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## 2 Level 1 Screening Process and Results

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The intent of the Level 1 screening process was to recommend feasible and reasonable alternative elements to advance to Level 2 screening, where the alternative elements were combined in a logical fashion into a set of analysis scenarios. The list of alternative elements was formed through a comprehensive program of stakeholder outreach, which included public workshops held in Westchester, Orange, and Rockland Counties in April 2003. This chapter summarizes the results of the Level 1 screening process, which is described in detail in the report *Level 1 Screening Process* (NYSTA/Metro-North, December 2003).

The development of alternative elements for the corridor began with a broad examination of potential solutions to the transportation needs identified. Alternatives contained in prior studies completed for I-87/I-287, as well as those suggested by other agencies, various interest groups, elected officials, and the public were considered during Level 1 screening.

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### 2.1 Level 1 Alternative Elements

The long list of alternative elements fell into four broad categories:

- **Travel Demand Management/Transportation System Management Strategies (TDM/TSM)** – strategies designed to maximize the use and efficiency of the existing transportation systems and attempt to shape travel demand to available capacity. In general, these actions do not require the construction of major new facilities.
- **New/Improved Transit Services** – actions to improve existing bus, rail and ferry services or add new public transit services that do not require major new transportation infrastructure.
- **Corridor Improvements** – actions to improve transportation performance on a corridor-wide basis, including roadway improvements and new modal alternatives, such as commuter rail, light rail, and busways.
- **Hudson River Crossing Improvement Alternatives** – concepts that consider retaining, replacing, or supplementing the Tappan Zee Bridge and include tunnel crossings.

A detailed description of these alternative elements is presented in *Long List of Level 1 Alternatives, Tappan Zee Bridge/I-287 Corridor Environmental Review* (NYSTA/Metro-North, June 2003). A summary description is presented below. Appendix A includes a complete listing of all alternative elements.

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## 2.1.1 TDM/TSM Measures

TDM/TSM measures are lower cost management strategies designed to impact travel demand, choice of travel mode, or time of travel, as well as actions to improve the overall efficiency of the existing transportation system. Typically, TDM/TSM measures are implemented in a comprehensive program, combining measures that support and enhance one another to achieve the desired effect of managing travel demand and traffic operations on a corridor-wide/region-wide basis. TDM/TSM programs already exist in the corridor and served as the baseline for the definition of additional TDM/TSM measures to be considered in Level 1.

Forty individual TDM/TSM measures were identified in Level 1 screening, covering the following broad actions:

- Enhance existing MetroPool Employer Trip (ETR) programs.
- Expand the existing Easy Street Vanpool Program.
- Implement corridor-wide parking pricing and management.
- Introduce carpool and transit priority.
- Variable tolls and pricing.
- Distribute real-time user information.
- Improve the integration of rail and bus service.
- Implement dynamic traffic management systems.
- Implement commercial vehicle programs.
- Implement incident management programs.



These alternatives included both incentives (“carrots”) and disincentives (“sticks”) to induce drivers in single-occupant vehicles (SOV) to take transit or join vanpools and carpools. In addition, measures that aim to optimize system operations, capacity, and safety (such as variable message signs and transit rider information) were included in this category.

## 2.1.2 Transit Service Improvements

The second category of Level 1 alternative elements covers relatively low-cost enhancements to existing transit services that could cause a mode shift from auto to transit within the corridor. This category includes improvements to bus transit, commuter rail, and ferry services within, parallel to, and connecting to the I-287 Corridor. In addition, it covers parking improvements at key locations to increase the convenience and use of existing transit services. It also includes connections to existing pedestrian/bicycle pathways.

These improvements build upon the existing network of bus routes, commuter rail routes, ferry routes and park-and-ride lots to enhance the use of transit. They can be an important supplement to the major improvements, or may stand on their own as alternative improvements.

### 2.1.2.1 Bus Transit Service

There are existing bus networks throughout the corridor, including both the Bee Line (Westchester County) and Transit of Rockland (TOR) local buses and express buses to Manhattan. These buses are either operated by the county or operated by private bus companies under contract to the county. Several alternative elements that focus on improving these existing bus transit services were considered:

- **Expand Tappan Zee Bus Corridor Routes.** TOR operates the Tappan Zee Express (TZX) buses from Rockland County across the Tappan Zee Bridge to the Metro-North Tarrytown Station and to the White Plains TransCenter. Additional buses are operated as the Orange-Westchester Link (OWL) service, from Orange County directly to Tarrytown and White Plains. Based on the surveys that were conducted for this study (Chapter 4), most of the passengers on these buses are commuters connecting to Metro-North for direct commuter rail service to Grand Central Terminal.

Given the current peak period 10- to 15-minute headways, there would be marginal benefit to increasing peak period frequencies of the TZX route. However, this service could be expanded and gain ridership by increasing off-peak period frequencies to every half-hour, increasing the number of connecting routes, providing more direct services, and coordinating better with the train schedules. In addition, the service can be improved by reducing travel times and increasing dependability by provision of direct access to the Tarrytown Station as part of a potential bridge reconstruction, eliminating the need to operate in congested traffic on Route 9.

With this alternative element, a series of additional express bus routes would be added from central locations supported by park-and-ride facilities along I-87 and I-287 in Orange and Rockland Counties to the Metro-North Tarrytown rail station, and then continuing non-stop to downtown White Plains. Other express routes would operate from origins in Orange and Rockland Counties and then locally across Westchester County between Tarrytown and White Plains. In a similar fashion, express buses would operate from the east between Stamford, Port Chester, and White Plains.

- **Expand Other Bus Routes.** The other bus routes that directly affect this corridor are the routes on parallel roads (i.e., NY 59, NY 119, Westchester Avenue) and those on major north-south arterials feeding I-287 (e.g., NY 303, NY 306, NY 100, NY 22, etc.). Specific emphasis would be placed on buses feeding Metro-North rail stations. These routes could be improved by increased frequencies, direct connections to rail services, TDM arterial improvements as discussed above, and improved information dissemination (TSM). The Bee Line service is well established and has a historic market role. The TOR service covers an area experiencing more rapid change, and is still responding to growth.
- **Expand/Create Additional Shuttle Service.** There are established, scheduled shuttle services within much of the White Plains area in Westchester County, and shuttle services feeding the Palisades Mall park-and-ride lot in Rockland County. This alternative element would include additional shuttle service to supplement the existing scheduled services. The service would be available to land uses with higher densities of jobs or population or higher levels of activity such as an office park, a hotel complex, a recreational center, or a multi-family housing development.

## 2.1.2.2 Rail Transit Service

Metro-North operates commuter rail service on both sides of the Hudson River in the corridor. Five radial lines cross the corridor. The Port Jervis Line (PJL) and the Pascack Valley Line (PVL) in Rockland County are operated by agreement with New Jersey Transit and serve Secaucus and Hoboken. The Hudson, Harlem, and New Haven Lines operate through Westchester County and serve Grand Central Terminal (see Chapter 1, Figure 1-2). Following is a summary of the alternative rail transit service elements that were studied.

- **Improve Rail Service on the Hudson Line.** There is sufficient capacity on the Hudson Line to increase the number of trains during the peak period. This alternative element would add peak period express trains to the Hudson Line. However, the current service is already at a high level, averaging 15-minute headways, so benefits in terms of increased ridership would likely be limited. Express service is currently operated from Croton-Harmon, Ossining, Tarrytown, and Hastings. Frequencies could be increased to achieve 10-minute headways between Tarrytown and Grand Central Terminal.
- **Improve Rail Service and Capacity on the Harlem Line.** The Harlem Line already has a high level of peak period service between White Plains and Grand Central Terminal in the morning peak period, averaging less than 10-minute headways.

On the current system, there are locations where capacity improvements would enhance opportunities to increase service. For example, addition of a third track on the Harlem Line between White Plains and Crestwood would allow express operations to bypass the stations south of White Plains without interference from the local service.

- **Improve Service on the New Haven Line.** There is sufficient capacity on the New Haven Line to increase the number of trains during the peak period. This alternative element would add peak period express trains to the New Haven Line. However, the current service is already at a high level, averaging 15-minute headways from Stamford, so benefits in terms of increased ridership would likely be limited.
- **Improve Service and Expand Capacity on the Pascack Valley Line.** The Pascack Valley Line is a single-track line, formerly with seven morning departures, seven evening return trains, and no midday service. Given the single track, there is limited ability to increase the number of trains, and the lack of midday or return service limited ridership. One alternative element that has recently been implemented includes operation of some midday service and a minor increase in peak period train frequencies, both of which have had a modest impact on increasing ridership, especially now that Secaucus Junction has opened, allowing transfers to the Northeast Corridor Line to Penn Station. There is also now one train operating express from Rockland County to Secaucus.

Another possible alternative element would expand capacity of the Pascack Valley Line between Spring Valley and Secaucus by providing passing sidings to create suitable conditions for two-way service on the Pascack Valley Line. This would increase headways and improve equipment utilization, but would require an expansion of the Woodbine Yard in Spring Valley.

- **Improve Service and Expand Capacity on the Port Jervis Line.** The Port Jervis Line operates on the NJTransit trackage of the Bergen/Main Lines from Hoboken, New Jersey,

to Suffern. From Suffern to Port Jervis, the line operates on trackage recently acquired by Metro-North from Norfolk Southern Railroad. It is a single-track line north of Sloatsburg, which limits the frequency of service. There are currently only five morning and six evening express trains from Suffern and limited midday service. The area served by the Port Jervis Line is growing, so increasing frequencies would increase ridership, and midday and reverse service would make the line more attractive. Current ridership does not exceed the capacity of the current physical structure. This alternative element would include constructing passing sidings and increasing midday and reverse peak service on the line.

By double-tracking (or constructing passing sidings) within the existing right-of-way, the Port Jervis Line could operate in both directions at the same time. These improvements would permit much more frequent headways and also permit the same equipment to be used more efficiently. However, limitations at Hoboken and in the tunnels approaching Hoboken constrain frequencies for those lines and other NJTransit services.

### 2.1.2.3 Ferry Service

The Hudson River functions largely as a barrier in this corridor, limiting the opportunities to travel from east to west. However, the river has the potential to serve as an opportunity instead, with the provision of ferry service. Ferries have seen a rebirth in the metropolitan New York area in recent decades, with New York Waterways developing a network of ferries connecting the New Jersey side of the Hudson with Manhattan and providing bus service within Manhattan for the ferry users.



Long-distance ferry service from the Jersey shore to Manhattan has also been successful, with high-speed ferry operation crossing the New York Harbor directly from the mouth of the Raritan River. Additional ferry service has been proposed in the Lower Hudson region as well (Figure 2-1). Alternative ferry service elements identified in Level 1 screening included:

- Expand ferry service between Haverstraw and Ossining.
- Implement new ferry route between Nyack and Tarrytown.
- Implement new high-speed ferry route between Rockland/Orange Counties and Manhattan.

Ferry service has limitations under icy conditions, and service to the western edge of Manhattan requires a bus connection to get to other locations in Manhattan.

### 2.1.2.4 Park-and-Ride Improvements



In the Level 1 screening process, various recent studies were reviewed to identify current plans or proposals for new/expanded park-and-ride facilities to support existing or programmed improvements to existing transit services. These studies focused on short-term improvements to be implemented within the next five years.

In addition to the short-term park-and-ride improvement alternatives, longer-term park-and-ride improvements that support the new/expanded transit services described earlier were also identified. These were less specific than those identified for short-term implementation, as detailed needs assessments for these improvements could not yet be made.



## 2.1.3 Corridor-Wide Improvements

Corridor-wide alternative elements include major capital investments to I-87/I-287 in Rockland and Westchester Counties and the introduction of new east-west bus and rail transit facilities and services.

### 2.1.3.1 Roadway Improvements

I-87 and I-287 are urban interstate highways with grade separations at all crossroads and full control of access. The I-287 Corridor in Rockland County runs east-west and extends approximately 14 miles from Interchange 15 in Suffern to the approach of the Tappan Zee Bridge, just east of Interchange 10. It connects with two other major regional highways, the Garden State Parkway (Interchange 14A) and the Palisades Interstate Parkway (Interchange 13).

I-287 continues into Westchester County for about 1.5 miles to Interchange 8 in Tarrytown, where it splits into I-87 southbound, and I-287 eastbound. I-287 extends approximately 11.5 miles to its connection to the New England Thruway (I-95) in Rye (Figure 2-2). The other major regional highways it connects to are the Sprain Brook Parkway (Exit 3), I-684 (Exit 9) and the Hutchinson River Parkway (Exit 9A). Design speeds on I-287 are 70 mph west of Interchange 8 and 60 mph east of that interchange.



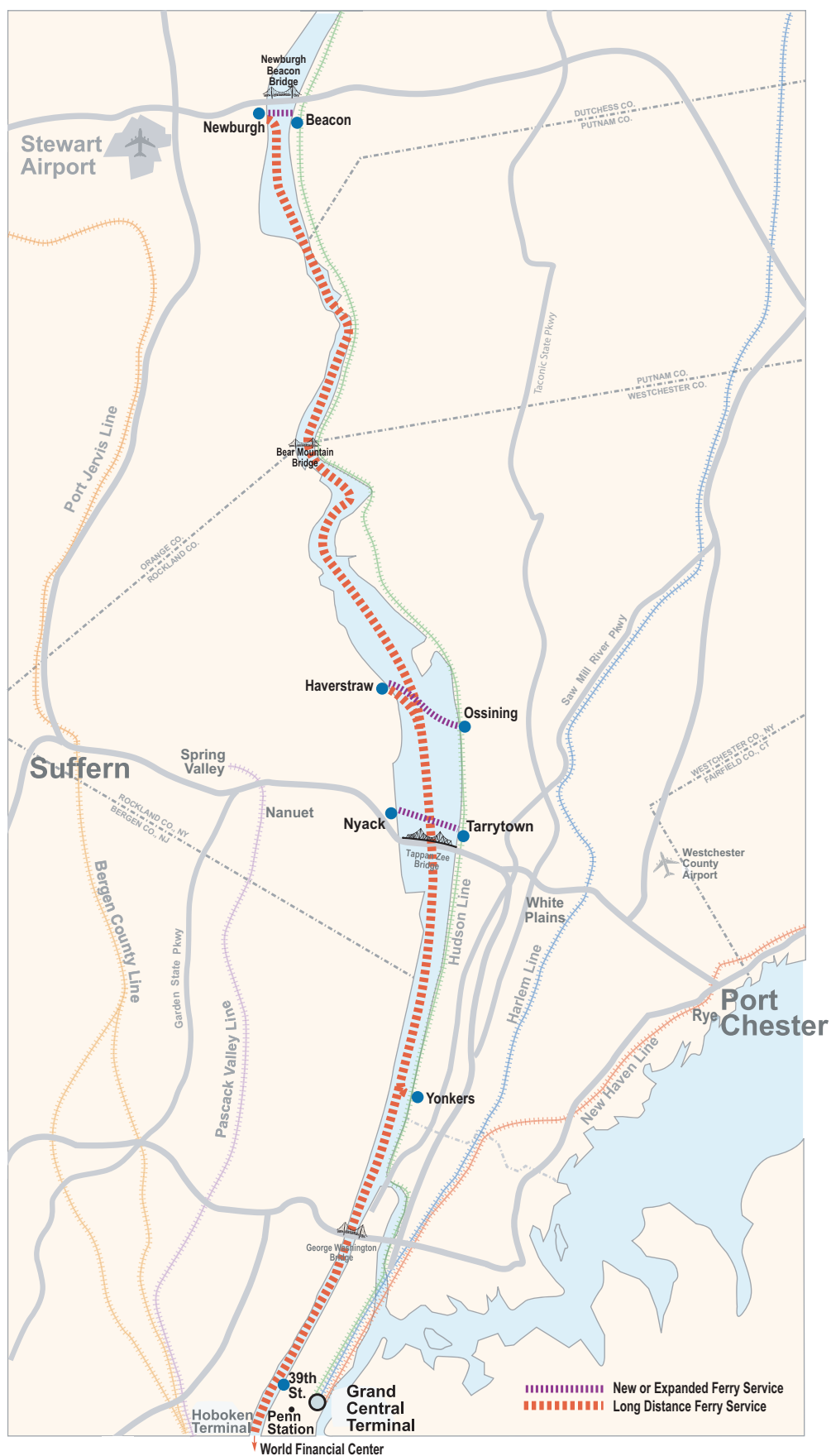
Interchange 8 (I-287 with I-87)

I-87/I-287 in Rockland County is a six-lane divided highway (three lanes in each direction) from Interchange 15 to Interchange 11 at Route 9W in Nyack. It widens to four lanes in each direction from Interchange 11 to the Tappan Zee Bridge. In its current configuration, the bridge has seven general-purpose lanes with a moveable barrier that allows four lanes to operate in the peak direction (eastbound in the AM peak and westbound in the PM peak) and three lanes in the off-peak direction. In Westchester, the six-lane section between Interchanges 8 and 9 in Tarrytown was recently reconstructed to add a fourth lane in each direction to maintain lane balance and continuity with the four-lane peak configuration on the bridge. Interchange 8 was also reconstructed to reflect the preponderance of traffic crossing Westchester County, rather than continuing south.

General-purpose lanes on I-87/I-287 are typically 12 feet wide. Inside shoulders vary from 8 feet to 10 feet and outside shoulders are generally 10 feet wide. In the section between Interchange 10 and the Tappan Zee Bridge the inside shoulders taper from 10 feet to 2 feet on the bridge approach, and the bridge itself has no shoulders. The roadway is divided by a 20- to 24-foot paved median with a center guardrail or concrete barrier. The roadway profile generally reflects the rolling terrain of Rockland County, with long stretches of 3 percent grades cut through tall rock formations or embankments that have steep side slopes in the low areas.

The typical I-87/I-287 right-of-way width between Interchanges 15 and 11 is 250 feet, symmetrical about the roadway centerline. While the right-of-way is wider at interchanges and at the Spring Valley toll barrier, there are areas where it is less than 250 feet or not symmetrical. For example, between Interchange 11 and the bridge, the right-of-way is as narrow as 80 feet in the westbound direction and 118 feet wide on the eastbound side.

In Westchester County, I-287/CWE was constructed as a six-lane divided highway with three eastbound and three westbound lanes for its entire length; however, ongoing and future programmed improvements by NYSDOT would add auxiliary lanes, selectively, between Exit 2 in Elmsford and Exit 9 in Harrison.

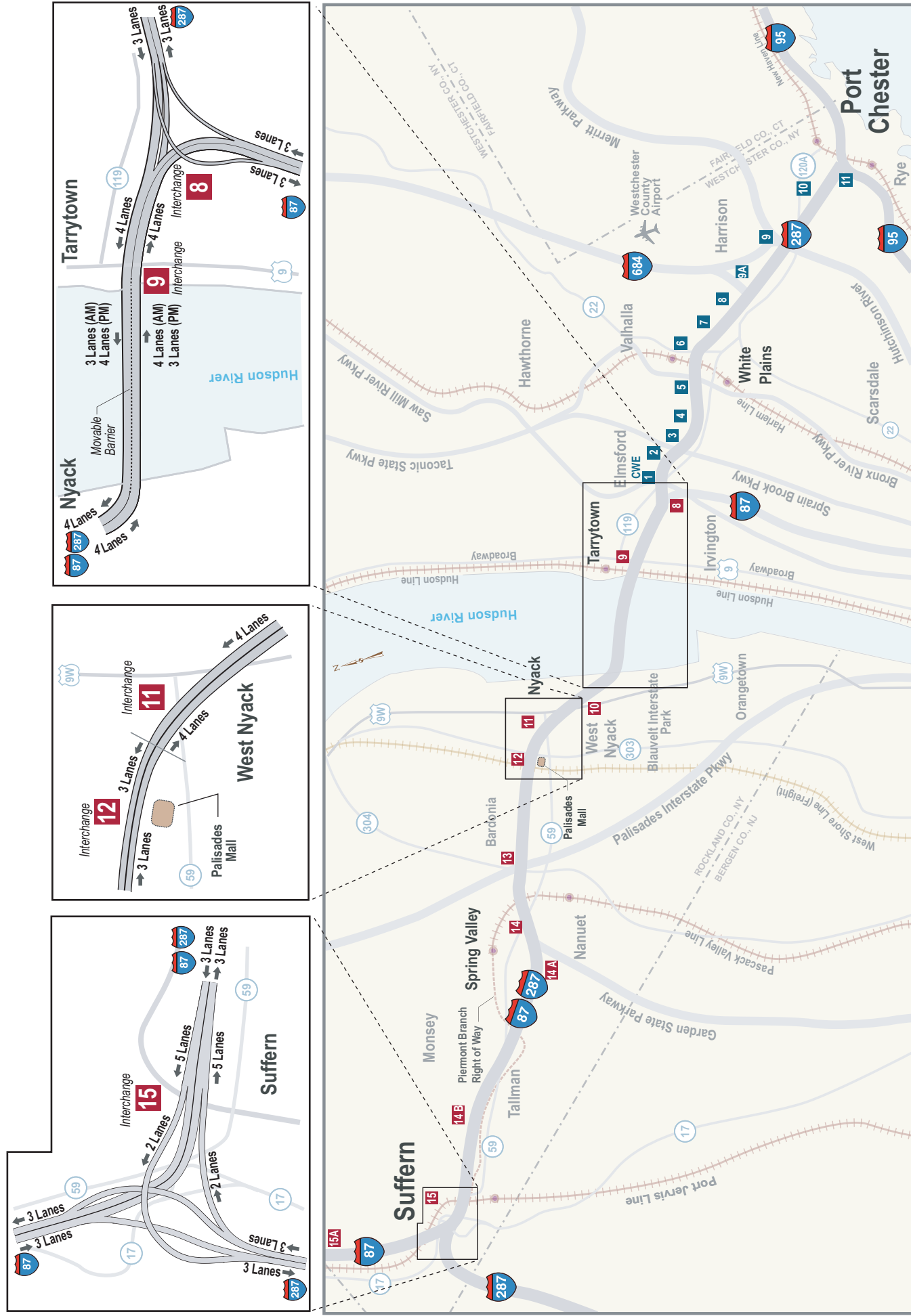


### Ferry Service Alternative Elements

Figure 2-1







### Existing Highway Configuration



General-purpose lanes on I-287/CWE are typically 12 feet wide with a 22-foot median. The inside shoulder is typically 10 feet wide and the outside shoulder varies from 8 to 11 feet.

In Westchester County, the right-of-way varies considerably in width and in most areas is not symmetrical about the centerline. East of Interchange 9, through the Talleyrand Swamp, the right-of-way is 300 feet wide. East of Interchange 8 to I-287/CWE Exit 6 (North Broadway), the I-287/CWE right-of-way varies between 200 and 275 feet. East of Exit 6 to the I-95 interchange, the right-of-way varies between 140 and 280 feet; however, between Exits 8 and 10, the New York State-owned right-of-way is as wide as 550 feet where it includes the eastbound and westbound Westchester Avenue service roads that flank I-287/CWE.

Roadway improvement elements were proposed to improve safety and traffic operations in the corridor and to alleviate congestion and minimize bottlenecks. Roadway improvement elements in Westchester County were limited, as the current roadway improvement program is underway and accepted as a given. These elements do not specifically include related roadway improvements that would be required to maintain an operational travel way. For example, the need for pavement rehabilitation or reconstruction is recognized as an important roadway improvement; however, since it would not directly relate to improving vehicular mobility in the I-287 Corridor, it was not included as an improvement subject to the screening process. It could, however, be included as an associated construction cost for all of the roadway alternatives if determined to be necessary within the time frame of this study.

The roadway alternative elements identified in Level 1 included:

- **Improve mainline — add a fourth general-purpose lane in each direction from Interchange 15 in Suffern to Interchange 11, Route 9W in Nyack.** This alternative element would provide basic lane continuity on the entire Thruway segment of the corridor by providing four lanes in each direction from the I-287 connection in Suffern to the I-287/I-87 split at Interchange 8 in Westchester County.
- **Improve mainline — add a fourth general-purpose lane in each direction from Interchange 14A, Garden State Parkway in Chestnut Ridge, to Interchange 11, Route 9W in Nyack.** This alternative element addresses a shorter segment of the corridor than above and would provide additional lane capacity to accommodate the four interchanges west of Interchange 11 that feed high volumes of traffic into the corridor, thus contributing to the AM and PM congestion in Rockland County.
- **Add a fourth general-purpose lane in each direction from Interchange 13, Palisades Parkway, to Interchange 11, Route 9W in Nyack.** This alternative element addresses a still shorter segment of the corridor than the two foregoing elements and would provide additional lane capacity to accommodate the two interchanges west of Interchange 11 that feed high volumes of traffic into the corridor, contributing to the AM and PM peak hour congestion in Rockland County.
- **Add a westbound auxiliary climbing lane from the Tappan Zee Bridge to Interchange 14A, Garden State Parkway.** This alternative element would supplement the three foregoing roadway elements. Forecasted PM peak hour traffic volumes for the design year are anticipated to exceed the capacity of the proposed four-lane section. To alleviate the expected bottlenecks and unsafe conditions that would develop on the three percent upgrades, a fifth auxiliary climbing lane is proposed in the westbound direction. For the purposes of Level 1 screening, the auxiliary lane was assumed to begin at the

Tappan Zee Bridge and to continue to Interchange 14A, maintaining continuity between climbing sections.

### 2.1.3.2 Bus Rapid Transit



Bus rapid transit (BRT) combines some of the qualities of rail transit and the flexibility of buses. BRT vehicles are rubber-tire transit vehicles operating at more frequent intervals than conventional buses, usually in dedicated rights-of-way. Vehicles can be conventional transit vehicles with internal combustion engines, such as regular or articulated buses, or they can be electric trolley buses or hybrid vehicles. BRT vehicles can operate either in transit-only lanes or in exclusive busways that are usually buffer- or barrier-separated from general-purpose traffic. BRT vehicles can also exit these exclusive facilities and operate like regular transit vehicles on arterial streets to access riders, if necessary.

Busways can be at-grade or grade-separated to avoid conflict with other traffic. Operating speeds vary according to the type of BRT facility, but they can reach up to 65 mph on exclusive, grade-separated busways.

BRT hourly passenger capacities range from low (when mixed with traffic) to medium (when on an exclusive busway). BRT service strategies vary considerably, as there is a great deal of flexibility in its operation; BRT can be used for short-haul or regional routes and local or express routes. Because of this flexibility, the distance between BRT stops can be highly variable. Further, the physical features of BRT stops can vary between those usually found at regular bus stops and those resembling light rail or commuter rail stations, with significant passenger amenities.

BRT often employs intelligent transportation system (ITS) features, such as active guidance, when the system is fully grade-separated. Guided bus systems can use either mechanical or electronic means to steer the bus, while speed control and braking remain under driver control. The advantage of automated guidance is that narrower tunnels and bridges are possible. BRT vehicles that have automatic guidance can use high platform boarding areas, allowing them to get very close to the platforms for maximum passenger safety and convenience.

Additional ITS features on BRT systems can include convenient electronic fare collection (either on-board or off-board), “real time” bus information for waiting passengers, and signal pre-emption. Signal preemption is used to facilitate transit vehicle movement at intersections. The system assigns a priority, by intersection and by time of day, to the signal that will provide either an “early” green light or an “extended” green light to a transit vehicle; alternatively, drivers can trigger signal pre-emption from within their vehicles.

BRT vehicles and stops are often “branded” with unique colors and architectural features to distinguish them from regular bus services. Some BRT vehicles are designed to resemble rail vehicles.

BRT alternative elements studied in Level 1 included:

- **New BRT transitway on I-87/I-287 with service between Suffern and Port Chester.** With this alternative element, bus routes would collect passengers throughout the region while operating on the arterial system and connecting with commuter rail stations and



park-and-ride lots. BRT vehicles would then enter I-87/I-287 from feeder arterials and operate as express service with no stops until their primary destination (trunk and feeder service operation). Exclusive lanes for BRT vehicles would be constructed in a designated right-of-way on I-287 from Suffern across the Tappan Zee Bridge, or a replacement river crossing, to Port Chester. This would require roadway widening in Rockland County and could require an elevated roadway in Westchester County due to right-of-way constraints.

- **BRT lanes on parallel arterials.** BRT can operate using arterials as exclusive or 'basically exclusive' lanes. Under this alternative element, bus service would operate as local buses on neighboring streets and become express when operating on arterials. The logical locations for BRT in the corridor are NY 59 in Rockland County and NY 119 and NY 120 in Westchester County. None of these arterials has adequate right-of-way width to add a new lane, but the extreme right lane could be converted to a bus lane, with right turns and driveway access permitted for general traffic. Coupled with bus bays, transit priority at signals and other ITS measures, BRT as express bus service would be provided, not at the service level of exclusive busways, but at an improved operating speed and dependability.

### 2.1.3.3 Commuter Rail Transit

Commuter rail transit (CRT) is well established in New York. It consists of rail passenger cars on steel wheels, either self-propelled or hauled by locomotives, primarily serving longer-distance commute trips between a central business district terminal and adjacent suburbs. Commuter rail can also serve reverse-commute trips and intra-suburban trips as well. Commuter rail typically uses existing railroad infrastructure and often shares this infrastructure with rail freight.



Stations are typically spaced quite far apart and operating speeds between specific locations can be in excess of 100 mph. Capacity is variable, but can be very high. Propulsion can be diesel, electric, or dual mode with possible reduced air emissions, as compared to diesel locomotives. Bi-level coaches can dramatically increase passenger haul capacity.

Several new commuter rail alternative elements connecting to existing Metro-North lines were considered in the Level 1 screening. These alternative elements included an option that extends from the Port Jervis Line in Rockland County to the New Haven Line in Westchester County, and several other options of intermediate length that connect to either the Hudson or Harlem Lines. All alternative elements consist of two tracks, new stations, and grade separations at all intersecting road and rail crossings.

These new east-west commuter rail lines in the corridor would connect rail service to the existing north-south radial commuter rail lines either through a direct connection or by passenger transfer. Figure 2-3 illustrates the resulting service area of the commuter rail network.

A variety of elements reflecting alternative routes and service were studied in Level 1:

- New commuter rail line from Port Jervis Line to Hudson Line within the I-287 Corridor.
- New commuter rail line from Port Jervis Line to Hudson Line via remote southern crossing.



- New commuter rail line from Port Jervis to Harlem Line within the I-287 Corridor.
- New commuter rail line from Port Jervis to New Haven Line within the I-287 Corridor.
- New commuter rail service on the West Shore Line between Newburgh in Orange County and Hoboken in New Jersey.
- Reinstatement of the Putnam Commuter Rail Line.
- Rockland-Westchester commuter rail subway.
- New Tarrytown transfer facility between Hudson Line and east-west services.
- Rail freight connections in conjunction with new commuter rail lines.

### **2.1.3.4 Light Rail Transit**

Light rail transit (LRT) systems consist of self-propelled rail cars with steel wheels on fixed rails, usually operated in two- to four-car trains. LRT is highly flexible in terms of its operating environment. LRT service can vary from “trolley car-type” operations, sharing roadway space with private vehicles and subject to traffic congestion, to fully grade-separated operations on elevated guideways or in tunnels. The capacity of LRT systems depends on train size, schedules and operating speeds, with longer trains on fully grade-separated systems capable of speeds of up to 65 mph.

LRT is typically installed in downtown and moderate density urban areas. Stations are usually spaced from one-half to two miles apart, but this spacing can be highly variable. Conventional light rail vehicles are powered by overhead electric wires, although diesel multiple units (DMU) are also used.



Automated guideway transit (AGT) covers a wide range of fully grade-separated automated people mover systems, from very low-capacity short-distance systems seen at airports or amusement parks to high-capacity grade-separated systems in downtowns and high-density developments that cover greater distances with many of the same features as elevated LRT. Top speeds are generally lower than LRT, but may reach up to 55 mph. Stations are usually closer together than LRT stations. Alternative propulsion systems are possible and potential vehicle suspension systems include steel wheel/rubber tire/air cushion and magnetic levitation (maglev). Due to the automated (driverless) mode of operation, this type of system must be fully grade-separated.

Monorail, one form of AGT, is an electric guideway system with guided transit vehicles operating singly or in multi-car trains. Vehicles are suspended from, or straddle, a guideway formed by a single beam, rail, or tube. Monorail systems must be elevated and fully grade-separated.

For the purposes of developing service and alignment alternatives, these three transit system types were grouped together under the heading LRT. Five alternative elements for a new LRT route to serve the corridor are listed below (they follow two alternative alignments, either within the I-287 Corridor or along parallel routes):

- New line connecting Tarrytown to White Plains.
- New line connecting West Nyack to White Plains.
- New line connecting Nanuet to White Plains.
- New line connecting Suffern to White Plains.
- New line connecting Suffern to Port Chester/Rye.





Existing & Proposed Commuter Rail Network

Figure 2-3