

6. TRANSPORTATION

6.1 EXISTING CONDITIONS

6.1.1 Commutation Patterns and Mode Share

Commutation Patterns

North Castle has an estimated working population of 4,673 people. As of 2014, 447 employed residents (9.6%) work within North Castle. A third, 1,570 residents, commute to other destinations in Westchester County, such as White Plains (8% overall) and Mount Pleasant (4% overall). The remaining 57% of working residents commute outside of the county. Over half of those commute to Manhattan (22% overall) and neighboring Fairfield County (10% overall).

While the share of commuters to New York City and Fairfield County has remained stable, the percentage of workers employed within Westchester County has decreased by 5% since 2004.

Approximately 8,079 people are employed within North Castle. Of these, 447 (5.5%) are North Castle residents, 3,148 (44.5%) live elsewhere in Westchester County and 11.5% live in Fairfield County. Nearly 1,000 people (12%) live in New York City.

North Castle's employment is concentrated in office parks along the Route 22 corridor, Route 120, Westchester County Airport, and the hamlets of Armonk and North White Plains.

Other Traffic Generators

Census journey-to-work data do not account for trips made outside of work or trips made by non-employed populations. In addition to shopping and dining destinations such as downtown Armonk and Route 22 in North White Plains, other traffic generators within North Castle include the following:

Schools: Most North Castle residents live within the Byram Hills School District, whose campuses are in Armonk. The district provides bus transportation to more than 2,500 students attending public, private and specialized schools in the region. North White Plains is in the Valhalla Union Free School District, while small portions of the Eastern District are in the Bedford Central School District, and New York City watershed lands are in the Harrison Central and Mount Pleasant Central districts.

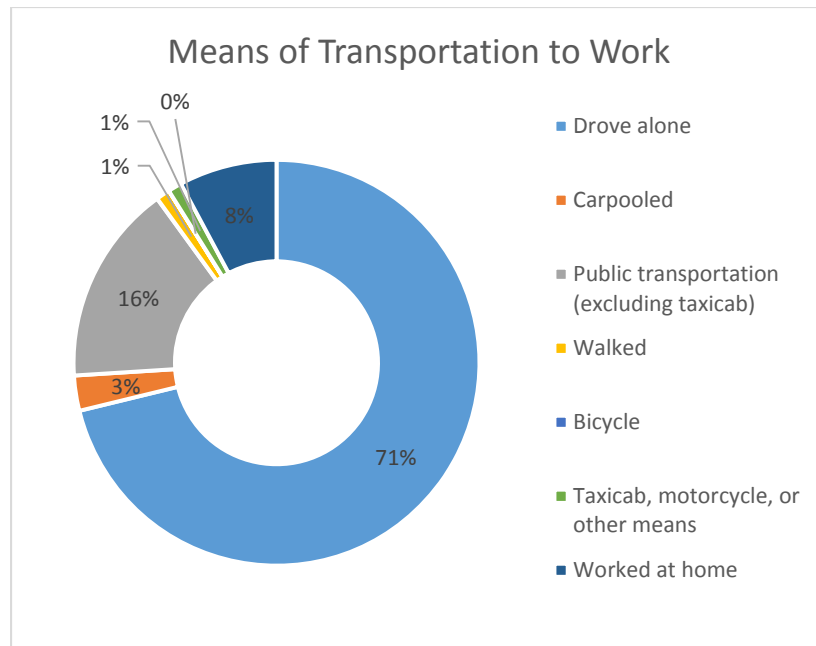
Senior Citizens: North Castle is home to one assisted-living home, the Bristol, in Armonk. Programming for senior citizens is offered several times a week at the Hergenhan Recreation Center in Armonk and the North Castle Community Center in North White Plains. Some of the senior population relies on assisted mobility in the form of paratransit services and community shuttles to access stores and health-care services.

Mode Share

The chart below shows the primary transportation mode used by residents to travel to work, according to the Census Bureau's American Community Survey (ACS 2015 5-Year Estimate). Three-quarters of residents drive to work, the vast majority doing so alone. Sixteen percent of residents travel by public transportation. The ACS estimates that 1% of residents walk and zero percent commute by bicycle as their primary mode. Eight percent of residents work at home.

Women, who constitute 45% of the workforce, drive at a higher percentage than men and account for a higher share of people working from home. A higher share of the town's male population works outside of the county and has longer commute times. Nearly 20% more men than women commute 60 or more minutes to work. Transit use is higher among men than women, suggesting that more men commute to New York City.

6. TRANSPORTATION



Vehicle ownership: North Castle has a high vehicle ownership rate, with over 98% of households owning at least one vehicle. This is substantially higher than the County-wide average of 91% of households owning vehicles.

6.1.2 Roadways

North Castle relies on its network of state, county, and local roadways to unify its various built and natural environments. Figure 6.1 shows the functional classification of roadways, as determined by the New York State Department of Transportation (NYSDOT). The purpose of this categorization is to describe a roadway's relative capacity, mobility and land

access. Figure 6.1 also shows NYSDOT's 2015 estimate of annual average daily traffic (AADT).

Interstate: North Castle is bisected by Interstate 684, which originates in Brewster and terminates at I-287 in Harrison. In North Castle, I-684 runs parallel to the Byram River until it briefly crosses through the northwest corner of Greenwich. The highway continues between Rye Lake and Westchester Airport before it enters Harrison. I-684 has two interchanges in North Castle. Exit 3, an interchange with Route 22, is immediately east of Armonk. Exit 2, at Westchester County Airport also provides access to NYS Route 120 at Airport Road/New King Street.

Parkways: North White Plains is the terminus of two of the state's Scenic Byways, The *Bronx River Parkway* and the *Taconic State Parkway*. The Bronx River Parkway is a 19-mile north-south limited access divided highway, with some at-grade intersections, that begins in the Bronx. The parkway terminates at Kensico Circle where it connects to the southern terminus of the Taconic State Parkway, which continues north through Valhalla to I-90 in Columbia County.

Kensico Circle provides a connector between both Parkways and NYS Route 22. As a result, Route 22 acts partially as a connection between the Bronx and Taconic Parkways and the Central Westchester Parkway/I-287.

The *Central Westchester Parkway* connects I-287 at Exit 7 and NYS Route 22.

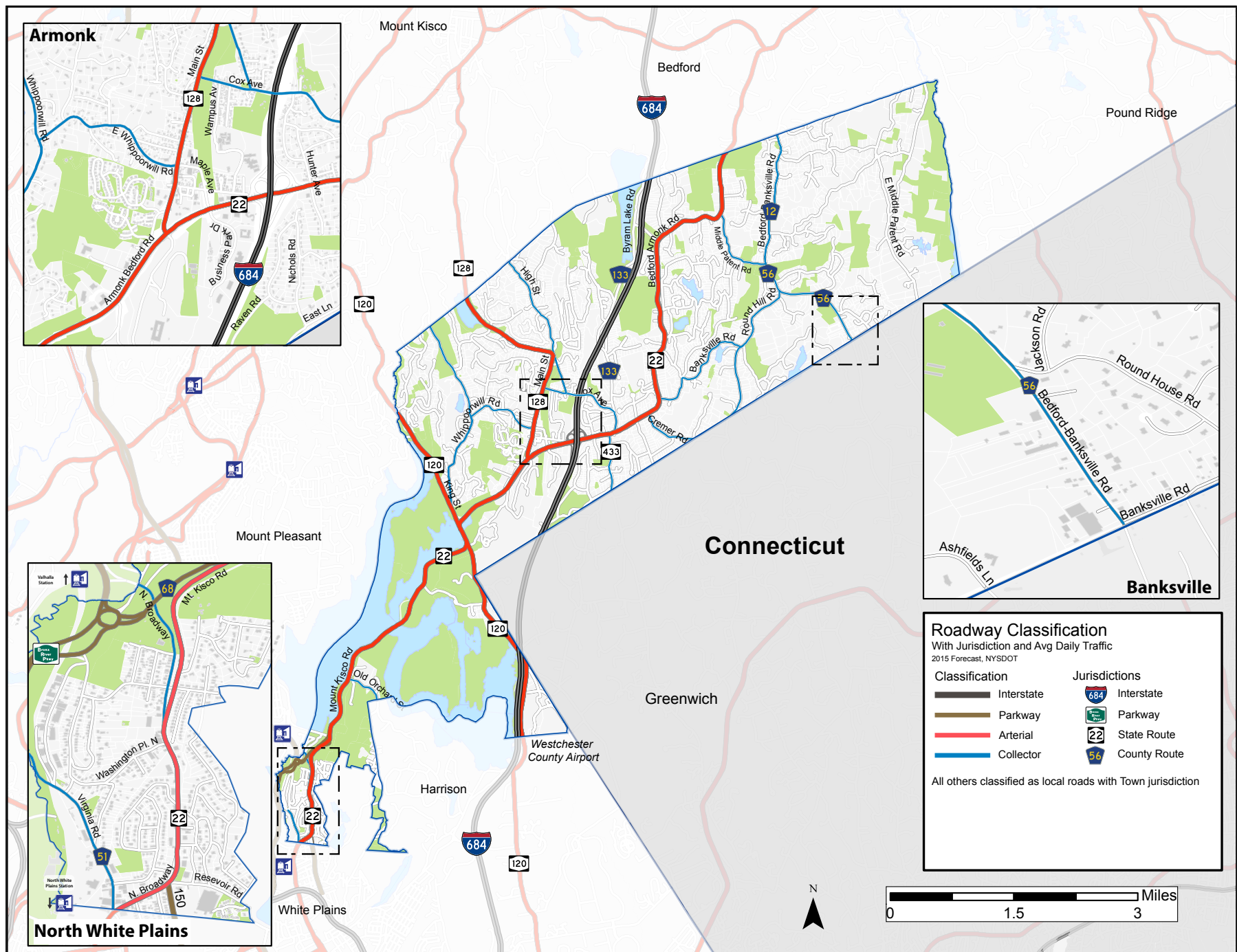


Figure 6.1 Roadway Classification

6. TRANSPORTATION

Arterials: *NYS Route 22* is a north-south route that serves as North Castle's primary local arterial roadway. In North White Plains, Route 22 is four-lanes and acts as the conduit between the Central Westchester Parkway/I-287 and Kensico Circle. After splitting from North Broadway, Route 22 is designated Mt. Kisco Road, a four-lane highway that runs along the Kensico Reservoir toward Armonk.

At King Street, the route runs concurrently with Route 120 for a third of a mile. In Armonk, Route 22 is designated Armonk Bedford Road. The section between Route 120 and Route 433 is a four-lane divided highway with several high-capacity intersections serving the hamlet and I-684 interchange. East of Route 433, Armonk Bedford Road narrows to two lanes, which curves through northeast North Castle to the Town of Bedford.

NYS Route 120, King Street, is a two-lane north-south route that connects Westchester County Airport and western Armonk. *NYS Route 22* runs concurrently with King Street between the terminus of Mt. Kisco Road and Armonk Bedford Road.

NYS Route 128, Main Street, is a two-lane north-south roadway that begins at Route 22 and continues north to New Castle. Main Street is Armonk's primary commercial corridor between Bedford Road and Orchard Drive, featuring on-street parking, sidewalks and pedestrian crossings.

Collectors: The primary function of North Castle's collector roadways are to connect arterial roadways to local streets. The posted speed limit is 30 miles per hour.

North White Plains

North Broadway is classified as a collector roadway after it splits from *NYS Route 22* (see North White Plains inset in Figure 6.1). This section of North Broadway, designated as County Route 29,

is two lanes and edges the residential neighborhood to the west. Despite its classification as a collector, the roadway functions as a minor arterial, carrying regional traffic to and from the Bronx River and Taconic State Parkways. Average annual daily traffic is estimated at 14,000 vehicles, nearly a third more traffic than is carried on Mt. Kisco Road. County Route 29 continues northwest into Valhalla.

Virginia Road, County Route 51, is a two-lane north-south route spanning between North Broadway in White Plains to Hillside Avenue, County Route 100, in Valhalla. The route has at-grade crossings with Metro-North and the Bronx River Parkway. *Virginia Road* carries an average daily volume of 7,000 vehicles.

Orchard Street and *Old Orchard Street* are two-lane roads that follow the perimeter of the Kensico Reservoir and Cranberry Lake Preserve in Harrison, offering an access option to Route 22 in North White Plains.

Armonk – Central North Castle

Armonk's collector roads are generally two-lane roads that provide access to local roads from the arterial road network.

NYS Route 433, North Greenwich Road, is a short north-south route between Route 22 and the state line, after which it becomes *Riversville Road* and continues southward in Greenwich. The route carries a daily average of 5,500 vehicles.

Byram Lake Road, County Route 133, is a north-south route between Cox Avenue and Route 117 in Mt. Kisco. North of the high school, the routes run parallel to I-684 and the Byram River.

Cox Avenue/High Street is a north-south road that spans from the Town line to Route 22. High Street is designated as Cox Avenue south of Greenway Road. Cox Avenue travels east-west

6. TRANSPORTATION

to cross I-684 between School Street and Byram Lake Road. The road provides an alternative to the busiest section of Route 22, terminating at a point where the route narrows to two lanes.

Whippoorwill Road is a north-south road that splits off of King Street north of Route 22. The road terminates at Bedford Road in Chappaqua. The roadway's eastern spur, East Whippoorwill Road, ends in the heart of Main Street in Armonk.

Eastern District (Banksville)

North Castle's Eastern District relies on a network of collector roads to access Route 22 and arterials in neighboring towns. These two-lane roads provide access to quiet local roadways in the Town's least populated areas.

Bedford-Banksville Road is a north-south County Route that begins at the state line and terminates at Route 22 in Bedford. The section between the state line and Middle Patent Road is designated as County Route 56. North of Middle Patent Road, the route is designated as County Route 12. Bedford-Banksville Road is the main corridor of the Banksville hamlet, which straddles the state line. In Greenwich, the road continues as North Street and connects to the Merritt Parkway.

Round Hill Road is a north-south road that runs primarily through Greenwich. In North Castle, it intersects with Banksville and Mead Roads before ending at Bedford-Banksville Road.

Banksville Road is a one-mile east-west road that terminates at Route 22.

Middle Patent Road provides connection between Bedford-Banksville Road (County Route 12) and Route 22.

Local Roads: Local roads are streets that generally provide access to adjacent properties. All of these streets are owned

and maintained by the Town, with the exception of private streets that are located within office parks and residential subdivisions. Several local roads serve as local collectors that supplement designated arterial and collector roads.

Traffic Volumes

Figure 6.2 shows 2015 estimates for average daily traffic volumes for arterial and collector roadways included in NYSDOT's traffic count program. Aside from I-684 and the Bronx River Parkway, which carry an estimated 58,700 and 18,500 vehicles through North Castle, respectively, the heaviest traffic volumes are seen along Route 22 in North White Plains. The segment between the Central Westchester Parkway and the start of Mt. Kisco Road has daily traffic volumes of 22,400 vehicles. Most of this traffic, about 14,000 vehicles, continues along North Broadway toward the Taconic State Parkway. The segment of Mt. Kisco Road that runs along Kensico Lake carries an average of close to 11,000 vehicles. Daily volumes along King Street (Route 120/120A) range from 8,500 to 12,500 between Armonk and the Westchester County Airport.

In Armonk, the heaviest traffic volumes are on Route 22 between Route 120 (King Street) and County Route 433 (North Greenwich Road). The segment between Route 128 (Main Street) and the I-684 interchange carries a daily average of 18,200 vehicles. Traffic volumes on Route 22 steadily decrease east of County Route 433 as the roadway narrows and carries less regional traffic. Main Street, within the hamlet, carries a daily average of 7,400 vehicles. Daily traffic volumes along surrounding collector roads generally range between 1,000 and 3,000 vehicles.

In North Castle's Eastern District, collector roads handle between 700 and 3,500 vehicles per day.

6. TRANSPORTATION

6.1.3 Traffic Safety and Road Conditions

Crash data were obtained from NYSDOT for the most recent three-year period, January 2014–December 2016. A total of 842 crashes occurred within North Castle.¹ The following table provides a summary of total crashes by severity:

Table 6.1: Total Crashes by Severity (Jan 2014 – Dec 2016)

Severity	Crashes
Fatality	2
Injury	195
Property Damage (PDO) & Non-Reportable	645
TOTAL	842

Source: NYSDOT

The current Police Chief reports that, historically, Route 22 between North White Plains and Armonk has experienced fatalities. This can be attributed to a combination of significant traffic volumes, the curvature of the road and relatively high speeds.

Figure 6.3 shows the location of motor vehicle crashes that occurred on public streets. Table 6-2 lists the 10 intersections with the most crashes; these occurred along arterial and collector streets that carry the largest share of traffic volumes.

The figure also shows the location of pedestrian and bicycle crashes, all of which were reported with injuries. In total, there were four crashes resulting in a pedestrian injury and three crashes resulting in bicyclist injury.

Often, traffic safety issues are related to road condition. In North Castle, local roads have evolved to carry traffic volumes of major roads, with multiplying access points as parcels have been

subdivided and new driveways created. Common elements include roads with little or no shoulder, narrow roads, poor alignment, limited visibility, high traffic volumes and congestion.

Table 6.2: High-Crash Intersections (Jan 2014 – Dec 2016)

Intersection	Injury	PDO	Total
N. Broadway & NYS Rt 22 & Hillandale Ave	8	32	41
NYS Rt 22 & Central Westchester Pkwy	4	24	28
Mt. Kisco Rd & Bronx River Parkway	9	12	21
NYS Rt 22 & Maple Ave	3	18	21
NYS Rt 22 & King St (Signalized Intersection)	4	15	19
NYS Rt 128 & Bedford St	0	19	19
NYS Rt 22 & CR 433	4	15	19
I-684 Exit 2 Interchange & Airport Rd (CR 35)	2	16	18
NYS Rt 128 & Maple St	3	14	17
NYS Rt 22 & Byram Lake Rd	4	1	15

Source: NYSDOT

There are opportunities to improve roadway and intersection design and add pedestrian and bicycle infrastructure. The crash analysis identified several high-crash intersections, mostly in Armonk and North White Plains, which could be improved through changes to intersection design (see Figure 6.2). In North White Plains, they include the intersection of Reservoir Road, Route 22 and the Central Westchester Parkway, and the signaled intersection where Route 22 splits into North Broadway and Mt. Kisco Road. In Armonk, intersections with the most crashes include Maple Avenue and Route 22; North Main Street and Route 22; and North Main Street and Maple Avenue.

¹ Excluding crashes that occurred on I-684 and on private property

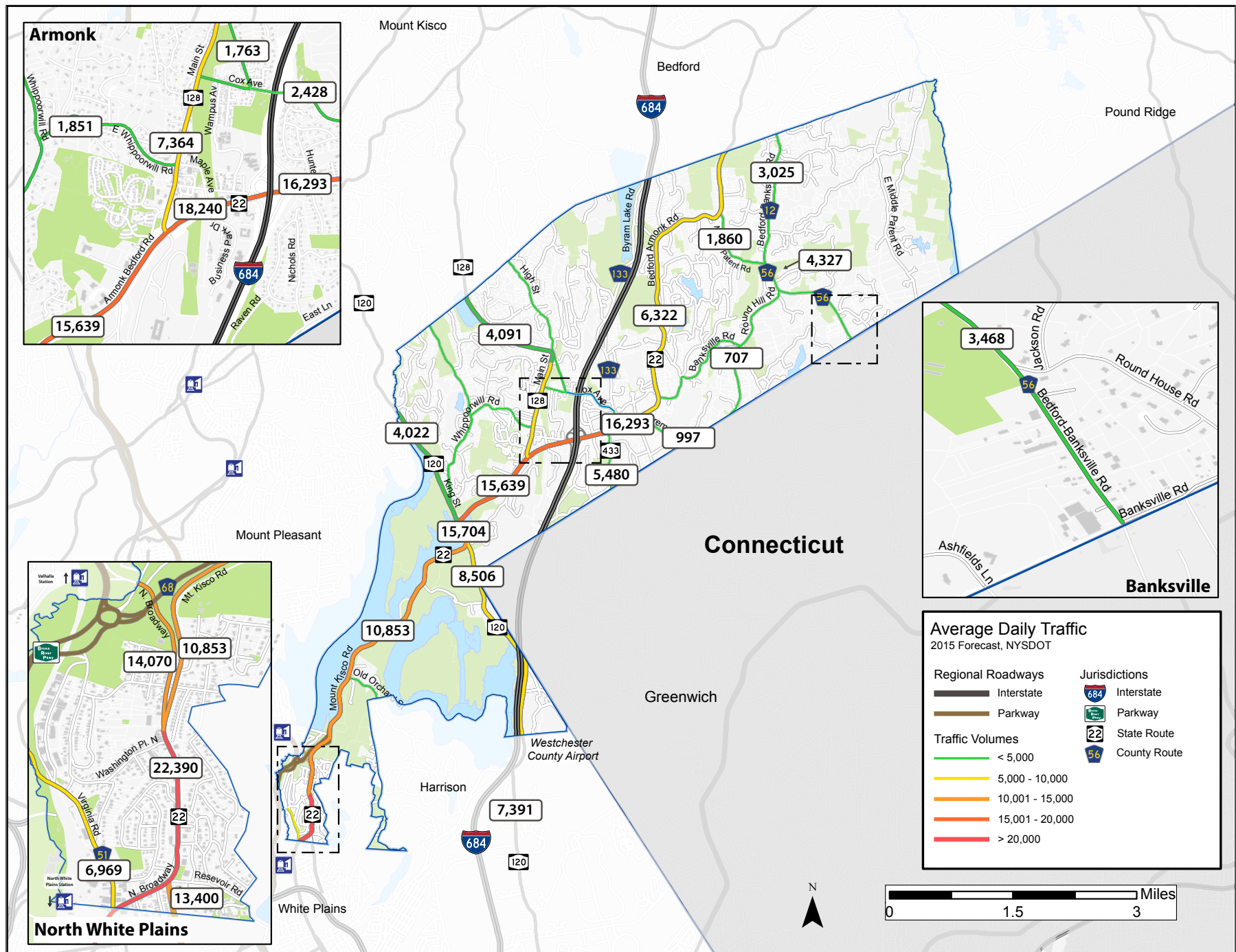


Figure 6.2 Traffic Volumes

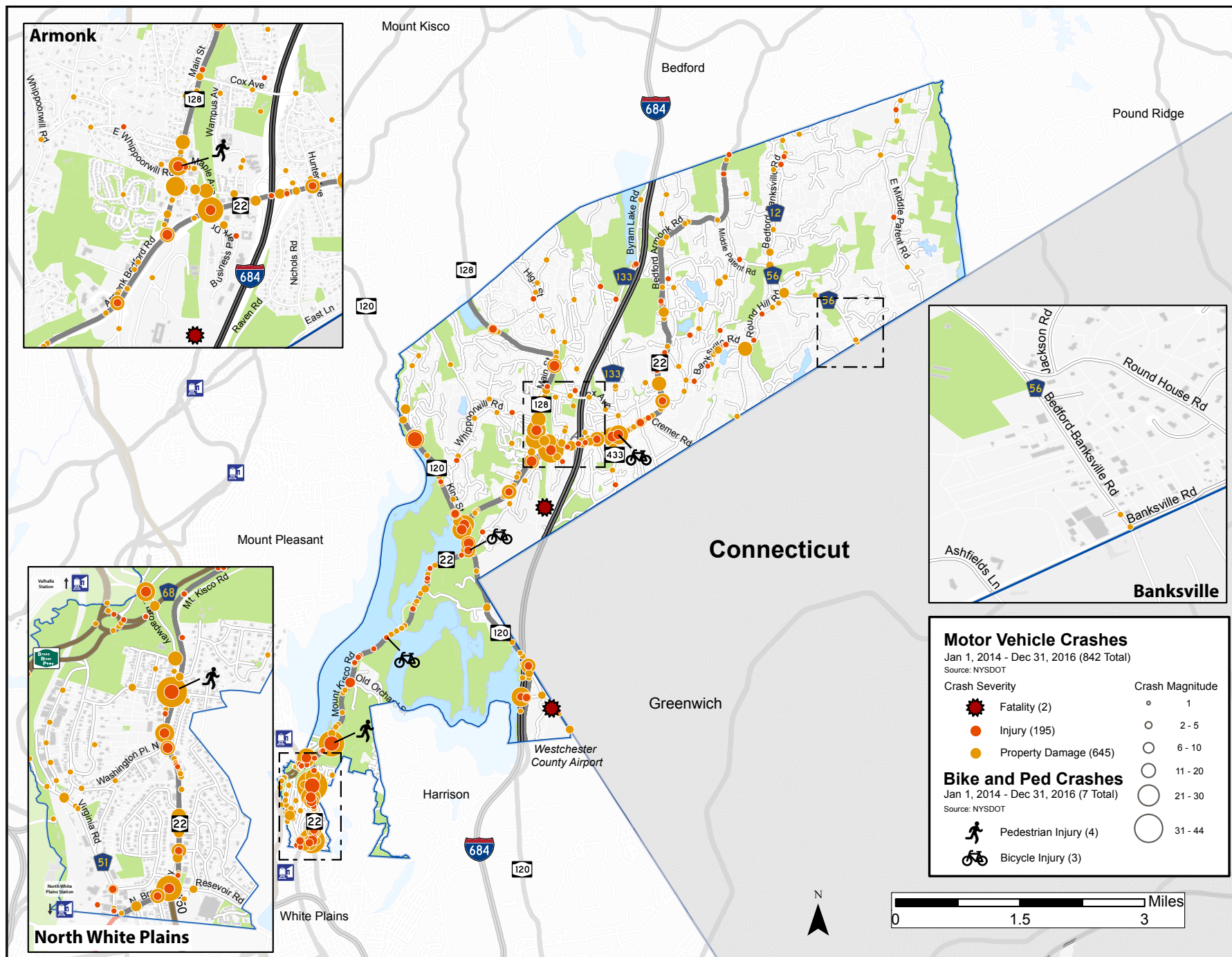


Figure 6.3 Motor Vehicle Crashes by Severity

6. TRANSPORTATION

6.1.3 Public Transit

Metro-North Rail Service

Commuter rail stations are not within close proximity for most North Castle residents. The North White Plains train station, located just outside the hamlet in the City of White Plains, serves as a mid-line terminus for the Metro-North Harlem Line. On weekdays, Metro-North operates 12 southbound trains in the morning peak (6-8 am) and 12 northbound trains during the evening peak (5-7 pm) from the North White Plains Station. Ride time to Grand Central Terminal ranges from 40 to 55 minutes.

The Town maintains a small parking lot on Fisher Lane in White Plains, with approximately 50 spaces, and offers permits to North Castle residents. Commuter permits are priced at \$300 for six months. The lot is currently full with a wait list exceeding 200 applicants. Metro-North has recently built a 500-space structure (operated by LAZ Parking) across the street from the Town lot. Permits are priced at \$1,228 a year, \$642 for six months, or \$322 for three months. Daily meters are available for \$7.25 for 16 hours and \$10 for 24 hours. Parking is free on weekends and holidays.

Bus Service

Westchester County is the primary local bus provider for the Town. The Bee-Line operates two full routes, the 6 and the 12, and one commuter shuttle, the Loop H (see Figure 6.4). Table 6.3 lists the bus routes with service hours and average rush-hour headways.

Route 6 operates along Route 22 in North White Plains before continuing on North Broadway to Valhalla and south to the White Plains Transit Center (stops are present one block from the North White Plains train station). Route 12 provides service to

Westchester County Airport and terminates at Main Street and Bedford Road in Armonk. Select Route 12 buses provide service to the Westchester Business Park during rush hour.

Table 6.3: Westchester Bee-Line Routes

Bus Route	Destination	Service Span	Rush Hour Frequency
6	Yonkers to Pleasantville via North White Plains	7 AM – 10 PM*	30 minutes
12	White Plains Transit Center to Armonk via Harrison	7 AM – 7 PM	30 minutes
Loop H (Shuttle)	White Plains to Armonk	7 AM – 10:15 AM, 3PM – 6:15 PM	30 minutes

Source: Westchester County

**Primary service hours of Route 6 bus is between 7am to 7pm, last trip scheduled between 9 and 10pm.*

In addition, Bee-Line provides shuttle bus service for workers commuting to the White Plains region using Metro-North. The Loop H shuttle provides express service between White Plains station and several office parks in Armonk, including the IBM campus and Swiss Re. Shuttle service operates 7 runs in the morning rush and 8 in the afternoon rush. The shuttle schedule is coordinated with north and southbound Harlem line trains.

Paratransit Services

Westchester Bee-Line Paratransit service provides door-to-door transportation for senior citizens and people with disabilities who are unable to use fixed-route services. Riders must be approved by the Westchester County Office of the Disabled. Rides must be reserved in advanced and cost \$4 each way.

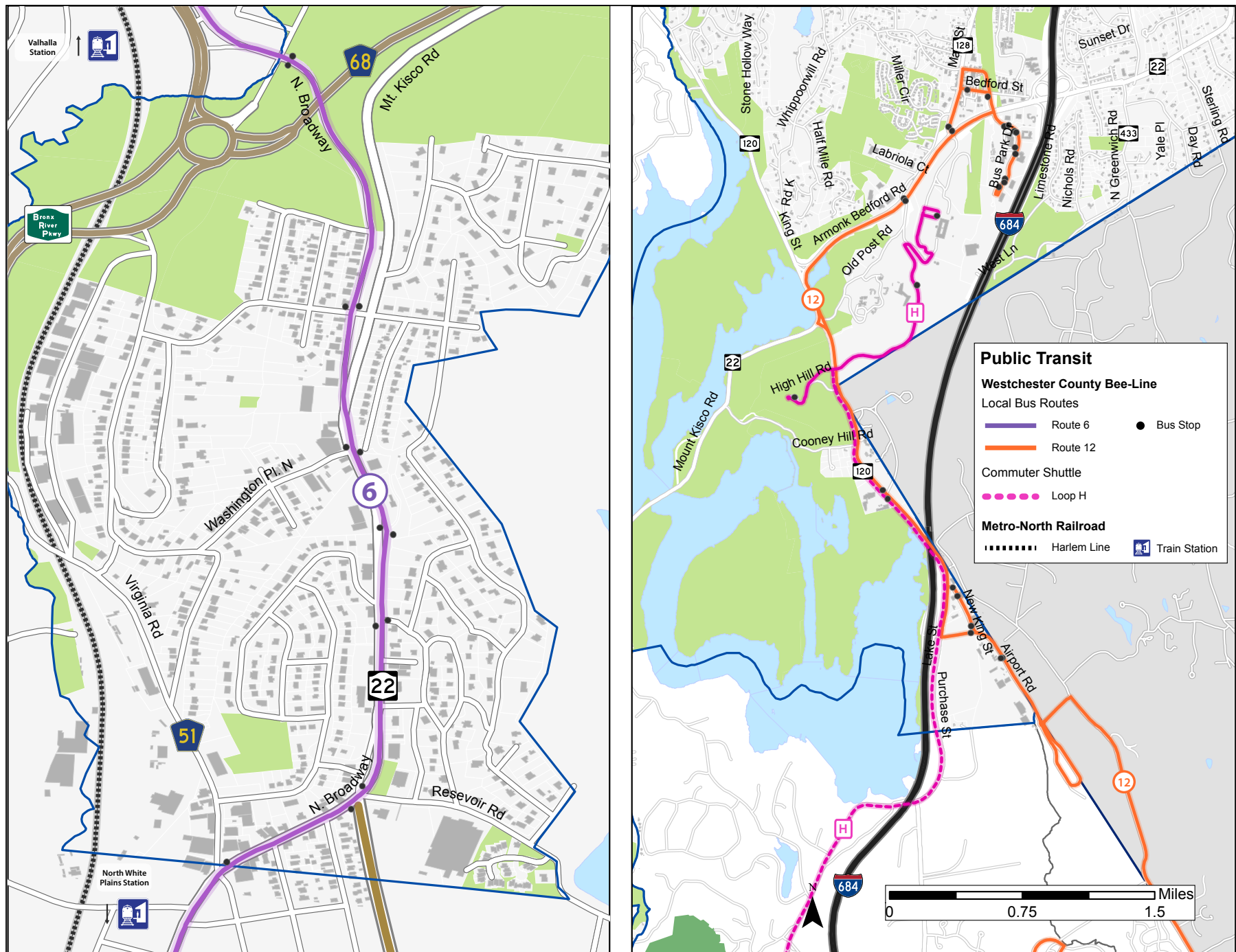


Figure 6.4 Public Transportation

6. TRANSPORTATION

6.1.4 Bicycle Circulation

No roadways in North Castle have been designated as bicycle routes for exclusive or shared-use markings. The Town is the northern terminus of the Bronx River Parkway's multi-use path that runs along the parkway's linear park. As shown in Figure 6.5, this path runs in three sections: a short loop in Mount Vernon; a 4.5 segment from Palmer Road in Bronxville to Crane Road in Scarsdale; and a 5-mile segment from Greenacres Avenue in Scarsdale to Kensico Dam. The County plans to complete a missing piece in Scarsdale in 2017, creating an uninterrupted path between Bronxville and North Castle. This path is a major attraction for recreational cyclists in the region. Additional bike paths throughout the Town are limited; although there is no official designation, Route 22 in North White Plains is known to attract significant groups of long-range cyclists on weekends. Route 22 has "share the road" signage between Armonk and North White Plains. The Town considered plans for several bike paths in Armonk in 2013, which were not built. Residents have expressed interest in revisiting these plans.

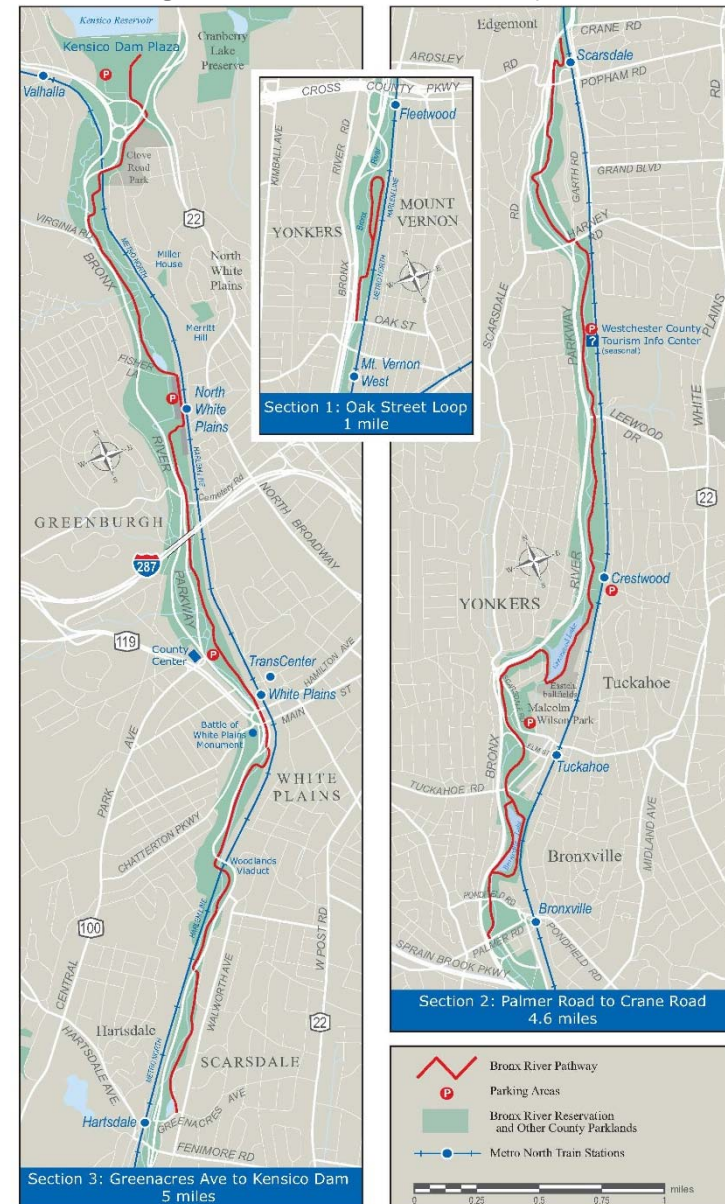
Bicycle Routes in Armonk:

Route 22 in North Castle is a popular route for long-range cyclists traveling in large groups. On weekends, these groups can occupy most of the road, causing traffic congestion and safety concerns.

In 2013, the Town completed an initial study to determine the feasibility of creating a bicycle route in central North Castle. The study resulted in an initial plan to create a bicycle route network in the following five phases, shown in Figure 6.5.

1. **Initial Loop:** 1.34 mile on-street and multi-use path. The on-street route would consist of bicycle lanes and/or use

Figure 6.5: Bronx River Parkway Path



6. TRANSPORTATION

of shared-lane “sharrow” markings. The route connects Birdsall Farm Drive and Wampus Park via Main Street, Bedford Road, and MacDonald Avenue. The loop would create a new connection between the Wampus School and North Castle Recreation Center.

2. **Lombardi Park Extension:** 0.45 mile 10-foot wide multi-use path constructed in and around Wampus Brook Park. The path would connect to the Initial Loop at the Wampus School and connect to Lombardi Park.
3. **Maryland Avenue Extension:** 0.38 mile route consisting of 10 foot wide multiuse path and use of existing bridge over I-684. The route would begin at the HC Crittenden Middle School and end at Maryland Avenue.
4. **High School Extension:** 1.14 mile primarily on-street bicycle lane or shared-lane “sharrow” markings connecting from the end of the Maryland Avenue Extension to the Byram Hill High School. The route would use Maryland Avenue, Sunset Drive, Byram Lake Road, and Perry Court. A connection would be created between the Perry Court cul-de-sac and the High School.
5. **Sands Mill Extension:** 0.95 mile primarily on-street bicycle lane or shared-lane “sharrow” markings connecting Lombardi Park to Sands Mill Road at NYS Route 128/Main Street. The route would follow Cox Avenue to Greenway Road where it would proceed off road to Sands Hill Road, just north of Main Street.

Connections to Bronx River Parkway: There is interest in connecting the Bronx River Parkway path and Armonk via a

multi-use path on Route 22. This path would bring people from the parkway’s northern terminus to the Kensico Dam and end in Armonk’s historic district (see Figure 6.6).

6.1.6 Pedestrian Circulation

North Castle’s pedestrian activity is concentrated in the hamlet commercial areas. In Armonk, continuous sidewalks are present on both sides of Main Street between Bedford Road and Annadale Street. Limited stretches of sidewalk are available on streets that intersect with Main Street, such as Bedford Road and Maple Avenue.

In the hamlet of North White Plains, continuous sidewalks are present along Route 22 near the border of White Plains. Sidewalks become irregular several blocks into North Castle and are maintained only on the west side of North Broadway once Route 22 becomes Mt. Kisco Road. A network of sidewalks is present around the North White Plains train station.

Banksville features one pedestrian crossing at the intersection of Bedford-Banksville Road at Banksville Road, in Greenwich. This is linked to 250 feet of sidewalk lining a strip mall development. Bedford-Banksville Road does not have shoulders, however grassy and paved areas in front of buildings serve as informal pedestrian paths.

Outside of the aforementioned areas, pedestrian facilities are minimal. With the exception of major arterials, the Town’s roadways do not have shoulders to accommodate pedestrians.

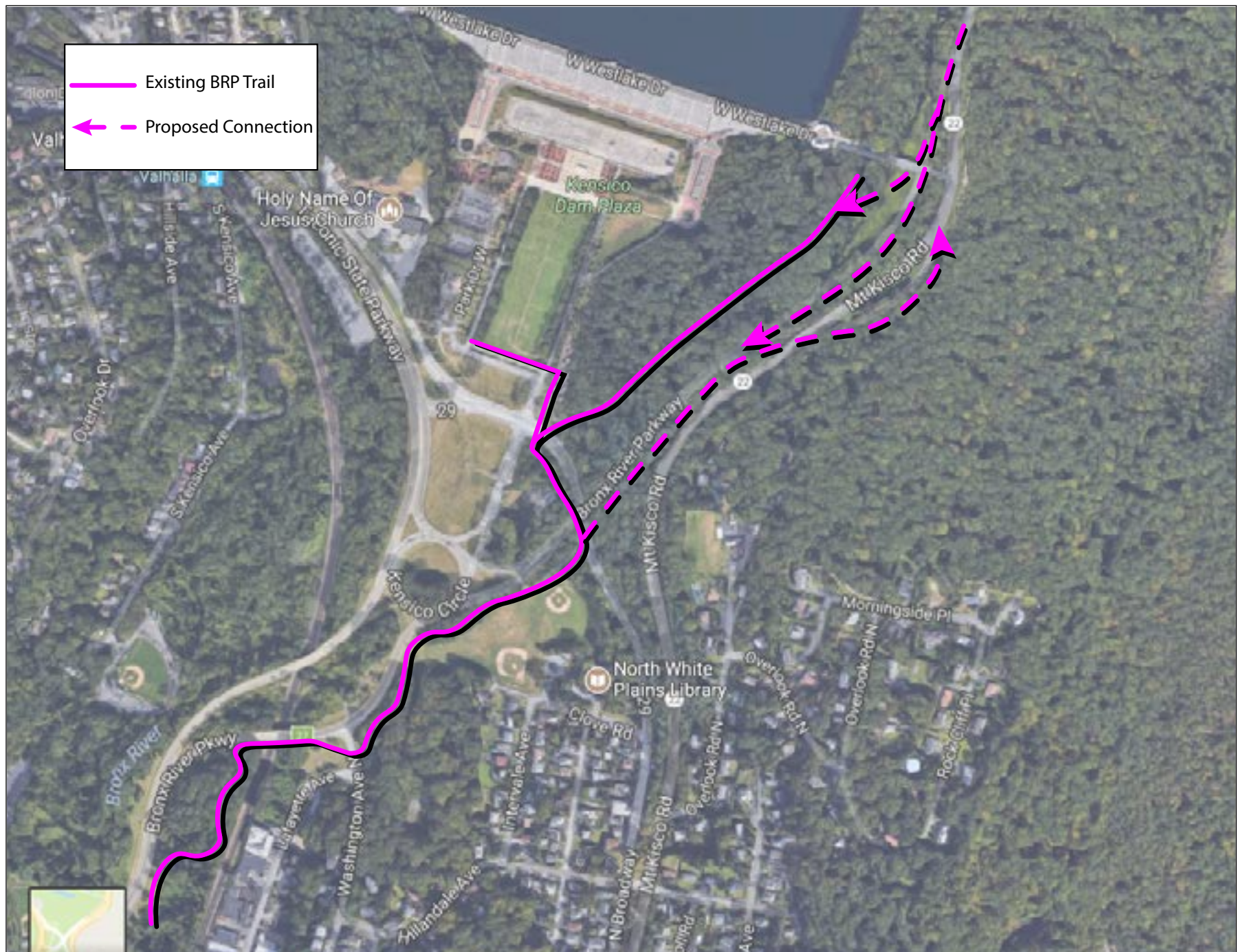


Figure 6.6 Proposed Bronx River Pathway Connection

6. TRANSPORTATION

6.1.7 Airport

Westchester County Airport is located in the Towns of North Castle and Harrison and the Village of Rye Brook. The airport provides commercial, business, military and private flight services to the New York metropolitan region. The airport is currently operated by the County with plans to retain a private operator.

Figure 6.7 shows an aerial photo of the airport parcel and surrounding roadways. The airport is situated between Route 120 (Purchase Street) and Route 120A (King Street). Its main terminals and parking facilities are accessed from Airport Road (County Route 135), a short two-lane road between the I-684 Exit 2 interchange and the roundabout at Rye Lake Avenue. Facilities located at the southwest corner of the site can be accessed from Tower Road from Route 120.

In 2012, the airport recorded nearly 1 million passenger boardings. In an effort to protect the surrounding community, the airport operates under a strict passenger limit that permits 240 passengers to pass through the terminal each half-hour. In addition, under a voluntary agreement, planes are not permitted to take off between the hours of midnight and 6:30 am.

The airport is undergoing a master plan update to address its increase in commercial demand for the next 15 years. The plan will not increase the airport's overall footprint or length of the runways, but recommendations include capital projects to enhance operations. Recommendations include an additional two departure gates, construction of a corporate jet hangar, additional facilities for U.S. Customs and County police, and the expansion and reconstruction of parking facilities including an additional access point from Route 120 in Harrison and a proposed parking garage on New King Street in North Castle.

6.2 ISSUES AND OPPORTUNITIES

Congestion in North White Plains: Residents and stakeholders have expressed concern about congestion along Route 22 caused by the lack of a direct connection between I-287 and the Bronx River and Taconic State Parkways. Traffic currently merges from Central Westchester Parkway to Route 22 and continues northwest on North Broadway to Kensico Circle. Thus, Route 22 functions as an arterial four-lane road through North White Plains with average daily traffic volumes that exceed those on the Bronx River Parkway.

The inability of Route 22 to fully accommodate peak hour traffic in North White Plains is the single-most important transportation issue in North Castle. An arterial road that does not adequately serve through traffic leads to drivers taking local roads through residential neighborhoods. This leads to a deterioration in the quality-of-life in these neighborhoods. This issue has become so serious in North White Plains that the Police and Highway Departments are considering signage that will prohibit drivers taking a right turn onto Washington Place East.

For these reasons, this Comprehensive Plan's first recommendation is for the State to undertake a comprehensive study of Route 22 and the options to alleviate traffic congestion along the roadway. This should include ways to improve use of the Bronx River Parkway by creating better connections to the Parkway such as at Cemetery Road in White Plains.

Further constraint is placed on the hamlet due to the lack of suitable roadways that underpass the Metro-North right-of-way. For example, the Cemetery Road underpass is only wide enough for one car to pass at a time and cannot accommodate trucks, and Virginia Road is impeded by the at-grade train crossing.

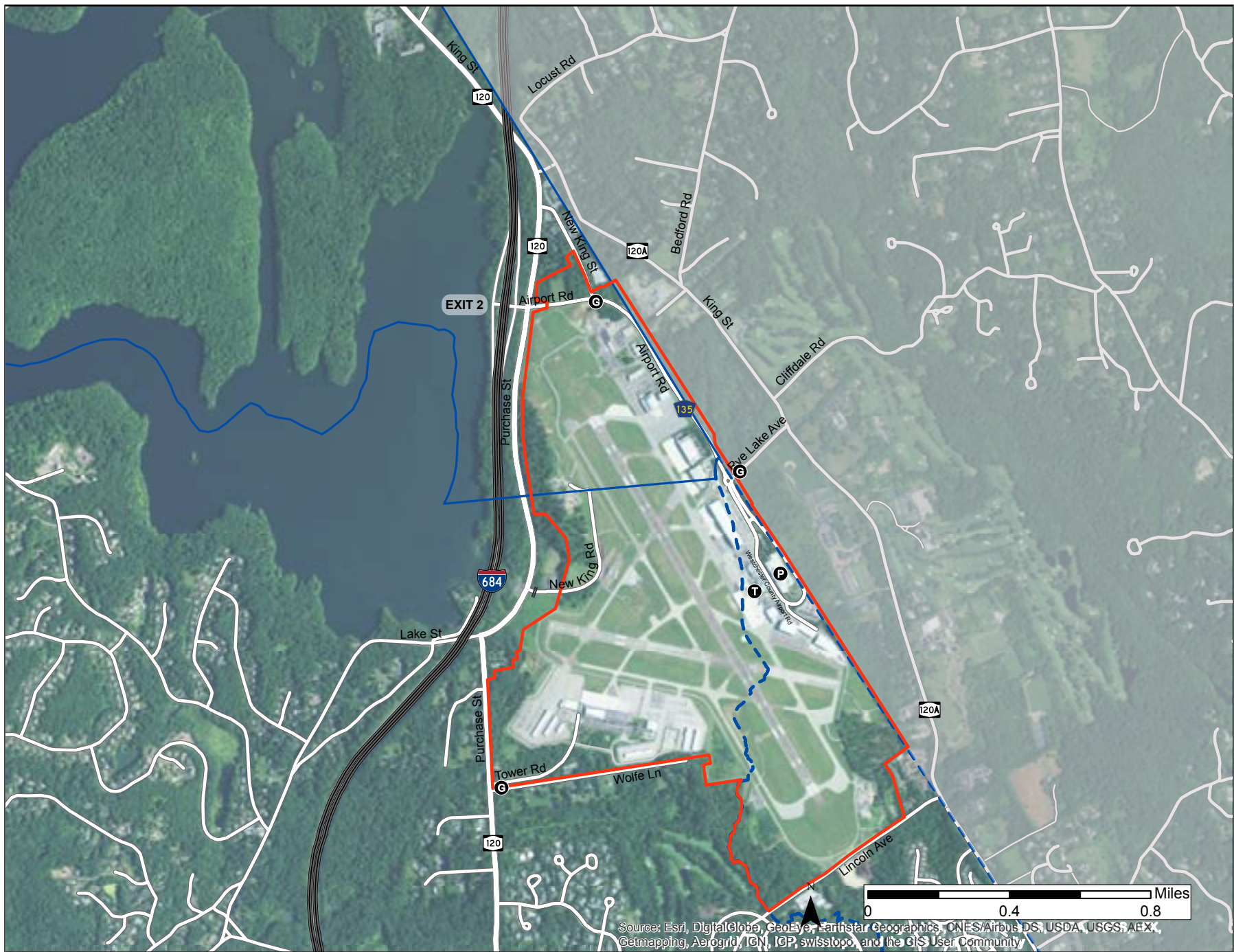


Figure 6.7 Westchester Airport

6. TRANSPORTATION

Road Connectivity

Having streets connect to each other in a road hierarchy or grid system is a basic concept of transportation planning. Behind the concept is providing safety, reducing miles driven and enhancing access. Providing alternative ways to get to a destination allows fire, police and service vehicles to access a destination from more than one location. Thus, if one road is blocked there is an alternative means of access. This also applies to traffic in general.

An example in North Castle is the road system in downtown Armonk. While it is a basic grid, Main Street provides the only north-south road. The Police Chief has pointed out that a closure of Main Street for a street fair or an emergency reason leaves no obvious alternative road for north-south access. From this concern came the recommendation for the extension of Maple Avenue north to either the existing CVS store or beyond, to create an alternative to Main Street (see Section 6.3 and Figure 6.8). This recommendation would need grant funding, bonding or capital budget allocation and might be built in phases.

Complete Streets

The concept of complete streets is a transportation approach that recommends streets to be designed for pedestrians and cyclists as well as motorists. Complete streets are seen as providing access and mobility for all roadway users of all ages and abilities. Such design features can include sidewalks, lane striping, paved shoulders suitable for use by bicyclists, signage, crosswalks and traffic calming measures. At a State level, both New York and Connecticut have recently endorsed this concept.

The concept needs to be applied within the context of each different municipality. In North Castle, densities throughout most of the Town are relatively low, with one-, two- and four-acre

zoning. Putting sidewalks or bike lanes in low-density residential neighborhoods not warranted because of insufficient use, cost and potential change to neighborhood character. However, in a hamlet center like Armonk, a sidewalk policy would make sense, and this plan supports filling in sidewalk gaps and extending some sidewalk areas including a sidewalk connection between the Armonk hamlet and the business park via Maple Avenue. Sidewalk connections can provide a choice for senior citizens in senior living facilities if they do not use paratransit services.

There are several areas in North Castle where the Town should explore providing or enhancing pedestrian connections:

Route 22 at Maple Avenue: The Town should encourage pedestrian activity between downtown Armonk and Business Park Drive to connect these commercial districts. This would also benefit users of the North Castle Community Park and residents of the Bristol Assisted Living residence.

Downtown Armonk: Much of the Armonk business area is highly walkable, but there are sidewalk gaps along its periphery, such as along Route 128 (Main Street) north of Maple Avenue. In addition, there is no direct pedestrian link from the elementary/middle school complex off Wampus Avenue to Main Street. The Town should explore opportunities to fill in gaps to enhance pedestrian circulation in the hamlet.

Access to North White Plains Train Station: Most of the North White Plains hamlet is within walking distance of the station, but sidewalks are limited within the neighborhoods. Key walking routes to the station should be prioritized for implementation of sidewalks, such as portions of Route 22 and Virginia Road.

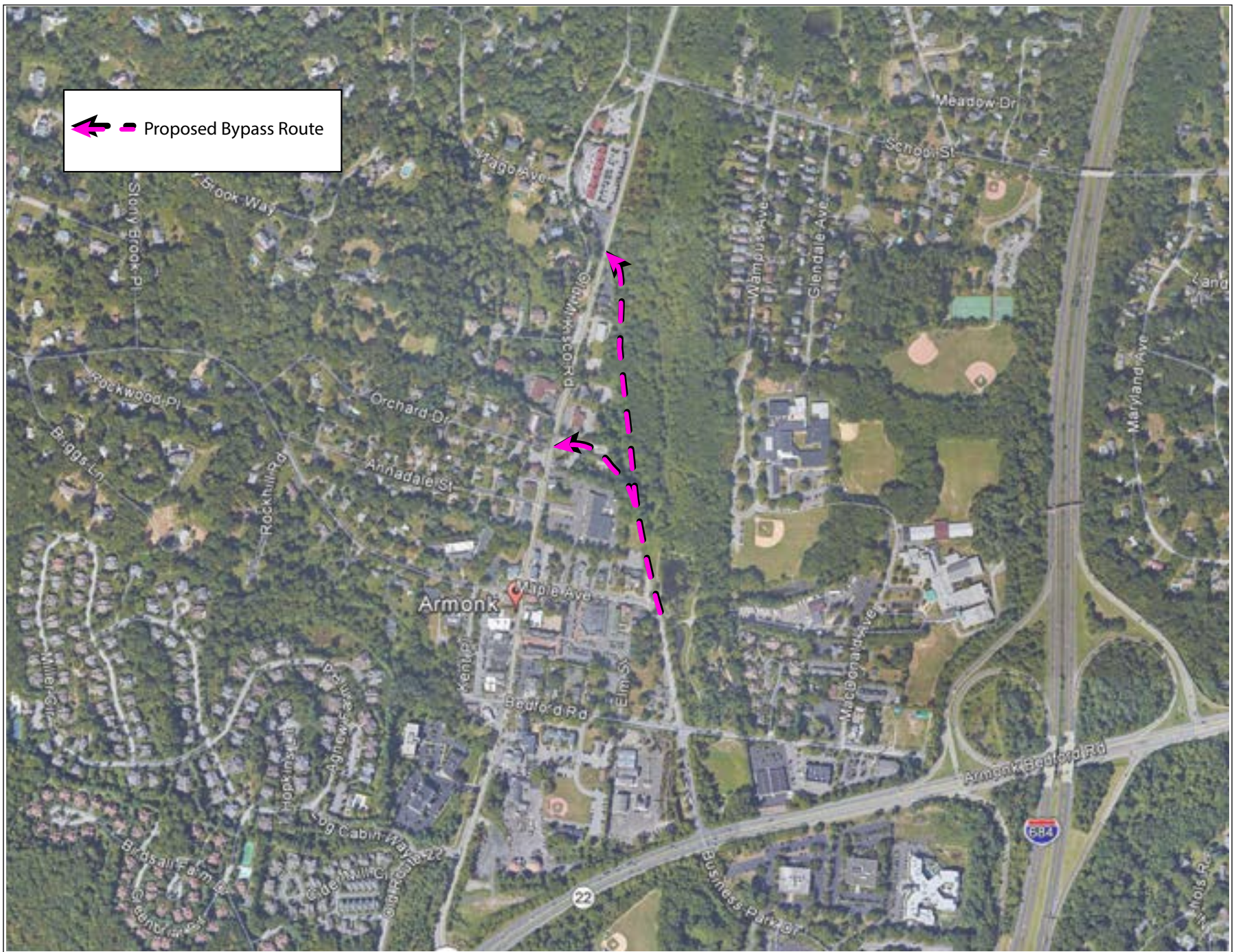


Figure 6.8 Proposed Main Street Bypass

6. TRANSPORTATION

Bicycle lanes are also supported where previous studies indicate sufficient roadway widths for safe travel. One such bicycle connection is between Armonk hamlet and Crittenden Middle School. However, bicycle access needs to fit into the existing roadway network and built context. For example, a separate bike lane is not appropriate on Main Street, as it would replace parking that serves existing stores. In this case, the roadway should simply be marked so that drivers know that bikes may share the road.

In some cases, it is difficult to do both sidewalks and bicycle lanes at the same location. An example is Route 22 in North White Plains. This is a very high-volume road with relatively high speeds. The roadway lanes are already undersized in that they are not uniformly 11-12 feet wide. The road is not wide enough to include both continuous sidewalks and designated bike lanes. In the Comprehensive Plan workshop for North White Plains residents favored sidewalks as a safe and more inclusive measure that better serves all ages and abilities.

6.3 RECOMMENDATIONS

6.3.1 VEHICULAR CIRCULATION

Route 22 in North White Plains

Given the significant concern by residents of congestion and speeding along Route 22 in North White Plains, and the lack of options to direct regional traffic to alternate roadways, this Plan recommends that the State undertake a comprehensive study of Route 22 to improve conditions for drivers as well as pedestrians and cyclists. This study should include the addition of sidewalks, crosswalks, lighting, gateway signage, landscaping

and wayfinding throughout the corridor in North White Plains. See Chapter 12 for further detail.

Improvements along Route 22 should also incorporate a demand-activated pedestrian crossing in one of two locations 1) across from 845 N. Broadway, between Washington Place East and Dunlap Way, or 2) at the offset intersection of Palmer Avenue and McDougal Drive. This recommendation is dependent on adding sidewalks on the east side of Route 22.

Moving north, this Plan recommends that the Town, in coordination with NYSDOT, study a potential “road diet” of Route 22 north of Hillandale in North White Plains and Route 120 in Armonk to potentially remove one lane of traffic in each direction. Implementation of such a road diet, which would be contingent on maintaining enough capacity to serve traffic volumes, could provide room for dedicated bike lanes and an expanded divider median to prevent vehicles from crossing the center line. This could improve safety for road users: drivers by preventing head-on collisions by vehicles leaving their driving lane, and cyclists by providing a designated bike lane.

Route 22 in Armonk: The intersection of Maple Avenue and Armonk-Bedford Road (Route 22) generates traffic congestion and backups during rush hour due to signal timing issues. A potential solution to this is the creation of two left turn lanes from Maple Avenue onto the eastbound lanes of Route 22.

Other Recommended Roadway and Intersection Improvements

Figure 6.9 identifies other locations Town-wide where road conditions need addressing. See Tables 6.4 and 6.5 for a list of roadways and intersections flagged for improvement, based on a review of outstanding items from the 1996 Comprehensive Plan and input from the Police Chief and highway foreman.

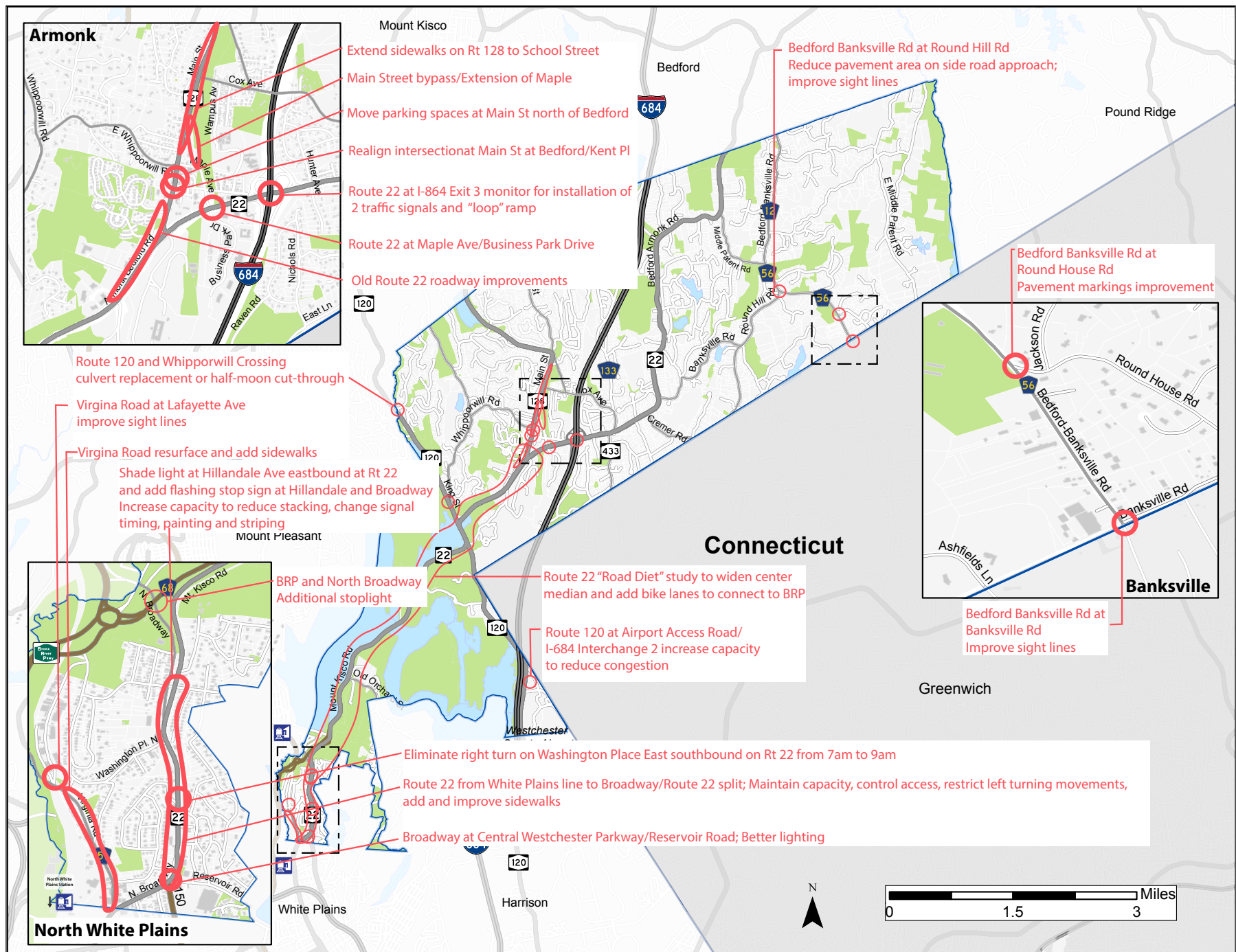


Figure 6.9 Existing Roadway Conditions

6. TRANSPORTATION

Table 6.4 Recommended Improvements: Roadways

Roadway Segment	Action
<i>North White Plains</i>	
Broadway (Route 22), between White Plains City line and Broadway/Route 22 split	Maintain capacity, control access, restrict left turning movement, improve sidewalks
Broadway/Route 22 split to Hillandale	Improvements to left turn lane, additional pedestrian crossing and demand actuated light south of Washington Place East
Virginia Road to Washington Avenue North	Add sidewalks to facilitate access to North White Plains station
Hamlet-wide	Add concrete curbing improvements where needed
<i>Armonk</i>	
School Street	Replace culvert, dredge Wampus Brook
Route 22, from Hillandale Avenue to Route 120	Study a possible road diet to reduce Route 22 to one lane in each direction, widen the center median and provide bike lanes.
Route 128 to School Street	Extend and improve sidewalks
<i>Eastern District</i>	
Hickory Kingdom Road, section east of Kingdom Ridge Road	Upgrade as needed and add curve sign
Middle Patent Rd, between Route 22 and Bedford-Banksville Road	Minor widening, clearing along edge of roadway; improve vertical alignment at intersection with Route 22 and elsewhere; improve alignment, pavement condition; upgrade drainage as needed
St. Mary's Church Rd	Improve road alignment, widen to provide two travel lanes; improve sight lines

6. TRANSPORTATION

Table 6.5 Recommended Improvements- Intersections

Roadway Segment	Action
<i>North White Plains</i>	
Broadway at Central Westchester Parkway/Reservoir Road	Better lighting
North Broadway (Route 22)	Increase capacity to reduce congestion
North Broadway at Bronx River Parkway	Additional stop light
Hillandale Avenue at Broadway and Route 22	Shade light at Hillandale Avenue eastbound at Route 22 and add flashing stop sign at Hillandale and Broadway
Virginia Road at Lafayette Avenue	Improve sight lines
<i>Armonk</i>	
Main St north of intersection with Bedford	Remove three on-street parking spaces
Bedford and Kent Place at Main Street	Realign
Whippoorwill Rd East and Main Street/Maple Avenue	Realign
Main Street Bypass (Maple Street extension)	Extend Maple Street north and reconnect to Main Street at a location to be determined (see Figure 6.11)
Banksville Road at Sniffen Road/Long Pond Road	Upgrade signs, pavement markings
High Street at Greenway Road	Improve sight lines
Route 22 at Maple Street	Add crosswalk on Route 22, double left turn lanes from Maple onto Route 22
Old Route 22	Implement NYCDEP streetscape and painting improvements
Route 120 at Route 22 (north and south intersections)	Realign intersections; add capacity
Route 120 at Whippoorwill Road	Realign side road approach to improve sight line
Route 120 at Whippoorwill Crossing	Either replace culvert or cut in a new road to eliminate half-moon
Route 120 at Airport Access Rd/I-684 Exit 2	Increase capacity to reduce congestion
Route 22 at I-684 Exit 3	Monitor for installation of 2 traffic signals and “loop” ramp to eliminate northbound left turn
<i>Eastern District</i>	
Bedford-Banksville Road at Round Hill Road	Reduce pavement area on side road approach; improve sight lines
Bedford-Banksville Road at Round House Road	Improve pavement markings
Bedford-Banksville Road at Banksville Avenue	Improve sight lines

6. TRANSPORTATION

6.3.2 PEDESTRIAN AND BICYCLE CIRCULATION

Sidewalks

Business Park

The Town should work with NYSDOT to connect Maple Avenue and Business Park Drive by adding a sidewalk to the west side of Maple Avenue and extending it across Route 22 with a crosswalk with a pedestrian signal. This would require an extension of sidewalks on Maple Avenue and Business Park Drive and the creation of double left turn lanes at the light, and widening Maple Avenue where it intersects with Route 22, creating space for a crosswalk on the west side of Maple Avenue. Pedestrians could share a signal phase with the left turn lanes, eliminating potential conflicts with turning vehicles.

Downtown Armonk

Sidewalks should be extended along the east side of Main Street to School Street, and along School Street to Wampus Avenue. This would improve pedestrian circulation to the Armonk business area as well as to the schools.

North White Plains

In addition to the pedestrian improvements along Route 22 identified above, the Town should proceed with planned sidewalk additions along Washington Avenue North and Virginia Road (working with the County as needed) to facilitate pedestrian access to the train station.

Bicycles

Downtown Armonk

The Town should revisit bike lane plans identified in the 2013 study, balancing the need to expand bicycle infrastructure with

parking. Along Main Street, bikes will need to be accommodated with share-the-road signage, rather than dedicated lanes, due to the need to preserve on-street parking (see Figure 6.10).

North White Plains

The Town should explore an extension of the Bronx River Pathway to Armonk via Route 22. This proposed pathway link could be implemented with a potential “road diet” on Route 22 north of Hillandale. Reducing this section of Route 22 to one lane in each direction could create enough room to expand the center median and create bike lanes in each direction to connect to the Bronx River Pathway (see Figure 6.6).

Park and Ride/Carpool Facility

The addition of a park-and-ride and/or carpool facility could be useful for North Castle residents using the North White Plains train station. The facility should be located in an existing and underutilized parking lot that is central and easily accessible from major roadways. Community Park has been identified as a potential location. A park-and-ride area could help reduce the parking issue at the North White Plains station, and could be especially useful to non-commuters who go into New York City after rush hour and are often unable to find parking at the lot.

Improved Bee Line service or the addition of a shuttle to the North White Plains station should be included with this recommendation (see below).

6.3.3 PUBLIC TRANSPORTATION

To improve bus connectivity between Armonk and the North White Plains train station, the Town should advocate with Westchester County to extend the Bee-Line’s Loop H of the Commuter Shuttle or Route 12 to connect with the station.

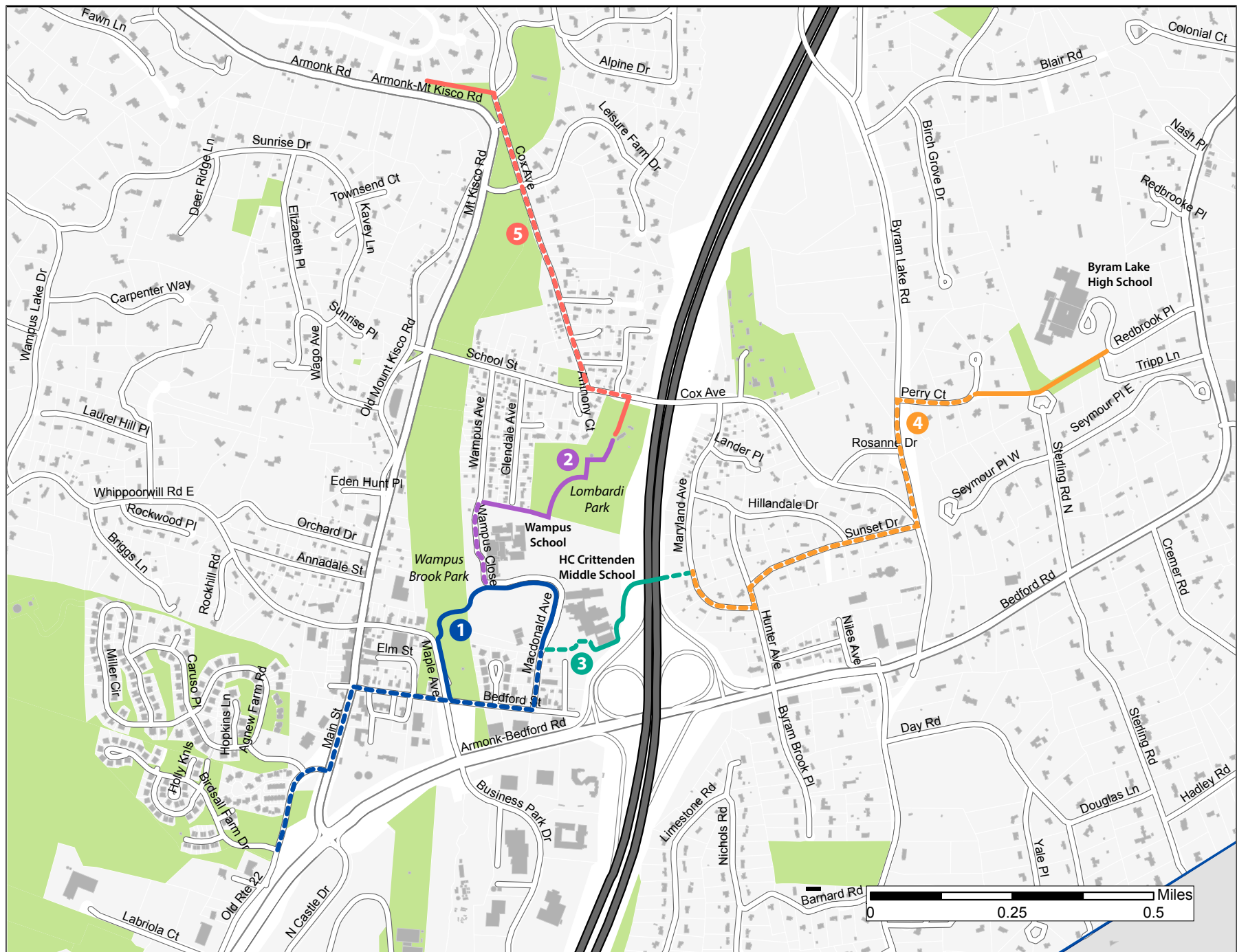


Figure 6.10 Proposed Local Bicycle Routes