, Access	--
Grade Crossings	$5m
Rolling Stock	--

West Corridor

The goal for the west corridor in Phase A is to begin a cooperative program with CSXT to relieve key CSXT bottlenecks. In addition, there are a number of state of good repair projects that CSXT will need to undertake to improve the reliability of the existing service. Identification of the specific improvement projects will require train dispatch simulation analysis to confirm and reach agreement with CSXT on the specific improvements to be advanced. Thus, a limited number of projects have been proposed for Phase A, which is anticipated to be implemented immediately.

By CSXT continuing to work on state of good repair projects and beginning to address capacity and reliability issues, the on time performance is forecast to improve from its current 60 percent to at least 65 percent. No change in frequency or trip time is assumed in this case.

Phase A West Corridor Total Capital Investment	$2m
State of Good Repair	--
Capacity and Reliability	$2m
Stations, Parking, Access	--
Grade Crossings	--
Rolling Stock	--

Phase B: Added Express Service

Phase B encompasses substantial capacity improvements, service frequency, and changes in institutional arrangements. The objective is to further improve on time performance. These factors also enable a significant increase in ridership, particularly on the south corridor. Given adequate funding, the level of service contemplated in this case can be achieved by 2009 or 2010.

In the west corridor, continued capacity and reliability projects undertaken with CSXT will also improve on time performance to 75 percent and result in an increase of ridership.

South Corridor

The key element of this case is bringing the entire line between New York and Amsterdam into a single public ownership. This will require acquisition by the state of the line from Poughkeepsie to Albany and from Albany to Amsterdam (Hoffman's). This results in two significant benefits: unity of accountability and control for the entire corridor with the public interests protected, and the ability to raise speed limits for passenger trains in the corridor to a uniform 110 mph or higher.

These two factors, along with the capacity and reliability improvements, enable a less than two-hour scheduled trip time between New York and Albany, with improved reliability of 80 percent or better.

In the Metro North territory south of Poughkeepsie, capacity and reliability improvements already identified in earlier studies and planned by Metro North are also expected to contribute to better on time performance.

The incremental infrastructure improvements planned for this case include the following:

- Acquiring the line from Poughkeepsie to Albany.
- Initiating state of good repair projects on acquired line segment.
- Replacing signal system to support increase of speed to 110 mph on acquired line segment.
- Upgrading the Metro North Signal System between Harmon and Poughkeepsie to allow for closer following moves by installing high capacity signaling.
- Upgrading the controlled siding at Poughkeepsie to main line status, resulting in faster moves in and out of Poughkeepsie
- Relocating dispatching control to location controlled by the operator of the state-owned right-of-way.
- Constructing new interlocking and universal crossovers at MP 82.
- Instituting track improvements and higher maximum speeds from Harmon to Albany.

In addition to the infrastructure improvements, procurement of suitable control cars will enable push-pull operation. This is essential to implement the faster equipment turns in Penn Station by eliminating the need to loop the train at Sunnyside Yard. This will be made possible by completion of the planned changes associated with the construction of Moynihan Station. This project will include refurbishment of the existing diagonal

platforms that are expected to be made available for use by trains in the Empire service. Being able to turn trains in Penn Station is the key element in increasing the proposed frequency of trains.

Another approach that is anticipated to be taken in conjunction with cab cars would be placing the three refurbished Turbotrains back in service. Operable Turbotrains would decrease but not eliminate a cab car requirement.

Phase B South Corridor Total Capital Investment	$428m
State of Good Repair	$275m
Capacity and Reliability	$95m
Stations, Parking, Access	$30m
Grade Crossings	$3m
Rolling Stock	$25m

West Corridor

The program in the west corridor is characterized by continued elimination of the bottlenecks that affect on time performance. Principal among these is the construction of the second main line from Rensselaer to Schenectady and on to Hoffmans.

Along with this project, rehabilitation of the Livingston Avenue Bridge across the Hudson in Albany will also contribute to reliability and shore up a weak point in the infrastructure.

Incremental infrastructure improvements include:

- Construct second track from CP 144 to 169 in stages with the portion between Albany and Schenectady to be completed first.
- Restore Livingston Avenue Bridge to a state of good repair.
- Reconfigure CP 169 (Hoffmans) for parallel moves.

Phase B West Corridor Total Capital Investment	$88m
State of Good Repair	$20m
Capacity and Reliability	$68m
Stations, Parking, Access	--
Grade Crossings	--
Rolling Stock	--

Phase C: New Rolling Stock

Phase C envisions a substantial increase in service associated with the procurement of new rail equipment. In this case, 12 new train sets with dual mode locomotives, push-pull capability, and high speed (125 mph) coaches with tilt capability will allow frequencies to increase both east and west of Albany. Combined with additional capacity and reliability improvements, corridor-wide on time performance will greatly improve. The tilt capability of the new rail equipment will allow for shorter trip times because of its higher speeds on curves.

Phase C can be achieved by 2013, given usual planning timeframes for a rapid procurement and construction of the equipment. The delivery schedules and production capabilities for the rail equipment will require that the procurement process be started immediately to minimize the potential for delay in meeting the proposed implementation dates.

South Corridor

There is no increased frequency in this case, but a further increase in on time performance to near 85 percent or better should be achieved with newer, more reliable equipment.

The track improvements between Albany and Harmon to achieve 110 mph maximum authorized speed will be continued. Associated with the new equipment would be improvements, refurbishing, and retooling of the Rensselaer shops in order to handle the new equipment.

Phase C South Corridor Total Capital Investment	$ 202m
State of Good Repair	--
Capacity and Reliability	--
Stations, Parking, Access	$20m
Grade Crossings	$2m
Rolling Stock	$180m

Note: The cost of the 12 trainsets is divided between the south and west corridors.

West Corridor

The introduction of new equipment relieves the constraints of the current fleet size and allows for the departure times between trains in the Empire service plan to be reduced. One example is the proposed addition of an early morning train from Syracuse that will

enable making a 10:00 a.m. meeting in Albany. Similarly, an earlier morning train from Albany to Buffalo/Niagara Falls will be established.

With the implementation of additional service, there will need to be construction on station platform improvements and freight bypass tracks as follows:

- Amsterdam: new low-level platform on the eastbound track.
- Utica: high-level platform serving two tracks with a freight bypass.
- Rome: high-level platform serving two tracks with a freight bypass.
- Rochester: add an ADA-compliant platform to Track 1.
- Buffalo (Depew): add an ADA-compliant low-level platform.
- CP175: add universal crossovers to enhance operating flexibility.

Phase C West Corridor Total Capital Investment	$ 205m
State of Good Repair	--
Capacity and Reliability	$25m
Stations, Parking, Access	--
Grade Crossings	--
Rolling Stock	$180m

Note: The cost of the new trainsets is split between the south and west corridors.

Phase D: New Operations Plan

Phase D will feature the addition of two trainsets to the 12 previously delivered, and provide additional increases in service. This will be achieved in the 2013 to 2015 timeframe. To support the increase in service, there are various infrastructure programs that need to be undertaken.

South Corridor

The goal would be to have sufficient new equipment and infrastructure to achieve an on time performance of 85 percent or better with a significant increase in ridership. In this phase, the operating plan will include three non-stop express round trips between New York and Albany with 18 total daily round trips between the two cities. The infrastructure improvements will complete the state of good repair and capacity efforts for the segment between Poughkeepsie and Albany.

Incremental infrastructure improvements include:

- Spuyten Duyvil Connection upgrade to double track.
- Triple track CP 53-CP 63.

- Interlocking improvements, new CP 99.
- More track class upgrade and superelevation projects.
- Superelevation of curves.

Phase D South Corridor Total Capital Investment	$364m
State of Good Repair	$125m
Capacity and Reliability	$156m
Stations, Parking, Access	$23m
Grade Crossings	--
Rolling Stock	$60m

West Corridor

West corridor service will benefit from additional cooperative capacity improvements with CSXT to improve reliability and continue to eliminate bottlenecks with marginal additional savings in trip times. These projects will promote and support an on time performance goal of 85 percent.

Incremental capacity projects include:

- 10,000-foot or greater siding between Hoffmans and Buffalo at a location to be determined.
- Crossovers at CP 207 (West of St. Johnsville).
- Install power switches at Niagara Falls station.

To enhance operating safety with additional passenger trains, grade crossing elimination projects will be continued.

Phase D West Corridor Total Capital Investment	$ 48m
State of Good Repair	--
Capacity and Reliability	$43m
Stations, Parking, Access	--
Grade Crossings	$5m
Rolling Stock	--

Phase E: Enhanced Operating Plan

Phase E is the final phase of improvements associated with the short-term action program. It will feature addition of six new trainsets to bring the total number of tilting trainsets in service to 20. In this case there will be more service to Upstate New York, a Northeast Corridor-type service between New York and Albany, with on time performance near 90-95 percent for each end of the state. Train frequency and reliability will cause ridership to grow to nearly three million per year in the south corridor and nearly a million in the west corridor. This represents the endpoint of improvements that can be achieved with steel wheel-steel rail technology on existing right-of-way.

South Corridor

The new trainsets will allow the scheduling of Northeast Corridor-type service of 23 total round trips, with five nonstop express round trips. To support this schedule, final incremental infrastructure improvements will need to be constructed that include:

- A middle track at Stuyvesant.
- Interlocking improvements in connection with the middle track.

With expanded service, various improvements need to be made for parking, station access, ticketing, and information systems.

Phase E South Corridor Total Capital Investment	$174m
State of Good Repair	--
Capacity and Reliability	$54m
Stations, Parking, Access	$30m
Grade Crossings	--
Rolling Stock	$90m

Note: The cost of the four new trainsets is split between the south and west corridors.

West Corridor

The incremental infrastructure necessary in the west corridor is mainly additional interlocking improvements as well as additional station platforms and freight bypass tracks that include:

- Two additional 10,000-foot or greater sidings will be added between Hoffmans and Buffalo, similar to the project identified in the previous case, at locations to be determined.
- New stations to replace Buffalo Exchange Street and Niagara Falls.
- Platform improvements at Buffalo (Depew).

- Improvements to Amsterdam including high-level platforms and a freight bypass.

Phase E West Corridor Total Capital Investment	$270m
State of Good Repair	--
Capacity and Reliability	$108m
Stations, Parking, Access	$67m
Grade Crossings	$5m
Rolling Stock	$90m

Note: The cost of the four new trainsets is split between the south and west corridors.

2.2.2 South Corridor Improvements

Details of the recommended improvements to the Empire Corridor infrastructure contained in Phases A through E are listed below. As previously noted, improvements are presented by corridor, south and west. Within each corridor, improvements are separated into short- and mid-term implementation periods, as defined by Phases A through E.

Cost by Phase (in millions)												
Program Phase	**A**		**B**		**C**		**D**		**E**		**Phase TOTALS**	
Capital Investment	South	West	South	West	South	West	South	West	South	West	South	West
State of Good Repair	$3		$275	$20			$125				$403	$20
Capacity and Reliability	$12		$95	$68		$25	$156	$43	$54	$108	$317	$244
Stations, Parking, and Access		$2	$30		$20		$23		$30	$67	$103	$69
Grade Crossings	$5		$3		$2			$5		$5	$10	$10
Rolling Stock			$25		$180	$180	$60		$90	$90	$355	$270
Subtotals	$20	$2	$428	$88	$202	$205	$364	$48	$174	$270	$1,188	$613
Total By Phase	**$22**		**$516**		**$407**		**$412**		**$444**		**$1,801**	
Cumulative Total	**$22**		**$538**		**$945**		**$1,357**		**$1,801**			

Capital Investment Description

Capital investments previously recommended are noted and identified by source. The estimated cost (in millions of dollars) shown for each improvement is derived directly from its source study or is estimated by this team based on capital investments of similar scope. See Table 1-B for full references for all previous studies reviewed by the Task Force. The listing is in general order of recommendations for Phases A through E.

Short-Term Improvements

Repair Rock Slope MP 8.0

Cost: $3 million

The rock face at MP 8.0 is unstable and requires an investment to return it to a state of good repair. Currently, trains proceed through this area at slow speed. Stabilizing the slope will allow train speed to be returned to the maximum authorized level, improving on time performance and reducing trip time.

Hudson Platform

Cost: $3 million

(Source: Hudson Line Report 2004)

Add a low-level station platform on eastbound track 2 with a pedestrian bridge and elevators. This improvement will permit eastbound (southbound) Amtrak trains to platform on track 2 without having to cross to track 1 for the station stop and then cross back to track 2. Also, the present "hold clear" of station rule could be eliminated, to allow other passenger and freight trains to continue through moves without slowing down or stopping while a train is in the station.

Track and Signal Improvements in the Rensselaer Station Area

Cost: $9 million

(Source: Hudson Line Report 2004)

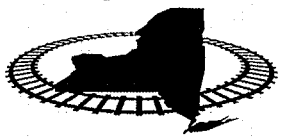
These improvements provide for more efficient operation in the Rensselaer Station. Improvements include adding powered switches for the wye and the freight bypass track, and adding the fourth station platform track. Currently, trains operating between New York and Rensselaer are "turned" on the wye in order to properly point the locomotive for the return trip. Switches associated with the wye are hand thrown. Powering these switches will increase the efficiency of station operation. The addition of the fourth track will add capacity, increase flexibility, and reduce congestion in the station. Powering switches for the freight bypass track should minimize occupancy of the station by through freight trains.

Highway Grade Crossing Upgrades

Cost: $10 million

(Source: NYSDOT 2000)

Grade crossing improvements were identified in general terms in the 2000 NYSDOT Study. No specific crossings or levels of improvement were listed. However, as train speeds are increased it is essential to invest in the upgrading of highway grade



crossings. Based on an August 2000 U.S. DOT/FRA report developed by the Volpe Transportation Center, and knowledge of the existing railroad physical characteristics and operating plans, a proposed list of improvements has been developed. The crossings listed below (in mile post order) should be upgraded to the appropriate configuration to enhance safety, including standard entrance gates with a center island median, closure, or grade separation. No roadway surface or sight distance improvements have been included.

MP 46.1	Manitou	Public-Gated
MP 62.6	Bank Street	Public-Gated
MP 71.0	Pirates Canoe	Private-Crossbucks
MP 76.0	Captains Three	Private-Gated
MP 127.0	Hook Boat	Private-Crossbucks
MP 134.9	Hamilton Printing	Private-Gated

Any improvements to private crossings would require revised agreements between the crossing owner and the railroad.

Revisions to existing grade crossings should also enhance or preserve access to the Hudson shore.

Cab Cars

Cost: $25 million

Refurbish existing cab cars derived from former Metroliner multiple units, or create cab cars from Amfleet rolling stock. Ten cars would permit Empire Service trains to operate in a push-pull mode, thus allowing the trains to "turn" in Penn Station and not be required to run to Sunnyside Yard and back. This will improve the reliability of train service and may permit added frequencies on the Empire Corridor.

Penn Station- Diagonal Platform, A Yard, and Moynihan Station

Cost: $30 million

These improvements will allow Empire Service trains to layover at Penn Station, but not occupy a current passenger platform. Instead, the "Diagonal Platforms" formerly used for mail handling will be converted for Empire Corridor passenger use. This eliminates the need for trains to make a non-revenue move to Sunnyside Yard and back. These enhancements will improve reliability of the Empire Service. Improvements include reconfiguring tracks, switches, and signals for tracks 1-7 in A and D Yard that are controlled by "A" Tower. Also, improvements are required to passenger flow and

circulation by upgrading platforms and installing elevators and escalators to access the "Diagonal Platforms."

Install Second Main Track from CP 145 to CP 169

Cost: $60 million

(Source: NYSDOT 2000)

A single track section begins west of Rensselaer at CP 145 (MP143.6) and continues to CP 169. Although there is a short section of double track from CP 156 to CP 160 (Schenectady), this is a side track constructed with jointed rail and has a maximum authorized speed of only 30 mph. This is the only single track section between New York City and Niagara Falls. Constructing a second main track will improve on time performance. The installation of this second track has been recommended in previous studies, including the 2004 Hudson Line Railroad Corridor Transportation Plan. The project also includes improvements to the tracks, signals, grade crossings, and bridges. The proposed improvements will support a 110 mph maximum authorized speed. There should be no environmental or right-of-way impacts for this effort as the work will be performed within the existing railroad property.

Repair Livingston Avenue Bridge

Cost: $20 million

(Source: NYSDOT 2000)

Many alternative levels of effort to repair the Livingston Avenue Bridge have been identified in previous studies. The Task Force advises performing the work recommended by the NYSDOT. This approach requires a minimum of substructure repairs and concentrates work on the superstructure. Some bridge steel repair will be accomplished; however, the main focus of the rehabilitation will be on the electrical and mechanical operating systems of the bridge. This will increase reliability of bridge operations and reduce train delays related to bridge operation malfunctions. A detailed inspection should be performed to confirm the existing conditions and clearly identify a list of priority repairs. The New York State Historic Preservation Office has ruled that no adverse effects would be expected for this work. Minimal environmental impacts would be expected as this work is classified as rehabilitation.

Acquire Right-of-Way and Complete Initial State of Good Repair Projects from Poughkeepsie to Hoffman's

Cost: $150 million

The Task Force recommends that New York State acquire from CSXT the right-of-way from Poughkeepsie (MP75.8) to Hoffman's – MP169.8 (CP 169 excluded), and acquire

from Amtrak the Post Road Branch from CP 187 (MP187.4) to Rensselaer Station CP 142 (MP199.5), and Rensselaer Station area property, including the Rensselaer Maintenance Facility and from MP161.5 to 168.3. This investment opens up many options for New York State. The estimate also includes costs to bring the current track, signals, grade crossings, and structures into a state of good repair. Specific costs for right-of-way and infrastructure improvements will be determined as part of the line condition assessment.

With control of the right-of-way, New York State will be able to increase the maximum authorized speed from Stuyvesant (MP 125.7) to Poughkeepsie (MP 75.8) from the current 90 mph to 110 mph, potentially with segments to 125 mph. The 125 mph segments would be those from Poughkeepsie to Hoffman's that provide the greatest benefits to trip time, train frequency, and reliability. Additional speed increases and therefore trip time reductions could be implemented by increasing maximum curve superelevation from four inches to six inches and the maximum unbalance elevation allowed from three inches to four inches. Investing in tilting trains further maximizes the ability to reduce travel time. Costs for these improvements are included in the section from Poughkeepsie to Rensselaer for 110 mph, below.

Install High Capacity Signal System (Croton-Harmon to Poughkeepsie)

Cost: $77 million

(Source: Hudson Line Report 2004)

These improvements, recommended in the 2004 Hudson Line Railroad Corridor Transportation Plan, will increase train reliability and contribute to travel time reduction. Line segments can be incrementally upgraded and staged such that capital expenditures are made over time. A further detailed study could identify the segments in priority order based on increased reliability. Part of the investment would include retrofitting Metro North cab cars and locomotives to take advantage of the new signaling system. Equipment operated by Amtrak also will require retrofitting. The 2004 study states that minor environmental impacts would probably be confined to areas where additional wayside equipment must be placed along the existing right-of-way.

Install New High Speed (80 mph) Control Points

Cost: $26.9 million

(Source: Hudson Line Report 2004)

CP 82	Cost: $8.7 million
CP 99	Cost: $9.1 million
CP 136	Cost: $9.1 million

These high speed interlocking installations were recommended by the 2004 Hudson Line Railroad Corridor Transportation Plan or the 2000 NYSDOT Design Report. The recommended high speed interlocking improvements will support enhanced train frequency and schedules. Each of these high speed crossovers can be installed independently of each other, based on operational requirements.

Poughkeepsie Triple Track

Cost: $9.6 million

(Source: Hudson Line Report 2004)

This improvement was recommended by the 2004 Hudson Line Railroad Corridor Transportation Plan. The enhancements include conversion of the existing uncontrolled siding into a third main track with high speed turnouts. This will decrease train congestion currently being experienced in the Poughkeepsie area mainly due to the "turning" of Metro North trains. This improvement would also allow for more reliable through moves for Amtrak trains on the corridor. The improvements would take place within the existing right-of-way with minimal environmental impacts.

Improvements to Track from Poughkeepsie to Rensselaer for 110 mph Operation- Phase 1

Cost $125 million

(Source NYSDOT 2000)

In order to accomplish this work, improvements must take place on an existing operating corridor, requiring staged implementation. The improvements include increasing spiral lengths to allow an increase in the curve superelevation to be placed at a maximum of six inches with an unbalance maximum of four inches to achieve the maximum operating speed possible on any given curve. All curves between Poughkeepsie and Stuyvesant that will allow an increase in speed will be re-aligned. All re-alignments will stay within the existing right-of-way. All track segments will get new wood ties; where tie replacements counts are high, concrete ties will be installed. Track will be surfaced and re-gauged, where required, to bring the track into compliance with maintenance practices for the 110 mph operation. Undercutting tracks scheduled for concrete ties will be programmed. All interlockings will get new timbers and in some instances new special trackwork. Rail will be replaced, transposed, and a capital grinding program will be instituted, as required. New high speed (80 mph) universal crossovers will be installed at CP 82, 99 and 103.

With these track improvements there will be corresponding signaling upgrades, including reducing signal block length to increase capacity. Grade crossing roadway surface

improvements will be made, along with upgrading the crossing warning devices with the corresponding improvements to the track circuitry. Some grade crossing closures will occur with consideration for river access accommodation. Undergrade bridges will be converted to ballast deck where bridge length and clearance allow, otherwise timber bridge decks will be replaced. Other minor structural repairs will take place at the same time. Culvert repair and replacement along with general drainage improvements will be programmed to ensure a stable sub-grade.

Rhinecliff Station Improvements

Cost: $5 million

Improvements at the Rhinecliff station focus on additional parking, elevators, and new high-level platforms.

Medium-Term Improvements

New High Speed Tilting Trains

Cost: $600 million

Purchase 20 new 110 mph high speed tilting trains dedicated to the Empire Corridor. These new Empire Corridor Express trains will be powered by fossil fuel locomotives and equipped for electric operation in and out of New York. Active tilting, radial steering, and high performance acceleration and braking will allow the trains to take maximum advantage of the infrastructure improvements described herein.

Rensselaer Maintenance Facility

Cost: $30 million

This recommendation includes upgrades and improvements to the existing Rensselaer Maintenance Facility building and yard to support maintenance of the new high speed train fleet.

Install Second Main Track from CP Inwood to CP 12/13

Cost: $62.5 million

(Source: Hudson Line Report 2004)

Install a second track from CP Inwood to a newly reconfigured CP 12/13 crossing onto Metro North via a high speed crossover. The study assumes that no structural work on the Spuyten Duyvil (moveable) Bridge is needed. This improvement increases train reliability in the New York City area by allowing trains to pass between the Empire Corridor and Metro North. This improvement is required to sustain more frequent and

reliable service into New York's Penn Station. No significant environmental impact is expected.

Improvements to Track from Poughkeepsie to Rensselaer for 110 mph Operation-Phase 2

Cost $125 million

(Source NYSDOT 2000)

This stage will involve further improvements to the track between Poughkeepsie and Rensselaer that were deferred in short-term Phase I activities due to difficulty or complexity. These will be accomplished in later years as required due to the increase in train frequency and the need to maintain reliable service with more frequent trains. Additional concrete ties will be added. Rehabilitation of bridges and structures will be completed. Curve re-alignments that require major track shifts will take place in this phase. Areas from Hudson to Stuyvesant will be in this category. Right-of-way and environmental issues will be part of this phased work. Major structure repairs or replacement will be performed. Hudson Station tracks will be shifted to "flatten" the curve through the station to provide for the highest possible passenger speed. New CP 136 freight track with two interlockings at CP 123/125 will occur in this phase. Further signal upgrades, including signal block length reductions along with continued upgrades of grade crossing warning devices, will occur. A major program for grade separations, closures, or combining crossing access points will take place in this phase.

Triple Track CP 53 to CP 63

Cost: $84.3 million

(Source: Hudson Line Report 2004)

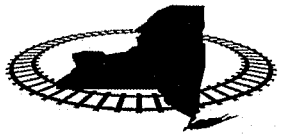
This improvement, recommended in the 2004 Hudson Line Railroad Corridor Transportation Plan, includes upgrading the existing siding from CP 58 to CP 61 and extending the track southward to a modified CP 53 and northward to a new CP 63. This track will become a third main track. Removal of the existing CP 61, modifying CP 58, and installing high capacity signals on the two existing main tracks is also included. Installation of new high speed (#32.7) crossovers and turnouts at Control Points 53, 58, and 63 will permit trains to pass/meet, avoiding congestion and delays.

Stuyvesant Third Track with Interlocking Improvements

Cost: $34.8 million

(Source: Hudson Line Report 2004)

The 2004 Hudson Line Railroad Corridor Transportation Plan recommended improvements to reduce congestion and train delays at a point (CP 125) where freight



trains enter and leave the Empire Corridor to and from points west through Selkirk Yard. Extension of the existing freight track from CP 125 to a new CP 123 effectively creates a third main track in this segment. This eliminates the need for northbound freight trains to run "left-handed" from CP 124 to CP 125, effectively occupying both main tracks and thereby preventing any passenger train movements until the freight train is completely cleared onto the Schodack Subdivision.

Hudson Platform Improvements

Cost: $10.0 million

Construct two new tracks on a new alignment closer to the Hudson River and install a high-level center island platform with an overhead passenger walkway and elevators. The proposed improvement would provide for tangent track sufficient for a five-car platform and will accommodate maximum station approach speed. Considerations for this improvement must be given to property acquisition, Hudson River access, and use of the existing station.

As a variation to this concept, the existing tracks could be left in their current position to allow freight trains to "bypass" a new station platform. Alternately, the existing tracks could be shifted as much as possible and still allow freight trains to bypass the station, yet attain an operating speed faster than the current 30 mph. This would also benefit any Amtrak train that is not scheduled to stop at Hudson, as it would be able to pass through the station area at the maximum authorized passenger speed.

Other Station Upgrades and Improvements – South Corridor

- Passenger Information Systems ($ 4million) and Upgrade to Ticket Vending Machines ($2 million)
- Albany-Rensselaer Station: Increased Parking ($5-10 million) and Facility Access/Connections ($ 5 million)
- Rhinecliff Station: Increased parking ($5 million)
- Hudson Station: Increased parking ($3 million)
- Westchester County: Increased parking ($10 million) and Facility Access/Connections ($ 5 million)

2.2.3 West Corridor Improvements

Short-Term Improvements

Reconfigure CP 169

Cost: $8 million

CP 169 is a bottleneck for Amtrak trains on the Empire Corridor and for freight trains entering and leaving the corridor from the Selkirk Branch. This improvement recommends reconfiguring CP 169 to allow for parallel moves through the interlocking. This will reduce the conflict area and increase capacity and reliability.

Niagara Falls Station Improvements

Cost: $2 million

Convert hand thrown switches at the station to powered switches and signal the station lead track. This will reduce the need for the Amtrak train crews to throw the switches leading into the station track by hand. This could reduce the running time by approximately five minutes. (Ultimately, the station should be relocated to the Old Customs House site as is under consideration by local agencies.)

Signal Improvements at Amsterdam, Utica, and Rome Stations

Cost: $1.5 million

Install westbound signals just west of station platforms at Amsterdam and Utica. Also install eastbound signal at the east end of Rome station. The addition of these signals will increase capacity by allowing the Amtrak trains, after station stops, to accelerate to maximum authorized speed instead of the current rule, which does not allow a train to exceed 40 mph until the engineer can see the next signal. In some cases this can be as much as one and one-half miles. CSXT also recommends a westbound signal at Utica. This would cut the signal block length from four miles to two miles.

Grade Crossing Upgrade

Cost $10 million

Upgrade existing grade crossing warning devices at selected crossings. Consider which grade crossings could be closed or grade-separated. This effort would be coordinated with NYSDOT and CSX.

Medium-Term Improvements

Add crossovers at CP 175 and CP 207

Cost: $6 million

Install new right hand # 20 crossover at CP 175 ($ 3 million) and CP 207($ 3 million). This will create universal interlockings and allow trains to cross to/from either main track in either direction, which is not possible with the existing configuration. This will increase operating flexibility and reliability.

Construct Three Passenger Train Passing Sidings

Cost: $90 million

Install three 10,000-foot passing/overtake sidings between Hoffman's and Buffalo. Specific location is to be determined as part of full dispatch modeling effort. Location may be combined and integrated with the station track or interlocking improvements.

Amsterdam Station

Initial Cost: $2 million

Install a new eastbound low-level platform with overhead passenger access and elevator. This will allow eastbound Amtrak trains to stop on track 2 and avoid the current operating requirement to cross from track 2 onto track 1 to make the station stop and then cross back to track 2. This "weaving" can cause delays due to westbound freight train conflicts, thus impacting reliability and performance. Eliminating the diversion also allows trains to maintain maximum authorized speed for longer periods to/from stations, thus reducing running time.

Final Cost: $5 million

Install a new center island high-level platform with overhead passenger concourse and elevator. Configure the platform to allow a freight bypass track. These improvements will permit the train stops at Amsterdam Station and operational efficiencies as indicated above. In addition, the high-level platform will cut station dwell time by approximately half.

Utica Station Improvements

Cost: $8 million

Construct new high-level side platforms at the current location or realign the tracks and construct a new center island high-level platform. Either of these improvements includes use of the present overhead passenger concourse and elevators. In addition, re-route

the freight trains onto the old Utica Station bypass track north of the existing alignment. Adding high-level platforms will cut station dwell time by approximately half.

Rome Station Improvements

Cost: $5 million

Construct new center island high-level platform at the current location with an elevator using the existing (subsurface) pedestrian concourse. In addition, re-route the freight trains to the north on the existing right of way on a new alignment. The addition of the high-level platform will cut the station dwell time by approximately half.

Syracuse Station Improvements

Initial Cost: $3 million

Install new westbound low-level platform with overhead passenger concourse and elevators. This will allow westbound Amtrak trains to stop on track 1 and avoid the current operating requirement to crossover from track 1 onto track 7 to make the station stop, then cross back to track 1. This "weaving" can cause significant delays due to eastbound freight train conflicts and the proximity to CSXT yard operations. Even if no freight train conflicts occur, eliminating the diversion will allow the trains to maintain maximum authorized speed for a longer period, thus improving reliability and performance.

Final Cost: $8 million

Install high-level platform with overhead passenger concourse and elevators. Configure the platform to allow a freight bypass track. These improvements will permit the train stops at Syracuse Station and operational efficiencies as indicated above. In addition, the high-level platform will cut the station dwell time by approximately half.

Rochester Station Improvements

Initial Cost: $2 million

Install new westbound low-level platform with overhead passenger concourse and elevators. The use of the former subsurface passenger concourse is an option, but a further detailed study would be required to determine feasibility. A new westbound platform will allow westbound Amtrak trains to stop on track 1 and avoid the current operating requirement to cross over from track 1 to track 2 to make the station stop, and then cross back to track 1. This "weaving" can cause significant delays due to eastbound freight train conflicts and the proximity to CSXT yard operations. Even if no freight train conflicts occur, eliminating the diversion will allow the trains to maintain maximum authorized speed for a longer period, thus improving reliability and performance.

Final Cost: $8 million

Begin to implement the Genesee Transportation Council plan for a new station on the present site. The new station is designed for a high speed service and includes high-level side platforms, an overhead passenger concourse, and elevators. In addition, freight trains are re-routed on former Rochester Station bypass tracks north of the existing alignment. The addition of high-level platforms will cut station dwell time by approximately half.

Buffalo-Depew Station

Initial Cost: $2 million

Install a new westbound low-level platform with overhead passenger concourse and elevators. The new westbound platform will allow westbound Amtrak trains to stop on track 1 and avoid the current operating requirement to cross over from track 1 to track 2 to make the station stop, then cross back to track 1. This "weaving" can cause significant delays due to eastbound freight train conflicts and the proximity to CSXT yard operations. Even if no freight train conflicts occur, eliminating the diversion will allow the trains to maintain maximum authorized speed for a longer period, thus improving reliability and performance.

Final Cost: $5 million

Construct new high-level side platforms at current location or realign the tracks and construct new center island high-level platform. Both of these improvements would include an overhead passenger concourse and elevator. In addition, re-route the freight trains on station bypass tracks on the existing right-of-way north of the existing alignment. The addition of high-level platforms will cut the station dwell by approximately half.

Buffalo-Exchange Street Station

Cost: $20 million

Construct new downtown Buffalo Station with high-level platform on a site to be determined in coordination with the City of Buffalo, Niagara Frontier Transportation Authority, New York State, CSX, and Amtrak. There is a proposal to develop a Buffalo Intermodal Transportation Center that would serve Amtrak, intercity buses, local buses and the light rail system, although the final location has not been determined.

Other Station Upgrades and Improvements – West Corridor

- Passenger Information Systems ($ 9 million) and Upgrade Ticket Vending Machines ($ 4.5 million)
- Syracuse Station: Increased Parking ($5 million) and Facility Access/Connections ($5 million)
- Rochester Station: Increased parking ($5 million) and Facility Access/Connections ($7 million)
- Buffalo-Depew Station: Increased parking ($5 million) and Facility Access/Connections ($3 million)
- Buffalo-Exchange Street (Downtown) Station: Facility Access/Connections ($5 million)
- Niagara Falls (New Location at Customs House site): Facility Access/Connections ($10 million)

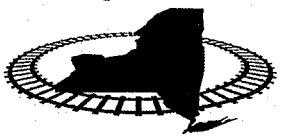
2.2.4 Electrification

Less than 40 miles of the 460-mile Empire Corridor is electrified. While the potential for electrification is large, it raises many complex issues, some of which are summarized here. The full range of issues, benefits, and costs could not be explored within the scope of this report.

Historical Background

The first American rail line electrification projects were generally aimed toward tunnels where steam traction was inappropriate. The Empire Corridor electrification is one of the nation's oldest. It was born out of the need for a smoke-free entry to Grand Central Terminal through the Park Avenue tunnel in the early part of the 20th century. The technology used a third rail DC system that draws traction power from an energized third rail. It is similar to the Long Island Rail Road technology, but the method of contact is different, so the two systems are not interchangeable. In one application, the third rail shoes come down on top of the energized rail (overrunning third rail); in the other the shoes come up and under the third rail (underrunning third rail). Amtrak and NJ Transit use an overhead catenary system (OCS). This type of electrification is common to high speed rail throughout the world.

After World War II, there was a retrenchment from electrification, particularly by freight railroads. Conrail was the last Class I railroad to have a significant electrified fleet, but Conrail abandoned electric traction in the early 1980s because the volume of freight traffic on electrified lines did not warrant the operating and energy expense. CSXT has not shown an interest in electrification in any of its territory. The few CSXT and Canadian



Pacific trains that operate in electrified territory did not appear to justify participation in what were, up until now, higher capital and operating costs.

In summary, the high capital cost of catenary construction, the incremental cost of maintaining the catenary as part of the track structure, coupled with a history of cheap coal and diesel fuel, have in the past deterred capital-starved railroads from embracing electrification.

Empire Corridor Implications

The electrified territory for Metro North Hudson Line service and Amtrak Empire Service extends from Grand Central Terminal (or Penn Station in the case of the Amtrak Empire trains) to Harmon, 33.3 miles north of Grand Central Terminal. The Empire tunnel adjacent to Penn Station has both overhead and third rail electric with sufficient vertical clearance to accommodate any equipment that can otherwise be accommodated in Penn Station.

The implication for the Empire Service is that even though the line is electrified to Harmon, it is not the type of electrification most conducive to high speed running or even run through service to points on the Long Island Rail Road or the Northeast Corridor. High speed rail such as Amtrak's Acela Express typically uses overhead electric line equipment or catenary because higher speeds can be obtained with overhead electric.

Directly Relevant Projects

The last main line passenger electrification project was the electrification of the Amtrak Shore Line from New Haven, CT, to Boston, MA, in the mid 1990s, a distance of 156 miles of double track, 14 miles greater than the distance from New York to Albany. This was a federally funded endeavor without private partners, which cost roughly $2 million per track mile in 2000 dollars.

California has initiated a project to electrify the 77-mile Caltrain line from San Francisco to Gilroy, which is about half the distance between New York and Albany. The State of California is collaborating with the California Public Utility Commission through the establishment of a technical working group of industry experts. The project is well along in the design phase and could be in operation by 2013. The estimated cost is $360 million, not including changes to the signal system and the rolling stock.

Potential Benefits of Electrification

Electrification to Albany would solve the decades-old problem of designing "dual-mode" diesel-third rail electric locomotives that are unique to the service. The use of straight

electric would not only allow for economies of scale, but would also facilitate run-through service to the Northeast Corridor.

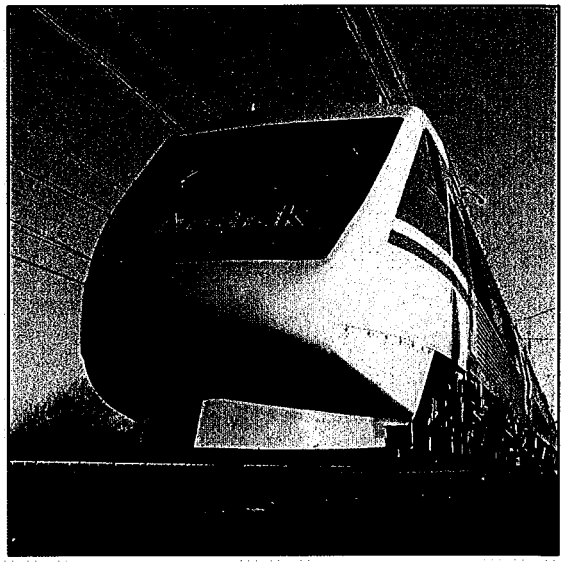
An electrified railroad is generally considered to be environmentally friendly, fast, reliable, and efficient. Electric traction enables higher speeds, and higher speeds create travel time savings which stimulate greater ridership and fewer automobile miles traveled. Electrification has the potential to save about 10 percent of the travel time because of better acceleration and higher speeds. Air pollution emissions can decrease by as much as 90 percent, as reported in the California project.

Recommendation

The positive aspects of electrification make it worthy of further study. In light of its energy efficiency and environmental benefits, the Task Force recommends that the New York State Energy Research and Development Authority (NYSERDA) conduct a study, with participation by the rail owners and operators, on the costs and benefits of electrification of the Empire Corridor from New York to Albany with possible extension to western New York.

2.2.5 Equipment and Procurement Program

A New Fleet



To meet the travel time, frequency, and passenger demand goals for the Empire Corridor, the current fleet of 30-year-old passenger cars must be replaced with new technology high speed trainsets. A fleet of 20 trains is needed, equipped with active tilting, high performance fossil fuel locomotives, and modern passenger amenities.

Manufactured in New York State, the new fleet will help to create and preserve jobs just as it will help to attract new passengers to the service.

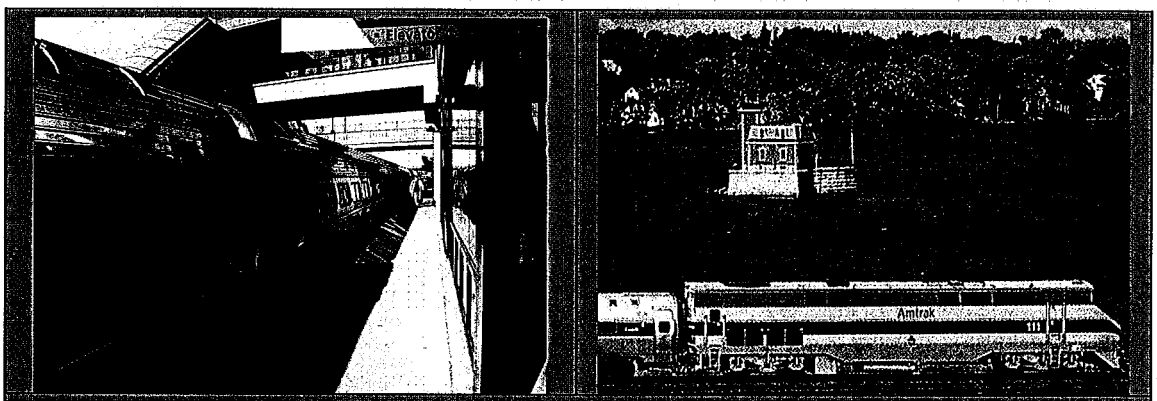
The procurement of a new fleet of trains requires a minimum of five years to prepare a specification, select a car builder, design, build, test, and commission the first trains.

To bridge the gap, it is recommended that the existing car fleet be upgraded and enhanced until the new equipment can be placed in service.

A series of short- and medium-term options is described below, together with a parallel recommendation to prepare for a long-term future shift in technology to a very high speed rail or maglev system.

Existing Amtrak Fleet

The Empire Corridor fleet consists of 11 dual power P32 diesel/electric locomotives, 6 P42 diesel locomotives, 57 Amfleet passenger coaches, and 16 café cars which are also used to accommodate business class customers. The dual power locomotives are used in the electric mode to move trains in and out of New York's Penn Station, drawing 650 volts DC from a third rail. The coaches are arranged generally for seating of between 72 and 84 passengers. Some of the café cars are equipped with table seating at one end and approximately 16 business class seats at the other. Other café cars do not include tables, but accommodate approximately 32 business class passengers throughout the car. The seating numbers are approximate because many of the cars have had seats either removed or respaced during various overhaul programs.



Amfleet currently used in the Empire Corridor

The fleet is deployed as 13 sets serving the corridor. Trains usually operate with a locomotive, a business class/café car, and three or four coaches. Trains always operate with the locomotive leading. Push-pull operation, i.e., a train with the locomotive always at one end and a driving or cab control car at the other end, is not used in this service.

Empire Corridor trains operate between New York and Niagara Falls, Montreal, Rutland, Toronto, and Albany with extensions to Saratoga Springs during the racing season. In addition to the Empire Corridor trains, Amtrak's Lake Shore Limited operates interstate

between New York City and Buffalo's Depew Station en route to and from Chicago. The Lake Shore Limited carries sleeping, dining, and lounge cars in addition to long distance style coaches.

The Empire Corridor fleet receives most service and maintenance work at a facility adjacent to the passenger station at Rensselaer. The Lake Shore Limited is serviced at New York's Sunnyside Yard.

While the locomotive fleet is relatively new, all of the existing Amfleet passenger cars were built in the 1970s and are now over 30 years old. The cars, even if overhauled, represent a technology designed more than three decades ago. Until a new fleet is acquired, the current fleet must continue to serve corridor passengers, and is in need of upgrading. Amtrak undertakes systematic overhaul of its rolling stock at a facility in Bear, Delaware. The rate and schedule for such work is subject to funding availability and to the physical and manpower limitations of the facility.

Commuter Rail Fleet Considerations

The Empire Corridor shares Metro North trackage between Spuyten Duyvil and Poughkeepsie, about 75 miles from New York City. Metro North service to Poughkeepsie originates at New York's Grand Central Terminal. The commuter and intercity services begin to share track where the line from Penn Station joins the route from Grand Central just above the north end of Manhattan Island. Metro North uses self-propelled electric multiple unit cars to provide service to Croton-Harmon, 32 miles from Grand Central. For services extending beyond Croton-Harmon to Poughkeepsie, dual-power diesel locomotives and push-pull coaches are used. These single level coaches are configured with non-reclining seats, three on one side of the aisle and two on the other. The seats are fixed, with half facing forward and half facing backward; this is to eliminate the need to turn the seats at end stations. Trains are equipped with restrooms but have no food service.

If Metro North were to extend current service to Rensselaer, the number of additional trainsets, if any, would depend on the frequency of Metro North service. Should an extended Metro North service be offered that is more in the nature of intercity than commuter, a different type of coach, or at least a differently configured coach, would be necessary. The design and number of such cars are subject to the service pattern which would be established. Crew and maintenance requirements also would need to be addressed, should a decision be made to extend Metro North service.

Double Deck Cars

In reviewing appropriate equipment options for future Empire Service trains, the opportunity to utilize double-deck cars was considered. Such cars, similar to those in use on the Long Island Rail Road and on order by New Jersey Transit, must be configured to the restricted clearances found in New York's terminals and tunnels. Even with such restrictions, double-deck cars offer the potential to carry more passengers than single level cars. Such capacity increases are particularly valuable where platform lengths cannot be extended.

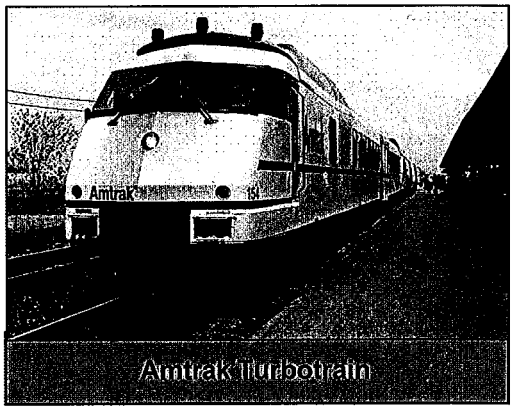
As Metro North's passenger volumes increase, such cars may be appropriate for commuter service. However, double-deck coaches are not the best solution for higher speed intercity service, especially where tilting is desired.

Short-Term Actions

While the present fleet of cars serving the Empire Corridor must be replaced as a key element of reducing travel time, adding frequencies, and attracting passengers, the procurement process including design, manufacture, testing, and commissioning will require at least five years until the first trains are delivered. Therefore, several short-term actions are recommended to improve the condition of the present fleet until new equipment is delivered.

1. **Improve Available Equipment -** Since the restoration by Amtrak of full Acela Express service on the Northeast Corridor and the withdrawal of Clocker trains between New York and Philadelphia, there may be a small surplus of Amfleet cars in excess of the number required for Amtrak's needs. New York State should work with Amtrak to:
   a) Undertake joint inspection of the cars assigned to Empire Service to note condition and deficiencies.
   b) Determine the possibility of substituting cars that may be earmarked for temporary storage, especially cars suitable for business class.
   c) Identify the latest schedule for overhaul of cars assigned to Empire Service.
   d) Determine on what basis the rehabilitation of Empire Service cars could be accelerated, including use of the Rensselaer facility to accomplish such a program.
   e) Identify budget requirements, if any, related to an accelerated schedule.
   f) Adopt the configuration of the most recently overhauled half or full club cars as standard business class for Empire Service.

2) **Deploy Turbotrains -** Explore with Amtrak the conditions under which the currently operable Turbotrains could be placed in service, by collaborating on the following tasks:
   a) Evaluate test data.
   b) Complete testing, if required.
   c) Agree on incremental costs, if any.
   d) Explore the suitability of using the rebuilt trains to cover the daily New York to Montreal schedule of the Adirondack. Reportedly, when Turbotrains were used previously on this route, fuel consumption was kept to a moderate level north of Albany by using the turbine in only one of the power cars. Use of the trains in this service would represent an improvement in passenger amenities due especially to the large picture windows. Note that this route was named one of America's 10 most scenic by National Geographic Magazine.



Amtrak Turbotrain

3) **Obtain Push-Pull Cab Cars -** Determine the feasibility, cost, and schedule for creating cab control cars to facilitate push-pull operation of Empire Corridor trains. Cab control cars would permit turning of trains without the need for movements to and from yards, or negotiating wyes or loops. Potentially, push-pull operation would enhance equipment utilization and might free up valuable slots in New York's East River Tunnels which connect Penn Station with Sunnyside Yard in Queens. A source for such cars could be the fleet previously created from original Metroliner multiple unit cars, or Amfleet coaches could be selected for conversion.

4) **Improve Onboard Customer Amenities -** Amenities affect ridership and have a large impact on how passengers perceive the service. Such amenities include:
   a) **Cosmetic Upgrade** - At a minimum, a cosmetic upgrade of the equipment assigned to Empire Service should be undertaken. Such an upgrade can take the form of identifying and monitoring the schedule for the "normal" cycling of equipment that Amtrak undertakes, subject to their funding, manpower, and facility constraints. An alternative is for the state to work with Amtrak to identify a cost and schedule for an accelerated program which the state would fund. Such a program might be undertaken at Rensselaer.

   b) **Food Service** - Food service on intercity trains is high on the list of desired amenities. New York State should explore sponsorship of outside vendor food

service for trains between New York and Albany. Specialty menu items with a New York State connection are a positive way to enhance the customer experience. This has worked well on the Cascades service in the Pacific Northwest where regional wines and food items are part of the menu.

c) **Enhanced Business Class Service** - One of the areas in which improvements can be made is in the provision of a higher level of service in business class. At present the ticket surcharge buys very little except a seat in a separate section of the café car and non-alcoholic beverages on those trains offering food service. Some of the cars used in business class have been through an upgrade program and have deluxe seats generously spaced and arranged in a 2 – 1 pattern. Being able to provide such accommodation in all Empire Business Class cars would go a long way toward creating the perception of added value.

d) **Wide Band Internet Access** - The provision of onboard wireless broadband access (WiFi) has been shown to be technically successful. New York State should seek a sponsor for such service on Empire Service trains.

e) **First Class Service** - True first class service could utilize the same equipment as upgraded business class, but would offer meal and beverage service appropriate to the time of day, as is done now in sleeping cars and on the Acela Express. Such service is included as part of the ticket price. Such an option might work best on Albany express trains and on the trains that travel west and north of Albany where there is more time to serve in a "gracious" manner. Such service is common aboard most high speed trains in Europe. Closer to home, the Canadian passenger railway, VIA, offers "VIA 1" First Class Service on its corridor trains between Windsor, Toronto, Montreal, and Quebec. VIA 1 is a model worth evaluating.

Medium-Term Actions

Regardless of any short-term actions to improve cosmetics and amenities, fleet replacement remains an imperative. In order to achieve the minimum travel times on the existing alignments, new active tilt trains are essential.

Simply making do with overhauled Amfleet cars would result in a fleet rooted in a design more than three decades old, and which could not employ the technology necessary to achieve travel time goals. Amfleet also represents a finite pool of rolling stock, not sufficient to cover the frequencies envisioned for the Empire Corridor. Since passenger car overhaul can well exceed $1 million for each car, it is prudent to undertake only the cosmetic improvements discussed previously and to concentrate major expenditure on a new fleet. Given the seemingly constant funding crisis in which Amtrak finds itself, filling the need for such equipment tailored to take maximum advantage of the Empire Corridor likely falls to New York State.

Recommendations

1. New Tilt-Train Technology - One of the most effective techniques for decreasing travel time over existing rail rights-of-way is to utilize active tilt-train technology. Such technology allows the trains themselves, in concert with appropriate signaling and track structure, to traverse a given section of railroad more quickly than can conventional non-tilting equipment. This is accomplished by causing the bodies of the passenger cars to tilt inward on curves, thus diminishing the centrifugal forces otherwise experienced by passengers. Tilting trains can travel through curves at speeds 25 to 30 percent faster than non-tilting rolling stock. Such "overspeed," compared with conventional trains, does not diminish safety; tilting only serves to increase passenger comfort. Tilt-train technology would be of obvious benefit on the moderately curved alignment of the Empire Corridor, and should also be considered for use on the route to Montreal.

Other elements that contribute to potential travel time reductions on the Empire Corridor include:

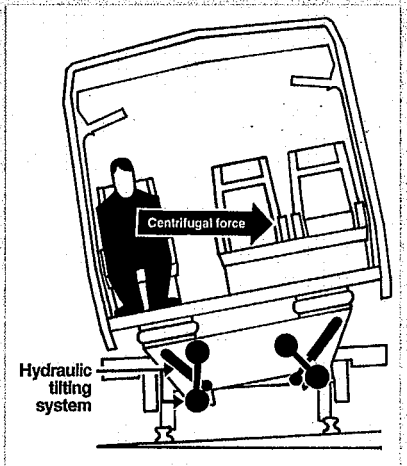
Tilting trains can travel through curves 20 to 30 percent faster than non-tilting trains.

Tilt-Train Equipment

There are two common types of tilt train equipment:

Passive Tilting: The cars themselves react to forces in curves, and swing in response to the curve using a pendular suspension that extends from the wheelsets up into the roof area of the cars. Typically, the cars are short, low to the ground, and permanently articulated. The low-slung design makes them best suited to low-platform territory.

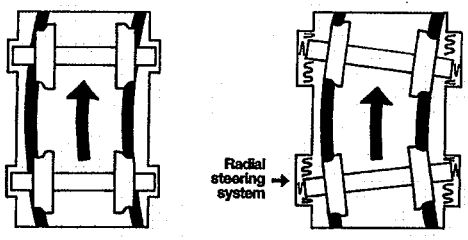
Active Tilting: Computerized sensors on the lead axle of the train's power car or cab car sense that the train has entered a curve. Microprocessors instantaneously compute the required angle and speed of the tilt, and transmit such information to each of the following cars, which react appropriately in sequence. Tilting is typically accomplished with hydraulic actuators that lift one side of the car or the other depending on the curve. Coaches are a conventional size with two four-wheel trucks each, and are semi-permanently coupled, but not articulated. Somewhat higher speeds are possible with active tilting than with passive technology.



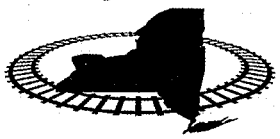
a) **Fixed Consist Trainsets -** Virtually all tilt train equipment, worldwide, is specified and delivered as fixed consist trainsets. Sufficient horsepower is specified to enable the train to accelerate as rapidly as possible up to the design speed, consistent with passenger comfort. Where the horsepower is calculated precisely for a given trainset, the trains are not overpowered, or heavier than they need to be to accomplish the schedule for which they are designed. Emissions are also minimized using this approach. The capacity to accelerate rapidly translates into minutes saved as trains move out from stations or from a slow or stop signal. Also, by semi-permanently coupling the cars together, the intercar connections can be sealed and even pressurized, thus minimizing dirt, noise, snow, and temperature intrusions into the train.

b) **Propulsion -** For New York State service, new tilting trains must be equipped not only with high horsepower locomotives, but also with dual power capability—fossil fuel powered for the majority of the route, but with electric propulsion in and out of New York's Penn Station. Actual main propulsion may be either diesel or gas turbine.

c) **Radial Steering** - Radial steering is incorporated into the Swedish X2000 high speed train, and is now used on American heavy freight locomotives. Radial steering allows each axle within a truck frame to move within prescribed limits. On stretches of straight track, the axles remain parallel to each other to assure a stable ride. On curves, each axle seeks a radial position with respect to each curve. The system can be shown to reduce forces exerted on the rails in curves, thus saving in track maintenance costs. The technology also contributes to a smoother ride for the passengers.



d) **Braking -** The ability to stop quickly is also a key to reducing travel time. Reliable and effective braking at rates better than conventional equipment was a factor that led the Federal Railroad Administration to allow the Swedish X2000 and German ICE trains to operate at higher than usual speeds during the 1993-1994 demonstrations in Metroliner service between New York and Washington. The trains demonstrated that they could successfully stop from higher than usual speeds within the spacing of the existing signal system. As a result, the trains were allowed to operate at 135 mph in territory where other trains were limited to 125 mph. This capability, together with the "overspeed" operation in curves, was



able to reduce travel time on the New York to Washington run from 2 hours, 55 minutes for Metroliner trains, to as little as 2 hours, 23 minutes for X2000.

2. Other Considerations

a) **Regulatory Compliance** - Design for the U.S. environment also requires compliance with Federal Railroad Administration (FRA) safety requirements and the Americans with Disabilities Act (ADA).

b) **Train Configuration** - There are many aspects of new fleet design that must be determined beyond the ones described above. These include whether there will be one power car or two, the number of passenger cars, and seating capacity and configuration. These items will be determined based on ridership numbers and the state's desired levels of onboard service.

c) **Customer Amenities** - The provision of premium class accommodation and the handling of food service will affect the design. New York State trains also must be designed for both high- and low-level passenger boarding.

d) **A "New York State" Train** - A fleet-wide designation as "Empire Corridor Express – Mark IV" would honor a legendary name in the history of railroading. The original Empire State Express, pulled by the famous 999 locomotive, was the first machine to achieve speeds greater than 100 mph. This was done on a westbound run on the line near Batavia. The 1942 edition of the train was custom built for the New York Central System, complete with specially streamlined steam locomotives. It was the hallmark of daylight coach luxury in the 1940s and 50s. New York State's purchase of the Rohr-built Turboliners was the next generation of modern Empire Corridor equipment. Now, New York once again will exercise leadership in introducing the most advanced technology and passenger comfort features for the New York State-built Mark IV generation of Empire Corridor Express trains.

3. Procurement - A New York State-Built Train - New York State should initiate the procurement process for a fleet of new high speed fossil fuel active tilt trains. Up to 20 sets are required to fully implement the service scenarios described in this report.

The procurement process is, by its nature, both lengthy and complex. The state should utilize expert engineering assistance to assist in each step in the process.

A specification is required such that the Empire Corridor Express – Mark IV fleet is defined in sufficient detail for manufacturers to respond appropriately. While there are performance-oriented criteria in terms of how a manufacturer elects to meet travel time,

acceleration, braking, environmental, and other goals, certain aspects of such a procurement should be fixed. These aspects include compliance with applicable FRA and ADA requirements.

New York State should require that the Empire Corridor Express – Mark IV fleet be assembled in New York. The state is fortunate to have a wealth of rail vehicle and subsystem manufacturing expertise and facilities. This pool of talented workers is focused in many communities—Plattsburgh, Elmira, Hornell, Yonkers, Rochester, and Schenectady, among others.

For the purpose of developing a budget for Empire Corridor equipment improvements, the cost of an individual trainset as described above is estimated at approximately $30 million. This estimate is subject to change based on the actual specification and the number of trains in the order. It may be possible to increase order size by acting in concert with other corridor developers, such as the States for Passenger Rail Coalition. The various improvement scenarios in this report envision a new operating plan and new equipment in place by 2015. Twenty trainsets are required to cover all intrastate Empire Corridor Services, the Adirondack, and spares. For estimating purposes, an additional $30 million should be allocated for modifications to the Rensselaer maintenance facility to accommodate a new and expanded fleet.

Long-Term Options

Ultimately, the capacity of the existing Empire Corridor railroad alignment may exceed ridership demands. As that time approaches, the state should be prepared to implement the next level of technology, a Very High Speed Rail (VHSR) or magnetic levitation (maglev) system on an exclusive, grade separated, passenger-only right-of-way. While much can be accomplished in the short and medium terms to implement a truly excellent intercity rail service throughout the state, none of these improvements forecloses the possibility of a new technology system in the future.

To be ready for that future, the state should continue to monitor and encourage the development of both VHSR and maglev technologies. As implementation costs may decrease due to the maturing of these technologies, growth in passenger demand, and expanding funding options, the state should consider accelerating development of a dedicated passenger corridor. Such a corridor might utilize parts of the New York State Thruway right-of-way and/or the present railroad lines (particularly if they fall under state ownership) already in place.

2.2.6 Stations, Parking, and Station Area Development Program

This section and the following section on Local Area Integration with existing modes and activity centers address the wider context of a successful passenger rail system—the people and places affected by its operation. This approach has implications for stations and their location, parking capacity, design, adjacent mixed-use development, and user access. In order to revitalize the Empire Corridor rail system, its stations must be attractive, well located, and an integral part of community life.

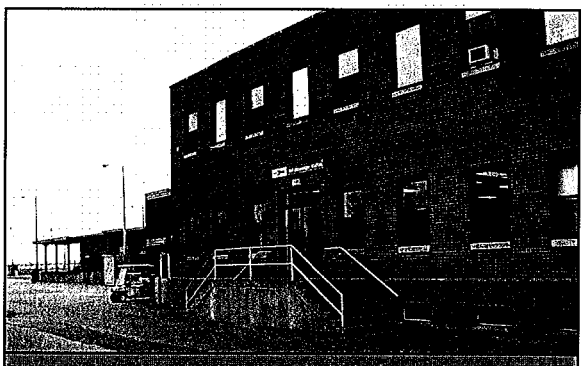
Empire Corridor Stations

The Empire Corridor connects 16 stations located in both large and small communities across New York State. These stations range from large new intermodal centers such as the Albany-Rensselaer station and the projected "Moynihan Station" in New York City, to simple trackside structures, to historic stations with constrained parking and access. Some stations are not located in the right place due to demographic shifts, changing ridership markets, and the subsequent development of bus, air, and municipal parking facilities in surrounding areas.

The focus of this section is on highlighting deficiencies, short-term improvements, parking capacity, and long-term station area development potential. Short-term improvements are most frequently aimed at minimizing train delays, primarily those caused by trains having to cross from one main track to another, and by low-level platforms necessitating longer dwell times. They will also facilitate passenger access, including Americans with Disabilities Act (ADA) compliance, enhanced appearance, information, and communications. Long-term station area location and development decisions will be made by local planning agencies in partnership with community leaders, officials and private developers. Each station will be discussed in geographical order from Niagara Falls to New York's Penn Station.

Niagara Falls

A modest passenger facility has been constructed in part of a former railroad freight house. Passengers and the city agree that neither the location nor the available amenities are ideal. In searching for a solution that would be an asset to the community, the City of Niagara Falls and the Niagara Frontier Transportation Authority (NFTA) have proposed the



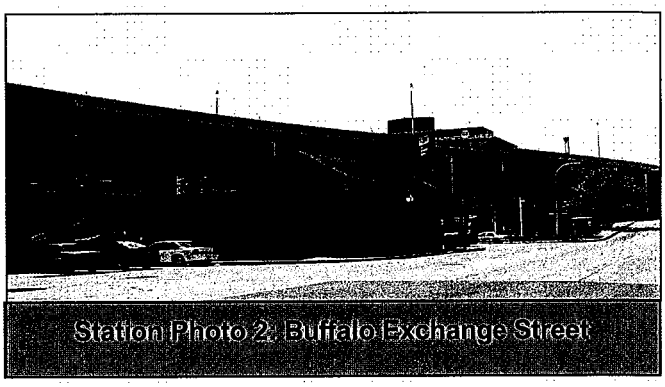
Station Photo 1: Niagara Falls

adaptive reuse of the Old U.S. Customs House as a new intermodal center.

Action - Work with city and NFTA representatives to implement a new station at the Customs House. This is a more passenger- and community-friendly "gateway" location. Incorporate high-level platform(s), ADA-compliant accessibility, adequate short- and long-term parking, and other amenities. The location and track plan must permit ease of operation to and from train storage locations. Alternatively, storage, cleaning and servicing of trains might be accommodated on the platforms. Assure local transit connection and adequate parking. On an interim basis, improve paint, landscaping, signage and other "temporary" measures to enhance the present facility.

Buffalo Exchange Street

The Buffalo station is a small brick structure adjacent to a highway overpass at the lower end of downtown. The station is served by a single track on the Niagara Falls Branch. As is the case with the Niagara Falls station, the Exchange Street facility has long been cited as inadequate to serve as Buffalo's main station.

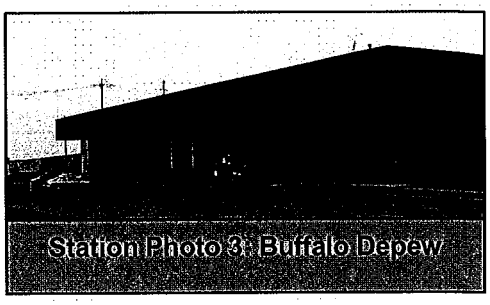


Station Photo 2: Buffalo Exchange Street

Action - Work with the city, NFTA, and other interested agencies to develop a replacement plan for the existing station. Several possible sites have previously been identified, including the War Memorial Auditorium and a nearby office building site. The selected location should accommodate high-level platforms, ADA accessibility, local transit access, and adequate parking. On an interim basis, improve paint, landscaping and signage and other "temporary" measures to enhance the facility.

Buffalo Depew

Depew station is the western-most facility on the Empire Corridor that serves the routes from both Niagara Falls and from points west of Buffalo on the Chicago line. The facility appears adequately sized. The Depew facility includes mail handling capabilities that are no longer used.



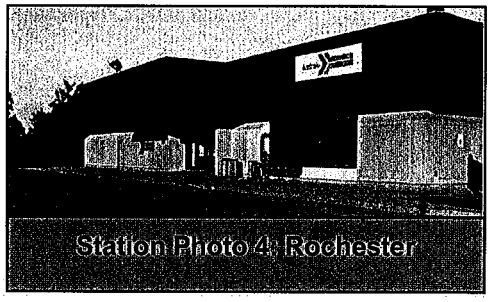
Station Photo 3: Buffalo Depew

Action - Install high-level platforms on new controlled sidings or gauntlet tracks adjacent to both the eastbound and westbound main lines to eliminate the need for trains to cross over the main tracks to reach the station. Constraints on the site caused by abutting land uses may dictate whether sidings or gauntlets can be used. Provide ADA access over the tracks. Both side and center platforms should be evaluated due to possible right-of-way limitations. Improve paint, landscaping, and signage as required.

Rochester

The Rochester station sits at the north edge of the central business district on the site of the former New York Central Station. The station is adequate for current ridership, and the site would allow for facility expansion to accommodate ridership growth. The Genesee Transportation Council (GTC), the local metropolitan planning organization, has completed a plan for a replacement facility to accommodate increased rail service.

Action - Work with the GTC to implement the preferred alternative of the 2002 Rochester Amtrak Station Revitalization Study. This alternative features a new building constructed on the present site west of the existing station, creating a gateway to the city, a better railroad operating plan, and improved amenities for passengers. The plan offers the potential for redeveloping adjacent parcels as a public park.



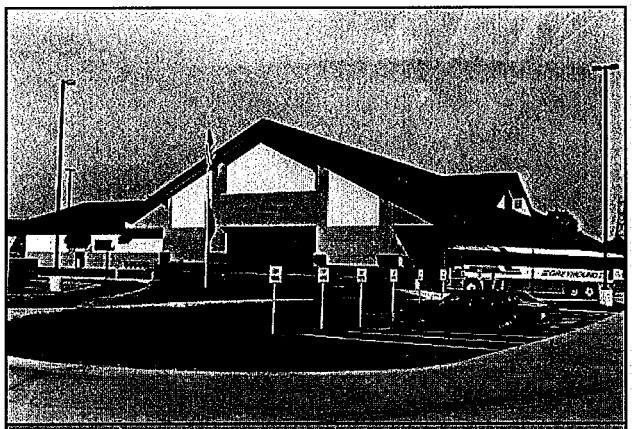
Station Photo 4: Rochester

The new station features high-level platforms serving both eastbound and westbound tracks. To eliminate conflicts with freight trains, evaluate rerouting freight trains on new or rehabilitated tracks at the north side of the site. Maintain existing tracks for passenger service. Provide ADA access by a new overhead bridge. Improve paint, landscaping, and signage as required.

Syracuse

The Syracuse station is part of the William F. Walsh Regional Transportation Center constructed by the Central New York Regional Transportation Authority (CENTRO) in the northwestern part of the city near a major shopping mall. The station is shared with intercity and local buses.

Action - Install a new high-level platform and controlled siding on the westbound main line to complement the existing high-level platform and siding on the east side. Provide new ADA access through a pedestrian tunnel or build overhead access.



Station Photo 5: Syracuse

There is provision to extend a single track for the On Track "occasional" commuter service, which operates through the downtown area to Syracuse University. This improvement should be completed to allow eventual expansion of commuter rail.

Rome

The former New York Central station in Rome is being refurbished.

Action - Replace the current center island low-level platform with a high-level platform and controlled sidings or gauntlet tracks to serve both the eastbound and westbound main lines.

Station Photo 6: Rome

Utica

Utica has the last of the monumental New York Central stations that were originally constructed in each of the major cities along the Empire Corridor. The station has been rehabilitated and restored, and also serves as a museum complex for the city. The Utica station also

Station Photo 7: Utica

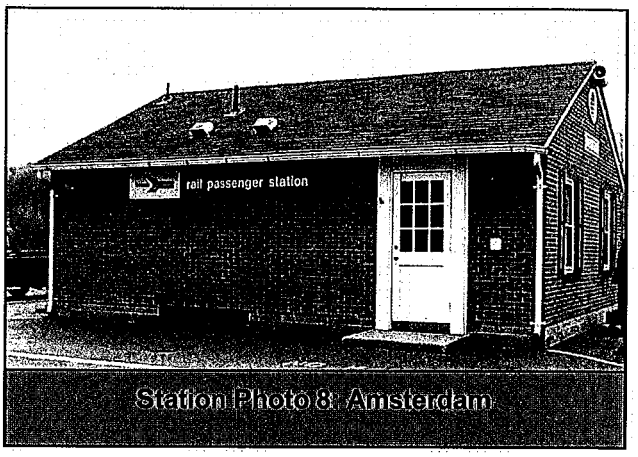
serves trains of the Adirondack Scenic Railway, an important tourist train operation serving the North Country.

Action - Install high-level platforms on controlled sidings adjacent to the eastbound and westbound main lines to eliminate the need for trains to cross the main tracks to serve the station. Use the existing overhead bridge for ADA access. Alternatively, provide freight bypass tracks on former railroad right-of-way around the station and retain the current tracks for passenger use.

Amsterdam

The Amsterdam station is a modest brick structure serving a single platform on the westbound main line.

Action - Add a low platform adjacent to the eastbound main track. Provide ADA accessibility via an overhead structure. Improve paint, landscaping, and signage as required.

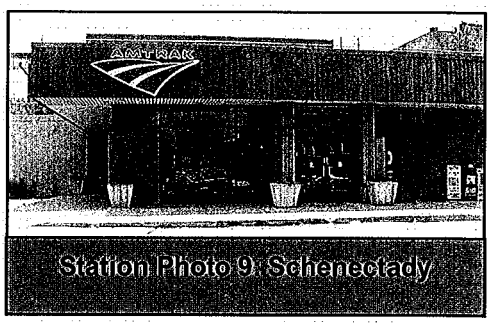


Station Photo 8: Amsterdam

Schenectady

The Schenectady station is a modest structure located on the site of the former New York Central station in the downtown area.

Action – Replace the center low platform with a high-level platform. Use the existing freight track to route freight trains around the station.



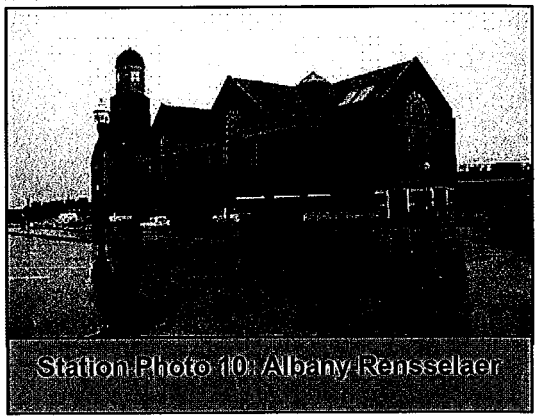
Station Photo 9: Schenectady

Albany-Rensselaer

The Albany-Rensselaer station is a modern facility recently built by the Capital District Transportation Authority (CDTA). It is fully equipped with passenger amenities, including a parking garage, and features two ADA-accessible high-level platforms.

Action - Many trains originate or terminate in Albany. Switching of these trains, together with accommodating trains traveling through Albany to points west and north and the addition of freight traffic, results in train congestion and schedule delays. To help

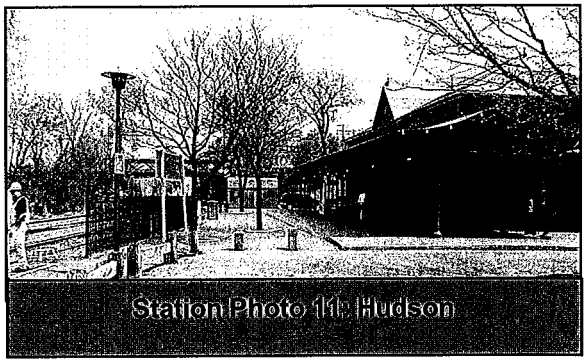
alleviate the problem, the originally planned fourth station platform track needs to be installed. Additionally, extension of the freight bypass track, powering of the switches to and from the freight track, and a general rationalizing of the station's track plan should be implemented. A detailed study of station operations may offer additional opportunities to increase the efficiency of train movements.



Station Photo 10: Albany Rensselaer

Hudson

The historic Hudson station has been restored. Operationally, the single low platform located on a curve needs to be addressed.



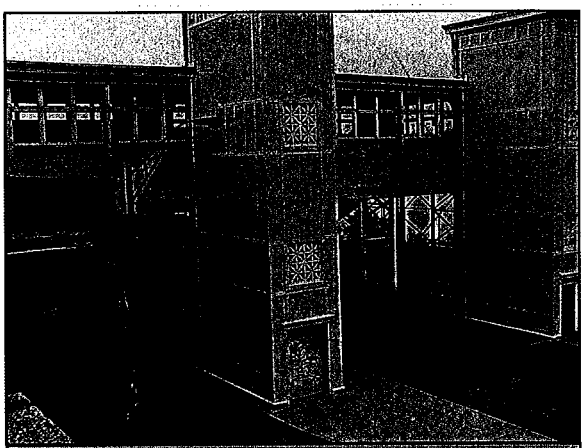
Station Photo 11: Hudson

Action - Add additional low-level island or side platform to serve the eastbound main line. Provide ADA access via an overhead structure. The issue of whether to install high-level platforms on tangent track needs to be addressed with regard to potential impacts on the continued use of the present station building.

Rhinecliff-Kingston

The Rhinecliff station sits above the tracks. A single low-level center platform is accessed from an overhead bridge.

Action - Replace the current low-level island platform with high-level platform. Provide gauntlet tracks for freight bypass. Provide additional parking and local transit access to meet passenger demand.



Station Photo 12: Rhinecliff Kingston

Poughkeepsie, Croton-Harmon, and Yonkers

These stations are owned by Metro North and have been upgraded. They have high-level ADA-accessible platforms that facilitate transfer between Amtrak and Metro North trains.

New York Pennsylvania Station

Penn Station is the busiest rail station in the U.S. It is a full service facility that accommodates all of Amtrak's Northeast Corridor, Florida, Crescent, and Cardinal service, as well as New Jersey Transit and Long Island Rail Road trains, in addition to Empire Corridor trains.

Action - Maintain an active role in the development of the Farley Building/"Moynihan Station" in the former Post Office building across Eighth Avenue from Penn Station. Whatever the outcome of allocation of passenger facilities above the tracks, a limiting factor on expansion of Empire Service is the track capacity beneath the buildings. New York State should strongly advocate sufficient slots to cover the Empire Corridor service expansion scenarios, as they are ready for implementation. Use of the "diagonal tracks" beneath the Farley Building and turning trains without the need to travel to Sunnyside Yard are strategies that may help to accommodate added service.

Signage remains especially problematic at Penn Station. The various levels and access points are difficult to comprehend and to navigate, especially for the occasional passenger. A study should be undertaken to determine how to improve signage.

Possible New Station

Explore the desirability and feasibility of locating a new station in the vicinity of the State Campus on the west side of Albany. Such a station must be equipped with high-level platforms, ADA access, and adequate parking. The station location should be sited to provide convenient access at what is clearly a major origin/destination in the metropolitan area. This improvement should be accomplished in parallel with installation of the Rensselaer-Schenectady double-track improvement.

Station Area Development

Stations on the Empire Corridor should enhance quality of life for rail system users and neighbors. This means planning and making improvements with a view to community growth or revitalization that will accompany the improvements in rail service. As an initial step, the Task Force has considered the availability of developable land, current development proposals, surface parking areas, and Empire Zones in the vicinity of each station. This resulted in a preliminary view of the development potential at each station. The initial assessment has both local and system-wide implications for future intermodal centers, ridership, economic development, and future funding and financing. Empire Zone boundaries are set to be revised as of January 1, 2006, although major changes near the rail stations are not expected. The 2006 Empire Zones boundaries should be confirmed, though, before proceeding with any station area development projects.

What is an Empire Zone?

New York State's Empire Zone program is intended to encourage economic development, investment, and local job creation by offering significant tax credits and other benefits to businesses that are located within an Empire Zone. There are areas designated as Empire Zones throughout the state. Benefits include sales tax exemption, real property tax credits, wage tax credits, reduced utility rates, and technical assistance. Full Empire Zone benefits are available for up to 10 years, with additional benefits available on a declining basis for up to five more years. Information on Empire Zones is available at: www.nylovesbiz.com/Tax_and_Financial_Incentives/Empire_Zones/default.asp

Following the discussion of all the stations, Table 2-A summarizes the station area development potential of the stations.

Niagara Falls

There are several vacant parcels surrounding the existing station. Much of the land adjacent to the existing station is also designated as an Empire Zone. However, there are no large pieces of undeveloped land that offer the potential for new development. The land immediately adjacent to the station is used for transportation and warehousing; beyond these parcels, the nearby development is primarily residential. Given the location of the nearby rail yard, the transportation-related land uses surrounding the station are unlikely to change and, therefore, the location of the existing station does not present significant opportunities for redevelopment.

There are existing vacant parcels and surface parking lots in the vicinity of the proposed Customs House site. There are also a number of parcels that are within the existing Empire Zone boundaries. This site is located near the Main Street business district,

which will make it a much more attractive location for station-related development than the existing site of the Niagara Falls station.

Buffalo-Exchange Street

This station is currently in close proximity to downtown Buffalo, but the highway creates a challenge for pedestrians wishing to access the many nearby attractions, including the local light rail system. The proposed relocation sites along Main Street would place the station in a more pedestrian-friendly environment. The area surrounding the existing station and the proposed relocation sites are fully built-out with no significant vacant parcels, although there is a large amount of surface parking that could potentially be redeveloped. There are proposals for redevelopment of buildings in downtown Buffalo, including the Memorial Auditorium (potentially to be occupied by a large-scale retailer), the Donovan State Office Building, and the former DL&W terminal. There is also the potential for new residential development along the waterfront. The key to station area development here will be the relocation of the station to a site that will allow passengers easier access to the existing attractions and the redevelopment that is already progressing. Almost all the parcels surrounding the station are within an Empire Zone.

Buffalo-Depew

The land near the station on the north side of the railroad tracks is currently occupied by retail uses. To the south of the railroad tracks, land uses are generally light industrial/warehousing or utilities. Without a major effort to rezone the area and possibly to relocate an electrical substation, this location does not appear to have significant development potential. There is an existing proposal to build additional warehousing space. This area is not designated as an Empire Zone.

Rochester

The land use around the station is generally commercial and industrial. The 2002 Rochester Amtrak Station Revitalization Study characterized the area around the station as a distinct "district" bounded by the Inner Loop expressway, the railroad embankment, and local streets. Pedestrian movement between the station district and the city's central business district is hindered by the presence of the Inner Loop, and access to the residential areas north of the station is made difficult by the embankment. There is a large parking lot directly south of the station; the 2002 study proposed redeveloping the parking lot into an urban park. This study also suggested that in the short term, the economic development impact of a new station to accommodate high speed rail would be limited due to the low volume of passengers, but that small specialty food/coffee shop uses or a train-related museum may be successful in the area. In the long term, the

urban park and associated streetscape improvements will help to reconnect the station district to the central business district, which could encourage development around the station.

Syracuse

There is a large undeveloped parcel adjacent to the railroad tracks on the opposite side of the tracks from the station (between the tracks and Interstate 81). Currently, the area around the station on the south side of the tracks is fairly well developed with the Alliance Bank Stadium (baseball), the Central New York Regional Market, warehouses, and some small specialty retail uses all within walking distance of the station. There appears to be some space for additional infill development to complement existing land uses and to serve travelers, such as with additional retail space or eateries. This area is also in close proximity to Carousel Center shopping mall, and the Inner Harbor lakefront development area and could potentially become very attractive for residential development. Significant improvements to pedestrian accommodations on the roads near the station and/or extension of the OnTrack "occasional" commuter rail service would increase the accessibility of the station and enhance the surrounding development potential. Some of the land around the station is within an Empire Zone. There is a significant amount of surface parking surrounding the station. Generally, surface parking lots present the opportunity for more intensive development. Any redevelopment plans for the parking areas surrounding the Syracuse station will need to consider the potential impacts on the stadium and market.

Rome

Opposite the station, on the north side of the Erie Canal, the area is fairly built up and includes the City of Rome Public Works Department and utilities. However, there appears to be significant vacant and underdeveloped land surrounding the train station on the south side of the canal. The few existing developed parcels near the station appear to be light industrial or office uses that are not oriented toward the train station and, therefore, are not likely to complement any future station-area development. There is a significant amount of land around the station that is within an Empire Zone.

Utica

This station is located in a built-out urban environment with no significant undeveloped land near the station. There are, however, a number of vacant parcels with existing structures near the station. The area surrounding the station has potential to be redeveloped with residential, retail, or office uses with the station as a focal point. This

development could potentially serve local residents, business travelers, and tourists. The area surrounding the station is not within an Empire Zone.

Amsterdam

The existing land use around the station is primarily residential. There is also a hospital nearby. Development immediately adjacent to the station is unlikely because the station is located on a narrow piece of land between the tracks and a local road. There does appear to be developable land within walking distance of the station. This could potentially be developed as additional residential space or small-scale retail that would be complementary to a residential area. There is a small parcel near the station that is within an Empire Zone.

Schenectady

Due to this station's location within a built-out downtown area, there is no significant undeveloped land nearby. There are some vacant parcels (with existing structures) and parcels with existing redevelopment plans. The area surrounding the station is designated as an Empire Zone. The existing urban environment presents high potential for redevelopment around the station with land uses oriented toward the station such as residential, specialty retail, dining, and office uses in coordination with the existing redevelopment plan for downtown Schenectady. The existing redevelopment plan for downtown has a major emphasis on entertainment, with a new larger stage at Proctor's Theater currently under construction and construction to begin soon on a new multi-screen cinema.

Albany-Rensselaer

Surface parking lots occupy the parcels immediately adjacent to the station. Other nearby development is generally low density residential with a few small dining establishments. City of Rensselaer voters recently approved a proposal to relocate the high school and to redevelop the school site as mixed-use development (possibly condos, a hotel, retail, or office space). Although there is not a significant amount of undeveloped land near the station, the area generally has good potential for redevelopment or infill development oriented to the station, such as higher-density residential development, office space, and retail. This type of development may be particularly successful at this station to serve commuters between the Capital District and New York City. The station and the associated parking area are within an Empire Zone; however, the area surrounding the station is not designated as an Empire Zone.

Hudson

There are some vacant parcels near the train station. The area surrounding the station is not designated as an Empire Zone. The station is located adjacent to a residential area with various types of housing (single-family, apartments, etc.). Infill residential development, along with some small retail uses oriented toward travelers, could make this an attractive area for commuters.

Rhinecliff-Kingston

This station is also located adjacent to a residential area with no large undeveloped parcels, no vacant parcels, and no Empire Zone designation. As with the Hudson Station, any redevelopment around this station is likely to be residential with associated amenities (small retail, etc.) for commuters. A nearby hotel has been redeveloped and is expected to reopen soon. There is a proposal for a large development located along the waterfront of the Hudson River in Kingston and Ulster, slightly north of Rhinecliff, called The Landing at Kingston and Ulster ("The Landing"). The preferred plan for The Landing proposes 2,182 residential units, 245,000 square feet of commercial space, and more than 200 boat slips. Although this project is well beyond walking distance of the station, the development is significant to the area and the traffic study for the development projects that "as many as 72 future residents are projected to utilize trains as part of their commute" (The Landing at Kingston and Ulster Traffic Impact Study, July 2005). The traffic study also refers to the Mid-Hudson Ferry Exploratory Group (established in July 2003), which will study the feasibility of re-establishing ferry service in the area.

Table 2-A below summarizes the above discussion and includes estimates of the amount of vacant land and surface parking lots around each station. Vacant land was determined based on tax maps for the area around each station. The total area currently used as surface parking lots was estimated from aerial photography. In some cases, these two designations overlap. The quantities given in the table are not precise but provide reasonable estimates of the available land at each station for comparison purposes. The Task Force consultant team contacted the appropriate local planning and/or building department staff to determine whether there were existing proposals for development of nearby parcels.

Table 2-A: Station Area Development Potential

Station	Estimated available land within ¼ mile of rail station (acres)		Existing proposals for nearby parcels?	Area is within an Empire Zone?	Redevelopment Potential
	Vacant	Surface Parking Lots			
Niagara Falls (existing site)	12	8	No	Yes	Low
Niagara Falls (Customs House site)	5	7	No	Yes	High
Buffalo – Exchange Street	1	31	Yes	Yes	High
Buffalo – Depew	4	7	Yes	No	Low
Rochester	3	17	No	Yes	Medium
Syracuse	19	23	Yes	No	Medium
Rome	9	4	No	Yes	Low
Utica	19	12	No	Yes	High
Amsterdam	unknown	4	No	Yes	Low
Schenectady	4	18	Yes	Yes	High
Albany-Rensselaer	unknown	13	Yes	Yes	High
Hudson	7	9	No	Yes	Low
Rhinecliff-Kingston	unknown	2	Yes	No	Low

Notes: Vacant land was determined based on tax maps. An "unknown" entry indicates that the tax map information was not available. Surface parking lot area was obtained from aerial photography. In some cases, surface parking areas overlap with land considered vacant.

In general, stations in downtown locations have a higher potential for station area development than do stations in suburban or isolated locations. Stations located in close proximity to activity centers but with barriers to pedestrian movement were considered to have "medium" potential, although the redevelopment potential here could be increased with improved access to the sites. Due to the high passenger volume combined with a downtown location, existing proposals for development, and the availability of

undeveloped land around the station, the Albany-Rensselaer station seems to have the highest redevelopment potential.

Station Parking

Potential Empire Corridor passengers need to have convenient access to the rail stations. Adequate parking is one component of accessibility (along with local intermodal connections, which are discussed in the next section). The existing number of parking spaces and an estimation of the current average utilization of those spaces were obtained for each rail station on the Empire Corridor with the assistance of Amtrak personnel and individual station parking staff. The future parking capacity was assessed based on this information and the 2015 ridership projections. This assessment is summarized in Table 2-B.

Table 2-B: Station Parking Summary

Station	Type	No. of spaces*	Current estimated average utilization	Action	
				Short-term	Mid- to Long-term
Niagara Falls	Free	22	25%		
Buffalo-Exchange St	Paid in nearby garage	11	25-30%		
Buffalo-Depew	Free	102	60-70%	X	
Rochester	Free	104	50-60%	X	
Syracuse	Free and pay lots	120 long-term, 30 short-term (plus approx. 90 in overflow lot)	35%		X
Rome	Free	14	10%		X
Utica	Free	102	50%		X
Amsterdam	Free	17	25%		X
Schenectady		52 long-term, 18 short-term	50%		X
Albany-Rensselaer	Paid in garage and surface lots	1,052 long-term, 68 short-term	70%		X
Hudson	Free	187 long-term, 39 short-term	90% +	X	
Rhinecliff-Kingston	Free	126 long-term, 85 short-term	90% +	X	

**Includes both short- and long-term parking spaces unless otherwise noted.*

The parking areas at Hudson and Rhinecliff currently operate at 90 percent or more of the existing capacity on an average day. The parking demand at these stations often exceeds the available capacity. Parking capacity at these two stations needs to be addressed immediately. Space for expansion is constrained, particularly at Rhinecliff; therefore, off-site parking with shuttle service or other transit options may need to be considered.

The Albany-Rensselaer station is currently approaching the point where passengers have difficulty locating a parking space. Additional parking, potentially in a new structure over the existing surface parking area, will be needed as this station becomes the hub of the Empire Corridor system.

The Rochester and Buffalo-Depew stations are also approaching capacity. Significant increases in ridership are expected at these stations with the implementation of improvement Phase C, and action will need to be taken in the short term to prepare for the future increase in parking demand. The 2002 Rochester Amtrak Station Revitalization Study noted that there is space for parking expansion around the station to adequately accommodate the future demand. Significant increases in ridership are also expected at the Syracuse station; however, this station currently has an overflow parking area that could accommodate some increase in parking demand. In the long term, additional parking capacity will be needed at this station as well. The remaining stations west of Albany are likely to require additional parking in the long term. The specific number of additional parking spaces required will need to be determined through an individual assessment of the demand at each station.

2.2.7 Local Area Integration Program

Introduction

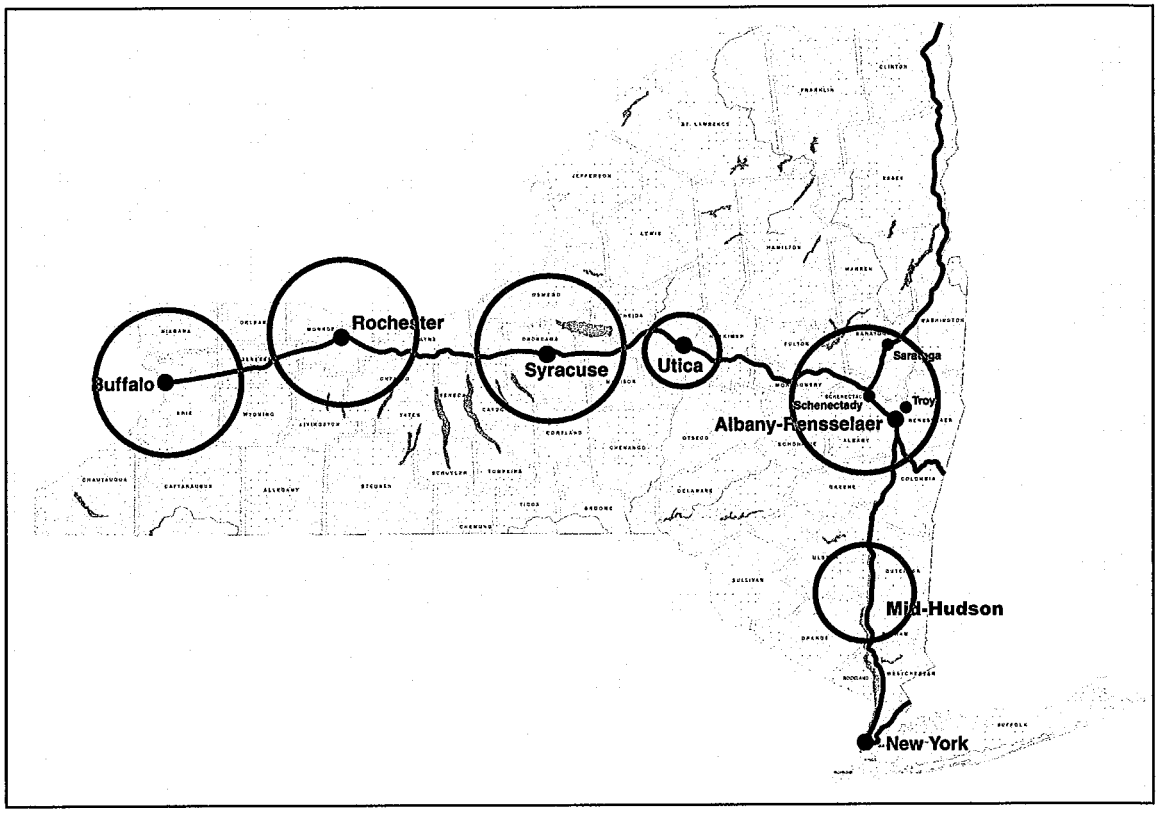
This section describes the existing and potential intermodal connections at key Empire Corridor stations outside New York City and considers how these connections can expand access to significant economic generators in each region. Most Empire Corridor passengers will start or end their trip at their home, workplace, or some location other than a railroad station. Therefore, the seamless transfer to other modes, as well as walking distance to and from the stations (approximately one-quarter mile or 10 minutes), is critical to rail ridership.

Penn Station in New York City has by far the greatest degree of intermodalism of any transit center within the Empire Corridor. At Penn Station, Amtrak passengers can walk to many destinations or connect with commuter rail lines, subway lines, local buses, or

taxis to destinations throughout the city and region. Penn Station also has rail access to John F. Kennedy International Airport and Newark Liberty International Airport.

This section focuses on how rail passengers in the Capital District, Syracuse, Rochester, Buffalo, and the Mid-Hudson Valley can better access jobs and major activity centers in each region. Both existing and potential new intermodal services are presented. All of these services are key to the success of short- and long-term mainline rail improvement programs and the economy of each region. This section was developed with input from the metropolitan planning organization (MPO) for each region. The intention is not to definitively recommend specific programs to be included in the MPO's future plans, but rather to outline possible intermodal connections—both short- and long-term—that would facilitate access from the Empire Corridor to the jobs and activity centers of each region. Each region must decide how to proceed with the implementation of these connections. Figure 2-C shows the location of each of these local area integration centers.

Figure 2-C: Local Area Integration Centers



Capital District

Amtrak service is provided at three stations within the Capital District: Albany-Rensselaer, Schenectady, and Saratoga Springs. The Albany-Rensselaer station and the Schenectady station are served by trains connecting New York City with Buffalo, Chicago, and Toronto including the Empire Service, the Maple Leaf, and the Lake Shore Limited trains. The Albany-Rensselaer station is located in the City of Rensselaer on the east side of the Hudson River, directly across the river from downtown Albany. The Schenectady station is located in downtown Schenectady, 18 miles northwest of Albany by rail. The Saratoga Springs station is served by trains connecting New York City with Montreal, including the Adirondack and Ethan Allen Express trains. The station is located west of downtown Saratoga Springs, 38 miles north of the City of Albany by rail.

Major economic generators in the region are indicated in bold text within the discussion of the intermodal connections. These economic generators are also listed in Table 2-C along with their location, project status, and distance from the nearest rail station. Existing, planned, and proposed intermodal connections are shown on Figure 2-D.

Figure 2-D: Capital District Intermodal Connections

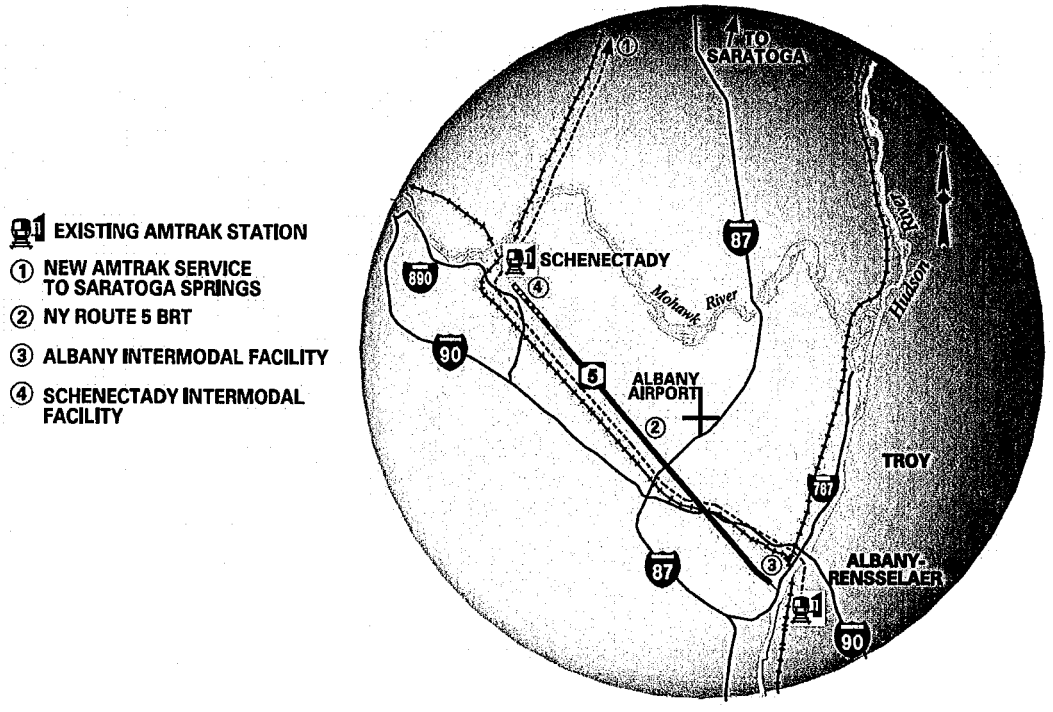


Table 2-C: Major Economic Generators in the Capital District

Economic generator	Location	Status	Approximate distance from station (miles)
Saratoga Springs Station			
Luther Forest Technology Campus	Malta/Stillwater	In progress	8
Saratoga Race Course	Saratoga Springs	Existing	2
Saratoga Performing Arts Center	Saratoga Springs	Existing	2
Albany-Rensselaer Station			
Empire State Plaza	Albany	Existing	1.5
Harriman Campus Redevelopment/SUNY Nanotech	Albany	In-progress	8
SUNY Albany	Albany	Existing	9
University Heights/Convention Center	Albany	In progress	3
Albany International Airport	Colonie	Existing	12
Albany Inner Harbor	Albany	Proposed	2.5
Joseph L. Bruno Stadium	Troy	Existing	6
Pepsi Arena	Albany	Existing	1.5
Rensselaer Technology Park	North Greenbush	Existing	5
Rensselaer Polytechnic Institute	Troy	Existing	11
Schenectady Station			
General Electric	Schenectady	Existing	0.5
GE Global Research & Development Center	Niskayuna	Existing	5
Knowles Atomic Power Laboratory	Niskayuna	Existing	5
Proctor's Entertainment District	Schenectady	In-progress	0.25

Existing Intermodal Connections

The Albany-Rensselaer station is currently served by taxis and three local bus routes (operated by the Capital District Transportation Authority [CDTA]) that provide service to downtown Albany and **Empire State Plaza**. Route #14 provides service approximately every 30 minutes throughout the day. During the morning and evening peak periods, Route #24 also provides service approximately every 30 minutes, although arrivals at the Amtrak Station are generally within only a few minutes of the Route #14 arrivals. At midday, headways on Route #24 increase to more than an hour. Route #15 provides service to Empire State Plaza with headways of one hour or more throughout the day.

Commuter motorcoach service between Saratoga and Albany Counties is provided by Upstate Tours. There are eight southbound runs that terminate at the Albany-Rensselaer station during the morning commuter hours. This is a drop-off only service. No service is provided at the rail station at other times of the day. This service operates with 47-passenger motorcoaches.

Planned and Potential Intermodal Connections

Bus: The I-87 Multimodal Corridor Study previously recommended revising the schedules of the buses that serve the train station to coincide with train arrivals and to reduce wait times for service to downtown. This study also recommended examining a possible extension of the #14 route to points west of downtown Albany.[3] Modified bus routes could provide the final link necessary between the Amtrak stations and major economic generators throughout the region such as technology and research campuses (**Harriman Campus/State University of New York [SUNY] Nanotechnology, Rensselaer Polytechnic Institute, Rensselaer Technology Park, SUNY Albany, University Heights and convention center**), large employers (**General Electric, State offices at Empire State Plaza**), and entertainment venues (**Joseph L. Bruno Stadium, Pepsi Arena**).

CDTA is also in the process of implementing Bus Rapid Transit (BRT) on the New York State Route 5 corridor between Schenectady and Albany. The Schenectady terminus of the BRT line will be less than a half mile from the Amtrak station. In Albany, the BRT line will terminate at the **SUNY Plaza**, directly across the Hudson River from the Albany-Rensselaer Amtrak Station. The BRT system is expected to primarily serve a local market of people who live and/or work within the corridor rather than serving as a

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[3] Parsons-Clough Harbour (August 2004) I-87 Multimodal Corridor Study Technical Memo #4: Smart Corridor Concepts.

connection for intercity travelers. Bus service from the Albany-Rensselaer station to SUNY Plaza would allow travelers to access the BRT system from the rail station, and vice versa; however, there is not expected to be a large demand for this connection.

Currently, there is no direct transit link between the Albany International Airport and the Albany-Rensselaer station. This link could be provided by a new bus route. In addition to regular bus service, a service similar to CDTA's "ShuttleFly" could be implemented to serve the rail station. (The ShuttleFly currently operates in the Wolf Road/Albany airport corridor. The limits of the route and the departure times at the ends of the route are fixed. Riders can request specific pick-up and drop-off locations anywhere along the route.) Intercity bus service is available at the Albany airport.

Rail: Congestion in the I-87 (Northway) corridor between Albany and Saratoga County is increasing. A commuter rail demonstration program between the Albany-Rensselaer and Saratoga Springs stations was proposed in 2001, but never implemented.[4] Two alignments were considered, one through Mechanicville and one through Schenectady. Commuter rail may also be possible within the Northway right-of-way.

The idea of commuter rail to Saratoga Springs was revisited in the I-87 Multimodal Corridor Study. This study concluded that there was insufficient demand to justify an independent commuter service in the short term and recommended that one Empire Corridor Service train originate and terminate at the Saratoga Springs Station with a schedule that would allow passengers to arrive in and depart New York City during typical business hours. The I-87 study also noted that in the long term (10-20 years) commuter demand associated with continued population growth in the counties north of Albany could increase sufficiently to justify the addition of commuter trains. A new station in the Wilton area (north of Saratoga Springs) was also suggested as a possibility if demand increases substantially.

Amtrak service between Saratoga Springs and New York City, with stops in Schenectady and Albany, will meet immediate and near-term needs. This type of service would allow residents of Saratoga County and points north to reach New York City and would increase the accessibility of Saratoga County sites such as the **Luther Forest Technology Campus**, the **Saratoga Race Course**, and the **Saratoga Performing Arts Center** to travelers from the New York City area (access to all of these sites would require bus or shuttle service from the rail station). In the future, Diesel Multiple Units

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[4] Capital District Transportation Authority (June 2001) *DRAFT Scoping Report: Commuter Rail Demonstration Project*

(DMUs) operating between Mechanicville and a new Albany downtown station could provide additional commuter service. If demand increases sufficiently to justify commuter service in the long-term future, a new rail station in the City of Albany would be necessary to make this service successful.

The feasibility of a fixed-guideway automated rapid transit (ART) system between the Albany-Rensselaer station and the Empire State Plaza was studied in 2002.[5] The proposed ART system—called "CyberTran"—was expected to be constructed using underutilized travel lanes on the Dunn Memorial Bridge (between Albany and Rensselaer) and the South Mall Expressway (leading to Empire State Plaza). This system would provide a direct link between the Albany-Rensselaer rail station and the pedestrian walkway at the Empire State Plaza.

The Capital District Transportation Committee (the designated MPO for the region) has examined the feasibility of "big initiative" concepts, such as bus service expansion and fixed-guideway transit systems, as part of the New Visions 2030 process.[6] The findings from this study indicate that the success of "big initiative" concepts requires a specific set of factors to be in place and that requirements such as a local "champion" and a sense of urgency are missing in the Capital District. However, these factors may develop in the future as the regional economic conditions change; therefore, the "big initiative" concepts discussed above should continue to be considered as long-term possibilities to facilitate connections with the Empire Corridor.

Automobile: In most cases, cars will be the predominant choice for accessing Empire Corridor rail stations. These customer markets are varied. For example, many New York City residents own second homes in the Adirondacks, north of the Capital District. These people are likely to access their Adirondack homes by private automobile. With adequate long-term parking available at the rail station, people from New York City could travel by rail to Albany, Schenectady, or Saratoga Springs and then use their personal vehicles for the last leg of their trip. During the work week, they could park their cars at the train station and avoid driving into and out of New York City.

Other promising options include "car sharing" and "station car" concepts. Both of these systems often use hybrid electric or battery-powered vehicles. Under the car sharing

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[5] Clough, Harbour, and Associates, LLP (March 2002) *CyberTran Automated Rapid Transit Study Albany-Rensselaer Corridor*

[6] Capital District Transportation Committee, "Consideration of 'Big Idea' and 'Big Ticket' Initiatives for the Capital District's Transportation System," New Visions 2030 Working Group C Working Materials. Available at < http://www.cdtcmpo.org/rtp2030/c-materials.htm> Accessed December 1, 2005.

concept, a fleet of cars would be available at the rail station for shared use. People traveling to the area would reserve a car for the necessary amount of time and pick up and drop off the car at the rail station. Car sharing organizations generally charge a membership fee plus an hourly fee each time a car is used.

Station car systems work well if there is significant commuting in opposite directions and a personal vehicle is required to access the final destination at one end of the trip. Commuters are allowed to take a station car home each evening. In the morning, they drop the car off at the station where they board the train. Someone else arriving at that station would use the car to drive to work for the day and return the car to the station at the end of the work day, in order to board a return train (this person then walks home or uses transit between home and the rail station). A car sharing system could potentially serve New York City residents doing business in Albany and Albany-area residents commuting to New York City.

Taxi service will continue to be an important intermodal connection at the rail station. Allowing taxi reservations to be made from the train would improve the efficiency of this connection. Specific destinations that draw large numbers of visitors would be best served by shuttle buses, either operated by the transit authority, a private operator, or by each individual destination.

Intermodal terminals: An intermodal facility in the Albany waterfront area will provide access to a commuter rail system, allow intercity passenger rail access directly to the City of Albany, and support the development of the **Albany Inner Harbor**. Such a facility was proposed as part of the previously-discussed commuter rail demonstration project.

Transformation of the existing Schenectady Amtrak station to a multi-use facility containing office and retail uses was previously proposed under the Western Gateway Transportation Center project. The focus of this effort has changed recently and proposals are currently being accepted for a Schenectady Station Intermodal Program to renovate the existing Schenectady Amtrak station. The City of Schenectady is currently pursuing the creation of an entertainment district anchored by the existing Proctor's Theater, located approximately a quarter-mile away from the existing Amtrak station. **Proctor's Entertainment District** is expected to draw visitors from outside the region. These visitors could be encouraged to travel to the area by rail and use the new intermodal transportation center to access the entertainment district.

Central New York

The Central New York region is primarily served by intercity passenger rail at the William F. Walsh Regional Transportation Center (RTC) in Syracuse. There are also Amtrak stations in Rome, approximately 44 miles east of Syracuse, and Utica, approximately 55 miles east of Syracuse. The Syracuse station is located in the City of Syracuse adjacent to the Alliance Bank Stadium and the Central New York Regional Market.

Figure 2-E illustrates intermodal connections in the Syracuse area and Table 2-D lists major economic generators in Syracuse and Central New York.

Figure 2-E: Syracuse/Central New York Intermodal Connections

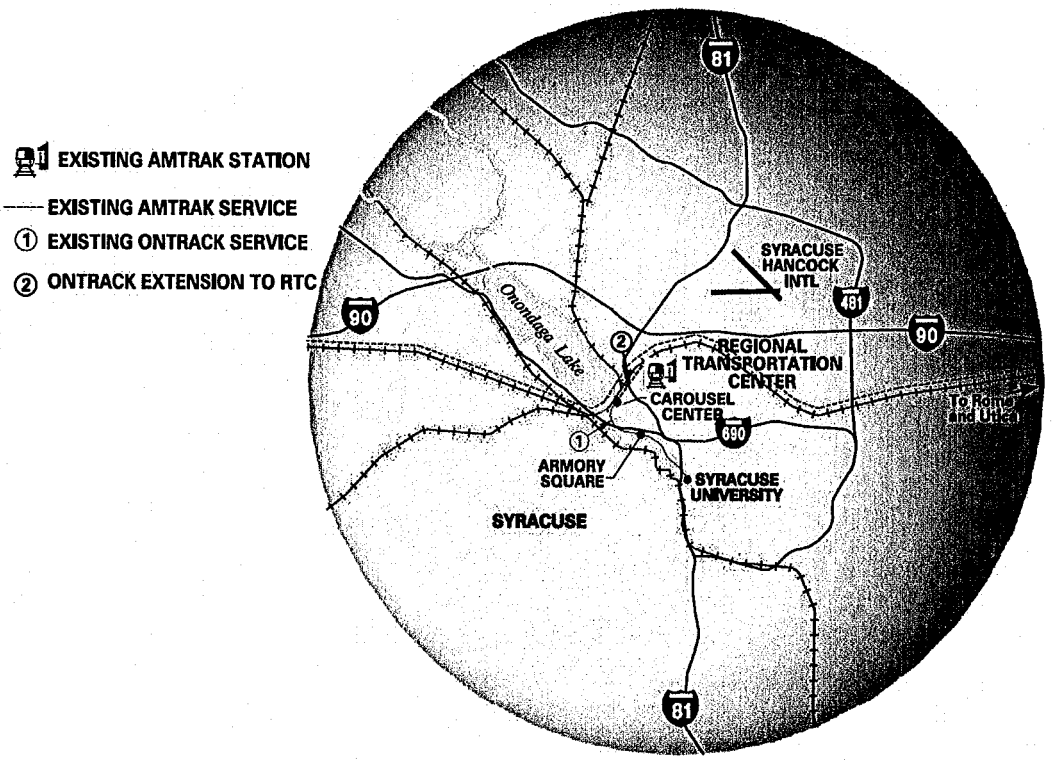

Table 2-D: Major Economic Generators in Central New York

Economic generator	Location	Status	Approximate distance from station (miles)
Syracuse Station			
Syracuse University	Syracuse	Existing	4
SUNY College of Environmental Science and Forestry	Syracuse	Existing	4
SUNY Upstate Medical University	Syracuse	Existing	4
LeMoyne College	Syracuse	Existing	6
Major employers tied to government work (Sensis, Lockheed Martin, Syracuse Research Corporation)	Onondaga County	Existing	Varies
Financial services employers (AXA Financial)	Syracuse	Existing	Varies
Onondaga Lake cleanup	Syracuse	In progress	1
Fort Drum	Watertown	Existing	96
North Country colleges	Canton/Potsdam	Existing	140
State Fairgrounds	Syracuse	Existing	4
CNY Biotechnology Research Center	Syracuse	Proposed	4
Center of Excellence in Environmental Energy Systems	Syracuse	In progress	3
Rome Station			
Turning Stone Casino	Verona	Existing	10

Existing Intermodal Connections

Intercity buses (Greyhound and Trailways) and Amtrak both use the RTC in Syracuse. The Central New York Regional Transportation Authority (Centro) runs multiple local bus routes serving the RTC, including a route that provides service between the RTC and the Syracuse Hancock Airport and routes that serve **Syracuse University**, **SUNY College of Environmental Science and Forestry**, **SUNY Upstate Medical University, and LeMoyne College**.

The Adirondack Scenic Railroad operates between the Utica station and Thendara (near Old Forge). Currently, there is one scheduled round trip per day during the summer plus various special events trains.

Planned and Potential Intermodal Connections

Bus: Shuttle bus service could be coordinated with train arrivals at the Utica or Rome station to bring tourists to the **Turning Stone Casino**.

Rail: The New York Susquehanna & Western Railroad (NYS&W) currently operates the OnTrack passenger rail service in Syracuse using self-propelled diesel rail cars. The Onondaga County Industrial Development Agency owns the tracks. OnTrack's "City Express" route is 3.5 miles long with stops at the Carousel Center shopping mall, Armory Square in downtown Syracuse, and Syracuse University. Service is extended to Jamesville Beach – southeast of Syracuse – seasonally and for special events. An extension of the service from the Carousel Center to the RTC is planned; however, a rail bridge over Park Street (just south of the RTC) is necessary. Design of this bridge is in progress. Once complete, the bridge will provide the final link between intercity and local passenger rail service. OnTrack currently runs only on Friday, Saturday, and Sunday with eight trains per day.

If the OnTrack service were expanded to weekdays, it could potentially serve visiting researchers and professors to Syracuse University as well as leisure travelers wishing to shop at the Carousel Center or visit the Armory Square area. With the connection to the RTC, out-of-town Syracuse University sports fans would be able to arrive in Syracuse by rail and transfer to OnTrack to reach the Carrier Dome.

An expansion of the Carousel Center has been approved and there are also plans to redevelop the Syracuse Lakefront and Inner Harbor area at the southeast end of **Onondaga Lake,** along with millions of dollars that are being invested to clean up environmental pollution in the lake. There is a significant amount of development

proposed in this area, which is in close proximity to the RTC and could be served by OnTrack or a shuttle bus service.

In past years, Amtrak has operated a special event stop at the **New York State Fairgrounds** and offered special fares for passengers traveling to the State Fair. This service should be continued, promoted, and extended to other special events held at the fairgounds.

Automobile: There are numerous destinations within Central New York that attract business travelers from outside the region, providing a potential market for an improved Empire Corridor service. These destinations include the universities previously mentioned, local financial services offices (such as **AXA Financial**), and major employers tied to government work (such as **Sensis**, **Lockheed Martin**, and **Syracuse Research Corporation**). The proposed **Central New York Biotechnology Research Center** and the **Center of Excellence in Environmental Energy Systems**, to be located near Upstate Medical University and in downtown Syracuse respectively, will also attract visitors from beyond region. Travelers will most likely use private vehicles to access these destinations after arriving in Syracuse at the RTC. For frequent travelers to the region, a car sharing or station car program (as described for the Capital District) may be an attractive option; however, occasional visitors are likely to use taxis or pick-up service provided by individual companies. The RTC is located in close proximity to Interstate 81 and is easily accessible from anywhere in Syracuse.

Rochester

There is one Amtrak station in the Rochester area. Service is provided at the Rochester station on the Empire Service, Maple Leaf, and Lake Shore Limited. The station is located in downtown Rochester.

Intermodal connections in the Rochester area are shown on Figure 2-F and major economic generators within the region are listed in Table 2-E.

Figure 2-F: Rochester Intermodal Connections

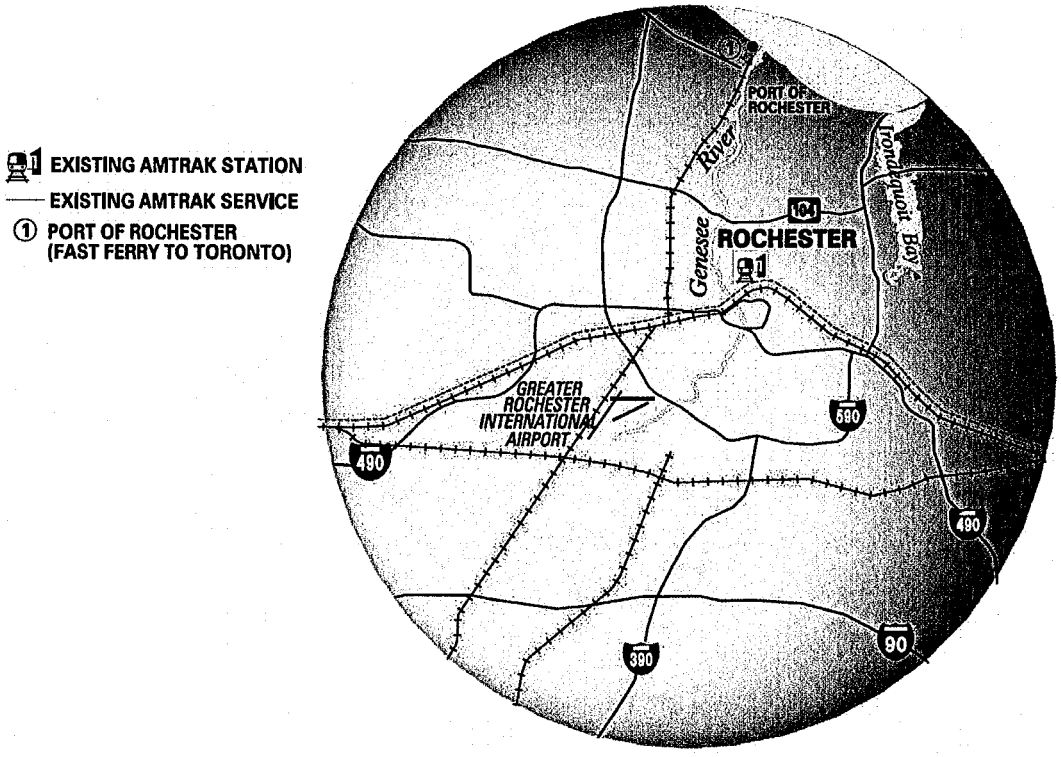

Table 2-E: Major Economic Generators in the Rochester Area

Economic generator	Location	Status	Approximate distance from station (miles)
Rochester Station			
Fast Ferry	Charlotte	Existing	8
University of Rochester	Rochester	Existing	2.5
Rochester Institute of Technology	Rochester	Existing	7
Monroe Community College	Rochester	Existing	4.5
Renaissance Square	Rochester	Proposed	1/3
Xerox Wilson Center for Technology	Webster	Existing	17
Kodak Park	Rochester	Existing	3.5
Greater Rochester International Airport	Rochester	Existing	5

Existing Intermodal Connections

The Rochester Genesee Regional Transportation Authority operates bus service throughout the Genesee-Finger Lakes region through seven subsidiaries. Service within the Rochester Metropolitan Area is provided through the Regional Transit Service (RTS). One bus route directly serves the Rochester Amtrak station and a second route stops within walking distance of the station. Although the station is located close to downtown Rochester, the Inner Loop expressway, located just south of the station, "acts as a physical and perceptual barrier" between the station and the core of the downtown area.[7] Taxis are available at the station.

Planned and Potential Intermodal Connections

Bus: A shuttle could connect the Amtrak station to the **Fast Ferry** at the Port of Rochester. The ferry provides service for both walk-on passengers and automobiles across Lake Ontario to Toronto. The trip takes approximately 2 hours and 15 minutes (the alternative trip around Lake Ontario takes approximately 3 hours by car and approximately 6 hours by train). Shuttle service could also be provided for the **University of Rochester**, **Rochester Institute of Technology, and Monroe Community College**.

Rail: The City of Rochester used to have a subway system, which ceased operations in 1956. Although portions of the former subway alignment have been abandoned, filled, or used for construction of Interstate 490, a section in the downtown area—the Broad Street tunnel—remains intact. A 1998 study prepared for the City of Rochester examined the feasibility and economic development potential of light rail transit in Rochester.[8] This study considered re-using a portion of the Broad Street tunnel in combination with on-street operations in the North-South corridor from Lake Ontario to the University of Rochester. Currently, no agencies with authority to implement a new transit system have proposed such a light rail system in their capital plans.[9] It is also important to note that the proposed light rail alignment does not directly connect to the existing Amtrak station; modification of the alignment or a spur would be necessary to facilitate transfers between intercity trains and a local light rail system. If a light rail system, or any other high-capacity transit system, is implemented in the future, a connection to the Amtrak

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[7] Bergmann Associates (March 2002) *Rochester Amtrak Station Revitalization Study.*
[8] Wilbur Smith Associates with BRW, Erdman Anthony, and Fisher Associates (March 1998) *Rochester Light Rail Transit Economic Development Feasibility Study*, Executive Summary. Available at <http://www.ggw.org/rrtc/execreport.html> Accessed November 3, 2005.
[9] Telephone communication with James Stack, Assistant Director, Genesee Transportation Council, November 3, 2005.

station should be pursued in order to increase the accessibility of local attractions to intercity travelers.

Automobile: Cars will be the most likely means of transportation to and from the Amtrak station for business travelers since many local offices are dispersed throughout suburban areas of the region. These travelers will most likely use taxis, rental vehicles, or pick-up services to reach their final destination. The location of the station adjacent to the Inner Loop expressway facilitates easy access to I-490 and numerous destinations throughout the region.

Intermodal terminals: A 2002 study examined options for rehabilitating or rebuilding the existing Amtrak station in anticipation of high speed rail service through Rochester.[10] This study recommended constructing a new station west of the existing station on the current site. Numerous station amenities to increase passenger comfort were recommended along with streetscaping and pedestrian improvements.

The recommendations of this study were never implemented since the high speed rail system expected at the time of the study did not come to fruition. The new Amtrak station was not proposed to be a true intermodal center, since there was not a desire to divert existing bus routes from the heart of downtown Rochester to the Amtrak station. However, a shuttle link between the new Amtrak station and a new Downtown Transportation Center was proposed. The shuttle was proposed to operate initially on existing roads with a dedicated travel lane to be developed in the future.

The Downtown Transportation Center is now being advanced through the **Renaissance Square** project, which is expected to be a major regional attraction. Renaissance Square has three elements: a transit center, a performing arts center, and a downtown campus for Monroe Community College. The transit center will include local bus service, intercity bus service, and shuttles to the Greater Rochester International Airport, the Amtrak station, and the Fast Ferry plus retail facilities.

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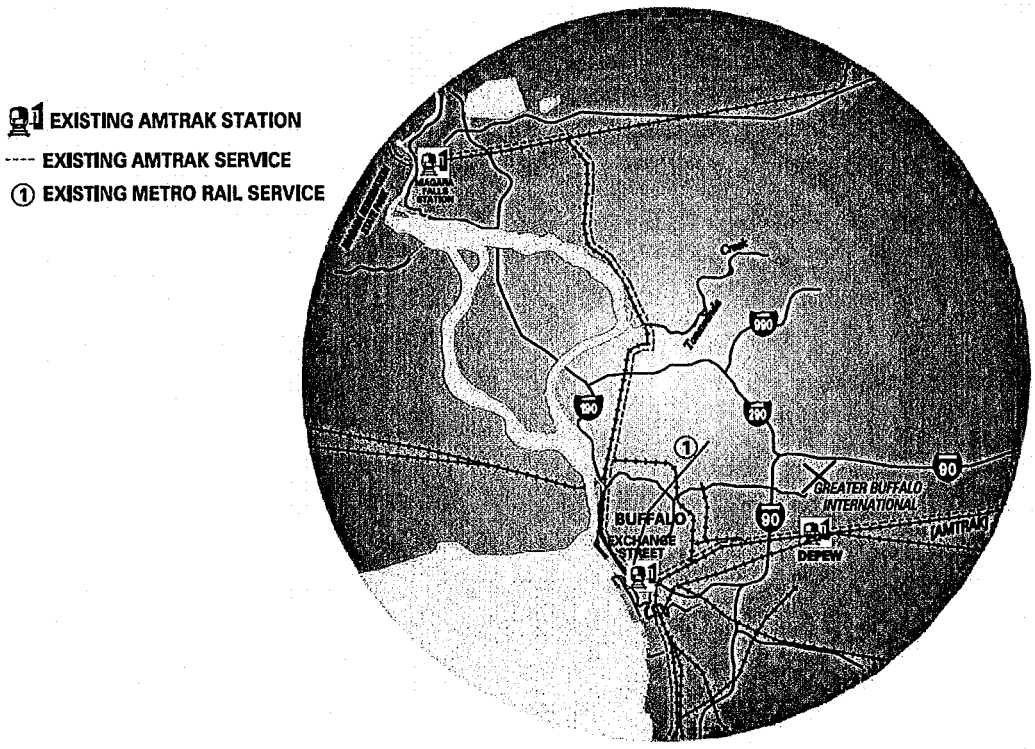
[10] Bergmann Associates (March 2002) *Rochester Amtrak Station Revitalization Study.*

Niagara Frontier

Amtrak service is provided at three stations in the Niagara Frontier region: Buffalo-Exchange Street, Buffalo-Depew, and Niagara Falls. All three stations are served by the Empire Service and the Maple Leaf; the Depew station is also served by the Lake Shore Limited. The Exchange Street station is located in downtown Buffalo. Relative to the Exchange Street station, the Depew station is located approximately 10 miles to the east and the Niagara Falls station is located approximately 22 miles to the north. Figure 2-G illustrates intermodal connections in the Buffalo/Niagara Falls area and Table 2-F lists major economic generators in the region.

Figure 2-G: Niagara Frontier Intermodal Connections



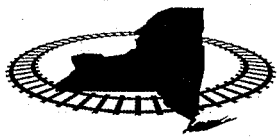


Table 2-F: Major Economic Generators in the Niagara Frontier Region

Economic generator	Location	Status	Approximate distance from station (miles)
Exchange Street Station			
HSBC Arena	Buffalo	Existing	0.5
Erie Basin Marina	Buffalo	Existing	1
Naval & Serviceman's Park and Museum	Buffalo	Existing	1
Buffalo Inner Harbor	Buffalo	Proposed	1
Depew Station			
Buffalo Niagara International Airport	Cheektowaga	Existing	2
Ralph Wilson Stadium	Orchard Park	Existing	14
Niagara Falls Station			
Niagara Falls State Park	Niagara Falls	Existing	3

Existing Intermodal Connections

Bus: Exchange Street, Depew, and Niagara Falls stations are all served by the local bus system, operated by the Niagara Frontier Transportation Authority (NFTA). However, it should be noted that each station has only one connecting bus route, which limits the area that is easily accessible by bus from each rail station.

Rail: NFTA operates a 6.4-mile light rail line called Metro Rail along Main Street between downtown Buffalo and the **State University of New York at Buffalo** South Campus. Within the downtown area, Metro Rail runs at street level through the Main Street pedestrian mall; outside of this area it is an underground system. There is a Metro Rail station less than a quarter mile from the Exchange Street Amtrak station.

Planned and Proposed Intermodal Connections

Rail: Amtrak completed a market study in 2003 that considered various options for expanding service in Western New York, including additional local service between Buffalo and Niagara Falls and an extension from downtown Buffalo to the **Buffalo Niagara International Airport**. This study also considered regional options, including service to the resort areas in Southwestern New York and additional Cleveland-Buffalo-

Toronto service.[11] The Cleveland-Buffalo-Toronto service options were recommended for further study, based on favorable financial analysis in this study. The other options were found to require significant capital investments and/or to attract relatively few new riders. Alternative technologies, such as light rail, were recommended for an airport connection.

A rail extension to **Ralph Wilson Stadium** in Orchard Park could bring Buffalo Bills fans directly to the football games. The stadium is approximately 14 miles south of both the Exchange Street and Depew Amtrak stations.

Automobile: Taxis, rental vehicles, or shuttle services are likely to be the primary means of accessing the suburban Depew station.

Intermodal terminals: The existing Exchange Street Amtrak station is a small station located on the fringe of the central business district. The station location was characterized in Amtrak's Western New York Passenger Rail Opportunities Study as being "under elevated structures that dominate the site to such an extent it is considered by many as being secluded and isolated." There is a proposal to create an intermodal center—the Buffalo Intermodal Transportation Center (BITC)—that would serve Amtrak, intercity buses, local buses and the light rail system (there is an existing auditorium stop on Metro Rail). The Memorial Auditorium is one of the potential sites for the new BITC.[12] This project is one in a series of development efforts in the area, and the final location and configuration of a potential intermodal center are currently to be determined.

The City of Niagara Falls is currently in the process of relocating the existing Amtrak station and creating a new International Railway Station/Intermodal Transportation Center to consolidate border crossing operations.[13] This facility is programmed to include short- and long-term parking, bus slips, kiss-and-ride and taxi zones, and pedestrian accommodations. The new facility will be located in the North Main Street Business District and is an adaptive reuse of the historic U.S. Customs House. The project is expected to be completed in 2009. Numerous studies and planning efforts have been completed for the Niagara Falls waterfront with the goal of increasing the attractiveness of the U.S. side of the falls as a tourist destination. A new station near the

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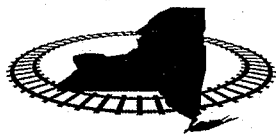
[11] National Railroad Passenger Corporation (2003) *Western New York Passenger Rail Opportunities Study.*
[12] "Buffalo Intermodal Transportation Center Project" Report available at <http://www.city-buffalo.com/document_1053_119.html> Accessed November 4, 2005.
[13] City of Niagara Falls, New York International Railway Station/Intermodal Transportation Center Project. Project Overview – January 2005.



Whirlpool Bridge, such as the Customs House site, would afford rail passengers better access to tourist destinations along the waterfront.[14]

Mid-Hudson Intermodal Center

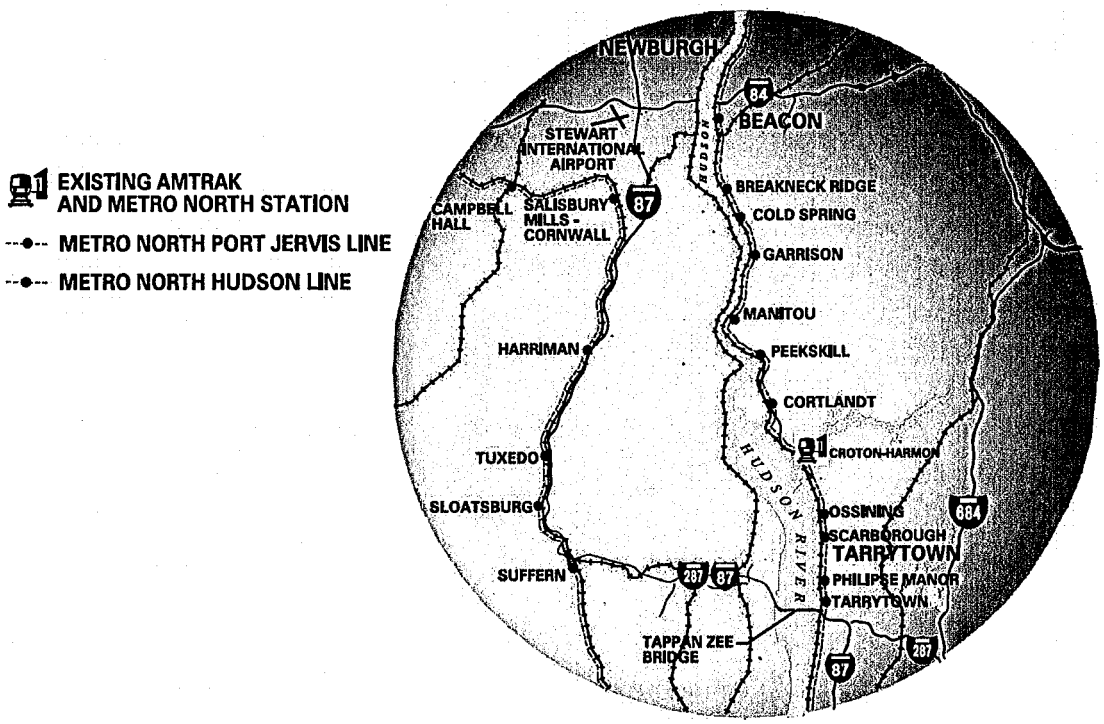
In the future, Metro North commuter rail service will continue to be the primary carrier in the Hudson Valley. Empire Corridor inter-city, inter-city express and inter-regional rail services will be focused on a limited number of key locations where a high level of demand, intermodal integration, accessibility, and economic development potential exists. One of these locations will be the "Mid-Hudson Empire Corridor Intermodal Center." This location could be at an existing station or at a new station site. Selection of this location will depend on a number of factors, including:

- Future demand for Empire Corridor services at existing Hudson Line stations.
- Station capacity, intermodal access potential—especially parking—and station area development potential.
- Completion of a new Hudson River rail crossing as part of the Tappan Zee Bridge replacement project.
- Future development of Stewart International Airport as a reliever airport for the three New York City Regional Airports.
- The termination location of the Empire Corridor Express in Manhattan.
- The competitiveness of Empire Corridor Express Service with other service options.
- Decision and timing of a new high speed fixed guideway route from New York City to upstate New York.

At least two locations will be under consideration: the vicinity of Tarrytown on the I-287 East-West Corridor and the vicinity of Beacon on the I-84 East-West Corridor. Both locations have favorable access and intermodal integration potential. Both could provide express service to Stewart Airport, but with different types of transit. These options will be included in the long -range program for further consideration.

[14] The Urban Design Project, The Waterfront Regeneration Trust, Foit-Albert Associates, with the City of Niagara Falls (2001) Achieving Niagara Falls' Future: An assessment of Niagara Falls' waterfront planning.

Figure 2-H: Mid-Hudson Valley Intermodal Connections



2.3 Program Summary and Costs

In the sections above, the details of the proposed programs to support the long-term and short-term visions of the study are identified and the phasing of the proposed action program to achieve the results is presented. To assist with understanding the overall elements of the programs and the associated benefits, the following summary of the action program elements, objectives, costs, and benefits is provided.

2.3.1 Action Program Summary

The long-term program envisions the institution of HSGT service for the entire Empire Corridor on a dedicated right-of-way. The service will utilize either very high speed rail vehicles or maglev technology. The implementation of such a service is contingent on the demand for such a service to grow over the short term to allow a decision to progress this technology to be made in approximately 10 years. Planning, designing, funding, and constructing the HSGT service will be progressed over an additional 10-year period, allowing this service to be implemented as early as 2025.

To meet the growing demand for service associated with the short-term vision, the action program proposes to implement five phases of incremental improvements that will match the steady increase in demand for service with a schedule that can be supported by available resources and the time required to implement key elements of the action program. A summary of each case/phase is provided below and is further summarized in Table 2-G.

Phase A

Operational Improvements:

- Implement one express train round-trip between Albany and Penn Station. Improve on time performance for trains operated west of Albany.

Projected Trip Times:

- Capital District to Penn Station 2 hrs 5 min
- Capital District to Buffalo/Niagara Falls 5 hrs 45 min

Infrastructure Improvements:

- Add second station platform at Hudson to support passing of trains at the station.
- Add fourth track at Rensselaer station and construct freight bypass track.

Total Projected Ridership: 2,080,000 annually

Total Capital Funding: $22 million

Phase B

Operational Improvements:

- Increase service with improvements in trip time and reliability. Purchase of right-of-way from CSXT.

Projected Trip Times:

- Capital District to Penn Station 1 hr 59 min
- Capital District to Buffalo/Niagara Falls 5 hrs 40 min

Infrastructure Improvements:

- Upgrade the Metro North signal system between Harmon and Poughkeepsie.
- Upgrade controlled siding at Poughkeepsie to main line status.
- Relocate dispatching control to location controlled by the operator of the state-owned right-of-way.
- Construct new interlocking and universal crossovers at MP 82.
- Implement track improvements and higher maximum speeds from Harmon to Albany.
- Construct second track from CP 144 to 169 between Albany and Schenectady.
- Restore Livingston Avenue Bridge to a state of good repair.
- Reconfigure CP 169 (Hoffmans) for parallel moves.

Total Projected Ridership: 2,290,000 annually

Total Capital Funding: $516 million

Phase C

Operational Improvements:

- Reduce trip time and improve reliability of service associated with procurement of new trainsets with tilt technology.

Projected Trip Times:

- Capital District to Penn Station 1 hr 55 min
- Capital District to Buffalo/Niagara Falls 5 hrs 30 min

Infrastructure Improvements:

- Additional track improvements between Albany and Harmon for 110 mph operation.
- Provide station platform improvements and freight bypass tracks as follows:
  - Amsterdam: new low-level platform on the eastbound track.
  - Utica: high-level platform serving two tracks with a freight bypass.
  - Rome: high-level platform serving two tracks with a freight bypass.
  - Rochester: add an ADA-compliant platform to Track 1.
  - Buffalo (Depew): add an ADA-compliant low-level platform.

Total Projected Ridership: 2,830,000 annually

Total Capital Funding: $407 million

Phase D

Operational Improvements:

Acquire additional new trainsets to allow further increases in speed and trip time reductions on the south corridor. Improve reliability of all service by adding two passing sidings.

Projected Trip Times:

- Capital District to Penn Station 1 hr 55 min
- Capital District to Buffalo/Niagara Falls 5 hrs 25 min

Infrastructure Improvements:

- Upgrade Spuyten Duyvil connection to double track.
- Triple Track CP 53-CP 63.
- Construct interlocking improvements and new CP 99.
- Install power switches on the Rensselaer Wye.
- Complete additional track class upgrade and superelevation projects.
- Complete superelevation of curves.

- Construct a 10,000-foot or greater siding between Hoffmans and Buffalo at a location to be determined.
- Construct crossovers at CP207 (West of St. Johnsville).
- Install power switches at Niagara Falls Station.

Total Projected Ridership: 3,260,000 annually

Total Capital Funding: $412 million

Phase E

Operational Improvements:

None for this phase.

Projected Trip Times:

- Capital District to Penn Station 1 hr 55 min
- Capital District to Buffalo/Niagara Falls 5 hrs 10 min

Infrastructure Improvements:

- Construct a middle track at Stuyvesant.
- Complete interlocking improvements in connection with the middle track.
- Construct two additional 10,000-foot or greater sidings between Hoffmans and Buffalo.

Total Projected Ridership: 3,950,000 annually

Total Capital Funding: $445 million

2.3.2 Program Funding Requirements

The objective of the phased approach to implementing the action program is to match the anticipated funding availability and the projected growth in ridership demand. The following charts provide a comparison of the year and location of projected expenditures.

Figure 2-I: Capital Investment by Year

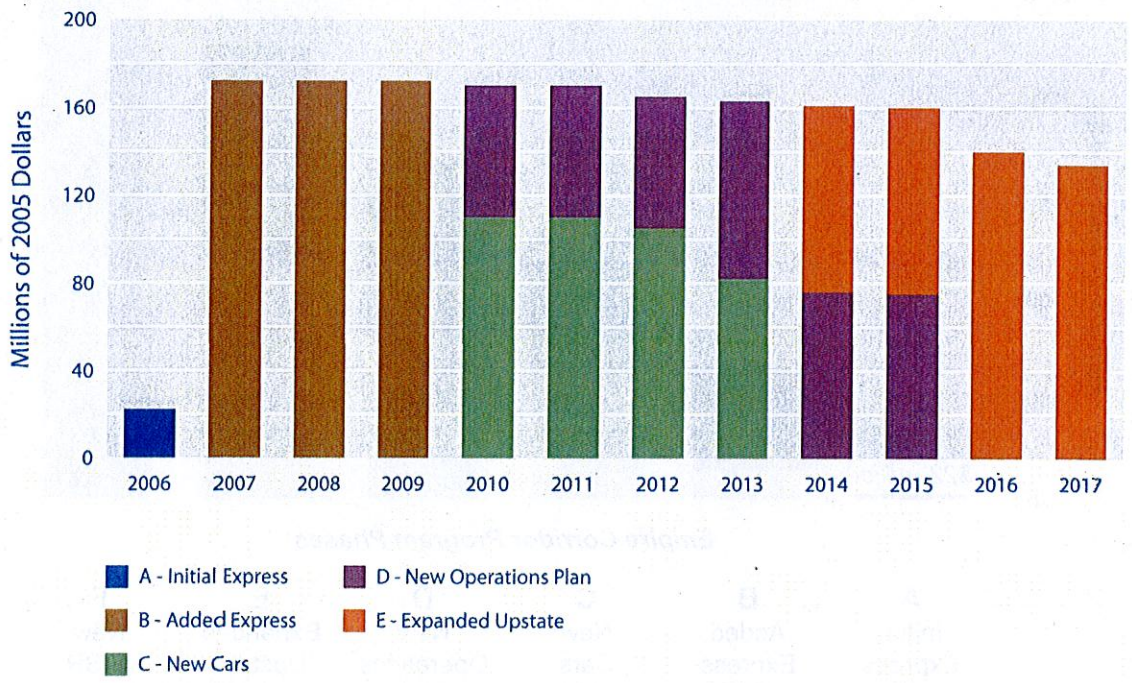
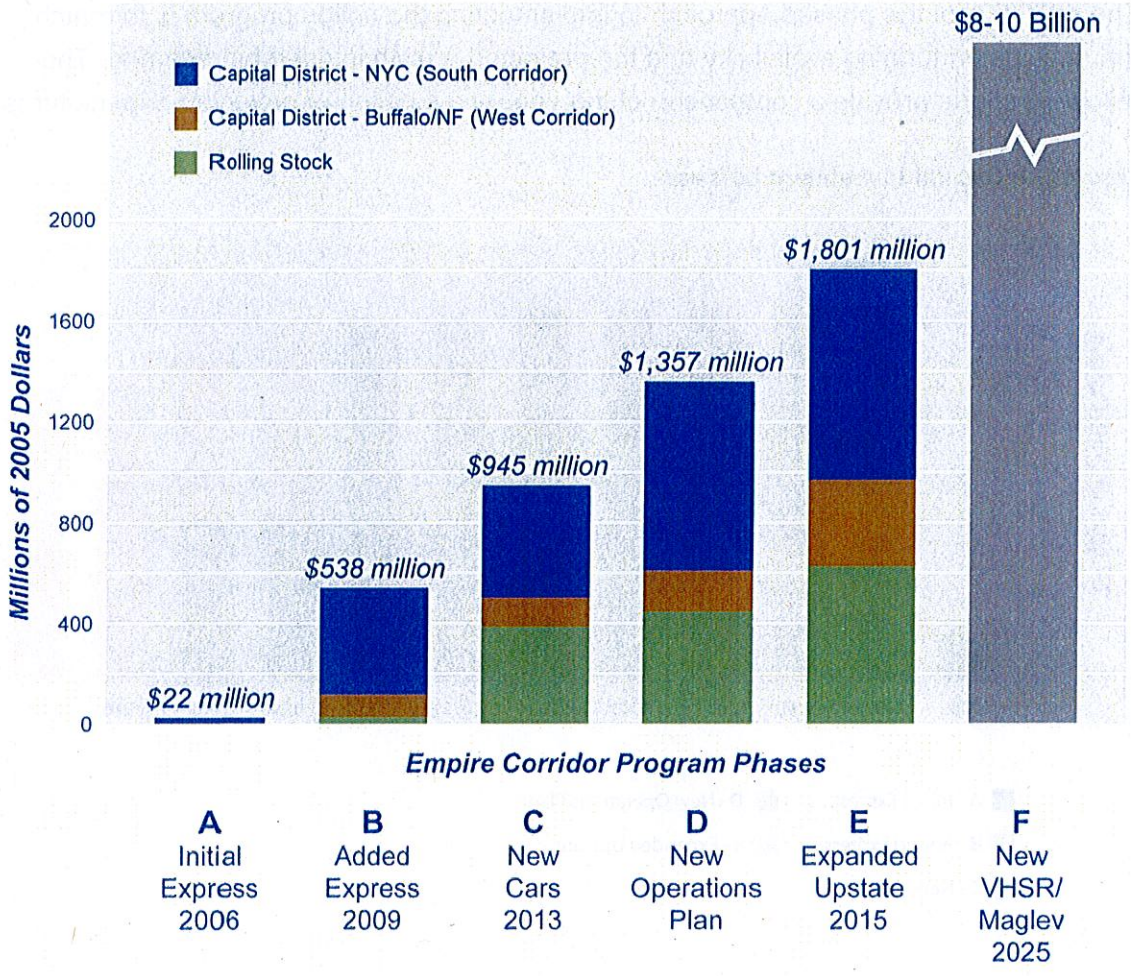


Figure 2-J: Capital Investment by Equipment and Corridor



3. Transportation, Economic, and Development Benefits

Section Contents

3. Transportation, Economic, and Development Benefits

3.1 Ridership and Service Quality

Moving more people on intercity rail is a key goal of the action program described in Section 2.2. Table 3-A shows the ridership forecasts for each phase of the action program for the entire Empire Corridor, as well as its three distinct travel markets. These three markets are:

- The west corridor, comprising travel between all station pairs between Buffalo/Niagara Falls and Albany-Rensselaer.
- The south corridor, comprising travel between all station pairs between Albany and New York City (Penn Station).
- Through, comprising all travel between all stations in the west corridor and the south corridor.

As described in Section 2, the action program consists of a program of improvement phases ranging from short-term (1 year) express service between Albany and New York City (Phase A), to a long-term maglev/VHSR improvement package for the entire Empire Corridor. Fares have been held constant at their current (2004) dollars, in real terms. Table 3-A compares ridership impacts in 2025, when all phases of the action program will have been implemented.

Table 3-A: 2025 Action Program Ridership by Market within the Empire Corridor

Program Phase	A	B	C	D	E	Maglev / VHSR
Total	2,084,000	2,294,000	2,825,000	3,257,000	3,946,000	10,177,000
% Growth	0%	10%	36%	56%	89%	389%
% of Total	100%	100%	100%	100%	100%	100%
West corridor	123,000	164,000	512,000	512,000	751,000	2,267,000
% Growth	0%	33%	316%	316%	511%	1743%
% of Total	5.90%	7.15%	18.12%	15.72%	19.03%	22.28%
South corridor	1,640,000	1,798,000	1,921,000	2,353,000	2,783,000	5,511,000
% Growth	0%	10%	17%	43%	70%	236%
% of Total	78.73%	78.41%	68.00%	72.24%	70.53%	54.15%
Through	321,000	332,000	392,000	392,000	412,000	2,399,000
% Growth	0%	3%	22%	22%	28%	647%
% of Total	15.41%	14.48%	13.88%	12.04%	10.44%	23.57%

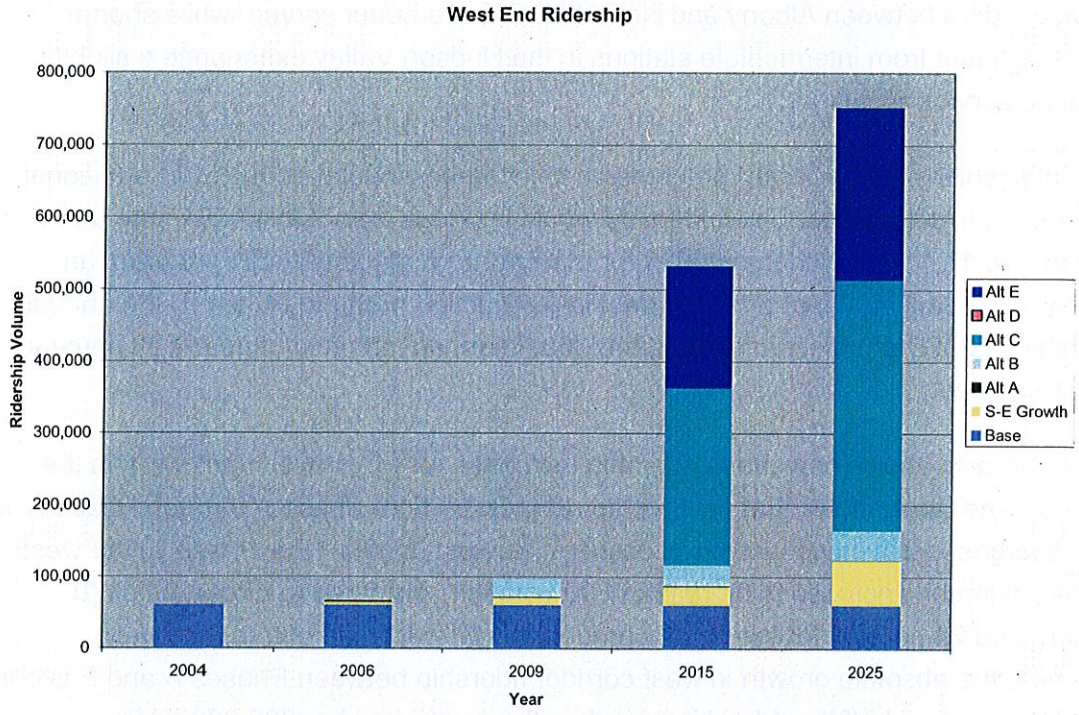
As shown in Table 3-A, Phase A of the action program is essentially neutral in its impact on ridership. By changing a currently-used trainset from local to end-to-end express service, riders between Albany and New York City are better served, while shorter distance riders from intermediate stations in the Hudson Valley experience a slightly reduced service frequency.

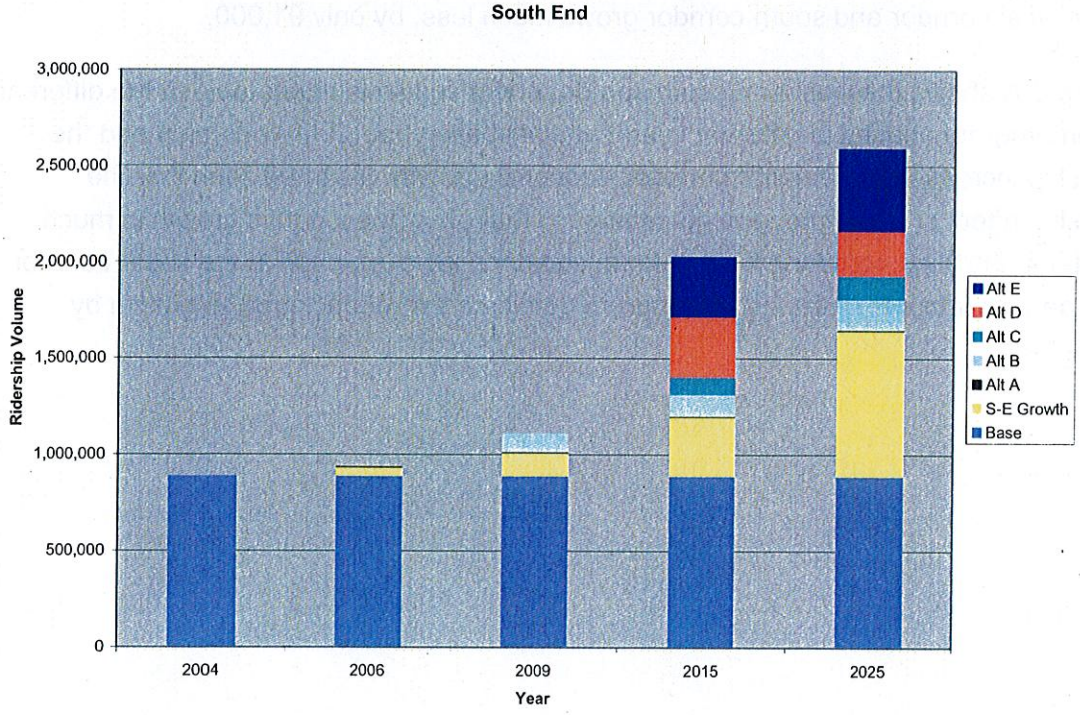
The table shows the expected progression of increases in total ridership as additional phases are implemented. Total ridership would increase from 2,084,000 riders under Phase A to 10,177,000 riders in 2025 for the long-term maglev/VHSR program, an increase of nearly 400 percent. For the mid-term action program Phase E, the annual ridership in 2025 is projected to be 3,946,000 riders, an increase of nearly 90 percent over Phase A.

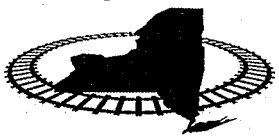
Table 3-A also shows how these ridership increases vary by travel market within the corridor. The table shows that as the plan progresses from Phase A through Phase E, by far the largest percentage increases occur in the west corridor. For Phase E, the west corridor ridership increase is more than 500 percent, compared to increases of 70 percent and 28 percent for the south corridor and through markets, respectively. However, the absolute growth in west corridor ridership between Phases A and E is only slightly more than half the ridership growth in the south corridor: 628,000 riders compared to 1,143,000 riders. The number of through riders traveling between stations in the west corridor and south corridor grows much less, by only 91,000.

Figure 3-A shows the west and south corridor ridership levels attributable to the different action program phases in different years, against base year (2004) ridership and the ridership increases that result from socioeconomic growth. It can be seen that the ridership effect of the improvements relative to that of socioeconomic growth is much greater in the west corridor than the south corridor. However, even in the south corridor the ridership impacts of the action program dominate that of background growth by 2015.

Figure 3-A: Ridership Growth by Program Phase - West and South Corridors







3.1.1 Diverted and Induced Travel

To better understand the ridership impacts of the improvement packages, it is useful to know how much of the ridership growth is existing travel diverted from other modes (e.g., air and auto), and how much is new travel. In general, rail ridership increases following an improvement occur not only by diverting travel from other modes, but also by inducing new trips that formerly were not made at all. South corridor rail improvements that provide significant travel time savings and other service quality improvements (reliability, etc.) will induce sizeable new rail volumes in this part of the corridor. This is because rail service is already such a large portion of the south corridor's utilized transportation system (see Section 1.3.3), that a rail improvement will have a substantial impact on the overall level of transportation service provided in the south corridor.

Moreover, because increased travel and increased economic activity at the trip ends are mirror images of each other, induced travel is a good quantitative measure of increased economic activity from the transportation improvement. The high levels of induced travel from rail improvements in the south corridor suggest that the improvements are likely to have significant economic development impacts in the Albany and New York City regions. Since the Albany area is so much smaller than the New York City area, the percentage impact of the economic development impacts on the Albany area will be much larger. This is discussed further in Section 3.2.

Table 3-B shows the 2025 action program ridership growth from each improvement phase in the three travel markets within the corridor, and also shows how much of the ridership growth is existing travel diverted from other modes, and how much is induced travel. The table shows that the total amount of induced travel from the improvement phases in the Empire Corridor is higher in percentage terms than is usually found in rail improvement studies. The range of induced ridership is from 24 percent of total ridership growth for Phase B, to just over 10 percent for maglev/VHSR. The highest induced travel growths are primarily in the south corridor, while the through market also has high induced growth percentages, but low total growths. The reasons for these high percentages of induced travel in the south corridor and through markets are very different.

Table 3-B: 2025 Action Program Ridership Growth by Source

Program Phase		A	B	C	D	E	Maglev / VHSR
Total:	Growth	0	210,000	741,000	1,173,000	1,862,000	8,093,000
	Diverted	0	160,000	633,000	970,000	1,561,000	7,225,000
	% Diverted	--	76.19%	85.43%	82.69%	83.83%	89.27%
	Induced	0	50,000	108,000	203,000	301,000	868,000
	% Induced	--	23.81%	14.57%	17.31%	16.17%	10.73%
West Corridor:	Growth	0	41,000	389,000	389,000	628,000	2,144,000
	Diverted	0	40,000	381,000	381,000	615,000	2,092,000
	% Diverted	--	97.56%	97.94%	97.94%	97.93%	97.57%
	Induced	0	1,000	8,000	8,000	13,000	52,000
	% Induced	--	2.44%	2.06%	2.06%	2.07%	2.43%
South Corridor:	Growth	0	158,000	281,000	713,000	1,143,000	3,871,000
	Diverted	0	113,000	201,000	538,000	879,000	3,171,000
	% Diverted	--	71.52%	71.53%	75.46%	76.90%	81.92%
	Induced	0	45,000	80,000	175,000	264,000	700,000
	% Induced	--	28.48%	28.47%	24.54%	23.10%	18.08%
Through:	Growth	0	11,000	71,000	71,000	91,000	2,078,000
	Diverted	0	7,000	51,000	51,000	67,000	1,962,000
	% Diverted	--	63.64%	71.83%	71.83%	73.63%	94.42%
	Induced	0	4,000	20,000	20,000	24,000	116,000
	% Induced	--	36.36%	28.17%	28.17%	26.37%	5.58%

3.1.2 South Corridor Ridership

In the south corridor, the good news is the already very high rates of rail ridership. As described in Section 1.3.3, rail already accounts for over 40 percent of travel between the catchment areas of the Albany-Rensselaer and New York (Penn) rail stations. Therefore, when improvements are made to a mode of travel that already has a significant portion of the total travel market, there will be a significant increase in induced travel. Also, since rail is much more readily substituted by air travel than by auto, and since there are essentially no air passengers to divert in the south corridor, it will be difficult for rail improvements to divert large volumes of existing (auto) travelers in the south corridor.

The combination of relatively high induced travel and relatively low diverted travel in the south corridor leads to the high values of induced travel as a percentage of total ridership growth seen in the south corridor. In addition, since south corridor ridership is such a large share of Empire Corridor ridership (78 percent in 2004), the impact of the large south corridor induced ridership growth from Phases B through E and maglev/VHSR is reflected in the system-wide growth in induced ridership.

3.1.3 West Corridor Ridership

The percentage increases in west corridor ridership growth from the improvement phases are far higher than for either the south corridor or through markets. For both air and rail, existing common carrier service between west corridor cities can only be called poor. There are currently only two flights per day between Albany and Buffalo, and three per day between Albany and Rochester.

Rail service in the west corridor is relatively slow and unreliable, and passenger trains must compete for limited track space with freight trains, as described earlier in this report. Passenger train frequencies are currently so low that each additional train per day has a much greater (percentage) effect on ridership than is the case starting from the much higher frequency base in the south corridor. Also, a given percentage improvement in travel time or reliability corresponds to a greater magnitude of travel time or reliability improvement in the west corridor than in the south corridor, so the diverted ridership impact in percentage terms is again that much greater. Since frequency, travel time, and reliability improvements characterize the improvement Phases B through E and maglev/VHSR, it is understandable that the percentage increases in ridership in the west corridor are so much greater than in the south corridor.

On the other hand, Table 3-B shows that new rail volumes induced by west corridor rail improvements are dramatically smaller (2 to 3 percent of ridership growth) than those resulting from similar improvements in the south corridor. This is because auto travel dominates in the west corridor, and rail makes up a much smaller part of the utilized transportation system than in the south corridor. Thus rail improvements in the west corridor don't have a large effect on the total level of service of the transportation system in the west corridor.

3.1.4 Through Trip Market

With regard to the through-trip market, the prospects for rail to gain significant ridership and market share are much less promising than for city pair markets entirely within the west or south corridors of the Empire Corridor. Table 3-B shows that the distances are

simply too great in the through market for all but maglev/VHSR to compete effectively against the frequent, inexpensive air service currently provided by jetBlue between the major west corridor cities and New York City.

Because of its speed advantage, air competes effectively with auto over the longer distances (greater than 200 to 250 miles) between the major through markets (for example, Rochester to New York City is 370 miles). Rail only competes effectively with air in these long distance travel markets when it provides a line haul travel time of two hours or less, and when it also offers a slightly lower fare (which it does in these phases) to compensate for its longer travel time. Also, since rail currently serves such a small portion of the through travel market (Table 1-F, Transportation in the Empire Corridor, in Section 1.3.3), rail improvements do not induce significant amounts of new travel between west and south corridor cities.

Nevertheless, in the action program improvement phases, induced ridership is a relatively high percentage of total ridership growth in the through market. The reason for this is the much smaller diversion of air and auto travel in the through market compared to the diversions in the west and south corridors. Thus, while induced travel as a percentage of total ridership growth is high in both the south corridor and through markets, in the south corridor this is because induced travel is very large in magnitude, while in the through market it is because diverted travel is comparatively low for all but maglev/VHSR.

3.1.5 Two Railroad Markets (Corridors)

From this examination of the ridership impacts of the various improvement packages in the Empire Corridor, we can conclude that we are dealing with two very different travel market situations—two different "railroads," in fact, corresponding to the corridor's west and south corridors. The report has already noted this in terms of the way rail is operated in the two parts of the corridor. The same is true with regard to the potential for increasing ridership, and thus the increased public benefits from passenger rail improvements in the corridor's two parts. Furthermore, while rail improvements in one part of the corridor (e.g., the west corridor) will also benefit through travel, this benefit will be quite limited for all but the very fastest new technologies. This means that rail improvements in each part of the corridor must primarily stand on their own merit in a benefit/cost analysis.

3.1.6 Projected Ridership by Program Phase

It is useful to examine Empire Corridor projected ridership growth between 2004 and 2025. Table 3-C shows the annual ridership for each phase of the action program when or shortly after each phase is implemented. The table separates the ridership effects of the corridor's projected socioeconomic growth from the effects of the phases themselves. The latter effects are presented in Table 3-A and Table 3-B, which focus only on forecast year 2025, when the maglev/VHSR alternative is proposed to be in operation. Note that the socioeconomic projections do not vary between alternatives.

Table 3-C: Action Program Total Ridership by Year of Service

Program Phase	A	B	C	D	E	Maglev/ VHSR
2004	1,139,000					
2009	1,290,000	1,416,000				
Growth 2004-2009	151,000					
% Growth 2004-2009	13.26%					
2015	1,524,000	1,675,000	2,056,000	2,370,000	2,866,000	
Growth 2009-2015	234,000	259,000				
% Growth 2009-2015	18.14%	18.29%				
2025	2,084,000	2,294,000	2,825,000	3,257,000	3,946,000	10,177,000
Growth 2015-2025	560,000	619,000	769,000	887,000	1,080,000	
% Growth 2015-2025	36.75%	36.96%	37.40%	37.43%	37.68%	
2004-2025						
Growth	945,000					
% Growth	82.97%					
2009-2025						
Growth	794,000	878,000				
% Growth	61.55%	62.01%				

Table 3-C shows that between 2004 and 2025, socioeconomic growth alone will produce an 83 percent increase in total Empire Corridor ridership under Phase A. Importantly, this assumes that the slightly better than current service levels of Phase A will be maintained throughout this period, rather than deteriorate from current levels. That is, it is assumed that even if Phases B through F are not implemented, the rail system will be maintained in such a way as to continue to provide the Phase A levels of service. It also assumes that fares remain constant, rather than increase, in constant dollars. The

socioeconomic growth increase in ridership is comparable to the 89 percent increase in ridership shown in Table 3-A for Phase E in 2025. Together, these two effects produce a nearly 350 percent increase in ridership over current levels in the corridor.

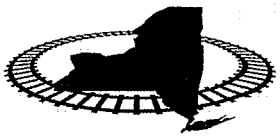
Finally, Table 3-C shows that the percentage growth in ridership between any two years (e.g., 2015 - 2025) increases slightly as the package of rail improvements becomes larger (e.g., compare Phase C to B, or Phase E to D). This is because the more improved rail system is able to competitively serve more of the population and employment growth in other, more distant cities. These network effects (or "network externalities") appear in the results presented here, and give further credence to the validity of the forecasts.

3.1.7 Fare Implications

As noted above, all forecasts presented here assume that current fares will be maintained (in real terms) over the study period. A systematic examination of possible changes to fare policy was beyond the scope of this study. Nonetheless, Table 3-D below gives an indication of the impact of fare changes, taking for reference the Phase E improvements in 2025. This example shows that relatively moderate changes in fares have only a small effect on revenue but a much larger effect on ridership (and, in turn, on user benefits). Further work, beyond the scope of the current study, would allow the determination of fares for each phase that optimize farebox revenue and transportation system user benefits.

Table 3-D: Fare Change Impacts on Ridership and Revenue, Phase E, 2025

Fare Change	-30%	-20%	-10%	0%	+10%	+20%	+30%
			Ridership Change				
West Corridor	32.9%	21.7%	10.7%	0.0%	-10.4%	-20.6%	-30.5%
South Corridor	42.5%	26.7%	12.6%	0.0%	-11.3%	-21.4%	-30.3%
Through	12.8%	8.2%	3.9%	0.0%	-3.6%	-7.0%	-10.1%
Total	37.6%	23.8%	11.3%	0.0%	-10.3%	-19.7%	-28.3%
			Revenue Change				
West Corridor	-8.3%	-3.7%	-1.0%	0.0%	-0.7%	-3.1%	-6.9%
South Corridor	-6.9%	-3.4%	-1.2%	0.0%	0.3%	0.0%	-1.0%
Through	-21.0%	-13.5%	-6.5%	0.0%	6.0%	11.7%	17.0%
Total	-9.4%	-5.1%	-2.0%	0.0%	1.1%	1.4%	1.1%



3.2 Economic Impact and Development Potential

Intercity rail improvements in New York State will produce a wide range of economic impacts and could have important implications for the region's potential for economic development. Rail improvements provide the prospect of a higher level of transportation service for those travelers who use rail, could potentially affect congestion levels on other transportation modes, and will create new jobs and increase the output of the state economy. This section describes these various economic and development impacts, grouping them into the following three categories:

- Transportation system user impacts
- Non-user economic and development impacts
- Project construction and operations impacts

Many non-user benefits of transportation projects (such as enhanced economic and land use development potential due to improved accessibility) are a direct consequence of the transportation system user benefits, and the magnitude of the user benefits accurately reflects the value of these other impacts. The approach here is to quantify the user benefits as the basic valuation method, and to discuss in more qualitative terms the potential non-user impacts that result from them.

3.2.1 Transportation System User Impacts

Economic benefits will be experienced by the users of improved rail services because the improvements reduce their overall cost (or generalized cost[1]) of travel. Travelers who use rail before and after an improvement directly experience the benefits of the improvement. Travelers who switch to improved rail service from other modes ("diverted travel"), or who with improved rail make trips that they formerly did not make ("induced travel"), also benefit from the improvement, otherwise they would not have changed their prior behavior. The benefits that travelers experience come in the form of increases in consumer surplus, a standard measure of welfare that represents the difference between the generalized cost that travelers would be willing to pay and the price that they actually do pay.

[1] The generalized cost combines the characteristics of a trip's line haul and access portions into a single monetary measure of the disutility of travel. Depending on the mode, trip characteristics accounted for in the definition may include line haul travel time and cost, wait time, access time and cost, and station time. The relative weight associated with each trip characteristic depends on the trip purpose.

Table 3-E shows the estimated value of annual economic benefits experienced by rail users for each action program improvement phase. It indicates how benefits are distributed by location, showing separately the benefits for south corridor, west corridor, and through travelers. The table shows that user benefits would be substantial, totaling over $93 million in 2015 for Phase E. In 2025, the value of user benefits would total over $129 million in Phase E, and would exceed $555 million for maglev/VHSR (all values are in 2005 dollars). The table also shows that the largest portion of the benefits would accrue to travelers on the south corridor in most phases, but that in the maglev/VHSR phase the benefits to west corridor travelers would be greatest. This package would also produce substantial benefits to through travelers, exceeding even those for south corridor travelers.

Table 3-E: Estimated Annual User Benefits by Location (in 2005 dollars)

Year	Phase	South Corridor	West Corridor	Through	Total
2004	Baseline	$0	$0	$0	$0
2004	A	$161,949	$0	$0	$161,949
2006	A	$155,874	$0	$0	$155,874
2009	A	$146,411	$0	$0	$146,411
2009	B	$7,346,146	$1,927,957	$1,370,198	$10,644,301
2015	A	$124,359	$0	$0	$124,359
2015	B	$8,748,163	$2,337,070	$1,582,094	$12,667,327
2015	C	$14,559,196	$22,389,782	$8,291,301	$45,240,279
2015	D	$31,559,107	$22,389,782	$8,291,301	$62,240,190
2015	E	$47,178,535	$36,130,797	$10,172,223	$93,481,555
2025	A	$67,104	$0	$0	$67,104
2025	B	$12,104,132	$3,279,278	$2,065,499	$17,448,908
2025	C	$20,133,632	$31,516,749	$10,873,468	$62,523,851
2025	D	$43,648,259	$31,516,749	$10,873,468	$86,038,477
2025	E	$65,254,584	$50,885,898	$13,347,647	$129,488,128
2025	maglev/ VHSR	$163,467,198	$197,964,789	$193,796,050	$555,228,037

Source: CRA International, 2005.

3.2.2 Non-User Economic Impacts

Rail improvements may also have impacts on non-transportation projects and activities through the enhanced accessibility and greater range of mobility options that they provide.

Impacts on Development Projects

Table 3-F summarizes the major development projects now in progress or proposed in each of the metroplitan areas served by the rail system. The projects range widely in scope. The table also shows that some projects are quite close to the region's intercity rail stations, while others are up to eight miles away.

Table 3-F: Summary of Major Development Projects

Metro Area	Project	Location	Status	Closest Station	Approx. Distance from Station (miles)
Albany	Luther Forest Technology Campus	Malta/ Stillwater	In Progress	Saratoga Springs	8
Albany	Harriman Campus Redevelopment/SUNY Nanotech	Albany	In Progress	Albany-Rensselaer	8
Albany	University Heights/Convention Center	Albany	In Progress	Albany-Rensselaer	3
Albany	Albany Inner Harbor	Albany	Proposed	Albany-Rensselaer	2.5
Albany	Proctor's Entertainment District	Schenectady	In Progress	Schenectady	0.3
Syracuse	Onondaga Lake cleanup	Syracuse	In Progress	Syracuse	1
Syracuse	CNY Biotechnology Research Center	Syracuse	Proposed	Syracuse	4
Syracuse	SU Center of Excellence in Environmental Energy Systems	Syracuse	In Progress	Syracuse	3
Rochester	Renaissance Square	Rochester	Proposed	Rochester	0.3
Buffalo	Buffalo Inner Harbor	Buffalo	Proposed	Buffalo-Exchange Street	1

Local planners in each metro area were contacted and asked how they thought rail improvements might affect the likelihood that these projects would be realized. The

strong consensus was that rail improvements were unlikely to be a determining factor in the decision to move forward with these major initiatives.

However, rail improvements could contribute to the success of some of these projects once built, where increased accessibility might attract more visitors. This is particularly the case for projects that are likely to draw users from beyond the local area, such as the technology/academic centers.

The increased accessibility provided by rail improvements would also be a helpful tool in marketing some of these development projects to potential clients, tenants, or customers once they were completed.

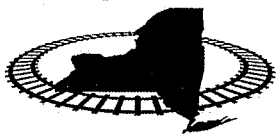
Impacts on the Capital District

With regard to the Capital District, rail improvements would contribute to enhancing its connectivity with New York City. As such, the improvements could increase the amount of long distance commuting, as well as facilitate the northward progression of the location of second homes for residents of the New York City area. In the longer term, it is possible that this increased accessibility to New York City would make the Capital District more attractive to businesses and major institutions (e.g., educational and medical), including both newly created businesses and those relocating from elsewhere.

Table 3-B shows that most of the induced travel in the entire Empire Corridor from all of the action program phases occurs in the south corridor. And since induced (new) travel is the best quantitative measure of increased economic activity from the transportation improvement, high levels of induced travel from rail improvements in the south corridor have significant economic development impacts in the Albany and New York City regions. This is because increased travel and increased economic activity at the trip ends are the mirror image of each other. And since the Albany region is so much smaller than the New York City region, the percentage impact of the economic development impacts on the Albany region will be much larger.

International Experience with High Speed Rail

A review of the experience with actual high speed rail projects elsewhere in the world further confirms that major rail improvements (like most transportation infrastructure projects) are more likely to redistribute economic activity than to produce significant new economic development. Studies have been made of the economic development impacts of the French TGV, Japanese Shinkansen, German ICE, and the Eurostar service using the Channel Tunnel. The conclusions of these studies can be summarized as follows:



- High speed rail has clearly led to significant increases in travel between the metro areas served.
- The impacts on local economies from the presence of high speed rail service are much less certain, however.
- In some cases, higher rates of employment and population growth are observed in cities with high speed rail stations compared to those without, but it cannot be conclusively determined whether the presence of high speed rail is the cause of higher growth rather than the result of it (transportation infrastructure is often built in response to economic growth).
- In some cases, business activities have become further concentrated in the major metro areas served by high speed rail.
- Relocation of business activities among the metropolitan areas served by high speed rail is facilitated by the increased level of accessibility.
- New development around high speed rail stations has been observed in some cases, but it has tended to be in the places that had not previously been served by rail, and in the cities that are less densely developed.
- Where increased levels of development and higher land values have been observed in the vicinity of high speed rail stations, it is not clear how much this was due to the presence of the high speed rail service, because city governments have often instituted formal development programs designed to build up the area around stations, including the provision of incentives to encourage the location of new buildings there. In addition, rail stations are often located in places more likely to have land available for development.

In general, the evidence from existing high speed rail systems suggests that the active participation of local governments is key to catalyzing positive economic development impacts from rail improvements. It also implies that the availability of land for new development is a key contributing factor in station area development.

3.2.3 Project Construction and Operations Impacts

The significant capital expenditures required to construct the rail improvements and the money spent on the ongoing operations and maintenance of an improved rail system will produce additional positive economic impacts in New York State. These expenditures will create jobs in the construction and related industries as well as in the operation of the railroad itself, and the additional wages earned at these new jobs will create

spending impacts in other sectors of the economy. This additional spending will, in turn, create additional downstream spending, producing a "multiplier" effect.

These spending impacts were calculated using output and earnings multipliers taken from the RIMS II model produced by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). These multipliers have been estimated specifically for New York State, and represent the total amount of economic output (gross state product) and earnings produced by $1 of initial expenditure. The multipliers are specific to industry sectors. To estimate the impacts of project construction, we have used the multipliers corresponding to the construction industry; the manufacturing of railroad equipment; and the average of the values for management and consulting services and for engineering, architectural, and surveying services. Impacts of the ongoing operation and maintenance were estimated using multipliers for the railroads and related services category. The multipliers are shown in Table 3-G.

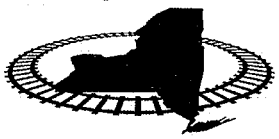
Table 3-G: Selected RIMS II Multipliers for New York State

Category	Output	Earnings
Construction (Industry total)	1.7400	0.4679
Manufacturing: Railroad Equipment	1.6714	0.4124
Services: Engineering, Architectural, & Surveying Services	2.0821	0.6759
Services: Management & Consulting Services	1.9422	0.5947
Services: Average of above two categories	2.0122	0.6353
Transportation: Railroad and Related Services	1.8207	0.5449

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis, 2002.

The capital expenditures that would be made in constructing the rail improvements, and the additional spending that would be required to operate and maintain the improved rail service, were estimated by the consultant team as described in Section 2.3. The costs of design, engineering, and related business services were not calculated directly, so for the purposes of the economic impact analysis, it was assumed that services would constitute five percent of the total project cost.

It was further assumed that 100 percent of expenditures for the manufacturing of railroad equipment (new rolling stock and/or the refurbishment of existing equipment) would be made in New York State. Finally, it was assumed that 80 percent of the expenditures on construction and business services would be made in New York (some of the materials for project construction would need to be purchased from outside the state, and some of



the design and engineering services would likely be performed at offices outside the state).

Table 3-H shows the estimated incremental expenditures that would be spent in New York State for project construction for each action program phase. The amounts shown in the Total column for each phase represent the additional spending that would be required over and above the previous phase; the cumulative total represents the total amount required to achieve the completion of the given phase.

Table 3-H: Estimated Incremental Expenditures in New York State for Project Construction, by Action Program Phase (in millions of 2005 dollars)

Program Phase	Construction	Manufacturing	Business Services	Total	Cumulative Total
A	17	0	1	18	18
B	373	24	21	418	435
C	36	342	16	394	829
D	268	57	16	341	1,170
E	201	171	18	389	1,560
Total	894	594	72	1,560	

Note: assumes 100% of manufacturing costs and 80% of construction and business services costs would be expended in New York State.

Source: CRA International, 2005.

Table 3-I shows the result of the application of the multipliers shown in Table 3-E to the expenditure amounts shown in Table 3-F. It summarizes the resulting increases in output and income that would be created by the expenditures for project construction in New York State. These impacts are significant, as the table shows that the construction of the full system achieved by Phase E would increase output by almost $2.7 billion and income by almost $710 million in the state.

Table 3-I: Estimated Incremental Economic Impact in New York State from Project Construction, by Action Program Phase (in millions of 2005 dollars)

Program Phase	Total Incremental Expenditure Required	Resulting Incremental Increase in State Output	Resulting Incremental Increase in Household Income
A	18	31	8
B	418	731	198
C	394	667	168
D	341	594	159
E	389	671	176
Total	1,560	2,692	709

Source: CRA International, 2005.

Table 3-J shows the estimated expenditures for ongoing operations and maintenance of the system for each phase, and the corresponding multiplied impacts on output and income based on an assumed 20-year life for the project. It shows that these impacts would likewise be significant, totaling nearly $1.5 billion in increased output and $446 million in increased household income over the life of the project for Phase E.

Table 3-J: Estimated Incremental Economic Impact in New York State from Project Operation and Maintenance (in millions of 2005 dollars)

Program Phase	Incremental Annual O&M Expenditures	Total O&M Costs over 20 Years	Total Increase in State Output	Total Increase in State Household Income
A	2	40	73	22
B	5	100	182	54
C	18	360	655	196
D	26	520	947	283
E	41	820	1,493	446

Source: CRA International, 2005.

The consultant team also estimated the total employment impacts created by the project-related expenditures described above. These impacts are summarized in Table 3-K.

Table 3-K: Estimated Employment Impacts from Project Construction and Operations

Program Phase	Construction (person years)	Rolling Stock (person years)	Operations (permanent positions)
A	80	0	0
B	2,070	0	10
C	3,640	300	20 (30 total)
D	5,220	100	10 (40 total)
E	6,390	150	20 (60 total)

Source: Parsons Brinckerhoff, Inc., 2005.

3.2.4 Economic Impact Summary

In summary, the proposed rail improvements would produce significant economic impacts for New York State. For action program Phase E, these impacts (expressed in 2005 dollars) would include:

- Benefits to transportation system users in the form of improved quality of rail service, valued at over $129 million per year in 2025 (section 3.2.1).
- Improvement in the corridor business climate, including a reduction in business-related costs and general increased attractiveness of the region for business development and relocation (section 3.2.2).
- An increase in New York State economic output and household income from the construction of the project and its operation and maintenance (section 3.2.3). The increase in output amounts to nearly $4.2 billion ($2.7 billion from construction and $1.5 billion from O&M over 20 years). The increase in household income is over $1.1 billion (about $0.7 billion from construction and over $0.4 billion from O&M over 20 years).
- Employment impacts of 6,390 person-years in construction under Phase E.

3.3 Impacts to Owners and Operators

3.3.1 Introduction

The phased improvement program proposed by the Task Force will impact each of the Empire Corridor's three primary owner-operators (Amtrak, Metro North and CSXT), and to a lesser extent CP Railway. Depending on the type and location of the improvements, owners and operators may be responsible for their design and construction. Owners and operators will be directly affected by the Task Force's institutional and jurisdictional recommendations which involve major property and facility transfers, changes in responsibility and control, and potential operational changes. These impacts are discussed below for each phase.

3.3.2 Phase A – Initial Express Service and Corridor Improvements

In Phase A, initial express service will be provided between New York City and Albany in 2006. This can be accomplished with existing rolling stock. Incremental infrastructure improvements will be implemented between 2006 and 2008. On time performance will begin to improve, but service frequency will remain the same.

- **Amtrak:** Service will be modified to include an express train from New York's Penn Station to Albany-Rensselaer Station. Conversion of one existing train from local to express service will reduce service to some passengers currently boarding Amtrak at intermediate stations. Service will be improved to passengers traveling from New York City to Albany. Negotiation for transfer of Amtrak property to New York State between Schenectady and Penn Station will begin.
- **MTA/Metro North Railroad:** Metro North may attract some passengers currently using the Amtrak train converted to express service.
- **CSX Transportation:** Negotiations will begin for a new partnership arrangement and purchase of right-of-way between Schenectady and Poughkeepsie.

3.3.3 Phase B – Additional Express Service

In Phase B, two non-stop round trips will be provided between New York City and Albany with no change in regular service. Incremental infrastructure improvements will be implemented between 2009 and 2010. These improvements would upgrade the track between New York City and Albany to Class IV with an increase in maximum speed to 110 mph. On time performance will improve and travel time will be reduced.

New York State will acquire the CSXT right-of-way, and Amtrak will transfer right-of-way, stations, and maintenance facilities from Schenectady to Penn Station to a state entity.

This would provide unity of ownership and operations through Metro North or a new entity (e.g., a State Rail Authority).

- **Amtrak:** Right-of-way, stations, and maintenance facilities from Schenectady to Penn Station transferred to Metro North or a new State Rail Authority. Opportunity to establish Empire Corridor through service to destinations on the Northeast Corridor or Long Island Rail Road.
- **MTA/Metro North Railroad:** Operations extended to the Capital District, potential operational control of the corridor to Albany. Alternatively, potential loss of operational control to a new State Rail Authority. Metro North yard operations would be impacted as many services would terminate in Albany.
- **CSX Transportation:** Right-of-way and operational control between Poughkeepsie and Schenectady transferred to Metro North or a State Rail Authority.

3.3.4 Phase C – New Trainsets with Tilt Capability

Under Phase C, further incremental rail improvements will be implemented and a new rail operations plan developed for the south corridor covering intercity, commuter, and freight service. Most importantly, six new tilting trainsets will be acquired. These New York Cars will permit higher speed operations with additional amenities. Service reliability and frequency will increase while travel times will be reduced.

- **Amtrak:** Service would be significantly improved due to infrastructure along both the south and west corridors. Some additional train service within the west corridor will be considered, depending on the availability of existing or new equipment.
- **MTA/Metro North Railroad:** Metro North would also benefit from improvements to line capacity and reliability.
- **CSX Transportation:** CSXT would also benefit from improvements to line capacity and reliability, especially in the west corridor.

3.3.5 Phases D & E – New Empire Line Operating Plan/Expanded Upstate Service

Under Phases D and E, further incremental rail improvements would be implemented, including improvements to the Spuyten Duyvil connection, construction of a Stuyvesant middle track, and super-elevation of curves from Poughkeepsie to Schenectady. Additional trainsets would be procured. These will permit further increases in service

reliability, speed, and frequency while travel times are reduced. During this period or sooner, Metro North service will be extended to Albany.

In addition, these improvements will permit an expansion of Empire services in the Capital District. Some New York City to Albany-Rensselaer trains will be extended to Schenectady with the potential for a new station in the vicinity of the State Campus. Further, selected morning and afternoon trains will be extended to Saratoga Springs. These service enhancements will improve Capital District mobility while reducing the need to backtrack trips on the west corridor.

- **Amtrak:** Service will be extended and operations improved. Yard and station operations in Rensselaer will be modified.
- **MTA/Metro North Railroad:** Metro North will also benefit from improvements to line capacity and reliability.
- **CSX Transportation:** CSXT will also benefit from improvements to line capacity and reliability. A decision on improvements required to increase west corridor track speed restrictions from 79 mph to 90 mph will be reached.

3.4 Environmental and Other Impacts

3.4.1 Impacts on Auto and Air Users

Congestion

In addition to benefiting rail users, the project also has the potential to produce benefits to the users of other modes of transportation in the state. Because the improvements in rail service will cause some travelers to switch to rail from air and auto, the project could potentially help lessen highway and airport congestion.

In the west corridor, it is unlikely that the project would have a significant impact on highway congestion. Table 3-L shows that in all cases except for maglev/VHSR in 2025, the rail improvements would remove fewer than 1,000 vehicles per day from roadways; for most phases the number of vehicles removed is far less. Much of the intercity traffic in this part of the state can be assumed to be using the New York State Thruway. NYSDOT data show that vehicle volumes on rural sections of I-90 in western New York currently average about 25,000 to 45,000 per day. Against this volume, the diversion of auto trips by improved rail is not expected to have a significant impact on highway congestion or service levels, or on possible future capacity improvement requirements.

Table 3-L: Percent of Auto Trips Diverted to Rail in the West Corridor

Year	Program Phase	Auto Person Trips Diverted	% of Auto Person Trips Diverted	Equivalent Number of Vehicles/Day
2004	Baseline	0	0.00%	0
2004	A	0	0.00%	0
2006	A	0	0.00%	0
2009	A	0	0.00%	0
2009	B	20,579	0.06%	37
2015	A	0	0.00%	0
2015	B	24,852	0.06%	45
2015	C	238,657	0.60%	431
2015	D	238,657	0.60%	431
2015	E	390,839	0.97%	706
2025	A	0	0.00%	0
2025	B	34,638	0.06%	63
2025	C	333,587	0.59%	603
2025	D	333,587	0.59%	603
2025	E	546,747	0.96%	988
2025	maglev/VHSR	1,894,519	3.34%	3,423

Source: CRA International, 2005.

In the south corridor, the multiplicity of important origins, destinations, and routes makes it impossible to estimate quantitatively the number of vehicles that would be diverted from any given route.[2] Although the number of trips diverted from auto is larger than in the west corridor, the number of available routes is also larger, so the impact on the congestion level of any particular route might well be small. Moreover, it is likely that a significant reduction in congestion, if any, would quickly be nullified by induced automobile trip-making.

The project also is not likely to generate significant reductions in airport congestion. Of the state's airports, only those located in New York City are faced with significant congestion, and intrastate flights represent only a small fraction of the flights at these airports. Moreover, even if significant air traffic were diverted to rail, it is not clear that this would result in a reduction in the number of airport operations. Airlines might

[2] Analyzing this effect would require the use of a multimodal regional network model. No such model was available to the study.

respond by maintaining their prior service frequency but using smaller aircraft or, alternatively, reductions in operations to New York destinations might quickly be replaced by flights to other (non-New York) airports. The historical presence of slot controls at both John F. Kennedy International Airport and LaGuardia International Airport suggests that new flights would be scheduled as soon as more capacity was made available.

Safety

Table 3-M summarizes the projected vehicle-miles traveled (VMT) reductions associated with each project phase and the associated reduction in accidents based on New York State averages (1994 NYSDOT Average Accident Rates for State Highways by Facility Type and 1994 NYSDOT Average Accident Costs/Severity Distribution by State Highways). Savings in excess of $1,000,000 per year are projected for phases B through E. The significant reduction in VMT associated with a new maglev or VHSR system would produce savings of almost $9,000,000 per year in 2025.

Table 3-M: Potential Accident Reductions and Savings

Program Phase	VMT Reduction	Accident Reduction	Savings
A	-	-	-
B	3,237,784	3	$170,600
C	19,974,773	21	$1,052,300
D	23,554,154	25	$1,240,900
E	36,009,582	38	$1,897,100
Maglev/VHSR	163,442,983	173	$8,610,500

Energy Savings and Air Quality

Diversions of trips from automobiles and airplanes to rail will result in reductions in VMT. These reductions are assumed to occur mostly on interstates. Emission factors were derived from NYSDOT data for the Capital District, while fuel consumption was based on the average fuel economy for all years analyzed.

Table 3-N summarizes reductions in emissions (CO, NOx, VOCs) and gasoline consumption by phase associated with projected reductions in VMT. Reductions are most significant under the maglev or VHSR alternatives. No credit was taken for a

potential reduction in air travel as discussed previously, nor was an adjustment made for rail energy use.

Table 3-N: Environmental Benefits

Program Phase	A Initial Express	B Additional Express	C New Rolling Stock	D Operating Plan	E Expanded Upstate	Maglev or VHSR
	2006	2009	2013	2015	2017	2025
Vehicle Miles Traveled (VMT)	Negligible	3,237,780 0.1%	19,974,770 0.5%	23,554,150 0.6%	36,009,580 1.0 %	163,442,980 3.1%
Gasoline (gallons x 1,000)	Negligible	107.9	665.8	785.1	1,200.3	5,447.5
Emissions (tons)						
CO	Negligible	64.7	320.2	364.5	545.4	2,158.1
NOx	Negligible	4.0	16.1	16.4	22.6 (0.7 %)	45.0 (2.8 %)
VOCs	Negligible	2.1	8.8	9.6	13.9 (0.4 %)	36.0 (2.2%)

Construction Impacts

Conceptual rail improvement plans were developed for this study. At this level of detail it is not possible to identify specific environmental impacts. However, it would appear that most of the improvements proposed could be constructed within the existing right-of-way without impact to surrounding land uses. Certain facilities, such as the Livingston Avenue Bridge, would require more significant construction programs with consequential temporary traffic, air quality, and noise impacts.

Construction of an entirely new maglev or VHSR system on a new alignment, either along the Thruway or a modified Empire Corridor alignment, would require years of guideway construction across the state, with significant property acquisition and other impacts. Previous studies, at a conceptual level of detail, indicated that these systems could be constructed with proper planning, context-sensitive design, and comprehensive mitigation programs.

3.4.2 Projected Benefits

Projected improvements in service levels and on-time performance for the west and south corridors are shown in Figure 3-C and Figure 3-D. These figures confirm that the largest increases in service, and consequently ridership (see Figure 3-E), occur around 2013. On time performance improves throughout the implementation program as capacity constraints and speed restrictions are addressed. Environmental benefits also reflect these conditions (see Section 3.4).

Figure 3-B: Projected Daily Round Trips

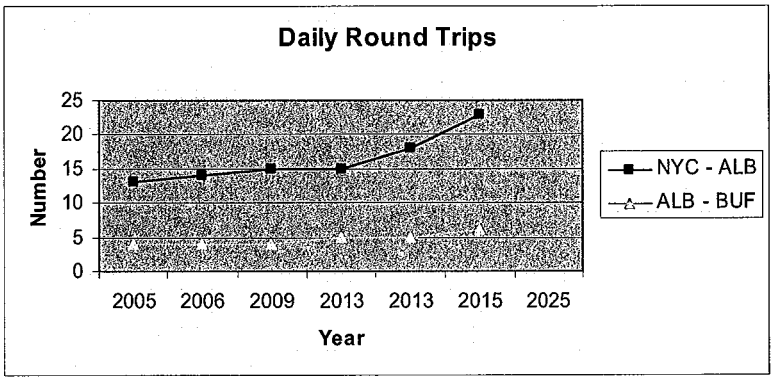


Figure 3-C: Projected On-Time Performance

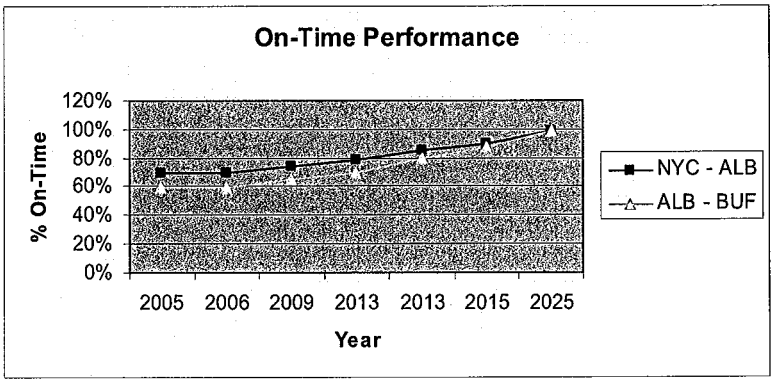


Figure 3-D: Projected Travel Time

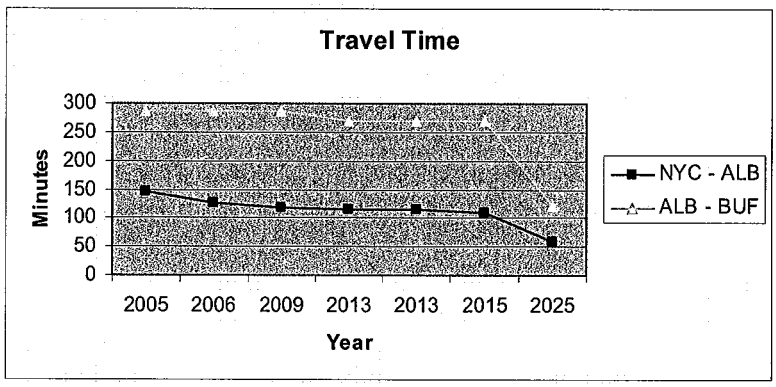
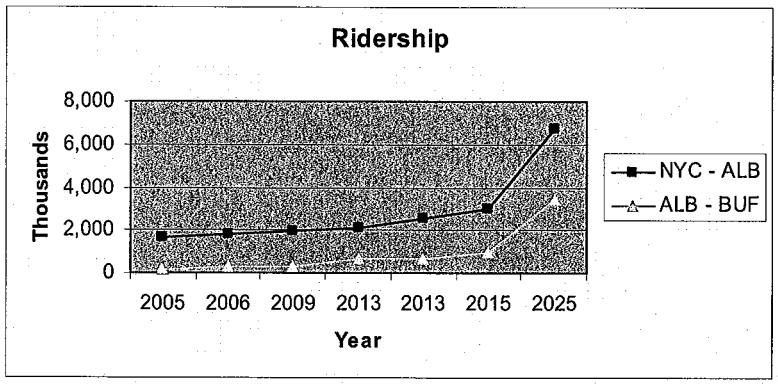


Figure 3-E: Projected Ridership



3.5 Revenue, Cost and Benefits Analysis

This section presents the estimated fare revenues and ongoing operations and maintenance costs associated with the programs presented in Section 2.2 The purpose of this section is to calculate the net revenue generated by the various programs based upon the timing of service introduction and projected ridership. Most public transportation service operates in a negative net revenue position in terms of the ability of system revenues to cover capital costs, particularly for new programs. However, the fundamental strength of the ridership base for the Empire Corridor's service can be evaluated by the level of farebox recovery ratio. Farebox recovery ratio is calculated as

the total fare revenue generated and collected for service divided by the total operating costs for service.

In addition to the ridership and revenue estimates generated by the new program, the benefits associated with the new program were calculated. This analysis allows for a comparison of the net revenue and the estimated benefits at various points in time along the project timeline. This provides the rationale for determining if the program is producing benefits sufficient to justify the potential public subsidy implied in the funding gap (net revenue).

3.5.1 Revenue, Costs, and Funding Gap

Using the operating costs and revenues estimated as part of the development of the operational scenarios, an annual and cumulative funding gap can be identified. The findings summarized in Table 3-O present the cumulative financial position of the enhanced Empire Corridor rail service after the phased implementation of improvements from 2006 to 2025.

Table 3-O: Operating Program Financial Summary (FY 2006 - FY 2025)

	South Corridor	West Corridor
Operating Revenue	$1,310,041,074	$333,359,144
Operating Expenses	$1,578,451,434	$613,548,566
Net Operating Revenue/(Loss)	($268,410,360)	($280,189,422)
Average Farebox Collection Ratio	82%	53%

This financial summary assumes a constant baseline operating condition and constant fares as of 2005. In other words, it assumes all Amtrak Empire Corridor trains (interstate, international, and intrastate) continue to operate, baseline service conditions will not deteriorate and become more costly, and fares won't be optimized to increase ridership and revenues. All of these assumptions are very conservative. Therefore, the financial summary should be considered a "worst case" assessment.

Table 3-O shows that the south corridor has a much higher total operating cost ($1.6 billion) than the west corridor ($613 million). However, the south corridor's estimated operating revenue from paying passengers is higher, both in terms of the level of gross revenues ($1.3 billion versus $333 million) and in terms of a lower net revenue deficit

($268.4 million versus $280.2 million). The south corridor generates an average farebox collection ratio of 82 percent, above the national average of 60 percent, while the west corridor's ratio is 53 percent.

This finding coincides with the popular notion that the Empire Corridor ranks high in terms of its farebox recovery in comparison to other rail corridors in the U.S. It also supports the notion that a leveraged program of federal and state resources can be quite effective in closing the funding gap, particularly if supported by positive net benefits from public investment (as is the case here).

3.5.2 Annual Funding Gap

The annual implications of shortfalls in revenue in relation to costs are more important than the total funding gap over the life of the project. From an operating cost perspective, there is substantial annual operating shortfall to be addressed. Table 3-P and Table 3-Q present an illustration of this difference, based upon the estimated start of service date for the individual phases (A-E) of the overall action program. These tables also show the operating shortfall assuming implementation of the federal financial partnership proposed in Section 4.3, Funding and Financing.

Table 3-P: Estimated Annual Funding Gap - South Corridor FY 2006 - FY 2025

Program Phase	Year	Operating Surplus/ (Shortfall)	
		Total NYS State	With Federal Partnership
A. Initial Express Service	2006	($32,074,000)	($28,874,000)
B. Additional Express Service	2010	($28,251,000)	($25,051,000)
C. Additional Express Service (with higher CapEx)	2014	($12,447,000)	($9,247,000)
D. New Empire Operating Plan – Partial	2018	($6,531,000)	($3,331,000)
E. New Empire Operating Plan – Full	2025	$9,487,000	$12,687,000

As the table above shows, the south corridor generates a higher funding gap, but it is decreasing over time with an estimated surplus in 2025.

Table 3-Q: Estimated Annual Funding Gap - West Corridor)
FY 2006 - FY 2025

Program Phase	Year	Operating Surplus/ (Shortfall)	
		Total NYS State	With Federal Partnership
A. Initial Express Service	2006	($12,973,000)	($9,773,000)
B. Additional Express Service	2010	($10,842,000)	($7,642,000)
C. Additional Express Service (with higher CapEx)	2014	($7,823,000)	($4,623,000)
D. New Empire Operating Plan – Partial	2018	($19,529,000)	($16,329,000)
E. New Empire Operating Plan – Full	2025	($9,068,000)	($5,868,000)

The annual funding gap generated by west corridor enhancements is in the range of half the annual cost of south corridor service. However, it is important to note that in 2004, the south corridor carried 986,000 passenger trips, while the west corridor carried 154,000 passenger trips, including through trips in each corridor.

3.5.3 Annual Funding Shortfall Per Passenger

Using the ridership and revenue estimates an annual funding shortfall per passenger metric was calculated, which provides another perspective from which to evaluate the funding gap. Table 3-R and Table 3-S show the results for the south and west corridors in terms of the total shortfall per passenger with the assumed federal partnership strategy proposed in Section 4.3 Funding and Financing.

Table 3-R: Estimated Annual Funding Gap Per Passenger - South Corridor FY 2006 - FY 2025

Program Phase	Passengers	Total Annual Surplus/(Shortfall) per Passenger	
		Total State Subsidy	With Federal Partnership
A. Initial Express Service	982,101	($32.66)	($29.40)
B. Additional Express Service	1,211,003	($23.33)	($20.69)
C. Additional Express Service (with higher CapEx)	1,543,926	($8.06)	($5.99)
D. New Empire Operating Plan - Partial	2,051,381	($3.18)	($1.62)
E. New Empire Operating Plan - Full	2,989,060	$3.17	$4.24

The results indicate that the larger volume of rail passengers on the route from New York to the Capital District keeps the shortfall per passenger at a level below that of the west Corridor, despite having higher total project costs.

Table 3-S: Estimated Annual Funding Gap Per Passenger - West Corridor FY 2006 - FY 2025

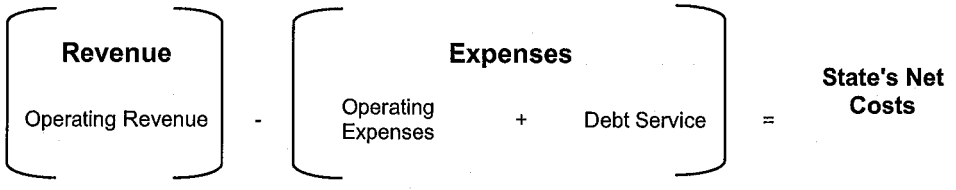
Program Phase	Passengers	Total Annual Surplus/(Shortfall) per Passenger	
		Total State Subsidy	With Federal Partnership
A. Initial Express Service	156,476	($82.91)	($62.46)
B. Additional Express Service	205,276	($52.82)	($37.23)
C. Additional Express Service (with higher CapEx)	512,021	($15.28)	($9.03)
D. New Empire Operating Plan - Partial	556,973	($35.06)	($29.32)
E. New Empire Operating Plan - Full	956,446	($9.48)	($6.14)

3.5.4 Benefits Analysis

An approach for testing the cost effectiveness of this initiative is to compare the state's total net costs to implement the full action program with the value of the estimated user benefits generated by it.

Costs would be derived by taking the difference between operating revenues and operating costs and/or debt service associated with financing the capital improvements, assuming the state/federal financial partnership strategy outlined in Section 4.3 of this report. It is represented in the formula below:

Figure 3-F: New York State's Net Costs



This formula is used to calculate the state's cost for the purpose of conducting an analysis of public subsidy versus estimated user benefits. Table 3-T and Table 3-U present the results of this analysis for the two corridors using data points in 2009, 2015, and 2025.

Table 3-T: Comparison of Estimated Annual Funding Gap vs. Calculated Benefits - South Corridor)

	Year		
	2009	2015	2025
State's Costs	$26,017,306	$8,322,223	$0
Calculated User Benefits	$7,873,769	$35,004,664	$70,518,046
User Benefits as a Percentage of State's Costs	30.3%	420.6%	N/A

Table 3-U: Comparison of Estimated Annual Funding Gap vs. Calculated Benefits - West Corridor

	Year		
	2009	2015	2025
State's Costs	$11,384,379	$13,420,568	$9,068,002
Calculated User Benefits	$2,561,820	$26,015,130	$56,431,099
User Benefits as a Percentage of State's Costs	22.5%	193.8%	622.3%

Table 3-T and Table 3-U illustrate that by 2015, the enhanced south corridor service will generate user benefits that are equal to the state's net cost to provide the improvement program. Improvements to the west corridor will not achieve that level of financial performance until between 2015 and 2025.

Table 3-V provides a summary of the net state cost and user benefits for the entire Empire Corridor and proposed action program. The total state annual cost liability is estimated to range from a high of $37 million to a low of $9 million over a 20-year period. User benefits will match the state investment within 10 years and continue to grow over the life of the program.

Table 3-V: Summary of Annual Funding Gap vs. Benefits (Empire Corridor - NYC to Buffalo/Niagara Falls)

	Year		
	2009	2015	2025
State's Costs	$37.3	$21.7	$9.1
Calculated User Benefits	$10.3	$61.0	$126.9
User Benefits as a Percentage of State's Costs	27.6%	281.1%	1,394.5%

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4. Implementation Strategy

Section Contents

4. Implementation Strategy

4.1 Institutional Arrangements

4.1.1 Current Situation

New York State is caught up in a growing national transportation crisis in terms of congestion, fuel prices, and airline bankruptcy amid insufficient highway, transit, and airport capacity. Federal policy has largely ignored intercity passenger rail as a tool to help alleviate this crisis. For example, intercity passenger rail is the only transport mode for which the federal government does not provide funding support to states and localities. Other modes receive capital matching grants in the range of 50 to 100 percent. Amtrak, the sole vehicle for federal rail policy, has never been in good health throughout its 35-year history and is now on the brink of financial insolvency.

At the same time, New York State has made only modest investments in the intercity rail passenger and freight system, and has very limited control over the implementation and performance of those investments. The most recent state improvement program with Amtrak, initiated in the late 1990s, was suspended due to litigation. The arrangements with CSXT have all run their course. There is no program for new improvements, and there is no plan or strategy for the future.

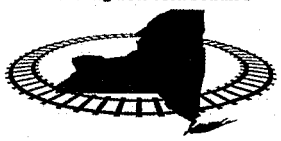
While continuing to support Amtrak, New York State needs to identify its opportunities and begin to take advantage of them immediately.

Amtrak

In the midst of this turmoil, Amtrak is undergoing a major restructuring from within based on its own *Strategic Reform Initiatives*, and prompted by Congress where several legislative proposals are advancing. Recently, the Amtrak Board took the initiative to uncouple the Northeast Corridor from the rest of the system, turning it into a separate operating and business unit. Whether or not the Empire Corridor is part of the Northeast Corridor is unclear.

Although the restructuring proposals vary, most include the following components:

- Increasing state responsibility for passenger rail, while Amtrak focuses on the Northeast Corridor from Boston to Washington.
- A federal capital funding 80 percent match program.



- Federal operating funds during the transition period from Amtrak to state responsibility.
- Eventually, as the Northeast Corridor is brought to a state of good repair, Northeast Corridor user states would share in operating and capital costs on a proportional basis.
- Performance-based competitive provision of passenger rail service in all corridors.

These proposals present an enormous challenge and opportunity for all states, New York in particular. New York City and the Empire Corridor is the most important passenger rail market for the Northeast Corridor. New York has a history of railroad innovation and "firsts" in new service, facilities, institutional, and funding arrangements. Its commuter rail and local transit authorities are the largest and most experienced in the nation.

Nevertheless, the dynamics of Amtrak's future preclude a recommendation on Empire Corridor inclusion in the Northeast Corridor. The advantages and disadvantages should be evaluated for a policy decision by New York State.

4.1.2 Amtrak and Freight Railroad Arrangements

The following identifies responsibilities for track, structures, and signal system maintenance on certain Amtrak facilities where freight service operates. Amtrak's right to operate on these facilities, and the freight railroad's obligation to give priority to passenger movements, stem from the original Amtrak legislation. Preservation of this "franchise" for Amtrak or its successors is a critical policy element. Amtrak's "successor," for whom this franchise and these rights should be preserved, is New York State.

Capital Region

1. Amtrak leases from CSX Transportation that portion of the double-track Hudson Subdivision from the Stuyvesant area (MP 123.86 on track 1 and MP 125.67 on track 2) through the Albany-Rensselaer Station (MP 142.1) and the single-track portion of the Hudson Subdivision from the Albany-Rensselaer Station over Livingston Avenue Bridge (MP 143.1) through Schenectady Station (MP 159.8) to just west of the station at MP 161.5.

   Amtrak is responsible for the maintenance of the track and the structures in that territory, with the exception of the Livingston Avenue Bridge, for which they only maintain the track, the bridge timbers, and the walkway; CSXT is responsible for maintenance of the structure.

2. Amtrak also owns and maintains (track and structures) the following:
    a. Hudson Subdivision from the end of their leasehold at MP 161.5 to MP 168.3, where the CSXT Selkirk Subdivision crosses over the Hudson Subdivision (no freight service is known to operate on this line segment).

    b. Post Road Subdivision, from MP 187.4, the connection to the CSXT Berkshire Subdivision CP-187 to MP 199.5, the connection to the CSXT Hudson Subdivision CP-142.

    c. The Amtrak Rensselaer Locomotive and Car Maintenance Facility, and the associated tracks.

3. For the above track and structures maintenance, Amtrak has 23 employees, which includes supervisors, mechanics, electricians, plumbers, trackmen, etc.

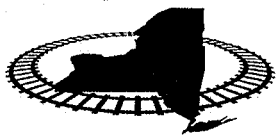
4. CSXT is responsible for maintenance of signals in all the above territory, which includes signals to control the movement of trains, the switch machines to operate remotely controlled turnouts, the Livingston Avenue Bridge operator controls, and the highway-rail grade crossing warning devices. CSXT is also responsible for train dispatching in all the above territory.

4.1.3 Metro North Arrangements

Metro North is the predominant passenger carrier on the Hudson Line, operating 146 trains daily between Grand Central and Poughkeepsie and dispatching 26 Amtrak and 10 freight trains daily through its territory. Of the 141 miles of track between New York Penn Station and Albany-Rensselaer, Metro North controls 43 percent, CSXT 48 percent, and Amtrak 9 percent.

Presently, Amtrak is the sole operator of intercity service over the corridor between New York City and Albany-Rensselaer. The improvement programs presented in Section 2 of this report propose that Hudson Line rail service be restructured and a new operating plan developed to meet existing and projected demand at stations and to provide quality service at reasonable cost. This will require new operating arrangements between Amtrak and Metro North.

In the short term, Amtrak will continue to operate with some changes in service depending on its ability to provide equipment, maintain reliability, cover costs, and generate acceptable revenues. For example, a new "Empire Corridor Express" New



York City to Albany service is proposed, continuing to Schenectady and Saratoga Springs.

In the future, both commuter and regional services will be provided, possibly by Amtrak, Metro North, and other public or private operators. For example, Metro North could extend its service from Poughkeepsie to the Capital District. The goal will be unity of operations and control in the south corridor, but no permanent franchise service or exclusive operator.

At present, Metro North could extend its service to Tivoli in Northern Duchess County at the edge of the MTA operating district. New arrangements will be required to provide Metro North service beyond that point. There are institutional problems inherent in this proposal, including granting the power to provide that service and paying for it. Currently, MTA services are limited to the counties that are within the MTA district. These counties are taxed with, among other things, a contribution from mortgage tax receipts on sale or transfer of property. Other issues include gaining the authority for Metro North to operate on CSXT track. This problem would disappear if the state were to own the territory. There is also the question of where and how to service Metro North trains at Rensselaer, if Amtrak or some other intercity provider owns the maintenance facility.

A number of legal and institutional options have been identified. However, since Metro North has successfully concluded agreements to operate trains in Connecticut and to establish a basis for joint operations west of the Hudson River with NJ Transit, it should be possible to find a way to advance similar initiatives within New York State.

4.1.4 CSXT Arrangements

New arrangements will be needed between the state and CSXT regarding the rail territory it controls between Buffalo and Schenectady. There are some examples from other states of mutually satisfactory agreements between public agencies and Class I freight railroads. The agreement between the states of Washington and Oregon, Amtrak, and the Burlington Northern Santa Fe Railway (BNSF) is an example. Another is the agreement between Sound Transit (Seattle) and BNSF. Others include agreements between the Capital Cities Joint Powers Board in California and Union Pacific (UP); Southern California Regional Rail Authority (SCRRA), UP, and BNSF; and Trinity Rail Express (Dallas) and BNSF. All of these agreements go far beyond the arrangements negotiated previously by New York State with CSXT. They all focus on four main elements:

1. A basic traffic rights agreement that allows the state access to the railroads' operating infrastructure.
2. Required infrastructure improvements and enhancements necessary to accommodate existing and new passenger service and the sharing of costs.
3. Provision for non-operating infrastructure requirements, such as maintenance facilities, stations, overpasses, parking facilities, etc., to the extent that they include assets of the private railroad.
4. The liability responsibility for each party and the insurance requirements.

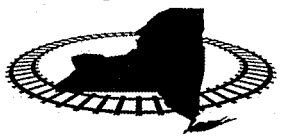
Each of these elements will have to be negotiated with CSXT, within the context of Amtrak's exclusive operating rights on the CSXT-owned portion of the Empire Corridor.

4.1.5 Assuring Program Implementation

At present, rail transit in New York State is a zero sum game with Amtrak the lowest priority. If Amtrak wins, someone else loses. For example, billions of dollars will be invested over the next 10 years on three projects to expand rail capacity at New York City's Penn Station and Grand Central terminals: 1) Access to the Region's Core (ARC); 2) East Side Access; and 3) Moynihan Station. At Penn Station where Empire service currently terminates, train capacity (number of slots) is allocated according to an access formula between the major service providers: Amtrak and the Long Island Rail Road. NJ Transit has a separate agreement with Amtrak. This formula and the resulting agreements have historically been grounded in a competitive, territorial, and funding-based environment.

In the short term, a new "master agreement" is needed between Amtrak and the MTA to assure Empire Corridor access to Penn Station. This might mean additional train slots and passenger facilities for Empire Corridor Service at Moynihan Station, service to both Penn Station and Grand Central, or access to Sunnyside Yards.

The long-term vision presented in Section 2 proposes a new fixed-guideway system on a new route. Previous studies have recommended the use of the New York State Thruways between New York City and Buffalo for the provision of a very high speed fixed-guideway system (in excess of 150 mph), employing maglev or other new technology. The arrangements should be put in place now to secure this route, including a Hudson River crossing, as a reserve for the mobility of future generations.



Finally, New York State needs to define near-term and future arrangements with adjacent states and Canada regarding extension of New York State passenger rail services.

Conclusion

In the future, intercity rail in New York State will be a collaborative, performance- and customer-driven enterprise. Improvements will be demand- and performance-justified, benefiting the movement of both passengers and freight.

New York State will have increased funding responsibility, but will also exercise more control over its investments. This control will be grounded in a commonality of ownership, more efficient operations and maintenance, and competitive service delivery. No service will be permanent, and no service provider will be exempt from competition.

Ultimately, the issues of control and service delivery will fall to a single statewide entity. Whatever the entity, it will require a new mandate, including a statewide rail vision, and the ability to fund improvements, enforce performance, and procure equipment and service. It will be responsible for the creation of an integrated rail network, as well as the provision of new fixed-guideway system on a new route when demand, costs, and benefits demonstrate the need.

4.1.6 Recommendations

1. No first class intercity rail service is possible in the south corridor without unified control—unity of ownership and operations.
    a. Negotiate the purchase of remaining CSXT right-of-way and transfer Amtrak right-of-way, stations, and maintenance facilities from Schenectady to Penn Station.

    b. Provide unity of ownership and operations through an existing entity (e.g., MTA/Metro North) or a new entity (e.g., State Rail Authority).

    c. In the short term, seek improvements in Amtrak intercity service in the Empire Corridor.

    d. Extend Metro North service to the Capital District by 2012 (or sooner), based on a new south corridor operations plan, and resolution of any legal, MTA district, and funding issues.

2. Reserve future Empire Corridor access, capacity, and right-of-way.

a. New York State should have the right to run trains operating on the Empire Corridor through to points on the Northeast Corridor, and to receive 100 percent federal grants to bring the south corridor into a "state of good repair."

b. Empire Corridor trains should have the future ability to through-run to points on the Long Island Rail Road at Penn Station.

c. Empire Corridor trains should have sufficient capacity (train slots) and presence (gates, waiting area, ticketing) at Penn Station-"Moynihan Station" and Grand Central Terminal to meet future demand.

d. Future right-of-way for a new high speed fixed-guideway system should be reserved within the New York State Thruway and on a new Hudson River crossing.

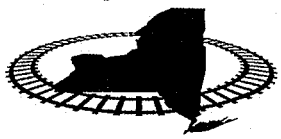
e. Consideration should be given to reserving alternative passenger rail routes in the Rochester to Buffalo area.

3. A new arrangement is needed with CSXT/Amtrak/New York State to assure improvements and performance in the west corridor.
    a. Create and implement a public-private partnership agreement based on successful arrangements in other states and the particular passenger and freight requirements of the west corridor, deriving benefits for both the freight and passenger services.

4. The Task Force assumes continuation of off-corridor interstate trains as they exist today.
    a. A federal or multi-state entity should continue to be responsible for this service.

4.2 Funding and Financing

This section presents a high-level financial assessment of New York State's options for addressing operating and capital costs associated with increased responsibility for the state's intercity rail network over the long term. Analysis in Section 3.5 confirmed that the estimated cash flow after payment of operating and maintenance expenses will not support the issuance of debt to fund the capital improvements necessary to implement the action program presented. This requirement raises some key questions:



- What are other available and potential funding sources?
- How can public investment be made most cost effective?

This section presents a financial strategy for moving forward in partnership with federal, state, local, and private stakeholders. It can be refined in further consultations with NYSDOT and Department of Finance staff. Under any set of options, the state should make a new commitment to a sustainable integrated statewide rail network, while adhering to the following principles:

- Assure funding; efficient performance-based operations; cost effective, incremental and balanced statewide investments; and partnering.
- Minimize exposure to rail operating subsidies and reduce capital financing costs.

4.2.1 Financial Framework

Currently, the state does not contribute to Amtrak operating subsidies for Amtrak services operated on the Empire Corridor, but has made significant investments in passenger and freight infrastructure improvements over the years.

Ongoing efforts to restructure Amtrak and the Northeast Corridor will alter the intercity passenger rail landscape as discussed in Section 4.1. Based on information published in Amtrak's monthly performance reports shown in Table 4-A, the operation of the Empire/Maple Leaf Corridor resulted in an operating contribution of $30.3 million for the period beginning September 2004 through September 2005.[1] This is in addition to the estimated $4.3 annual state contribution toward the Adirondack service.

The operating contribution of the Lake Shore Limited interstate train service within New York State is not broken out by Amtrak. However, revenue and cost modeling conducted for this study indicate that the operating costs of all interstate and international trains on the Empire Corridor may be about $15 million annually. Recognizing that this estimate is very rough and based on incomplete information, this would bring the total operating cost of all passenger train service on the Empire Corridor to about $45 million annually.

[1] Amtrak Monthly Performance Report -- September 2005 (published November 4, 2005), www.amtrak.com.pdf/0509monthly.pdf

Table 4-A: Allocation of Amtrak Subsidy to Empire Corridor FY 2005

Trains	Amtrak's Estimated Annual Operating Loss	Estimated Empire Corridor Operating Responsibility
Empire Corridor	$30.3	$30.3
Adirondack	$3.2	$3.2
Ethan Allen Express	$3.1	$ -
Lake Shore Limited[2]	$38.4	$ -
Subtotal	$75.0	$33.5
Empire Corridor Revenue Cost Analysis	-	$44.9
Amtrak Empire Corridor Operating Loss	=	$30.3
Estimated Amtrak Interstate and International Train Annual Operating Loss Attributable to Empire Corridor	-	$14.6

To implement the full capital program shown In Table 4-B and in the absence of other alternatives, a total of $1.8 billion in debt will need to be issued over a period of 20 years.

Table 4-B: Corridor Capital Programs (FY 2006 - FY 2025)

Program Phase	South Corridor (NYC-ALB)	West Corridor (ALB-BUF/NFL)
A. Initial Express Service	$20,000,000	$2,000,000
B. Additional Express Service	$448,000,000	$90,000,000
C. Additional Express Service (with higher CapEx)	$650,000,000	$295,000,000
D. New Empire Operating Plan - Partial	$1,014,000,000	$343,000,000
E. New Empire Operating Plan - Full	$1,188,000,000	$613,000,000
Total	**$1,801,000,000**	

The assumptions for the partnership funding strategy address the needs for both the operating and capital costs, and consider the current and out year funding landscape, and include the following elements:[3]

[2] Costs for this service are accounted for separately from the Empire Corridor service.

Operating Costs and Revenue Assumptions

- Amtrak or some federal entity will maintain financial responsibility for long distance interstate/international intercity passenger service, certainly in the short term. In New York, this would include New York City and Boston service to Chicago, and international service between New York City and Toronto and Montreal.
- New York State will assume financial responsibility for intrastate Empire Corridor train service between New York and Buffalo/Niagara Falls.
- Operation of these services would be Amtrak in the short term, and possibly a combination of Amtrak (or its successor) and Metro North in the long term.

Capital Cost Assumptions

A federal/state partnership will be pursued, recognizing that if New York assumes operating responsibility, then federal funds should be made available in support of physical plant upgrade efforts. The assumed level of federal participation in capital investment is:

- Federal support (80%) on deferred projects and state of good repair capital improvements.
- Capacity and reliability improvements would be supported on an equal shared basis (50%).

Integrating these assumptions into the baseline analysis changes the total program and annual funding requirements.

On the annual operating side, New York State would assume responsibility for Amtrak's Empire Corridor intrastate train operations subsidy, currently estimated at $30.3 million.

On the capital side, Table 4-C presents the revised capital funding needs for both the south and west corridors, with the incorporation of the federal partnership strategy. With the federal partnership strategy, New York State's commitment to the action program would be $800 million, or 44 percent of the total $1.8 million program cost.

[3] Based upon guidance from High Speed Rail Task Force Consultants and derived from language in pending rail funding legislation.

Table 4-C: Total Cost - Empire Corridor Capital Programs with Federal Partnership Strategy (FY 2006 -FY 2025)

Program Phase	South Corridor (NYC-ALB)	West Corridor (ALB-BUF/NFL)
A. Initial Express Service	$9,100,000	$1,000,000
B. Additional Express Service	$90,100,000	$1,000,000
C. Additional Express Service (with higher CapEx)	$191,100,000	$159,000,000
D. New Empire Operating Plan - Partial	$386,100,000	$192,000,000
E. New Empire Operating Plan - Full	$473,100,000	$327,000,000
Total	**$800,100,000**	

4.2.2 Funding Strategy Principles

To implement the action program and deliver improved rail service in the Empire Corridor, the state should pursue a multi-faceted strategy, based on the following principles.

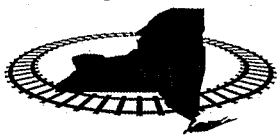
Seek Partnership Structure

The state should be the prime mover in determining the future of rail service. The history and complexity of service in the corridor and the current uncertainty surrounding the future of intercity passenger rail service in the United States has created an opportunity to seek and forge a mutually beneficial partnership with federal stakeholders.

Implement Incrementally

As presented above, the cost to transition the control of intercity rail service in New York to the state is large. In pursuing this partnership, the state should seek to identify approaches to incrementally transition into its responsibilities during the early years of the program, thereby allowing time for growth in ridership as service expands. This will provide a stronger base from which to evaluate debt issuance, as the amount of bond proceeds that are needed may be lower due to greater partnering with other intrastate agencies or bodies, allocations of federal funds, or higher fare revenues.

- Negotiate the transfer of ownership along the Empire Corridor to occur in a manner that does not overwhelm the state's financial resources and management capacity.
- Develop programs to encourage ridership growth in the west corridor.



- Take an incremental approach to the system improvements, whereby the state can achieve a better bargaining position with respect to federal appropriations and the partnering with other agencies by taking on an incrementally higher burden for itself.

Seek Outside Support

First, the state should seek to maximize support from sources outside of the NYSDOT, either as direct contributions, loans, or coordinated improvements. To accomplish this, the state will need to achieve the following objectives:

- Consider designation of the Empire Corridor as part of the Northeast Corridor and thereby secure eligibility for 100 percent federal funding to bring the corridor into a state of good repair.
- Collaborate with other entities, including state government agencies, Amtrak, railroads, commuter rail operators, etc., to identify infrastructure improvements that are mutually beneficial and incorporate them into capital programs for partial or full funding.
- Work the state's congressional delegation to ensure the appropriation of funds in the High Speed Corridor Development program and a subsequent allocation to the state for the Empire Corridor.
- Initiate discussions with local governments and officials about the possibility of using tax increment financing or other variations of value capture financing mechanisms in support of station area development at strategic locations along the Empire Corridor.

Increase State Support

Next, the state should be prepared to increase its level of support of intercity rail service above historic levels; with increased management responsibility comes increased financial responsibility. There are several approaches the state could take:

- Continued use of Rail Crossing Safety funds along the corridor.
- Exploration and discussion of the use of Congestion Mitigation and Air Quality (CMAQ) funding.
- Advancing projects for funding through the Transportation Bond Act.
- Identifying reliable funding sources for the repayment of debt issued by a new transportation authority, which may either be an entity of the state or an independent authority.

4.2.3 Funding and Financing Options

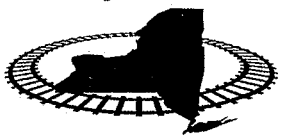
State Financing

New York State's recently approved Transportation Bond Act will raise $2.9 billion in borrowing, a small part of the state's far larger $35.8 billion state transportation plan. Monies would be used for statewide road and bridge projects, and for MTA basic maintenance, as well as for major specific projects such as the Second Avenue subway, the extension of the No. 7 line, and a link between the Long Island Rail Road and Grand Central Terminal. Within the Empire Corridor high speed rail study area, the following projects in the rail and port category have been approved:

Table 4-D: Transportation Bond Act Projects in the Empire Corridor

Owner	Type	Counties	Project Description & Justification	Cost ($millions)
Canadian Pacific	Capacity Improvements	Saratoga	Construct New Main track to bypass Saratoga yards	1.5
Canadian Pacific	Intermodal Facilities	Albany, Schenectady	Preliminary engineering necessary to create anew and/or enhance existing intermodal facilities to support the Capital Region and I-87 Corridor which will expand capacity and competition to provide rail-truck intermodal service for the Capital Region.	1.0
Amtrak	Capacity Improvements	Dutchess	Preliminary engineering for improvements to Rhinecliff Station including construction of high-level platforms (reducing passenger loading times and train running times) and expanded parking (increasing station capacity and decreasing spillover onto adjacent streets).	1.0
CSXT (Amtrak)	Capacity Improvements	Albany, Rensselaer, Schenectady	Preliminary engineering to install additional sidings and signals on the Hudson Subdivision from Rensselaer to Schenectady.	2.0

Measures such as this demonstrate the state's ability to devise large schemes for financing significant projects considered a strategic priority in development.



Revenue Bond Financing

Tax-exempt bonds, secured by project revenues and enhanced by government bodies, particularly those with a solid tax base, have a good chance of achieving these goals, and of generating the greatest amount of higher speed rail service return for every dollar of public funds invested. Voter-approved tax-exempt bonds could be general obligation debt instruments of the state, which the public might consider to be "good debt."

Another option is the issuance of debt by a new, dedicated state authority (for intercity rail) or other quasi-public entity. For example, dedicated state authorities such as the MTA have the authority to issue state-supported debt. The advantages are control of the program, flexibility in financing instruments, the ability of such an authority to benefit from state and federal support or backing, and a management of the program in terms of a purpose and mission.

Public-Private Partnership

Federal support for high speed rail service can take the form of tax-exempt bonds to finance a substantial portion of project costs and guarantee the overall debt. Other valuable federal support can be:

- Providing loans and loan guarantees (from $3.5 billion to $35 billion) through the Railroad Rehabilitation and Improvement (RRIF) program to provide access to capital and strengthen credit for other projects.
- Direct funding of projects through the High Speed Rail Corridor Development program, which was included in SAFETEA-LU. The program is authorized up to $70 million annually, but was not appropriated as part of the FY 2006 budget.

To the extent that a project receives direct funding, the need to borrow capital funds is reduced, with a corresponding positive effect on cash flow. For example, if the federal government funds the initial stages of project implementation, equal to 10 percent of project costs, as well as 50 percent of signalization, communications, and grade crossing expenses, the portion of debt that could be supported on a senior lien basis can increase significantly.

Another approach to consider that can reduce the pressure on a high speed rail project to produce sufficient debt coverage (system revenues at a sufficient multiple of capitalized costs, added to operating and maintenance costs) is a two-tiered debt structure. The use of a senior/junior debt structure will allow a portion of the project financing to be based on a conservative estimate of available cash flow, while using the credit strength of a strong unit of government to finance the balance.

Senior lien bonds, secured only by net operating revenues from the high speed rail project, could be issued in an amount that demonstrate projected coverage of no less than two times senior debt service. The balance of the project costs would be financed on a junior lien basis, secured by a guarantee of the relevant governmental entity to pay debt service when due in the event that net project revenues prove insufficient. The net project revenues, after paying debt service on senior obligation debt, would be used to pay debt service on the junior lien bonds. Importantly under this structure, a governmental entity guarantees that debt service on the junior lien bonds will be paid.

However, direct funding by the governmental entity can be very limited or politically difficult. Alternative forms of guarantees could also be considered, which could include establishing reserves, annual appropriation of dedicated revenues, or some other subsidization of system capital or ongoing costs to enable the structure to be financially viable and sustainable.

Private Financing

Given the high cost of capital borrowing for project financing, including allowances for revenue guarantees and private operator or sponsor rate of return recovery, we believe that 100 percent private financing of the Empire Corridor is unlikely. Because of the relatively unproven market for high speed rail in the U.S., the equity investment may have to be as high as 20 to 25 percent of a project's total capital requirement, at rates of return that exceed 20 percent per year. The balance of the capital costs would be financed through debt, at rates significantly above those that the public sector could achieve.

High interest rates and the need to capitalize interest during the construction period will significantly increase the costs of any high speed rail project—costs which must, in turn, be paid by users. The use of bank loans instead of publicly issued bonds could alleviate at least some of the interest costs on unexpended funds. However, the debt coverage requirements that are necessary to finance the project make private project financing the most costly alternative considered. Such costs would be directly or indirectly paid by riders. At best, even with realistic fare increases over time and at a realistic financing cost, operating revenues will not be sufficient to pay annual debt service.

4.2.4 Recommendations

The following actions should be considered in support of financing the implementation of improved rail service along the Empire Corridor. The initial focus is on mitigating some of the risk associated with the corridor's current estimated annual operating cost shortfall of

$45 million. If the state elects to do nothing, given the current Amtrak reauthorization process, it will stand to lose the contribution that Amtrak makes to intercity service—a net revenue loss for the state. If it elects to move forward with a strategy of improving service, infrastructure, and equipment in financial partnership with stakeholders, it can gain greater control of Empire Corridor service, increase ridership and revenues. It will also achieve a better negotiating position with respect to the federal appropriations process, other intrastate agencies such as Metro North, and the rail freight operators, in pursuing the following courses of action:

- **Negotiate with Amtrak for the transfer of operational responsibility on the south corridor.** Its current and projected ridership is above average, and it has consistently posted a strong farebox recovery ratio. This would limit the state's financial exposure as it relates to annual net operating costs. The negotiation should also begin to identify the principles for the eventual transfer of the remainder of the corridor.
- **Consider making an adjustment in the state's allocation of federal transportation funds among modes.** Allowing those areas of the state that rely on rail to have access to a larger pool of funds provides the Empire Corridor with another operating funding source.
- **Evaluate the benefit of lower fare prices on ridership in the west corridor.** Lowering the prices on trips going west of the Capital District may provide sufficient incentive to attract non-train riders.

Addressing the numerous capital expenditure issues will require bold and innovative thinking and action by the state:

- **Partner with local municipalities or other authorities** to leverage existing sales tax or property tax revenue streams to funding improvements, or consider leveraging incremental sales or property tax increases with the rationale that improvements generate net benefits to the state's residents, owners, and consumers.
- **Explore the purchase of existing freight right-of-way** to be managed and even "tolled" (movements in the right-of-way can be subject to a charge for access) in support of improvements along the right-of-way.
- **Start thinking of a dedicated state agency – an Empire Corridor Rail Authority.** The new authority should have access to federal and state funding, support and backing, the ability to leverage public monies with a strong management of the corridor's assets and service, the ability to issue supported and insured debt that may be attractive to institutional investors already familiar

with the agency debt issued within the state, and a focal point for managerial control of the program.

4.3 Overview of Implementation Schedule

4.3.1 Introduction

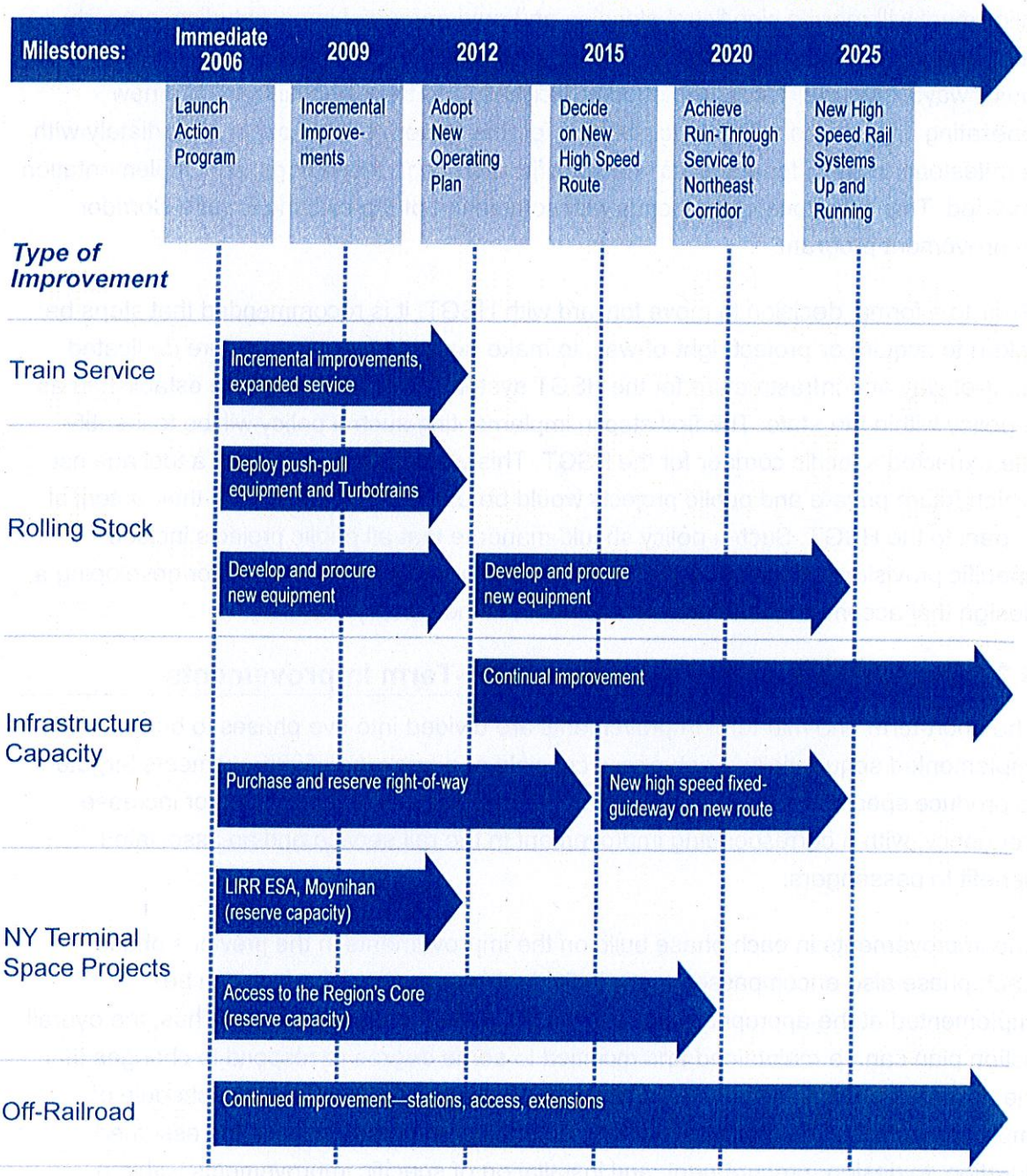
Improvements to the Empire Corridor will be phased in over a period of years beginning in 2006 and extending through 2020. Implementation of a new HSGT route using maglev or very high speed rail technology would extend beyond 2020. Empire Corridor ridership increases, and related economic, environmental, and quality of life benefits, will be realized in a stepwise manner consistent with incremental service and operational improvements.

The proposed implementation schedule reflects the time required to plan, design, and construct improvements and procure new rolling stock. It also reflects full funding of the action program and is consistent with ongoing projects that interface with, and enable, certain Empire Corridor improvements and opportunities. Importantly, the program depends on a number of new institutional arrangements and agreements, such as designation of a state entity to aggressively negotiate the creation of partnership arrangements that will facilitate the purchase of right-of-way and the funding and financing of the action program.

Figure 4-A presents the project's general timeline, major decision points, and strategic context.

Figure 4-A: Implementation Timeline

Several types of improvements will be implemented concurrently, working toward mid- and long-range milestones



4.3.2 Implementing Long-Term Improvements

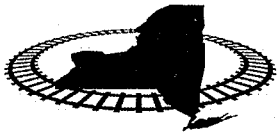
The long-term vision for building a dedicated right-of-way for HSGT operations will move forward based on the need to meet increased demands to move passengers and goods. Implementation of an entirely new maglev or VHSR system on a new or enhanced alignment will require significant planning and environmental impact studies, property acquisition, operating agreements, design, and construction of almost 500 miles of guideways, stations, yards, and support facilities, and the establishment of a new operating organization. Strategic planning for this system should begin immediately with a milestone of 2015 for a decision on specific alignment, technology, and implementation method. This milestone corresponds with completion of the existing Empire Corridor improvement program.

Prior to a formal decision to move forward with HSGT, it is recommended that steps be taken to acquire or protect right-of-way, to make possible a potential future dedicated right-of-way and infrastructure for the HSGT system. This will need to be established as a policy within the state. The first step in implementing such a policy will be to identify the expected specific corridor for the HSGT. This would then be used as a tool against which future private and public projects would be evaluated to determine their potential impact to the HSGT. Such a policy should mandate that all public projects include specific provisions for providing either a corridor through the project and/or developing a design that accommodates future creation of this necessary corridor.

4.3.3 Implementing Short-Term and Mid-Term Improvements

The short-term and mid-term improvements are divided into five phases to be implemented sequentially. Each phase consists of a package of improvements targeted to produce specific changes to reduce trip times, increase reliability, and/or increase frequency, with a corresponding improvement in the rail service and an associated benefit to passengers.

The improvements in each phase build on the improvements in the previous phase. Each phase also encompasses many individual improvements, which can be implemented at the appropriate point within the overall phase schedule. Thus, the overall action plan can be maintained and modified to some degree to respond to changes in the assumed phasing schedule. Potential changes that many affect the schedule of improvements include changes in timing of funding and differences in the assumed duration, to design, procurement, and installation of specific improvements within a particular phase.



Development of the five recommended phases of short-term and mid-term improvements was based on the Task Force's goal of producing an action program that realizes the greatest benefits in the shortest period of time. The schedule for the action program was constructed to achieve the initial results within one year and complete phase five work within 10 years. To implement the improvements as planned, the state will need to actively and aggressively commit to pursuing the action program.

The key elements for implementing the action program are described below, presented in the general order of required started dates. However, it should be noted that the required start date for each of the key elements is within the first year of the action program.

Designate a State Entity Responsible for Implementation of the Action Program

The action program will involve not only the design and construction of infrastructure improvements, but also more difficult tasks including securing funding, leading negotiations, and resolving issues with multiple railroad owners and operators. A very proactive effort will be needed to maintain the implementation schedule proposed in the action program, to secure additional existing equipment, and to specify and procure new equipment. This effort will require dedicated staff with the ability and technical expertise to be successful. It is also necessary for the responsible entity to supplement its staff with outside resources with specific expertise and abilities.

Secure Funding to Support the Action Plan Schedule

In previous sections, the forecast of expenditures associated with the action program was identified. It will be critical that funding to support the action program be secured in the near future to enable the initiation of the first phases of the work to begin. The funding to advance the overall plan will need to be obtained in manner that will be able to respond to certain large financial commitments, such as those associated with recommended right-of-way acquisitions and procurement of trainsets.

Begin Negotiations with Amtrak

The action program envisions the phases of the improvements to begin immediately and progress over a 10-year period. The initial phases must have the cooperation and agreement of Amtrak to enable their implementation. Even if the uncertainty of Amtrak's future is considered, it is prudent to assume that Amtrak will continue to operate the existing service for the immediate future. Thus, to implement the action program, New York State will need to work cooperatively with Amtrak.

Negotiations for Purchase of CSXT Right-of-Way

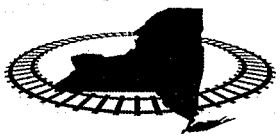
The second phase of the action program includes the provision to purchase the CSXT right-of-way from Poughkeepsie to north of Schenectady. The principal reason for this action is to secure control of the line to enable speed limits to be raised above the CSXT-mandated maximum speed of 90 mph. The acquisition is projected to be completed within two years. This is an aggressive schedule, but one that is deemed obtainable based on initial discussions with CSXT.

CSXT Full Dispatch Simulation

The Empire Corridor between Buffalo/Niagara Falls to north of Schenectady is owned by CSXT. This line has a very high concentration of freight trains. CSXT has indicated that it will not consider modifications to the existing service as envisioned in the action program unless a full computer model simulation for the interaction of freight and passenger operations is conducted. The results of the modeling simulation will be used to identify the specific improvements that will be needed to support the desired increase in reliability and the added frequency of trains outlined in the action program. The simulation should be considered a positive action as it will definitively identify and quantify the necessary improvements. It is recommended that the modeling effort be launched immediately as reliability and capacity improvements on this segment of track are projected to be complete in three years.

Design of Infrastructure Improvements

The phases of the action program are based on making a significant number of improvements to the infrastructure over the entire corridor. Individual improvements to infrastructure will be constructed in each phase, as described in Section 2. While it is possible to advance only design improvements for an individual phase, it is recommended that preliminary design be initiated on all the projected improvements, and full design be initiated on those projects anticipated to be constructed within the first three years of the action program. This will support procurement of long-lead items for track and signal projects. Additionally, the preliminary design of all infrastructure improvements will allow creation of a master design plan that can be helpful in assessing the details associated with specific improvements. This in turn facilitates identifying specific issues that may require greater time to resolve than originally planned. Design of these specific projects can then be started earlier to meet the desired schedule contained in the action program.



Procurement of Rail Vehicle Equipment

The action program envisions the need for procurement of additional rail vehicle equipment. In Phase B of the action program, push-pull trainsets of conventional equipment will be placed into service. This will allow additional express trains to be added to the schedule and will allow trains to be turned at Penn Station rather than Sunnyside Yard. Both of these service improvements will require cab car vehicles to be obtained. It is anticipated that the cab cars will be existing rail cars modified for the cab car operation. Potential sources of this equipment are Amtrak or a contract supplier. As the added cars are needed in three years, it is necessary to begin procurement immediately.

A second key element of the action program related to vehicle improvements is the planned acquisition of 20 new trainsets with tilting technology that will allow faster maximum speeds than non-tilting equipment operated on the same track. Phases C, D, and E contemplate the acquisition of new trainsets with the total number of trainsets in operation for each phase being 12, 14, and 20, respectively. The new trainsets will need to be developed to meet the specific needs of the Empire Corridor. As the initial new trainsets are needed in eight years, and the development and manufacture of the trainsets is a lengthy process, it necessary that specification and procurement be initiated immediately.

New York City Expansion Requirements

Amtrak's service originating in Penn Station can only be increased through additional train slots obtained from the Long Island Rail Road (LIRR) and/or New Jersey Transit (NJT). At the present time both LIRR and NJT require all the train slots they control at Penn Station to meet peak period passenger demands. In fact, both are seeking additional tunnel and station platform capacity.

LIRR's growing demands will be addressed through the construction of the East Side Access Project which will provide LIRR with additional tunnel and station capacity at Grand Central Terminal. NJT is currently preparing environmental studies for the Trans Hudson Express (THE) project. THE will provide NJT with new trans-Hudson tunnel capacity and new platforms adjacent to Penn Station. Renovation of the Farley Post Office, adjacent to Penn Station, to create Moynihan Station for NJ Transit, will also address NJ Transit's need for additional space.

The implementation of these projects will create opportunities for Amtrak to expand services at Penn Station and potentially implement new through services. The current

proposals to reconfigure Amtrak also provide opportunities for service improvements and funding of necessary state of good repair projects. These projects will be completed around 2012 as shown in Figure 4-A. A new operating plan may be implemented at that time to take advantage of new line, station, and yard capacity. Planning must begin now to take full advantage of these opportunities.

Coordination of Station Development and Intermodal Improvements

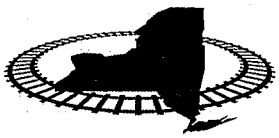
Station development and intermodal connection projects are the final key element for implementation of the action program. As noted in Section 2, there are substantial improvements anticipated at many stations. The action program calls for a combination of projects funded and directed by local or regional organizations and projects funded by New York State. It should be noted that development of a station improvement will take considerably longer than most of the other infrastructure projects. Thus, to assure that station plans are advanced as required, the overall coordination of all station improvements must be initiated immediately.

To adequately respond to the projected increase in ridership, it is desirable to seek improvements to local and regional transit services that exist or could be created to provide a vital element in moving riders to and from the train stations. As part of the coordination on station development, efforts need to be made to anticipate and respond to the future need for intermodal transit connections as proposed in this report.

4.4 Next Steps Forward – Action Agenda

Immediately:

- Begin negotiations with CSXT for the purchase, and with Amtrak for the transfer, of property from Schenectady to Penn Station, and begin a risk assessment of the proposed action.
- Put in place an "Empire Corridor Demonstration Project" as a temporary, interim mechanism that will continue to build momentum for change, begin implementation of improvement programs, and meet designated milestones.
- Initiate short-term service improvements, including an "Empire Corridor Express Service" between the Capital District and New York City to demonstrate a two-hour travel time, demand, and revenue potential.
- Initiate discussions with Amtrak and MTA on New York City terminal capacity and access issues.



- Initiate an Empire Corridor Equipment Procurement Program to provide existing and new equipment to meet improved levels of service and increased ridership.
- Explore new service improvements in the Capital District to Buffalo/Niagara Falls corridor, including initiation of an investment grade train dispatching simulation to affirm specific improvements.
- Establish an Empire Corridor Owners and Operators Service Improvement Group, to meet monthly to "Red Flag" service problems and customer complaints and implement procedural, administrative and management changes that immediately result in service improvements.

Within Six Months:

- Identify and secure action program funding commitment from the New York State Legislature and support the New York State congressional delegation regarding federal intercity rail legislation.
- Reach agreements with Amtrak, CSX, and Metro North on property, service, and facility improvements.
- Reach agreement with Metro North on a service extension strategy, timetable, and costs.
- Identify New York State Thruway Authority requirements for reservation of right-of-way for new high speed fixed-guideway route.
- Reach Memoranda of Understanding with CSXT and Amtrak on a new public-private partnership arrangement for the west corridor.

4.5 Recommendations

	Recommendations	Report Section
1	Consider the creation of a New York State Rail Authority.	ES
2	As an interim measure, an "Empire Corridor Demonstration Project" should be established as a temporary entity to negotiate, reach agreements, and establish other arrangements.	ES
3	Initiate strategic planning for a new high speed fixed-guideway system on a new route with public and private sector participation.	ES
4	Develop and initiate a "Multimodal Centers" program along the Empire Corridor with Albany-Rensselaer as the Demonstration "Hub" station.	ES
5	Change the state policy used to allocate funds among modes to sustain a statewide integrated rail network, based on an independent study of costs, benefits, and efficiency of moving people and goods in New York State's multimodal corridors.	ES
6	Establish an Empire Corridor Owners and Operators Service Improvement Group to meet monthly in Rensselaer to "red flag" service problems and customer complaints, and implement procedural, administrative, and management changes that immediately result in service improvements.	ES
7	Amend the Statewide Transportation Master Plan, scheduled for release in early 2006, to accommodate the vision and corridor-based rail improvement programs identified in this report.	1
8	Develop further the rail corridor goals and performance objectives in consultation with NYSDOT and railroad owners and operators.	1
9	Implement the action program and achieve the service and reliability benefits as quickly as the infrastructure can be provided, the equipment made available, and the institutional arrangements can be made with the owners and operators.	2
10	Begin immediately to develop the specification and initiate the procurement of a "New York State Car" that will meet future requirements of the Empire Corridor, access to New York City terminals and operations on the Long Island Rail Road and the Northeast Corridor.	2
11	The New York State Energy Research and Development Authority (NYSERDA) should conduct a study, with participation by the rail owners and operators, on the costs and benefits of electrification of the Empire Corridor from New York to Albany with possible extension to western New York.	2
12	Negotiate the purchase of CSXT right-of-way and transfer Amtrak right-of-way, stations, and maintenance facilities from Schenectady to Penn Station.	4

	Recommendations	Report Section
13	Provide unity of ownership and operations from the Capital District to New York City through an existing or new state entity.	4
14	In the short term, seek improvements in Amtrak intercity service in the Empire Corridor.	4
15	Extend Metro North service to the Capital District by 2012, or sooner, based on a new Capital District to New York City operations plan and resolution of any legal, MTA district, and funding issues.	4
16	New York State should have the right to run trains, operating on the Empire Corridor, through to points on the Northeast Corridor, and to receive federal grants to bring the Capital District to New York City Corridor into a "state of good repair."	4
17	The dynamics of Amtrak's future preclude a recommendation on Empire Corridor inclusion in the Northeast Corridor. Nevertheless, the advantages and disadvantages should be evaluated for a policy decision by New York State.	4
18	Empire Corridor trains should have the future ability to through-run to points on the Long Island Rail Road at New York's Penn Station.	4
19	Empire Corridor trains should have sufficient capacity (train slots) and presence at Penn Station "Moynihan Station" and Grand Central Terminal to meet future demand.	4
20	Reserve future right-of-way for a new high speed fixed-guideway system within the New York State Thruway and on a new Hudson River crossing.	4
21	Consider reserving alternative passenger rail routes in the Rochester to Buffalo area.	4
22	Create and implement a public-private partnership agreement with the owners and operators in the west corridor, deriving benefits for both the freight and passenger services.	4
23	A federal or multi-state entity should continue to be responsible for off-corridor interstate and international trains as they exist today.	4
24	New York State should consider a long-term commitment to a higher level of investment in intercity passenger rail in a financial partnership with the federal, state, local, and private stakeholders, commensurate with its increased control and responsibility for the Empire Corridor.	4
25	The state should consider implementation of a new high speed fixed-guideway system on a new route by a public-private consortium, where the state contributes the right-of-way and the private sector designs, builds, operates, maintains, and finances the project.	4