6.0 TRANSPORTATION

In recent years, Rockland's transportation network of roads, rails and trails has been an extremely active area of planning. Many important changes and improvements continue to be made to the County's road network, bus systems, and pedestrian and bicycle network. In the coming years, Rockland will be faced with significant proposed transportation investment projects – including Access to the Region's Core (ARC) – which began construction but was suspended in 2010 – and the Tappan Zee Bridge/I-287 Corridor Project – that will present new opportunities to enhance mobility and accessibility, and provide greater choices of travel for all, including the County's growing aging population. Major ongoing and future transportation projects will likely serve as a catalyst to significant redevelopment patterns in Rockland, particularly in the county's primary transportation corridors such as I-287. Faced with these major transportation issues, the County and local communities will need to work proactively to identify policies that properly integrate potential new transportation options with compatible land use patterns. This requires formulating an overall vision for Rockland's communities and the strategies to implement that vision.

The Rockland County Comprehensive Plan supports a fully integrated vehicular, mass transit, bicycle, and pedestrian transportation infrastructure network. The goal of this chapter is to identify strategies to enhance the mobility of people and goods, improve commuter safety, and maintain a high quality of life for Rockland residents and workers. To ensure that both local and regional transportation initiatives result in improved safety and efficiency, and are fiscally responsible, Rockland will need to take a leadership role in coordinating with municipalities, neighboring counties and regional transportation agencies.

6.1 Rockland County's Circulation System

Road Hierarchy

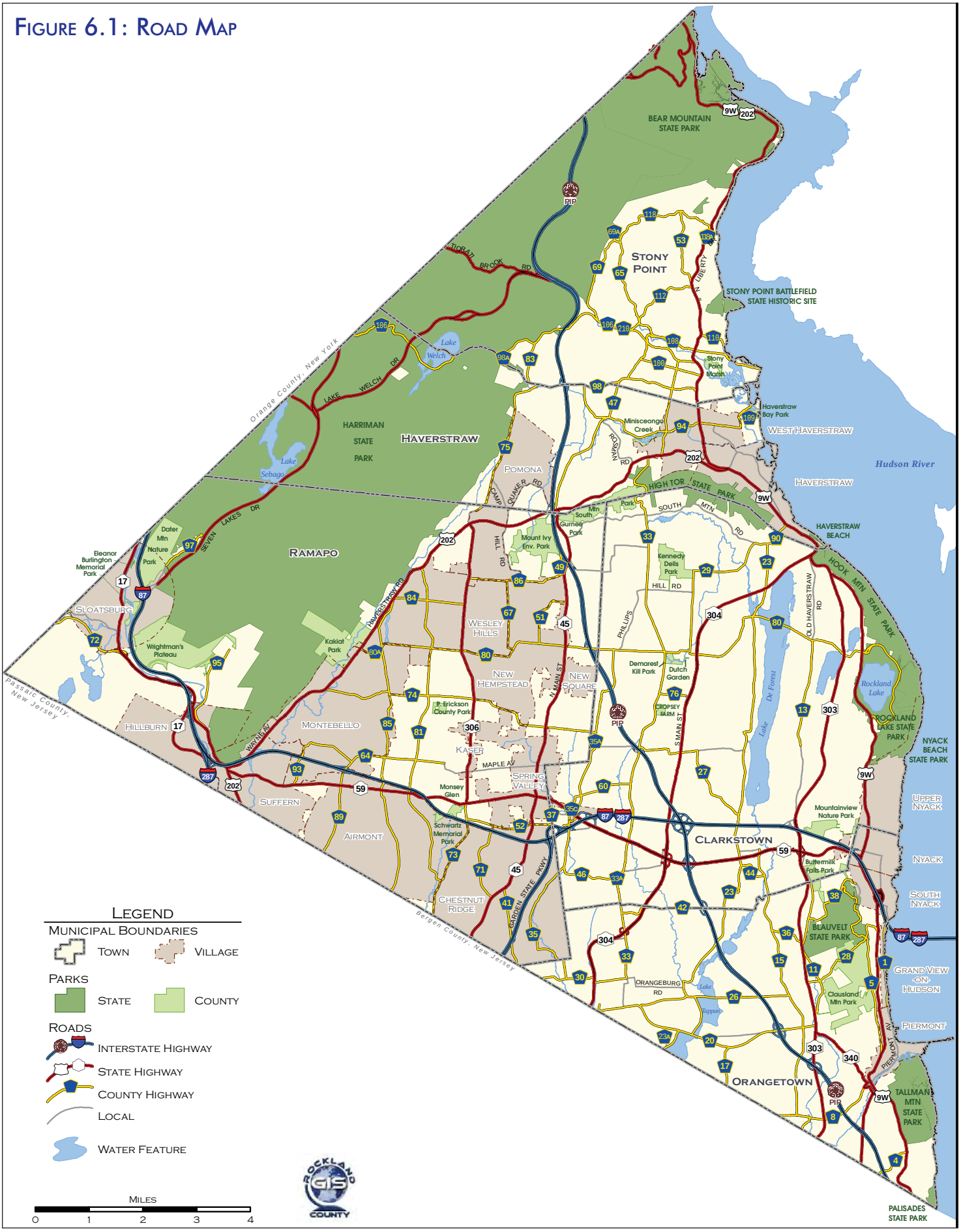
Excluding the interstate highways and parkways, there are approximately 1,150 miles of roads serving Rockland – owned and maintained by New York State (100 miles), Rockland County (170 miles), and the five towns and 19 villages in Rockland (880 miles). Road classification types include interstate, state, county, and local roads (see Figure 6.1).

Parking

Park-and-ride lots serve as an interface in the circulation system, and encourage the use of public transit. The State, County, and local municipalities, along with Metro-North Railroad, own and/or maintain an extensive system of more than 6,000 spaces serving buses, trains, carpools, and the Haverstraw ferry (see Figure 6.2). Some of the park-and-ride lots are shared-use facilities that serve commuters and other users. Both the County and the State DOT encourage this type of shared-use parking.

The County's goal is to continue to administer State DOT funds to municipalities that maintain park-and-ride facilities so they remain open to all users. Many park-and-ride lots are reaching capacity, and the County continues to look for opportunities to develop new spaces and to lease parking spaces from businesses with excess parking.

Figure 6.1: Road Map



Transportation

Rockland County Comprehensive Plan

Prepared By: Rockland County Planning, 2010
Source: Rockland County Planning

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Figure 6.2: Park & Ride Lots

Transportation

Rockland County Comprehensive Plan

Prepared By: Rockland County Planning, 2010
Source: Rockland County Department of Public Transportation

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Public Transit Bus System

Transport of Rockland (TOR), Rockland's intra-county bus service, provides seven main routes, and three circulator loops. The County also operates the TAPPAN ZEExpress (TZx) inter-county bus service. Both TOR and TZx are 100% ADA-compliant and include wheelchair lifts or ramps, a kneeling bus feature for easier boarding, automatic announcements for current and next-stop information, and easily visible route and destination signage. Both TOR and TZx offer reduced-fare options for seniors and residents with disabilities. These bus systems are funded with Federal, State, and local transportation funds. Funding for the operation of these services has been decreasing and finding new ways to keep high-level service without reduction of service will be a challenge for the County.

As shown on Figure 6.3, the greatest concentrations of Rockland's transit-dependent population, as identified by NYMTC's 200 report, *A Coordinated Public Transit-Human Services Transportation Plan for the NYMTC Region*, are in eastern Ramapo, eastern Haverstraw, and in Nyack and Suffern. The County uses these data to ensure that transit service is being provided to these areas. The Department of Public Transportation also uses this information in its Title VI report to the Federal Transit Administration (FTA). It should be noted that there are more than 8,000 households within Rockland County that have no vehicles available for personal use and whose inhabitants could be considered transit dependent as well.

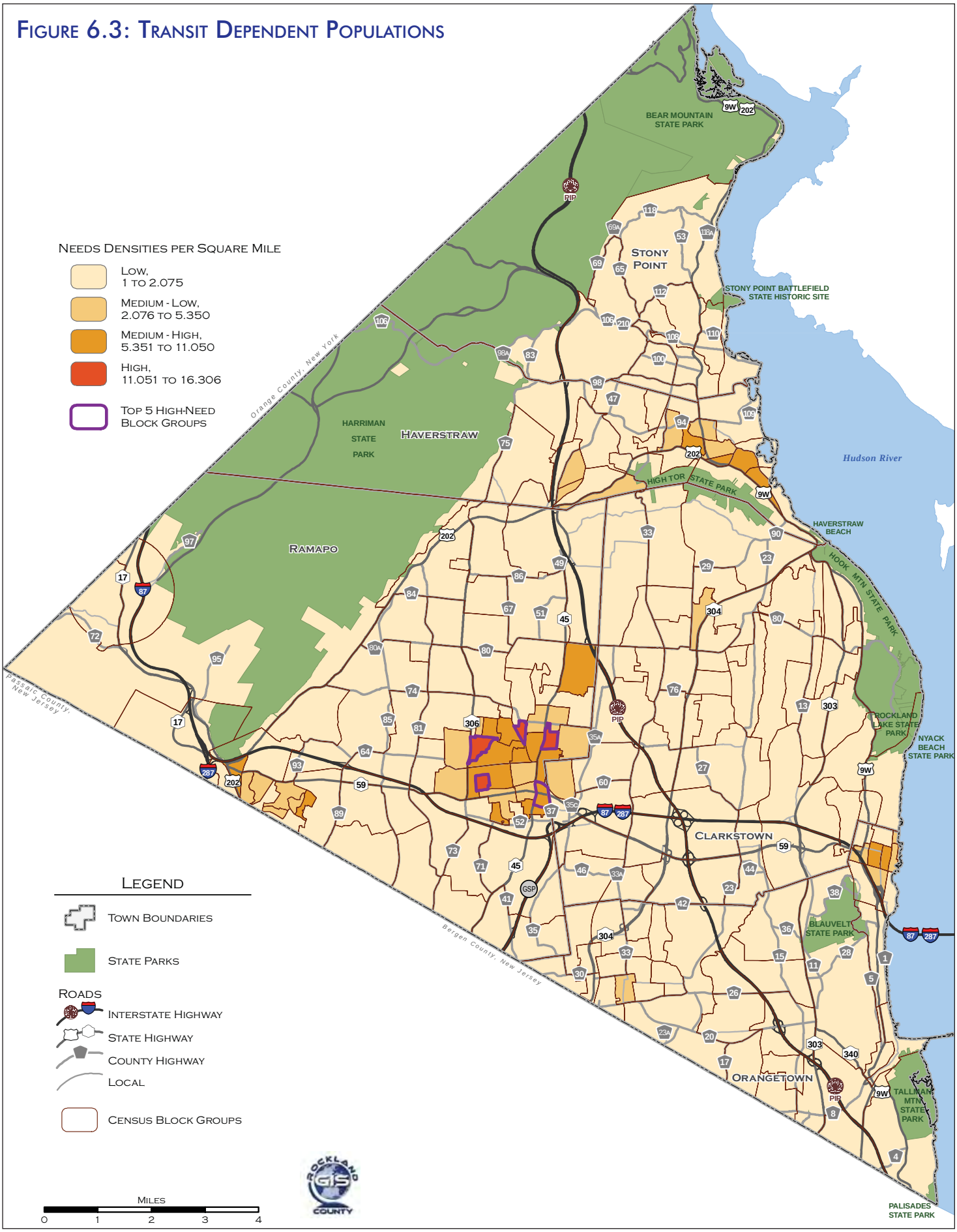
For commuters traveling beyond Rockland, the County provides the TZx commuter bus service to destinations in White Plains and the Tarrytown Rail Station in Westchester, where residents can connect with Metro-North Railroad to Grand Central Terminal in Manhattan. The TZx also provides reverse-commute service to Rockland from Westchester and the surrounding area. Rockland and Westchester Counties established a "Connections" program between the TZx and the Westchester Bee-Line in which commuters are provided with information on how the two services work together to connect riders with destinations throughout the region.

At the end of 2009, TOR introduced the County's first hybrid-electric buses into the TOR fleet, and Rockland plans to have its entire TOR and TZx fleets transitioned to hybrid-electric buses by 2016.

Other municipal bus services in Rockland include Clarkstown *Mini Trans*, which operates five local routes, and Spring Valley Jitney, which operates two routes. Both of these systems operate fully-accessible buses and offer reduced-fare options for seniors and residents with disabilities.

Private bus operators that serve Rockland include: Rockland Coaches (Red and Tan), Short Line, Monsey Trails, and Kaser Bus. These are primarily commuter lines between Rockland and New York City, but Red & Tan also allows intra-county trips (see Figures 6.4 and 6.5).

Figure 6.3: Transit Dependent Populations



Transportation

Rockland County Comprehensive Plan

Prepared By: Rockland County Planning, 2010
Source: NYMTC: A Coordinated Public Transit-Human Services Transportation Plan for the NYMTC Region, 2000

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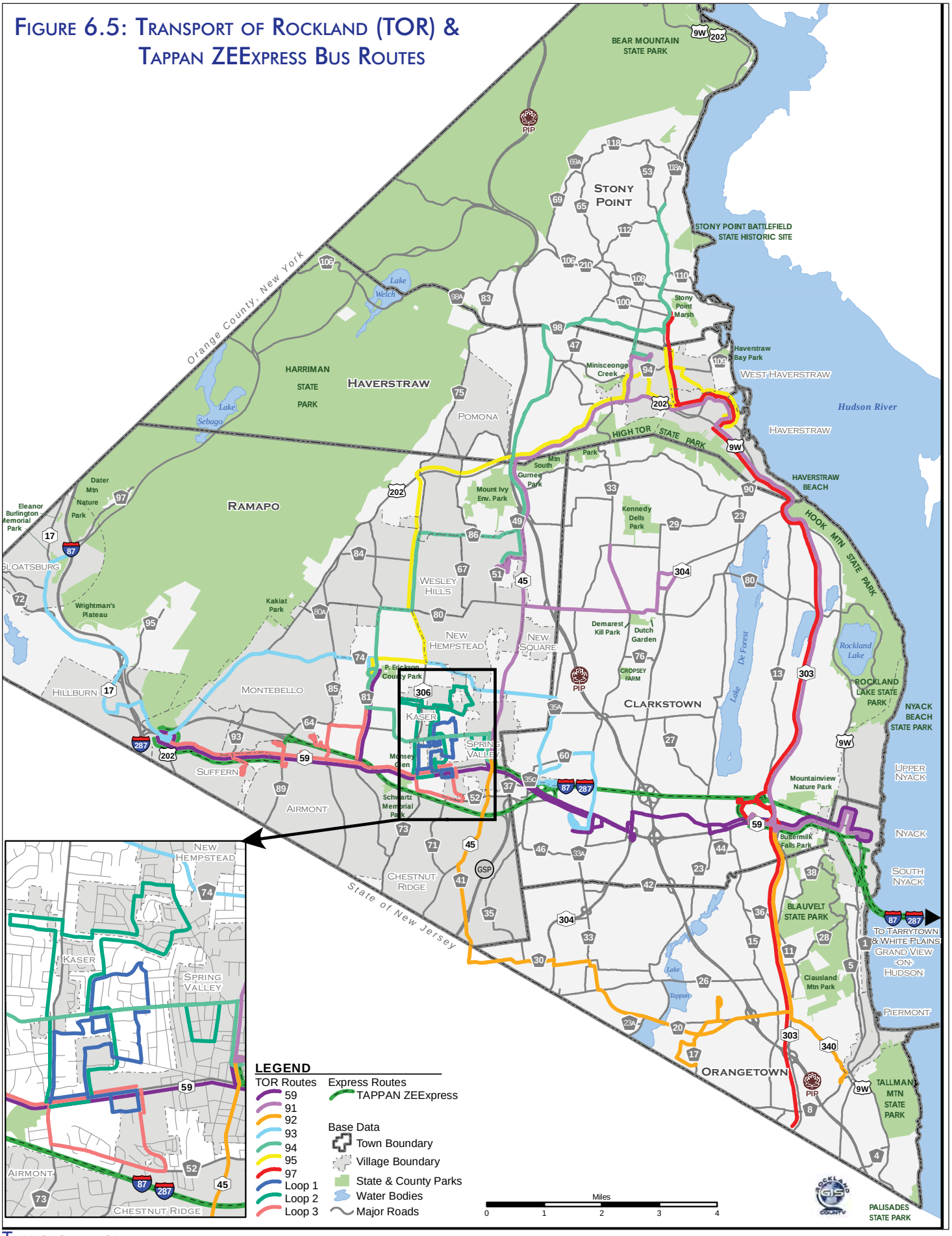
Figure 6.4: Private & Municipal Bus Operators

Transportation

Figure 6.5: Transport of Rockland (TOR) & Tappan ZEExpress Bus Routes



Transportation

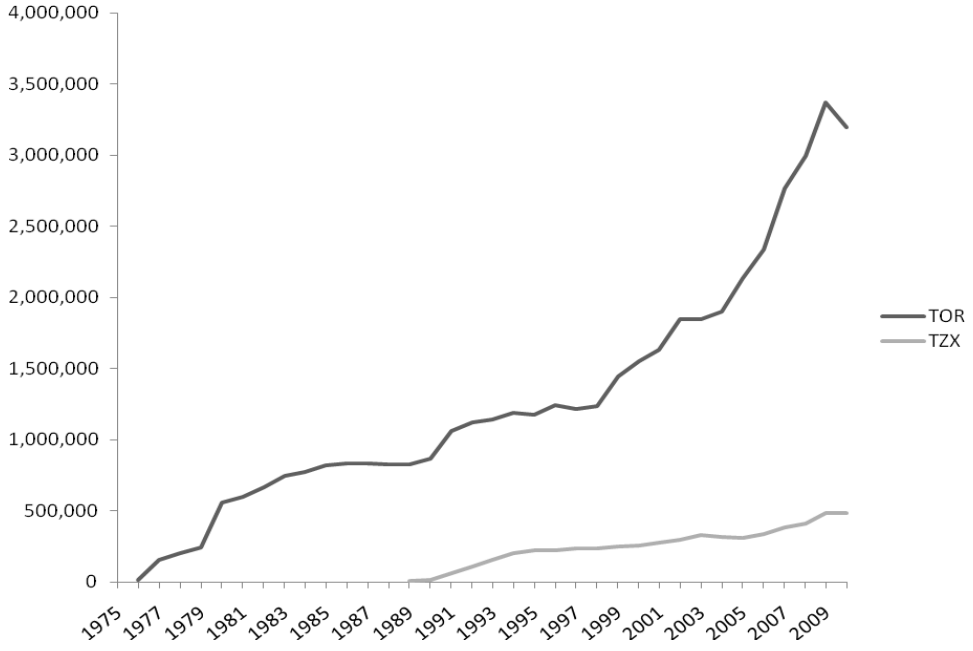
Annual bus ridership among the major bus lines for 2009 is depicted in Table 6.1. Bus ridership showed continuous growth through 2008, as indicated for TOR and TZX service in Chart 6.1. A combination of service enhancements and, to some extent, rising fuel costs contributed to the dramatic increase in ridership from 2004 to 2008. Since 2009, however, both TOR and TZx ridership has decreased, consistent with bus operations throughout the nation and reflective of the current economy.

Table 6.1: Rockland County Annual Bus Ridership, 2009

Service	*Riders*
TOR	3,193,365
TZX	480,391
T.R.I.P.S.	78,200
Clarkstown Mini-Trans	154,441
Spring Valley Jitney	32,827
Rockland Coaches	1,316,582
Short Line	309,458
Monsey Trails	468,741
Kaser	29,777
Total	**6,063,782**

Source: Rockland County Department of Public Transportation

Chart 6.1: Annual Ridership: Transport of Rockland (TOR) & TappanZEExpress (TZX)



Source: Rockland County Department of Public Transportation

Passenger Rail Service
There are two rail lines in Rockland that provide passenger service: the Port Jervis line and the Pascack Valley line. This passenger service is provided by Metro-North Railroad through an operating contract with New Jersey Transit.

The Main/Bergen/Port Jervis line connects Port Jervis in Orange County, New York, and Hoboken, New Jersey, and has two passenger stations within Rockland – Suffern and Sloatsburg. The Suffern station and Suffern Rail Yard are owned by NJ Transit. Travelers to New York City can transfer at Hoboken for PATH or ferry service, or at Secaucus for NJ Transit trains to Penn Station. While the Port Jervis line is used primarily for passengers, Norfolk Southern does operate freight. The Port Jervis Line is owned by Norfolk Southern and leased to Metro-North, which has been making improvements to that line.

The Suffern railroad station has the highest level of train service in the county, but the physical layout of the station, vehicle and pedestrian circulation, ADA access and parking could be improved. This issue has been somewhat mitigated by NJ Transit's new station on Route 17 in nearby Ramsey, which provides good highway access and abundant parking.

The Pascack Valley line connects Spring Valley and Hoboken and has three stations: Spring Valley, Nanuet, and Pearl River—as well as the Woodbine train yard in Spring Valley. It is owned and operated by NJ Transit, with funding from Metro-North. Travelers to New York City can transfer at Hoboken for PATH or ferry service, or at Secaucus for NJ Transit trains to Penn Station NY (see Figure 6.6).

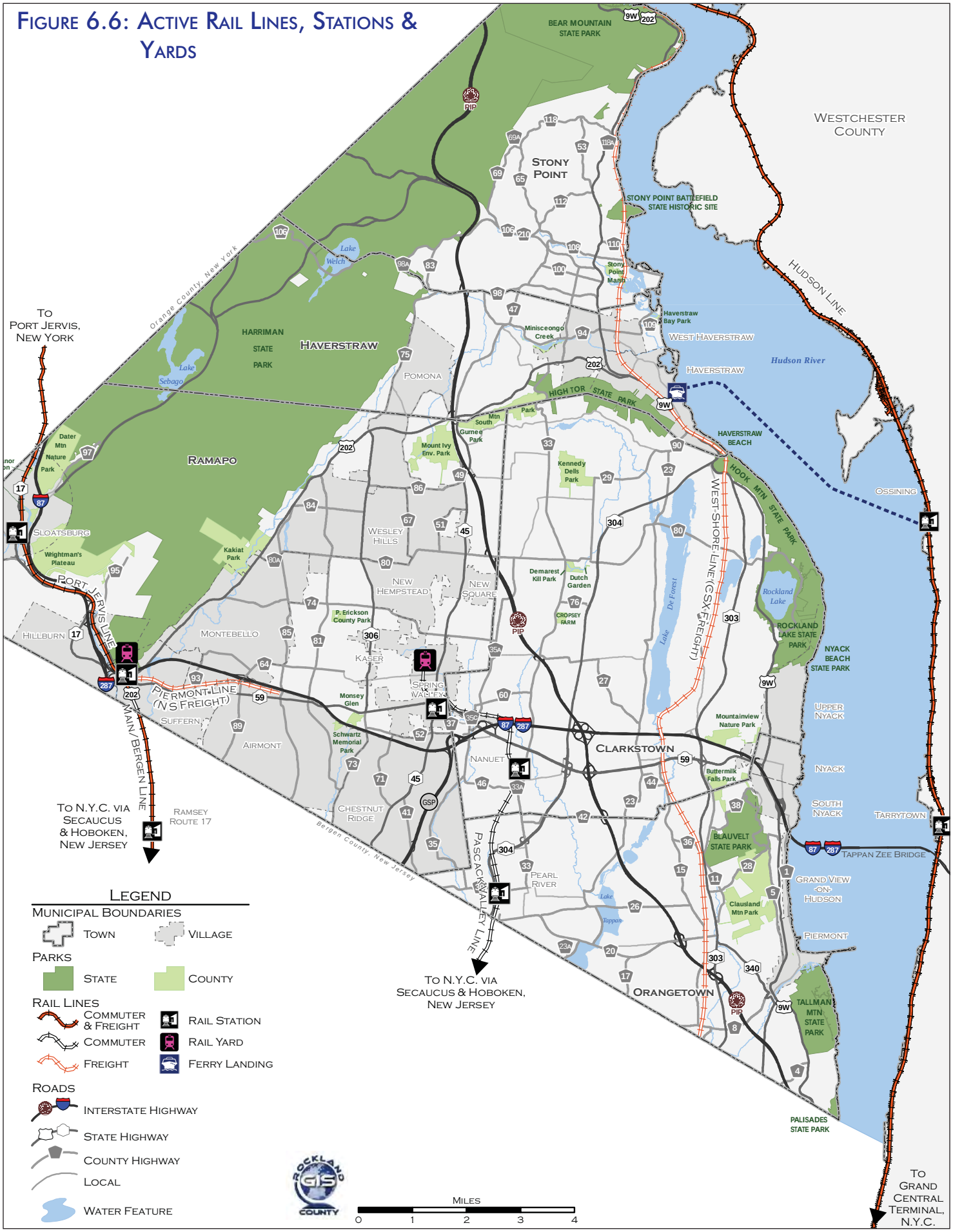
The Pascack Valley line is constrained by a number of issues, including a mostly single-track alignment; a small rail yard; and a high number of at-grade crossings in New Jersey. NJ Transit and Metro-North have made some improvements to the line, including enhanced signaling and construction of new passing sidings. This line provides important rail service to Pearl River, Nanuet, and Spring Valley, and has a potential for enhanced future service.

Ferry Service
In addition to being one of the region's most valuable environmental assets, the Hudson River is also a key transportation corridor. New York Waterway operates weekday (a.m./p.m. peak only) ferry service on the Hudson River between Haverstraw and the Ossining Rail Station (see Figure 6.6). In Haverstraw there is a free park-and-ride lot to serve commuters using the ferry. Travel time between Haverstraw and Grand Central Terminal is approximately one hour and 10 minutes.

Paratransit
Rockland County has operated T.R.I.P.S. (Transportation Resources, Intracounty, for Physically disabled and Senior citizens) since 1978. T.R.I.P.S. provides a curbside-to–curbside, shared-ride, demand-response bus service for Rockland residents with physical or mental disabilities, or who are age 60 or older. Service is reserved for individuals who find regular, fixed-route bus service difficult or impossible to use. T.R.I.P.S. encourages all of its eligible riders to use – whenever possible – the County's fully accessible, fixed-route TOR bus service or other fixed-route services.

Demand for T.R.I.P.S. service has increased as Rockland's population has aged. Another reason for increased demand is that T.R.I.P.S offers a broader paratransit service than what is required under the Americans with Disabilities Act (ADA) of 1990. Because T.R.I.P.S. does not have eligibility requirements as stringent as other paratransit services around the country, a much larger portion of the county's population is eligible for regular (non-ADA) service.

Figure 6.6: Active Rail Lines, Stations & Yards



Transportation

Rockland County Comprehensive Plan

Prepared By: Rockland County Planning, 2010
Sources: Rockland County Department of Public Transportation; NYSDOT

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T.R.I.P.S uses a computer-assisted registration, dispatch, and scheduling system (CARDS) that has helped to maintain quality service and on-time performance in the face of increasing demand. This product uses the County GIS data to obtain more efficient routing of buses for passenger pickup/drop-offs. The County has also implemented an Intelligent Transportation System (ITS) component for T.R.I.P.S. that includes mobile data terminals and an automatic vehicle locator system.

A number of human services agencies and organizations also provide transportation for clients, including the Rockland County Departments of Social Services, Mental Health, Hospitals, and various not-for-profits. In addition, some municipalities and/or municipal senior centers also provide transportation for residents, a number of private ambulette services are operated within the County, and taxicabs are widely used.

6.2 Movement of People and Goods

Commutation

In 2009, the New York State Department of Motor Vehicles reported 205,880 registered drivers and 210,200 registered vehicles in Rockland County, 192,400 of which were passenger vehicles. According to the U.S. Census Bureau's American Community Survey (ACS) 2006-2008, 8.5% (8,071) of occupied households in the county had no vehicles available, while 60% had more than two vehicles.

More than 80% of Rockland residents rely on vehicular transportation for their journey to work, while 9% rely on mass transit (see Table 6.2). Of those relying on vehicular transportation, approximately 72% drive alone, while 10% carpool. Of those taking mass transit to work, only 2% of commuters take the train, and approximately 7% commute by bus. Some 3% walk or bike to work, and 4% reportedly work at home.[1]

Table 6.2: Rockland County, Means of Transportation to Work

	1990		2000		2006-2008	
Travel Mode	***Number***	***Percent***	***Number***	***Percent***	***Number***	***Percent***
Car, Truck or Van	116,662	87%	112,169	85%	111,267	82%
Drove Alone	98,967	74%	97,551	74%	83,997	72%
Carpooled	17,695	13%	14,618	11%	10,500	9%
Bus	6,369	5%	7,060	5%	9,854	7%
Rail	2,686	2%	2,775	2%	2,528	2%
Ferryboat	0	<1%	29	<1%	98	<1%
Taxi	370	<1%	982	<1%	1,150	<1%
Motorcycle	95	<1%	70	<1%	160	<1%
Bicycle	142	<1%	197	<1%	221	<1%
Walk	3,589	3%	3,659	3%	4,514	3%
Other	473	<1%	676	1%	772	1%
Work at home	3,371	3%	4,685	3%	5,992	4%
Totals	**133,757**	**100%**	**132,302**	**100%**	**136,556**	**100%**

Source: U.S. Census Bureau, 1990 and 2000; American Community Survey 2006-2008

[1]Journey to work data are based on the primary mode of travel to work and do not reflect trips consisting of multiple modes of travel.

Destinations

As shown on Table 6.3, approximately 58% of workers who reside in Rockland also work in the county. Another 27% of Rockland residents commute to jobs in another New York State county, while about 15% commute to jobs outside New York State. More specifically, according to the 2000 U.S. Census, 20% of Rockland residents commute to jobs in New York City, 10% commute to Bergen County, and 8% commute to Westchester County.

Table 6.3: Rockland County, Place of Work

Workers	2008
Worked in Rockland County	58.4%
Worked in Other NYS County	26.9%
Worked outside state of residence	14.7%

Source: American Community Survey, 2008

According to the 2008 ACS, nearly 72% of individuals employed in Rockland are also residents of the county. For individuals commuting to jobs in Rockland, 10% reside in Orange County, 6% reside in Bergen County, and 4% reside in Westchester County.

The U.S. Census defines travel time to work as the total number of minutes, door to door, that it takes a person to travel from home to place of work on a typical workday. As Table 6.4 depicts, nearly 55% of Rockland commuters arrive at work in less than 25 minutes; in 2000, about 50% of the population arrived at work in this amount of time. The number of Rockland residents reporting travel times exceeding 45 minutes has ranged, over the past decade, between 25% and 28%. The average travel time to work for Rockland residents, reported between 30 and 33 minutes, has remained roughly the same during the reporting years.

Table 6.4 Rockland County, Travel Time to Work

	2000	2006-2008
Time to Work	***Percent***	***Percent***
Less than 10 minutes	12%	13%
10 to 24 minutes	38%	41%
25 to 34 minutes	14%	14%
35 to 44 minutes	7%	6%
45 to 59 minutes	10%	9%
More than one hour	18%	16%
Mean travel time to work (minutes)	**33**	**30**

Source: U.S. Census Bureau, 2000; American Community Survey 2006-2008

Origins and destinations within Rockland are distributed throughout the county; however, some locations are concentrated enough to support public transportation. As discussed in **Chapter 11.0: *Economic Development***, employment is distributed throughout Rockland, but is concentrated in the southern and eastern portions of the county. Some of the larger employers, including Avon and the Palisades Mall, are on the Route 59 corridor. Pearl River hosts Pfizer and the Blue Hill Plaza office center. There are also intermediate destinations, such as the intermodal station in Spring Valley, where travelers can transfer between transportation modes.

Freight

According to the New York Metropolitan Transportation Council (NYMTC) the amount of products and materials coming into and out of the region is expected to increase a total of 47% in the next 25 years. The NYMTC Regional Freight Plan (2004) shows that 95% of all freight transported in Rockland County is shipped by trucks; the balance is shipped by rail and water.

Most trucks traveling within Rockland have one of four purposes: 1) delivering consumer goods to retail and service establishments, 2) moving raw materials and finished products to and from industrial and manufacturing facilities, 3) providing public services like utilities and communications, and 4) disposing of waste from homes and businesses. Efficient truck circulation is required for these activities to function economically, especially for businesses that keep lean inventories and rely on timely deliveries.

The major freight rail line is the West Shore line operated by CSX Transportation (see Figure 6.6). The West Shore line extends between New Jersey and Selkirk, New York. Freight volume has grown substantially since CSX Transportation acquired Conrail. Rail freight is important to alleviating regional truck traffic, but it disrupts traffic in some Rockland communities, delays emergency responders, and decreases quality of life from train horns. The County is the lead agency for the *Railroad Crossing Safety Improvement & Quiet Zone* project, which will implement supplemental safety measures (SSM) at highway-rail grade crossings on the West Shore Line. These safety improvements will enhance pedestrian and motorist safety. Moreover, the project will enable Rockland County to proceed with the implementation of "Quiet Zones," where sounding train horns at railroad crossings will be prohibited. This project will be the first Quiet Zone in New York State.

Norfolk Southern operates rail freight on the Main/Bergen/Port Jervis Line through Suffern and Sloatsburg, as well as limited freight movements on the western portion of the Piermont Line.

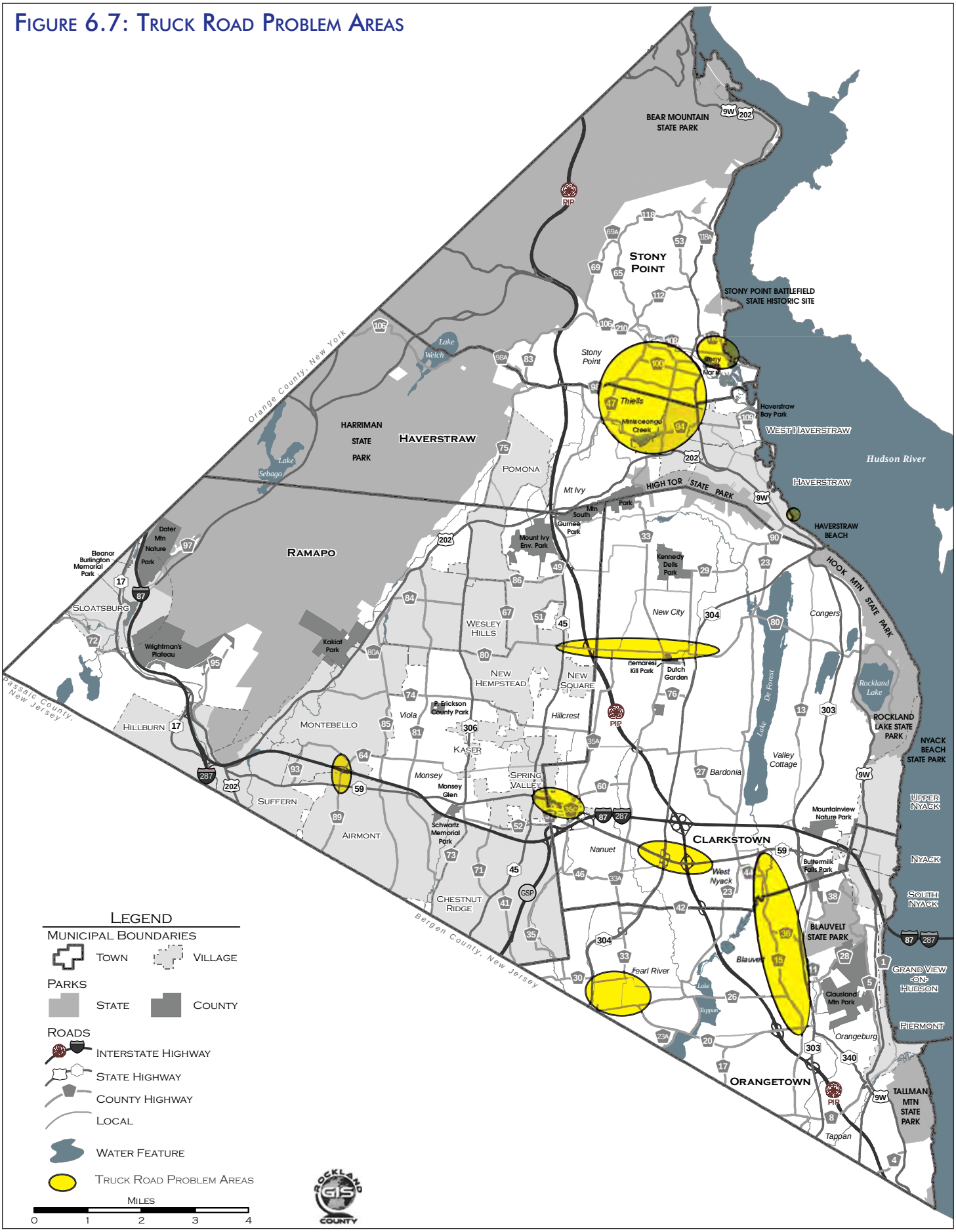
As discussed above, the Hudson River is a major transportation corridor for the Hudson Valley region. Although there is significant commercial shipping on the Hudson, shipping to or from Rockland County is limited and serves three facilities: oil delivery to a power plant in Haverstraw and materials shipping from two Tilcon quarries – Haverstraw and Stony Point.

Rockland County undertook the Rockland County Truck Movement Study in 2006 to determine how the truck circulation system in the county might be improved. The study found that "(1) an identifiable freight network is lacking in Rockland County, (2) there are few available options for east-west travel across the county for all traffic, including trucks, and (3) economic and population growth have resulted in conflicting land uses being developed in close proximity."[2]

Examining truck travel patterns in Rockland, the study identified nine problem areas for truck movement. These locations, shown on Figure 6.7, generally suffered from truck traffic impacts on the environment or community or physical and safety issues that limit route options for trucks. The study also examined alternative routes for several locations in the county, recommended a truck route network, and identified steps to implement the network (see Figure 6.8). Recommendations included a truck signage program; interagency cooperation with State, municipal, and neighboring jurisdictions; outreach and education with community groups, the trucking industry, and law enforcement; and a set of capital projects to improve vehicular and pedestrian safety of the roadways.

[2] http://www.co.rockland.ny.us/highway/truckmovementstudy/truckstudy.htm

Figure 6.7: Truck Road Problem Areas



Transportation

Figure 6.8: Recommended Truck Routes Map

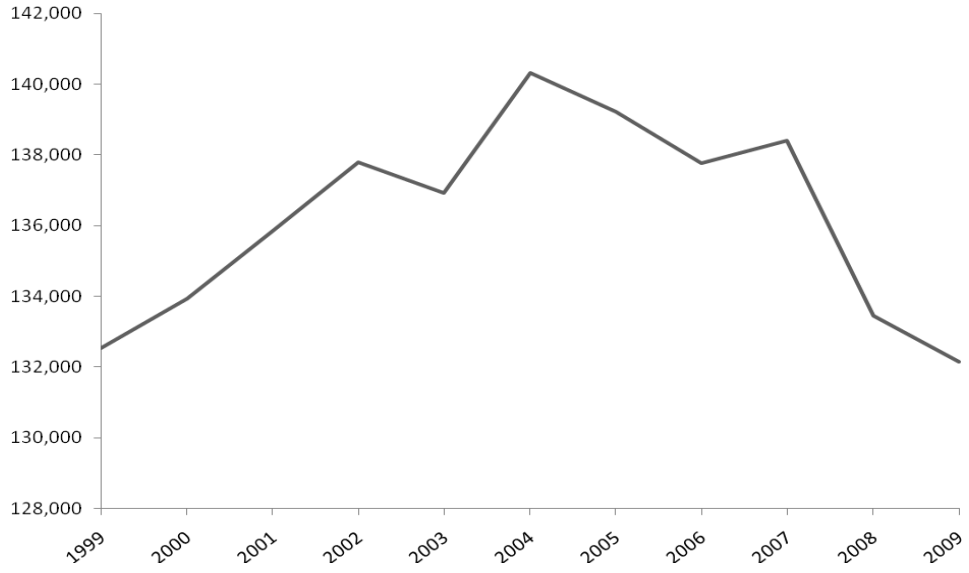
Transportation

6.3 Traffic Volume

The New York State Department of Transportation maintains the Average Annual Daily Traffic (AADT) statistics for the principal arterials and limited access highways serving Rockland County. AADT measures the average flow of traffic on an average day, for all lanes in both directions. Figure 6.9 provides the 2007 AADT for eight principal arterials in Rockland. As depicted, traffic volumes ranged from a low of approximately 6,400 vehicles per day to a high of approximately 145,600. AADT levels were highest on I-87/287 from the Tappan Zee Bridge to the NYS Route 17 interchange in Suffern, ranging from 105,000 between Airmont Road and Route 17 (exits 14B and 15A) to 130,000 to 145,000 between the Garden State Parkway extension and the Tappan Zee Bridge. The Palisades Interstate Parkway between the New Jersey state line and Route 202 carried the second-highest traffic volumes, ranging from 50,000 between the state line and Route 303 (exit 5) and 82,000 between Route 59 (exit 8) and I-87/287 (exit 9). These are the two limited access highways in Rockland County, and both currently operate above capacity.

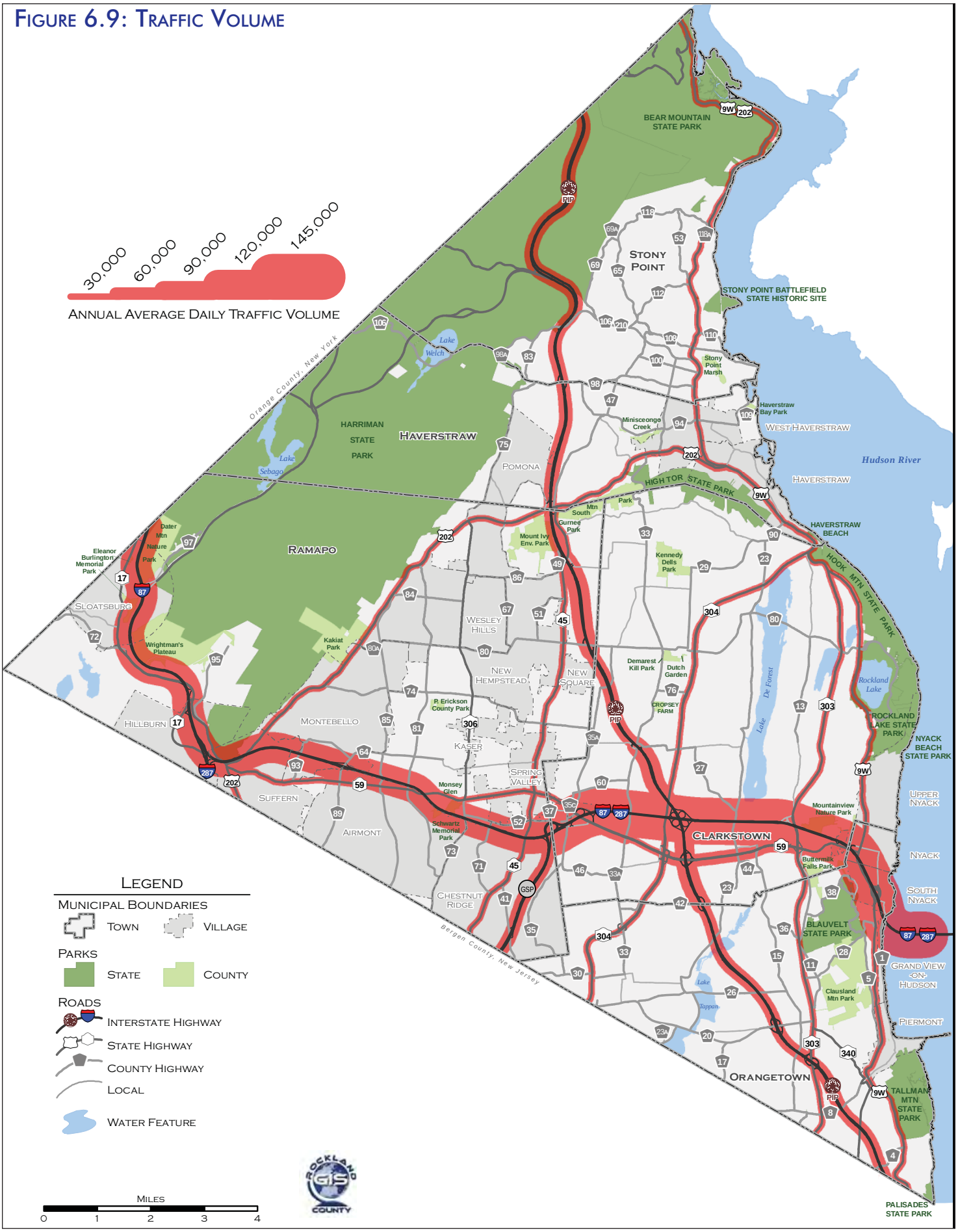
Average daily traffic on the Tappan Zee Bridge showed a steady increase between 1999 and 2002, rising to nearly 138,000 vehicles per day from approximately 132,500. Following a moderate one-year decline in 2002, traffic spiked to more than 140,000 vehicles per day in 2004 – the highest volume recorded between 1999 and 2009. Since then, traffic volume on the bridge, on the whole, has declined. As shown on Chart 6.2, the most pronounced decrease came in 2007, when bridge traffic dropped to approximately 133,500 vehicles per day from 138,000. This sharp decrease over the past three years is likely reflective of the onset of the 2007 financial crisis and ongoing job losses. It should be assumed, however, that a return to a prosperous national economy will impact traffic volume on the Tappan Zee Bridge and I-287. Planning for the future capacity and functioning of this primary regional highway, therefore, should take into consideration the potential for economic recovery and job growth and the resultant rise in the number of commuters using the bridge.

Chart 6.2: Tappan Zee Bridge Average Annual Daily Traffic, 1999 – 2009



Source: NYSDOT Highway Data Services Bureau

Figure 6.9: Traffic Volume



Transportation

Rockland County Comprehensive Plan

Prepared By: Rockland County Planning, 2010
Sources: NYSDOT; Rockland County Planning

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Roadway Safety

Rockland County Traffic and Safety Board

The Rockland County Traffic and Safety Board, operating under the auspices of the Rockland County Sheriff's Department, is empowered to:

- Promote and encourage street and highway traffic safety
- Formulate countywide highway safety programs and coordinate efforts of interested parties and agencies engaged in traffic safety education
- Cooperate with local officials in formulating and executing traffic safety programs and activities
- Study traffic conditions on streets and highways within the county; analyze accident reports and causes; and recommend to the appropriate legislative bodies, departments, or commissions changes in rules, orders, regulations, and existing laws
- Hold meetings with public/private entities on traffic regulation, control, and safety education
- Promote safety education for drivers and pedestrians
- Obtain and analyze motor vehicle accident data for educational and informational purposes.

From 2006 through 2009, 11 highway locations were reported in Rockland County that met Federal Highway Administration severe safety needs criteria, according to the 2008-2009 NYS DOT Five Percent Report. As shown on Figure 6.10, eight of the 11 locations were located on Route 59. Of these eight locations, three were cited in at least two consecutive years: Route 59 between Ternure Avenue and South Central Avenue in Ramapo, Route 59 between I-87 and Grandview Avenue in Clarkstown, and Route 59 between Robert Pitt Drive and South Cole Avenue in Ramapo. The Town of Clarkstown has expressed concern that the two locations on Route 59 within Clarkstown that meet the FHWA severe safety needs criteria are also areas proposed for transit stations as part of the I-287/Tappan Zee Bridge project. These areas should be further studied, as the addition of transit stations could affect current safety issues in those locations. The NYS DOT's Five Percent Report also sets forth potential remedies, estimated costs of these remedies, and any known impediments to mitigation implementation.[3]

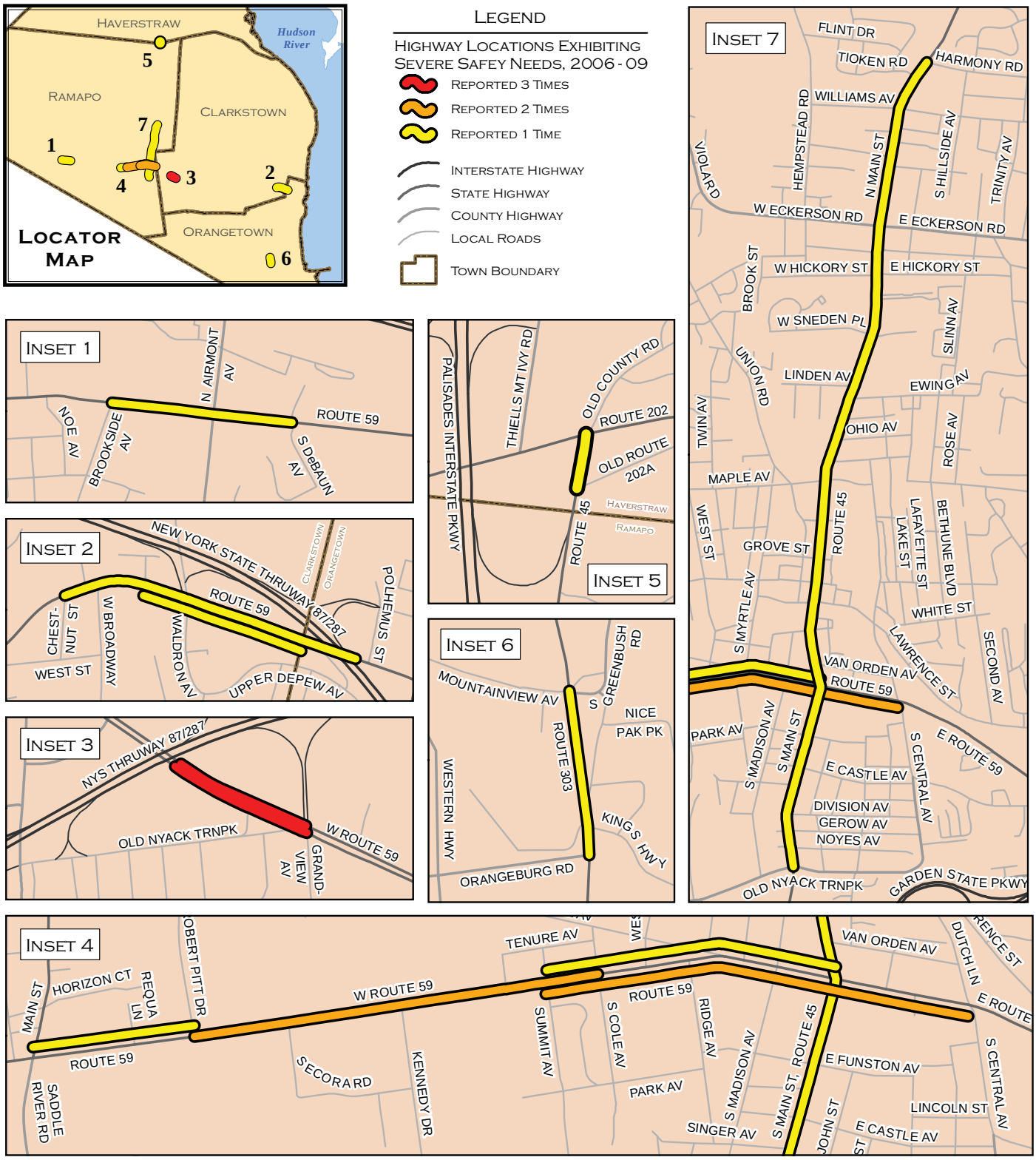
Road Safety Audits

A Road Safety Audit (RSA) is "the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users."[4] Unlike traditional road safety review processes, an RSA is carried out by a third party that is unaffiliated with the project design team. RSAs take into consideration the needs of all road users and have proven to be effective in mitigating unsafe roadway conditions. The County should work with municipalities to coordinate efforts to ensure RSAs are conducted in areas of concern throughout Rockland.

[3] http://safety.fhwa.dot.gov/hsip/fivepercent

[4] http://safety.fhwa.dot.gov/rsa

Figure 6.10: Locations Exhibiting Severe Safety Needs



6.4 Past and Current Initiatives

I-287/Tappan Zee Corridor Project

The capacity and functioning of the Tappan Zee Bridge/I-287 corridor will be a critical transportation issue for Rockland in the coming decades. If these regional roadways do not function properly, there can be several adverse impacts on the county. In response to these concerns, the New York State Department of Transportation, the Metropolitan Transportation Authority/Metro-North Railroad, and the New York State Thruway Authority undertook this joint effort in 2001 to reduce traffic congestion on I-87/287 by studying transit alternatives including bus and rail transit. As summarized in the Transit Mode Selection Report (2009)[5], a set of alternatives addresses the transportation needs of the Tappan Zee Bridge/I-287 Corridor for the next century. The strategies explored – including bus rapid transit (BRT), commuter rail transit (CRT), and roadway improvements – are intended to ameliorate future traffic congestion levels along the I-87/287 corridor (see Figure 6.11).

Access to the Region's Core

Access to the Region's Core (ARC) is a project that, if completed, will add a rail tunnel under the Hudson River containing two new tracks between New Jersey and Midtown Manhattan. The initiative includes track connections in Secaucus that allow passenger trains – including some along the Port Jervis and Pascack Valley Lines serving Rockland – to operate directly to Midtown Manhattan. This service is expected for 2019. For the first time in the County's history of passenger rail service, commuting between Rockland and New York City will be via a one-seat ride[6] (see Figure 6.12). This project broke ground in 2009 but was halted by the State of New Jersey in October 2010 due to funding concerns.

West of Hudson Regional Transit Access

The West of Hudson Regional Transit Access study (WHRTAS) will recommend public transit improvements to serve Stewart International Airport, including a proposed rail link with the Port Jervis Line. The WHRTAS study thus plays an important role in preserving future right-of-way access to the airport[7] (see Figure 6.13).

West Shore Line

Passenger service was discontinued on the West Shore rail line some 50 years ago, and the line is now privately owned and operated by CSX Transportation for freight service only. In 2000, New Jersey Transit completed an alternatives analysis study to evaluate passenger service on the three rail lines: West Shore, Northern Branch, and NY Susquehanna & Western Corridors. A determination was made that passenger rail service could not share the West Shore line under the current single track configuration and the growing rail freight operations. Therefore, NJ Transit moved forward with a project for light rail on the Northern Branch as far north as Tenafly. In the future, it might be possible to extend the light rail service into Rockland on the Northern Branch[8].

[5] http://www.tzbsite.com
[6] http://www.arctunnel.com/
[7] http://www.mta.info/mta/planning/whrtas
[8] http://www.northernbranchcorridor.com

Figure 6.11: Tappan Zee Bridge/I-287 Corridor Project - Study Area

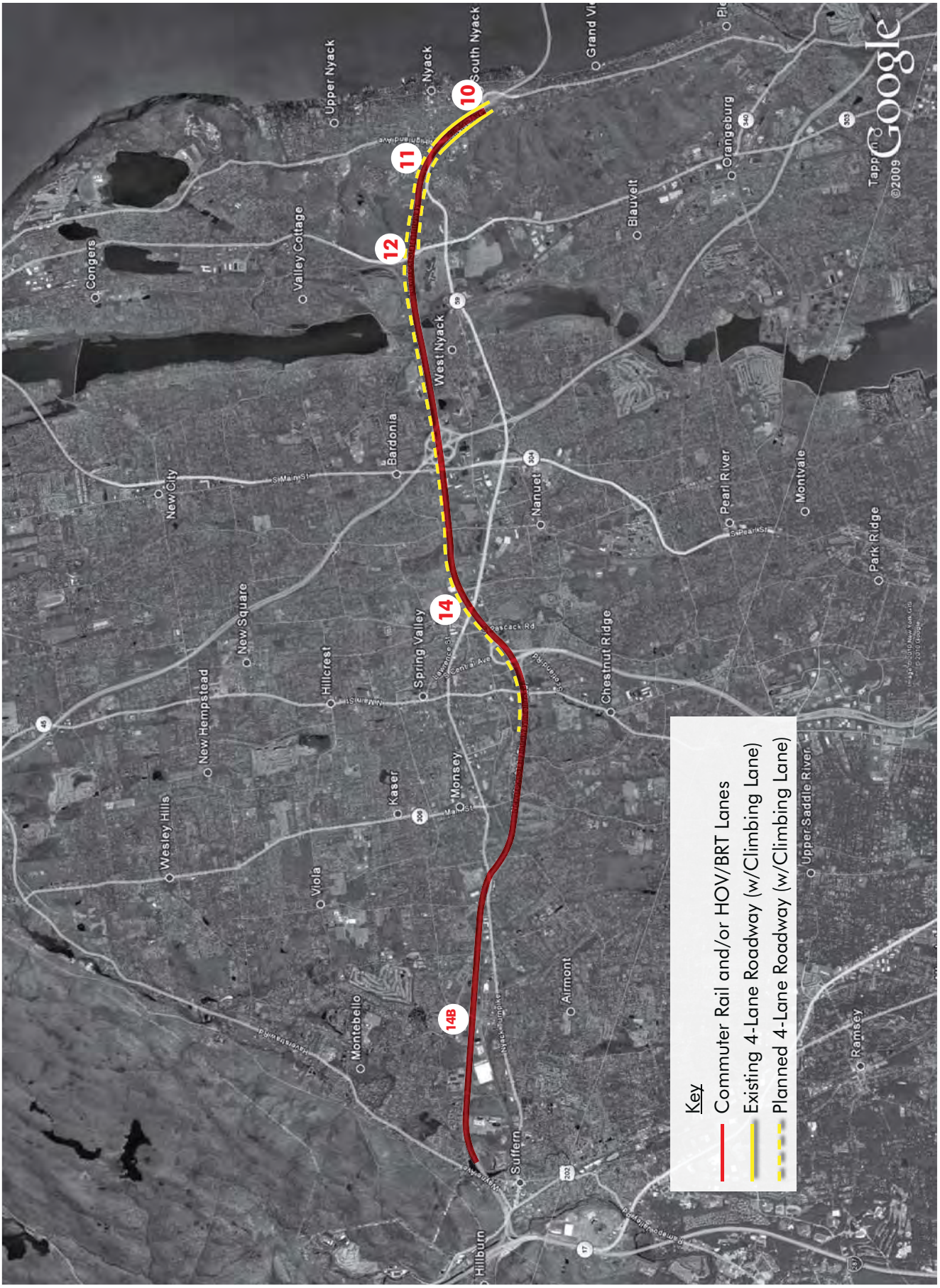


Figure 6.12: Access To The Region's Core (ARC) - Project Map

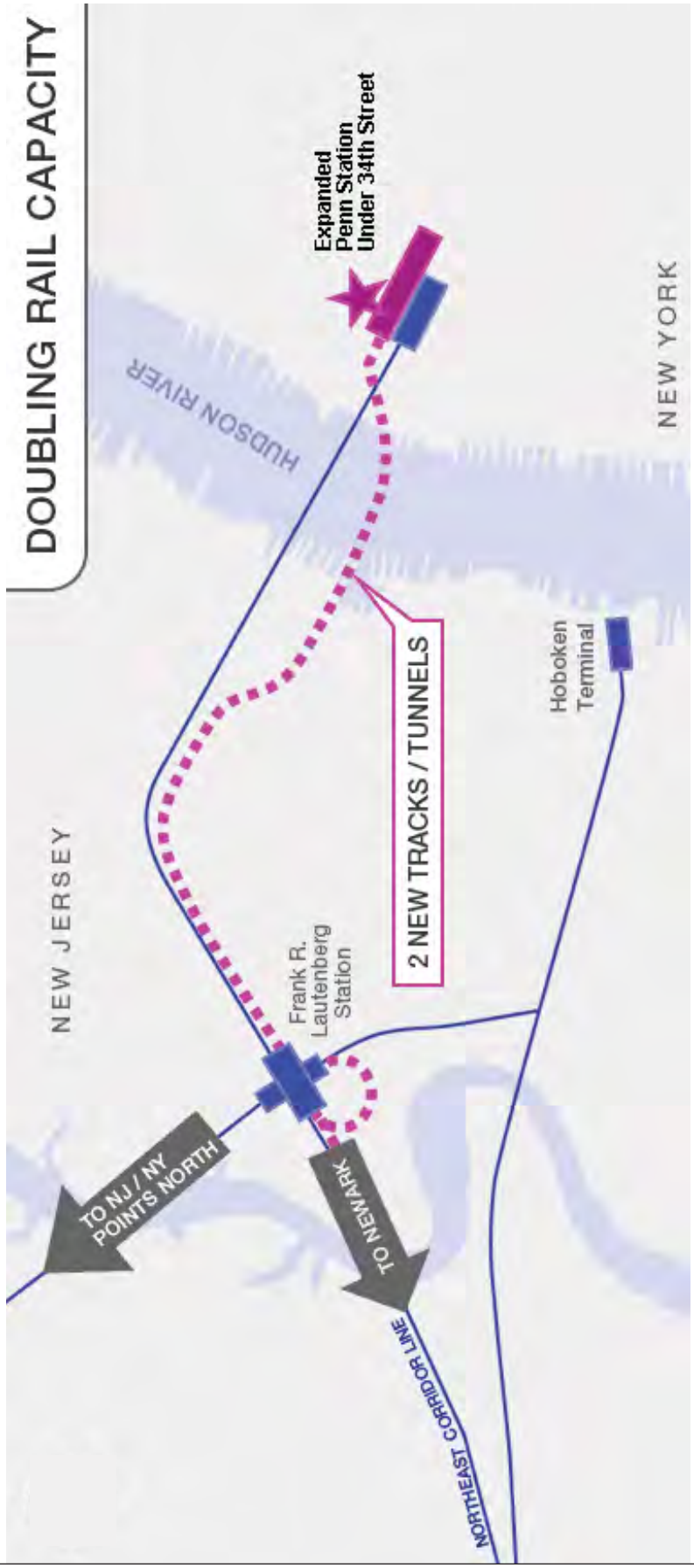


Figure 6.13: West of Hudson Regional Transit Access Study: Stewart International Airport Direct Rail Option

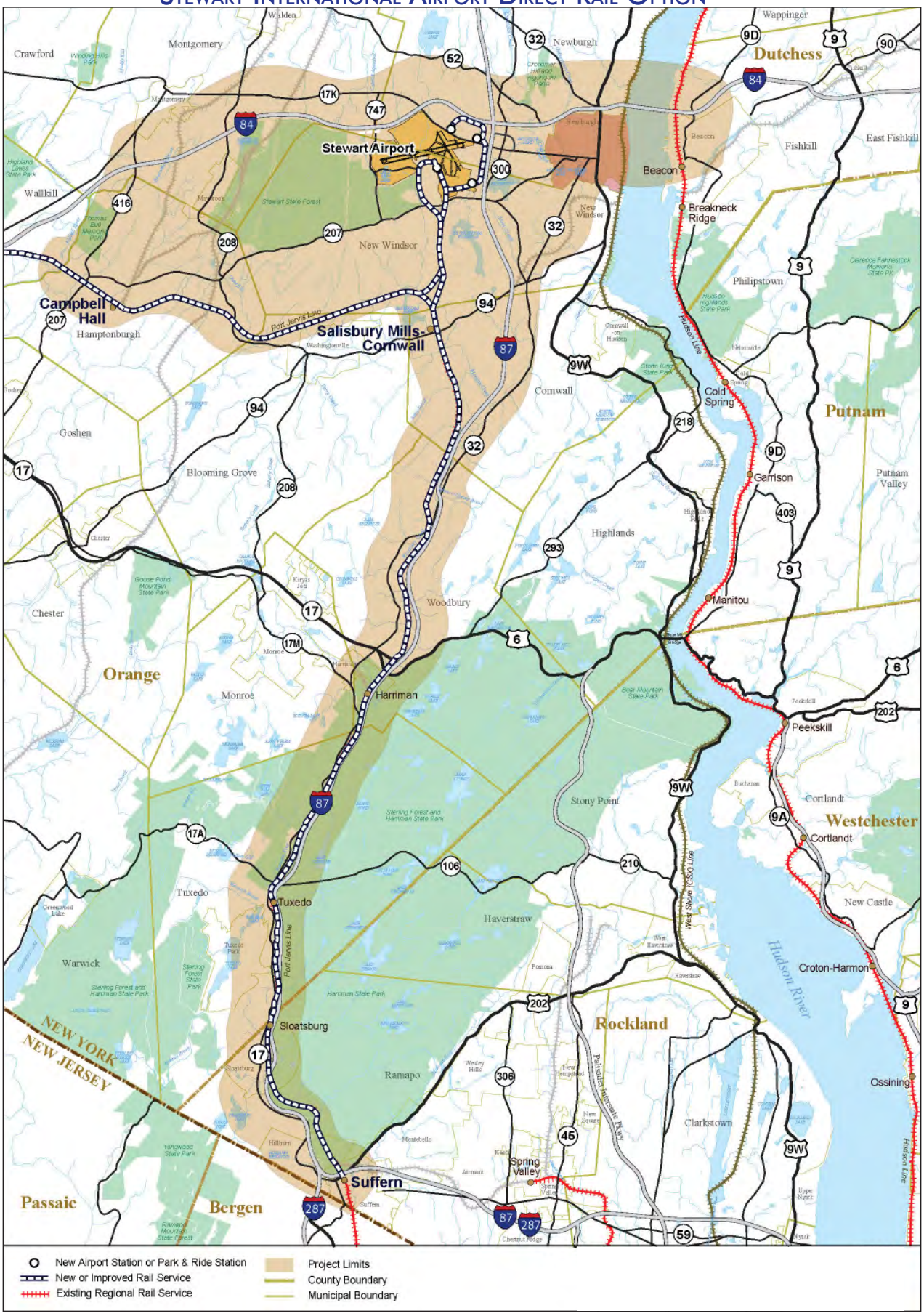


Figure 6.14: Active & Abandoned Rail Lines

Transportation

Transportation Demand Management (TDM) and Smart Commute Programs
The goal of Rockland County's Transportation Demand Management and Smart Commute programs is to improve mobility and access, reduce congestion and air pollution, and increase safety. These programs, which receive limited State and Federal funding, work to reduce drive-alone travel by promoting walking, bicycling, carpooling, public transportation and other options. Rockland works closely with seniors, businesses, and institutions throughout the county, as well as with neighboring Bergen, Orange, and Westchester Counties. By offering financial incentives and promotional programs, employers can have a significant influence on the commuting behavior of their employees. On a broader scale, the TDM/Smart Commute office encourages alternative mode use by all those who live and work in Rockland. The office also works with MetroPool and encourages use of web-based applications such as www.nuride.com, which rewards commuters who ride-share.

Mid-Hudson South Region Bicycle and Pedestrian Master Plan
Rockland County joined with Westchester and Putnam Counties to participate in NYMTC's local and regional plan to develop a safe, efficient and comprehensive regional bicycle and pedestrian network. Launched in 1999, the *Mid-Hudson South Region Bicycle and Pedestrian Master Plan* formulates a vision for including – as an integral part of the region's overall transportation network – bicycle and pedestrian accommodations that will both enhance and expand existing facilities. The plan identifies a total of 22 locations in Rockland as "feasible to develop bicycle and pedestrian facilities that could serve as viable alternative means of transportation."[9] Pedestrian-oriented initiatives include the construction of new sidewalks in underserved areas, repairing poorly-maintained sidewalks, and improving connectivity within the sidewalk system. New bicycle and multi-use facilities will expand the county's network and provide new linkages to public transit nodes, commercial centers and recreational facilities. A full inventory of proposed bicycle, pedestrian, and multi-use locations in Rockland is available in the complete report.

Rockland County Official Map of County Roads
Rockland County is in the process of updating its official map of County Roads – Part I of Rockland County's Official Maps. (Part II is County Streams, and Part III is Greenways/Parks/County Facilities.) The County Roads map indicates those roads that are the responsibility of the County, and the designated or intended width of their rights-of-way. The goal of the ongoing updates is to simplify the number of right-of-way classifications from seven (ranging in width from 33 feet to 105 feet) to five (ranging from 50 feet to 105 feet), and to provide greater uniformity including consistency of widths at jurisdictional boundaries. The map is intended to be an accurate and conveniently available electronic document that can be used by local and county planners reviewing development proposals. Updating the official map of County Roads will also add rights-of-way that have already been adopted and remove roadways that have been returned to local jurisdiction. Other recommended road additions and deletions can be reviewed based on the following goals and objectives of the County:

- County roads should serve movement of traffic throughout Rockland
- County roads should be continuous with State or other County roads
- Future County roads generally should have a minimum daily volume of traffic of 3,000 vehicles
- Roads reduced to a lesser function by bypass roads should be deleted from the County system
- Proposed roads should be indicated on the map
- Future roads serving State Parks should be State roads
- Major roads providing access to County facilities should be County roads.

[9] http://www.co.rockland.ny.us/planning/landuse/bikeped.htm

6.5 Issues & Recommendations

Recommendation #1: Ensure that Necessary Funding is Secured for Replacement of the Tappan Zee Bridge

The capacity and functioning of the Tappan Zee Bridge and I-87/287 is the single-most significant transportation issue facing Rockland County. If this major regional corridor does not function properly, a number of severe adverse impacts are anticipated. Traffic congestion is directly associated with higher crash rates, wasted fuel, increased air pollution, and increased cost of doing business in the region.

As the critical transportation link between Rockland and Westchester Counties, the replacement of the Tappan Zee Bridge itself, and the funding required for that replacement, must be given highest priority in plans for the final public transit and vehicular lane configuration. Rockland County should work with State, regional, and Federal officials to secure necessary financing for replacement of a bridge that is "BRT ready," and is designed for commuter rail, should that transit option be available in the future. This will ensure that both counties stand to benefit from public transit immediately after opening. The financial feasibility of a new bridge is complicated and uncertain at this time. Political leadership will be needed to make sure this project obtains funding from as many sources as possible, including: NYSDOT, Thruway Authority, Metro-North Railroad, Federal Highway Administration, Federal Transit Administration, and perhaps a public-private partnership. The impact of the Tappan Zee Corridor project on local community character must be fully studied and addressed.

Recommendation #2: Support Bus Rapid Transit and High-Occupancy Vehicle Lanes in the Tappan Zee Bridge/I-287 Corridor

In response to the challenges facing Rockland County and the region, the Tappan Zee Bridge/I-87/287 Corridor Study proposes to reduce traffic congestion on I-87/287 primarily by proposing transit alternatives and lane reconfiguration (see Figure 6.11). As summarized in the Transit Mode Selection Report (2009), a program of alternatives addresses the capacity needs of the Corridor for the next century. For example, one alternative set forth in the report proposes bus rapid transit (BRT) service and High Occupancy Vehicle (HOV) lanes from Suffern to Port Chester. Under this scenario, buses would share a lane with high-occupancy vehicles or high occupancy/tolled vehicles (HOT). This is an effective approach to reducing traffic congestion. Allowing high-occupancy vehicles and rapid buses to share lanes would provide additional capacity for vehicles, while the transit option would help reduce private automobile trips. The flexibility of BRT serves long-term transportation needs as well. As commutation preferences and trends change, BRT and HOV lanes can be reconfigured to provide optimal capacity over time. Finally, in terms of cost, the BRT option appears to be the most fiscally responsible approach to ameliorating the corridor's traffic problems.

Recommendation #3: Support "Early-Action Projects" for the Tappan Zee Bridge/I-287 Corridor

Despite the recent decline in daily traffic volume on the Tappan Zee Bridge and I-287, congestion in this corridor remains an ongoing challenge. Assuming national economic recovery and future job growth, traffic in this corridor is anticipated to once again increase. While the Tappan Zee Bridge/I-287 Corridor project intends to address the future transportation needs of the bridge and interstate highway, a start date, at this time, remains uncertain. In the meantime, there are a number of "early action projects" that should be implemented to help alleviate existing traffic congestion, as well as mitigate potential future increases in congestion and the land use impact on the adjacent communities of the bridge corridor itself. The County should support such actions, including:

- Enhance TZx bus service with additional funding for capital, schedule, marketing, and off-peak/weekend service. Work with Westchester County Bee-Line to provide shuttle buses to/from corporate parks and other major employment destinations.

- Improve Intelligent Transportation System (ITS) in the corridor. Enhancing real time traffic information for drivers and transportation agencies.

- Improve park-and-ride lots outside the I-287 corridor to help reduce the number of single-occupancy vehicles and traffic passing through Rockland County.

- Examine the feasibility of a fifth lane on the Tappan Zee Bridge (peak direction) as an exclusive BUS/HOT/HOV lane.

- Examine the feasibility of allowing "buses in the shoulder," a traffic management tool used in several other states which allows buses to use shoulders on arterial roads or highways to bypass congestion, at the approach to the Tappan Zee Bridge.

- Examine the feasibility of a direct bus connection – including "slip ramps" for TZx buses traveling across the Tappan Zee Bridge to provide more efficient service to the Tarrytown Metro-North rail station.

- Have the Thruway Authority increase marketing and use of EZ Pass to improve mobility for commuters during peak travel times, as well as for weekend users and holiday travelers.

- Enhance existing Haverstraw-Ossining ferry with mid-day and weekend service to help relieve vehicular traffic on Hudson River crossings.

- Improve bus travel times along Route 59.

- Study ways to reduce truck traffic in the I-287 corridor, especially during peak a.m. and p.m. travel times. Identify ways to divert New England-bound truck traffic north, toward I-87 and I-84.

Recommendation #4: Advocate for Improved Service along the Pascack Valley and Port Jervis Rail Lines

As discussed above, Access to the Region's Core (ARC) is a major regional transportation project that, if ultimately constructed, will add a rail tunnel containing two new tracks under the Hudson River between New Jersey and 34th Street in Manhattan. See Figure 6.12. The initiative includes track connections in Secaucus that allow passenger trains along the Port Jervis and Pascack Valley Lines to operate directly to Midtown Manhattan.[10] If this project proceeds, for the first time in the county's history of passenger rail service, commuting between Rockland and New York City will be via a one-seat ride. The ARC project, if built, presents an unparalleled opportunity for Rockland to enhance service along its existing passenger rail lines. The one-seat ride to Midtown will offer commuters a faster, more convenient trip and is expected to increase ridership levels on both lines in each direction.

[10]It should be noted that ARC will be used by other NJ Transit lines as well, which may limit the number of one-seat ride trains that can be operated from Rockland County.

Whether or not the ARC Tunnel becomes a reality, the County should take leadership in bringing New Jersey Transit and Metro-North together for the purpose of enhancing transit options such as afternoon, evening, and weekend train service to benefit Rockland residents. Rockland should aggressively support service improvements to both the Pascack Valley and Port Jervis lines. Short- and long-term plans with NJ Transit and Metro-North Railroad should be developed. Metro-North should be seeking improved service for these lines in light of the current value gap of service to Rockland residents. According to the MTA's 2008 Cost Benefit Analysis Report, Rockland County residents paid $88 million in taxes to the MTA, with a return of $46.5 million in MTA service and direct funding, leaving a value gap of approximately $42 million. The 2009 MTA Pay Roll Tax added approximately $18 million more annually to the value gap.

A secondary but by no means less significant issue related to the opening of ARC is the potential direct rail link to Stewart International Airport via the Port Jervis Line. As discussed above, the West of Hudson Regional Transit Access Study (WHRTA) is examining the feasibility of a rail connection between the airport and New York City. See Figure 6.13. The County should support long-term transit improvements to Stewart International Airport. To this end, Rockland should take the lead in encouraging intercounty cooperation and coordination with Bergen and Orange Counties, and work with its municipalities to ensure that, if the rail link initiative moves forward, the rights-of-way are preserved.

Recommendation #5: Expand and Improve Public Transit Bus Service

As discussed above, over the past three decades, there has been a steady rise in overall annual bus ridership levels on the major bus lines serving Rockland County. Over the same period, the County has made several improvements to its bus systems, including the addition of new routes and the enhancement of existing ones. Currently underway are County plans to institute an Intelligent Transportation System (ITS) for the TOR and TZx bus systems. This would include fixed-route computer-aided dispatching, real time automatic vehicle location, mobile data computers, improved automated voice and visual announcements, electronic fare collection, and automatic passenger counters. The County should support additional bus improvement initiatives, including:

- Continuing to pursue funding through the Federal Transit Administration (State of Good Repair) for ongoing maintenance of Rockland's existing transportation systems, as well as other Federal and State funding opportunities.
- Establishing fixed-bus stop facilities (Tier one through Tier three)
- On-going transition of fleets to clean, hybrid-electric technology
- Ensuring the County's "Bike on bus" policy and program advances, so that new buses continue to be equipped with bike racks
- On-going "Connections" program between TZx and Westchester's Bee-Line bus services
- Establishing rail station feeder shuttle bus routes to serve stations
- Universal Fare card for all transit providers in the region

Route 59 has approximately 35% of Rockland's commercial land parcels, including the Palisades Center Mall that is host to approximately two million square feet of retail stores. Route 59 is the County's primary commercial corridor, and a vital arterial to the I-87/287 corridor. Congestion at a number of locations along Route 59 contributes to bus service delays. For example, after westbound Route 59 crosses I-87/287 and starts climbing uphill towards Route 45 at Spring Valley, it narrows from six lanes to two. The reduction in westbound capacity can cause traffic to back up, particularly during peak hours. There is also congestion at the intersection of Route 59 and Airmont Road, and some of the traffic delay problems are attributed to the heavy volumes of vehicles using the interchange with I-87/287. The

County supports ongoing studies to improve bus flow efficiencies along Route 59 including the use of shoulders for buses and dedicated bus rapid transit (BRT) lanes.

As Rockland's major north-south arterial, the capacity and functioning of the Palisades Interstate Parkway is of critical importance to the County's circulation system. What is more, the success of the proposed public transit component in the Tappan Zee Bridge/I-287 Corridor is dependent on the adequacy of the County's north-south transit options. Public transit will be a less attractive option for commuters if access is limited or inconvenient. The County therefore should support studies that examine the feasibility of allowing "Clean Air/Hybrid" public transit buses to use certain portions of the Palisades during peak travel periods. Allowing public transit buses to use designated segments of the Parkway would (1) improve north-south transit options and thus strengthen the regional transit network as a whole and (2) help offset private vehicular traffic volume on the Parkway itself. Each bus could potentially eliminate 50 or more vehicles from the Parkway. Current public transit bus operations on the Taconic State Parkway demonstrate the feasibility of this option.[11]

Recommendation #6: Support Efforts to Improve the Arterial and Collector Roadway Systems

Nearly 90% of Rockland residents rely on public or private vehicular transportation for their journey to work.[12] Along with ongoing efforts to encourage alternative modes of transportation, the County should support efforts to improve the arterial and collector roadway systems in order to help alleviate traffic congestion and enhance safety for motorists and pedestrians. This can be accomplished by methods such as the continued use of Road Safety Audits (RSAs) for major improvement projects, as well as implementing various transportation planning strategies aimed at improving vehicular flow efficiencies, including intersection and turning lane improvements and better traffic signalization. Roadway improvements should also include beautification projects, where feasible.

In addition, the following strategies should be explored:

Access Management

Access Management is the "systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. It also involves roadway design applications, such as median treatments and auxiliary lanes, and the appropriate spacing of traffic signals."[13] The purpose of access management is to ensure that roadways function safely and efficiently while providing sufficient access to adjacent properties. Good access management reduces traffic congestion and improves safety for motorists, bicyclists, and pedestrians alike.

One key to access management is connecting adjacent properties (for example, a shopping strip) with driveways or service roads. This allows pedestrians and motorists to travel between two abutting parking areas without having to drive on the main road. These connections also allow the elimination of a number of ingress and egress points (curb cuts) from the main road to the adjacent properties, thereby reducing the number of turning movements and conflict points. The collective result is increased traffic flow along the main road, and a safer environment for motorists and pedestrians (see Figure 6.15).

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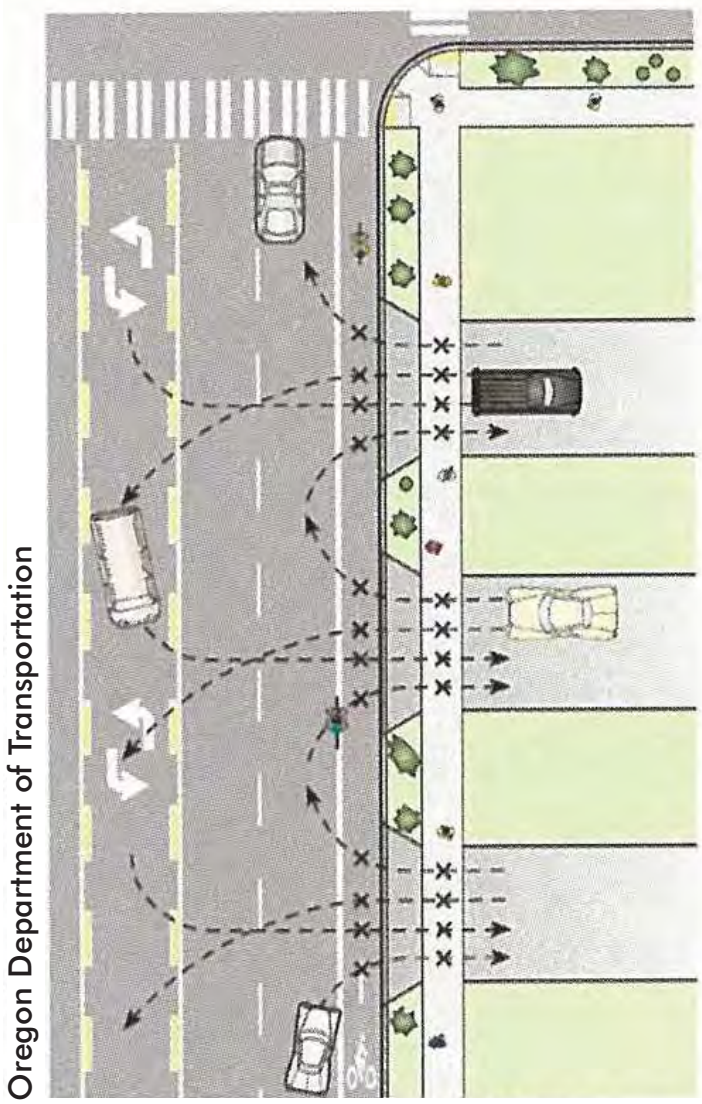
[11] Given its designation as a State Scenic Parkway, and its potential to be designated an "All American Byway," any effort to implement a public transit component on the Parkway should take into careful consideration its scenic, natural, historic, and archeological significance.

[12] Approximately 82% rely on a private vehicle, while about 7% use public buses.

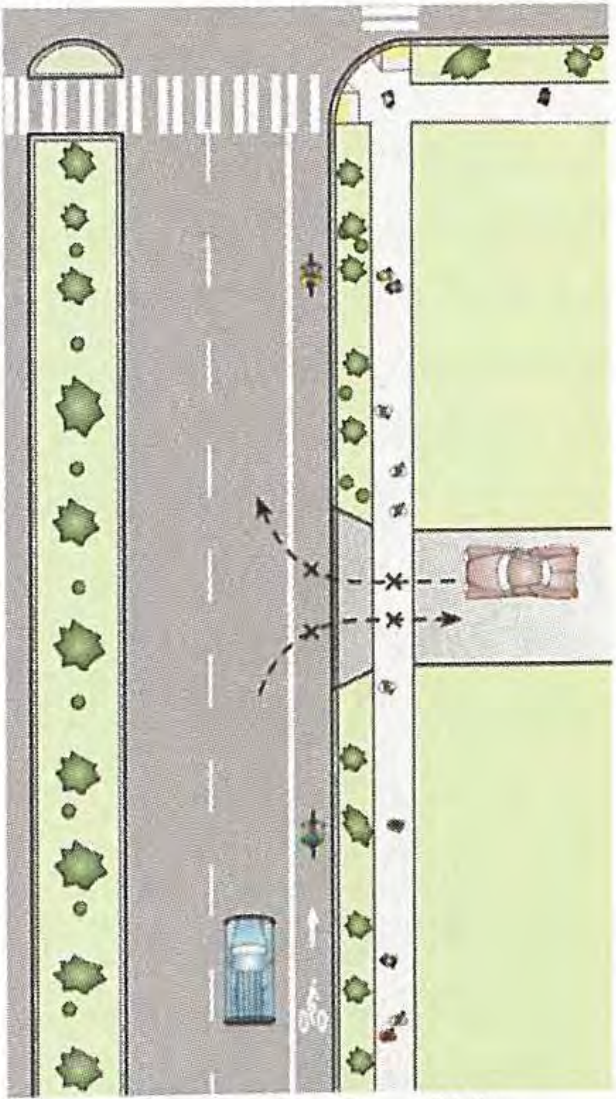
[13] Transportation Research Board, *Access Management Manual*, 2003.

Figure 6.15: Access Management



Oregon Department of Transportation

Uncontrolled accesses create 8 potential conflict points at every driveway.



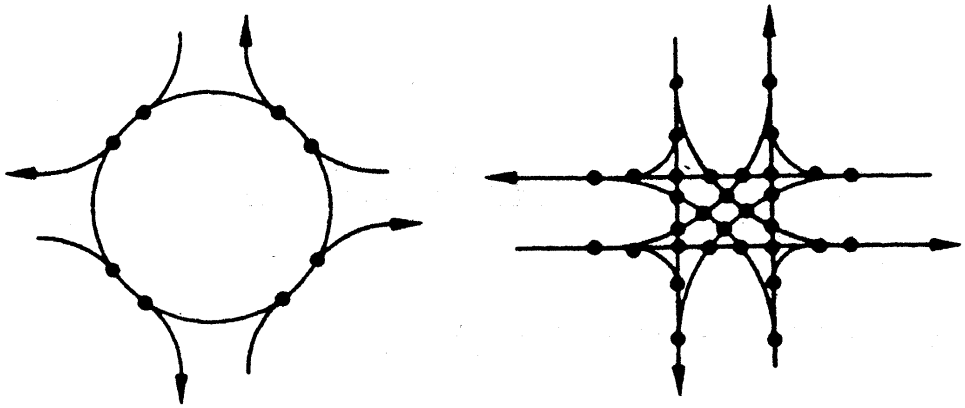
A raised median and consolidating driveways reduce conflict points.

Modern Roundabouts
The increased acceptance of modern roundabouts in the United States is due to two main factors:

1. Increased capacity and reduced vehicular delay
A higher degree of capacity can be achieved with the use of a modern roundabout. When greater capacity is required, relatively simple improvements can be implemented such as widening the entries to provide more than one entry lane, and widening the circulatory roadway.

2. Improved Safety
Roundabout design has consistently proven to be superior in safety to cross intersections. Reduced speeds alone make impacts less likely and less severe when they do occur. Driver error is less likely because the driver who enters the roundabout must be alert to only one traffic movement.

Figure 6.16: Safety Aspects of Roundabouts



Roundabout Intersection: 8 Conflict Points *Cross Intersection: 32 Conflict Points*

The most appropriate locations identified for successful roundabout construction include the following:

- High accident locations, especially those related to cross movements or turning movements.
- Locations with high delays (especially if there is limited space to accommodate lanes of waiting traffic).
- Locations where traffic signals are not warranted.
- Four-way stop sign intersections and five-legged intersections.
- Intersections where it is difficult or expensive to widen the approaches sufficiently to provide the approach width needed for signalized intersections. Roundabouts function well with narrow approaches.

Recommendation #7: Improve the Pedestrian and Bicycle Circulation System
Bicycle and pedestrian travel will be encouraged as a way to improve mobility while decreasing congestion within Rockland County. Pedestrians and bicyclists should be planned for and accommodated where appropriate on all State, County, and local roadways, particularly where opportunities exist to connect municipalities or isolated areas. New Federal transportation policy states that "Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation

systems."[14] To this end, the circulation system needs to be supplemented by an integrated system of pedestrian and bike paths that provide links allowing shorter, more direct, routes to destinations. For example, the new bicycle and pedestrian lanes on the proposed replacement Tappan Zee Bridge should be tied into existing pedestrian and bicycle trail networks in Rockland County, where possible.

It is important that bicyclists and pedestrians are safely accommodated on Rockland's street network. This requires that roads be designed to accommodate all users by using "complete street" design strategies. A complete street is one designed to accommodate all users regardless of transportation mode, age, or physical ability. Complete streets ensure that motorists, pedestrians, bicyclists, and public transit riders can all safely and conveniently use these public spaces. The concept takes into consideration how a right-of-way serves all potential users in a community. Complete streets are a critical component of a successful transit system in order to allow transit passengers safe and efficient access to the system, and municipalities are encouraged to adopt policies and regulations promoting this strategy as feasible. The success of complete streets also requires that all users of the roads – autos, bicyclists, and pedestrians – follow appropriate traffic rules. Municipalities are encouraged to educate road users about these rules, and adopt enforcement regulations as necessary.

The local road system in Rockland County includes some 421 dead-ends and 467 cul-de-sacs. Many of these discontinuities in the circulation system are adjacent to streams or railroads or limited access highways, which act as barriers. Where a bike or pedestrian path is established along a stream or in an abandoned rail line or along a limited access highway, there is an opportunity to link these dead-ends into a more complete and convenient network of circulation. Paths and trails along streams should ensure protection of important habitats by using pervious surfaces and ideally (based on the County Official Map, Part III) containing a 100-foot buffer on either side of the trailway, as topography and other ground conditions permit (**see Chapter 7.0: *Natural and Environmental Resources***). Also, as roadway projects – such as the Tappan Zee Bridge/I-287 Corridor Project – move forward, the County should work with project teams to ensure that design plans, where appropriate, include open space components that maintain continuity among existing natural environments.[15]

The County also should work with NYSDOT to implement pedestrian access improvement projects, including design for crosswalks and corresponding safety and traffic calming measures, and sidewalk improvements. Additional initiatives could include installing bike lockers and racks at all major transit stations, park-and-ride facilities, and employment centers. Finally, the County should continue to host Walkable Community Workshops and adopt the principles of the Federal and NYS Safe Routes to School (SRTS) program countywide. The County should work with municipalities on securing SRTS funding and should coordinate with State and local agencies to adopt and incorporate the program's principles into transportation projects.

See the discussion above of the *Mid-Hudson South Region Bicycle and Pedestrian Master Plan*, as well as **Chapter 8.0, *Parks & Open Space***, for a complete description of Rockland's bike and pedestrian network.

Recommendation #8: Implement a Commercial Truck Circulation System

Commercial truck circulation is important for the success of industrial, manufacturing, and service businesses, and the county and regional economy as a whole. As discussed above, most freight in

[14] http://www.dot.gov/affairs/2010/bicycle-ped.html

[15] ***See Chapter 8.0: Parks and Open Space***, Recommendation #8.

Rockland moves by truck. For Rockland to be economically competitive, these trips – local distribution, deliveries to and from the county, and trips through the county – need an efficient circulation system.

Trucks are encouraged to use limited-access highways (except that commercial vehicles are not allowed on the Palisades Interstate Parkway) and State arterials for as much of each trip as possible. This is intended to keep truck traffic from disturbing residential areas and from damaging roads that are not intended to support heavy vehicles (see Figure 6.8).

Recommendation #9: Support the Reuse of Abandoned Railways

Rockland had a long history of railroad operations throughout the county; however, a large proportion of those rail lines have become abandoned. As rail lines have been abandoned, sometimes the right-of-way has been acquired by adjacent properties or absorbed by development. Some lines have become trails and some currently are dormant (see Figure 6.14).

Among those lines whose future is still uncertain is the one that used to extend from the current end of the Pascack Valley line at Spring Valley north through Mount Ivy, going around the west end of High Tor Mountain, with branches to Letchworth Village, Haverstraw, and Stony Point. Portions of these rights-of-way are actively being re-used as trails – both for recreation and for neighborhood circulation – providing safe access to parks and schools. Other portions could be used as such in the future.

In Suffern, the western part of the Piermont line is still used for limited freight movement and the eastern part is inactive. The Route 59 bridge replacement over the Piermont Line has maintained the rail right-of-way and preserved its potential for a variety of circulation uses. Possibilities for reuse include pedestrian and bike trails and busways, or combinations of those uses along specific portions of the line.

The West Shore Line has been determined to face significant obstacles for reuse as a passenger rail line, due to its current ownership and use by CSX, and the significant capital improvements needed to provide shared use of freight and passenger rail. However, the County and affected municipalities should ensure that the possibility for future reuse of the line remains open, primarily by keeping the right-of-way free of development.

In some cases, rail-*with*-trail options may also be a feasible alternative to allow for physically separated rail and pathway use of the right-of-way. Deactivated rail rights-of-way could also be used as future transit corridors.

Recommendation #10: Support Enhanced West-East Ferry Service on the Hudson River

As discussed above, the Haverstraw-Ossining ferry service operates weekday (a.m./p.m. peek period only) passenger ferry service on the Hudson River between Haverstraw and the Ossining Metro-North Rail Station. The County will support service upgrades to this intermodal transit option, which could include expanding service to include off-peak weekday and weekend service and improving passenger facilities.

Recommendation #11: Expand and Enhance Elderly Mobility & Safety

Working with the Rockland County Office for the Aging, the Rockland County Planning Department has an ongoing outreach activity aimed specifically at the County's senior population. This includes education on the current TOR bus routes and schedules and the introduction of the T.R.I.P.S. Paratransit concept with educational tips on its usage.

Transit specialists appear regularly at senior centers, primary care hospitals, and the Annual Senior Expo at Rockland Community College. They also provide support to AARP on senior alternatives to driving, and to the Office for the Aging, AAA in the Hudson Valley, and local police agencies, through the Rockland County Older Driver's Consortium.

As Rockland's population ages, there should be increasing attention to the mobility needs of seniors. Seniors might choose to have fewer cars or move to a location closer to their daily destinations and more convenient to transit. See **Chapter 4.0: *Aging*** for further information about Rockland's elderly population, and the discussion above on paratransit.